

# Metallized Polypropylene DC-Link Film Capacitor Industrial Grade



## FEATURES

- High density DC-link capacitor (more C per volume)
- Very long useful life time: up to 100 000 h at  $U_{NDC}$  and 70 °C
- High ripple current capability, low ESR, low ESL
- Temperature range: 105 °C
- Mounting: radial
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
FREE

## APPLICATIONS

- Renewable energies inverters
- UPS
- Battery chargers
- Motor drives

## QUICK REFERENCE DATA

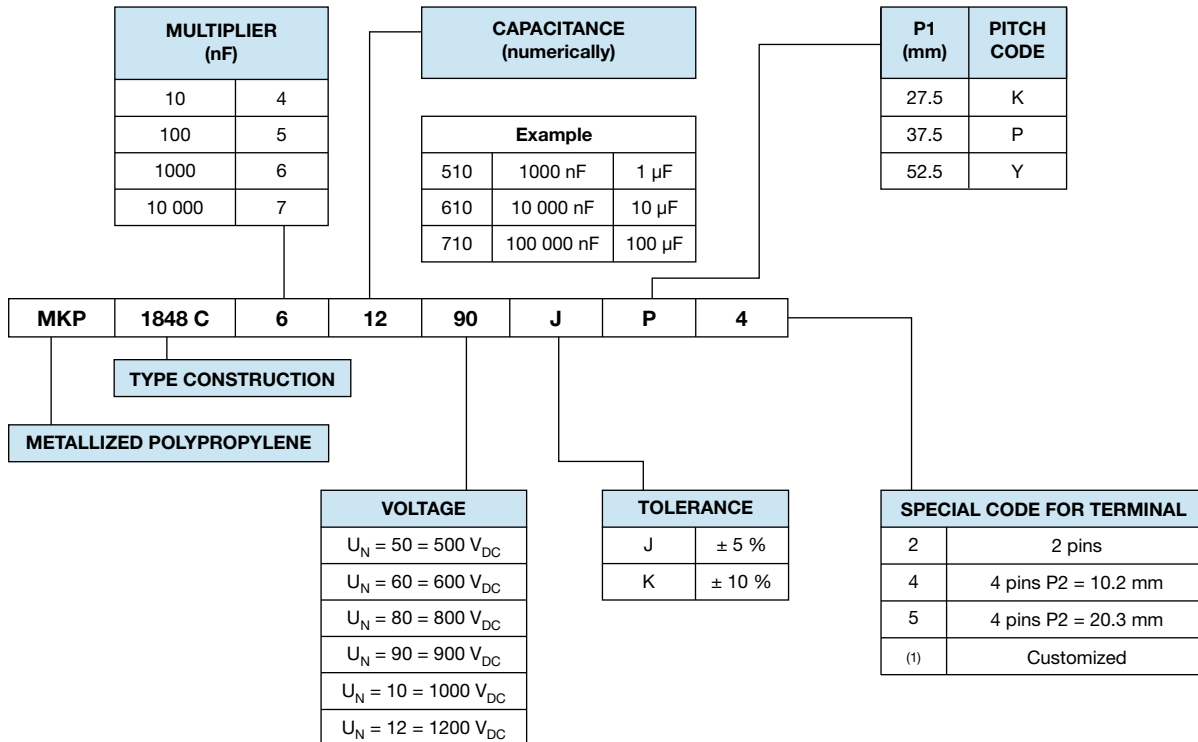
|                                                          |                                                                                                                                                                                    |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated capacitance range                                  | 1 µF to 500 µF                                                                                                                                                                     |
| Capacitance tolerance                                    | ± 5 %                                                                                                                                                                              |
| Climatic testing class                                   | 55/105/56                                                                                                                                                                          |
| Rated temperature                                        | 85 °C                                                                                                                                                                              |
| Maximum permissible case temperature                     | 105 °C, observing voltage derating                                                                                                                                                 |
| Maximum applicable peak to peak ripple voltage           | 0.2 x $U_{NDC}$                                                                                                                                                                    |
| Reference standards                                      | IEC 61071, IEC 60068                                                                                                                                                               |
| Dielectric                                               | Polypropylene film                                                                                                                                                                 |
| Electrodes                                               | Metallized dielectric capacitor                                                                                                                                                    |
| Construction                                             | Mono construction                                                                                                                                                                  |
| Encapsulation                                            | Plastic case sealed with resin; flame retardant                                                                                                                                    |
| Terminals                                                | Tinned wire                                                                                                                                                                        |
| Self inductance ( $L_s$ )                                | < 1 nH per mm of lead spacing                                                                                                                                                      |
| Withstanding DC voltage between terminals <sup>(1)</sup> | 1.5 $U_{NDC}$ for 10 s, cut off current 10 mA, rise time ≤ 1000 V/s                                                                                                                |
| Insulation resistance                                    | RC between leads, after 1 min > 10 000 s<br>For $U_{NDC} \leq 500$ V measuring voltage 100 V<br>For $U_{NDC} > 500$ V measuring voltage 500 V                                      |
| Life time expectancy <sup>(2)</sup>                      | Useful life time: > 100 000 h at $U_{NDC}$ and 70 °C<br>FIT: < 10 x 10 <sup>-9</sup> /h (10 per 10 <sup>9</sup> component h) at 0.5 x $U_{NDC}$ , 40 °C                            |
| Marking                                                  | C-value; tolerance; rated voltage; code for dielectric material; code for manufacturing origin; manufacturer's type designation; manufacturer's logo; year and week of manufacture |

## Notes

- For more detailed data and test requirements, contact [dc-film@vishay.com](mailto:dc-film@vishay.com)
- For general information like characteristics and definitions used for film capacitors follow the link: [www.vishay.com/doc?28147](http://www.vishay.com/doc?28147)
- <sup>(1)</sup> See document "Voltage Proof Test for Metallized Capacitors" ([www.vishay.com/doc?28169](http://www.vishay.com/doc?28169))
- <sup>(2)</sup> Statements about life time are based on calculations which are based on internal tests again. They have to be understood exclusively as estimations. Also due to external factors, the life time in the field application may deviate from the calculated life time

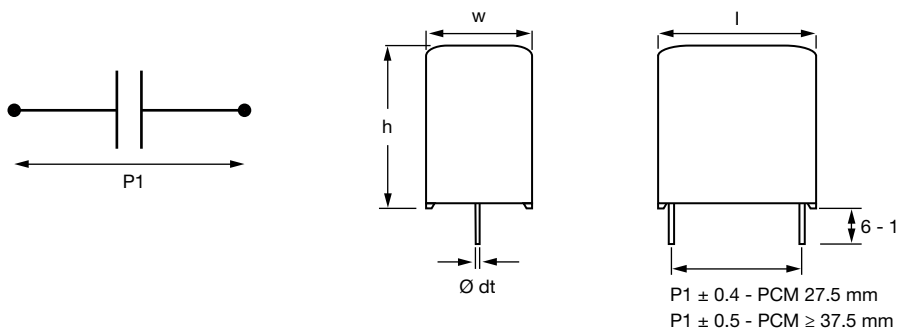
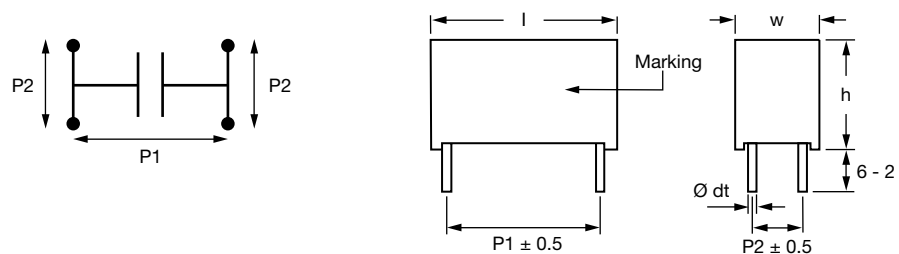
## DC VOLTAGE RATINGS

|                      |       |       |       |        |        |        |
|----------------------|-------|-------|-------|--------|--------|--------|
| $U_{NDC}$ at 85 °C   | 500 V | 600 V | 800 V | 900 V  | 1000 V | 1200 V |
| $U_{OPDC}$ at 70 °C  | 600 V | 720 V | 960 V | 1100 V | 1200 V | 1440 V |
| $U_{OPDC}$ at 105 °C | 350 V | 420 V | 560 V | 650 V  | 700 V  | 850 V  |

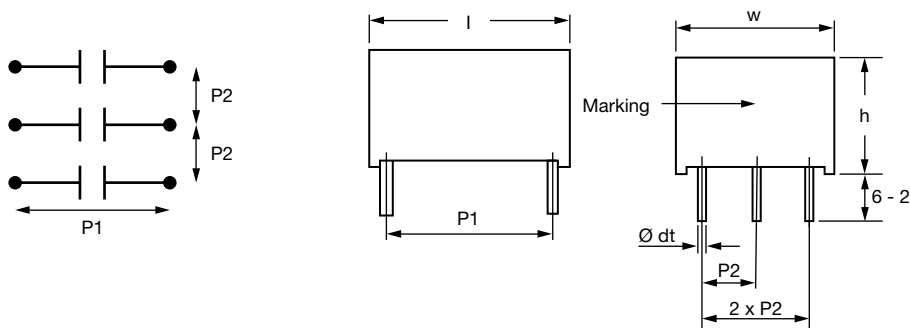
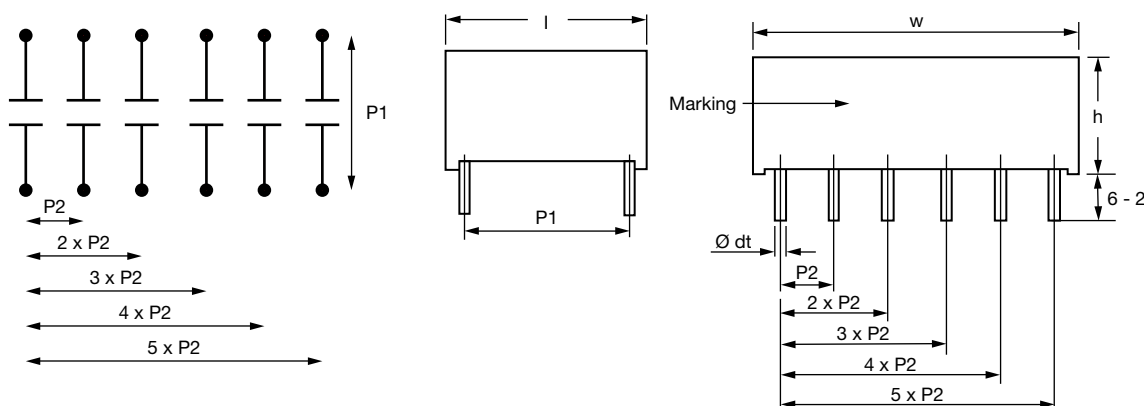
**COMPOSITION OF CATALOG NUMBER**

**Note**

(1) Tabs terminals or customized terminals are available on request

**DIMENSIONS** in millimeters

**2 PINS**

**4 PINS**


**DIMENSIONS** in millimeters

**6 PINS <sup>(1)</sup>**

**12 PINS <sup>(1)</sup>**

**Notes**

- $\varnothing dt \pm 10\%$  of standard diameter specified
  - For pitch 27.5 mm marking will be either on top or front side.
  - For pitch  $\geq 37.5$  mm marking will be on front side only / 6 pins and 12 pins lateral side
- <sup>(1)</sup> 6 pins and 12 pins capacitors nominal capacitance is achieved by connecting the represented individual cells in parallel

**ELECTRICAL DATA AND ORDERING CODE**

| U <sub>NDC</sub><br>AT<br>85 °C<br>(V) | CAP. <sup>(8)</sup><br>(μF)                                             | DIMENSION <sup>(5)</sup><br>(mm) |      |      | P1<br>(mm) | P2<br>(mm) | dV/dt<br>(V/μs) | I <sub>PEAK</sub><br>(A) | I <sub>RMS</sub> <sup>(2)</sup><br>(A) |           | ESR <sup>(3)</sup><br>(mΩ) |           | tan δ<br>10 kHz<br>( $< 10^{-4}$ ) <sup>(4)</sup> |                 | ORDERING CODE <sup>(1)</sup> |
|----------------------------------------|-------------------------------------------------------------------------|----------------------------------|------|------|------------|------------|-----------------|--------------------------|----------------------------------------|-----------|----------------------------|-----------|---------------------------------------------------|-----------------|------------------------------|
|                                        |                                                                         | w                                | h    | l    |            |            |                 |                          | 2<br>PINS                              | 4<br>PINS | 2<br>PINS                  | 4<br>PINS | 2<br>PINS                                         | 4<br>PINS       |                              |
|                                        |                                                                         |                                  |      |      |            |            |                 |                          |                                        |           |                            |           |                                                   |                 |                              |
| 500                                    | U <sub>OPDC</sub> AT 70 °C = 600 V, U <sub>OPDC</sub> AT 105 °C = 350 V |                                  |      |      |            |            |                 |                          |                                        |           |                            |           |                                                   |                 |                              |
|                                        | 1                                                                       | 9.0                              | 19.0 | 32.0 | 27.5       | -          | 40              | 40                       | 1.5                                    | -         | 90                         | -         | 110                                               | -               | MKP1848C51050JK2             |
|                                        | 2                                                                       | 9.0                              | 19.0 | 32.0 | 27.5       | -          | 40              | 80                       | 2                                      | -         | 45                         | -         | 110                                               | -               | MKP1848C52050JK2             |
|                                        | 3                                                                       | 9.0                              | 19.0 | 32.0 | 27.5       | -          | 40              | 120                      | 2.5                                    | -         | 30                         | -         | 110                                               | -               | MKP1848C53050JK2             |
|                                        | 4                                                                       | 11.0                             | 21.0 | 32.0 | 27.5       | -          | 40              | 160                      | 3.5                                    | -         | 23                         | -         | 110                                               | -               | MKP1848C54050JK2             |
|                                        | 5                                                                       | 11.0                             | 21.0 | 32.0 | 27.5       | -          | 40              | 200                      | 3.5                                    | -         | 18                         | -         | 110                                               | -               | MKP1848C55050JK2             |
|                                        | 6                                                                       | 15.0                             | 25.0 | 32.0 | 27.5       | -          | 40              | 240                      | 4.5                                    | -         | 15                         | -         | 110                                               | -               | MKP1848C56050JK2             |
|                                        | 7                                                                       | 15.0                             | 25.0 | 32.0 | 27.5       | -          | 40              | 280                      | 5                                      | -         | 13                         | -         | 110                                               | -               | MKP1848C57050JK2             |
|                                        | 8                                                                       | 15.0                             | 25.0 | 32.0 | 27.5       | -          | 40              | 320                      | 6                                      | -         | 12                         | -         | 110                                               | -               | MKP1848C58050JK2             |
|                                        | 9                                                                       | 18.0                             | 28.0 | 32.0 | 27.5       | -          | 40              | 360                      | 7                                      | -         | 11                         | -         | 110                                               | -               | MKP1848C59050JK2             |
|                                        | 10                                                                      | 18.0                             | 28.0 | 32.0 | 27.5       | -          | 40              | 400                      | 7                                      | -         | 10                         | -         | 110                                               | -               | MKP1848C61050JK2             |
|                                        | 12                                                                      | 18.0                             | 28.0 | 32.0 | 27.5       | -          | 40              | 480                      | 8                                      | -         | 8                          | -         | 110                                               | -               | MKP1848C61250JK2             |
|                                        | 15                                                                      | 21.0                             | 31.0 | 32.0 | 27.5       | -          | 40              | 600                      | 9                                      | -         | 7                          | -         | 110                                               | -               | MKP1848C61550JK2             |
|                                        | 18                                                                      | 20.0                             | 35.0 | 32.0 | 27.5       | -          | 40              | 720                      | 9                                      | -         | 6                          | -         | 110                                               | -               | MKP1848C61850JK2             |
| 20                                     | 18.5                                                                    | 35.5                             | 43.0 | 37.5 | 10.2       | 20         | 400             | 8                        | 9                                      | 9         | 8                          | 210       | 200                                               | MKP1848C62050JP |                              |



## ELECTRICAL DATA AND ORDERING CODE

| U <sub>ND</sub> C<br>AT<br>85 °C<br>(V) | CAP. <sup>(6)</sup><br>(μF)                                             | DIMENSION <sup>(5)</sup><br>(mm) |      |      | P1<br>(mm) | P2<br>(mm)  | dV/dt<br>(V/μs) | I <sub>PEAK</sub><br>(A) | I <sub>RMS</sub> <sup>(2)</sup><br>(A) |           | ESR <sup>(3)</sup><br>(mΩ) |           | tan δ<br>10 kHz<br>( $< 10^{-4}$ ) <sup>(4)</sup> |           | ORDERING CODE <sup>(1)</sup> |
|-----------------------------------------|-------------------------------------------------------------------------|----------------------------------|------|------|------------|-------------|-----------------|--------------------------|----------------------------------------|-----------|----------------------------|-----------|---------------------------------------------------|-----------|------------------------------|
|                                         |                                                                         | w                                | h    | l    |            |             |                 |                          | 2<br>PINS                              | 4<br>PINS | 2<br>PINS                  | 4<br>PINS | 2<br>PINS                                         | 4<br>PINS |                              |
|                                         |                                                                         |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |           |                              |
| 500                                     | U <sub>OPDC</sub> AT 70 °C = 600 V, U <sub>OPDC</sub> AT 105 °C = 350 V |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |           |                              |
|                                         | 22                                                                      | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 20              | 440                      | 9                                      | 10        | 9                          | 7         | 210                                               | 200       | MKP1848C62250JP*             |
|                                         | 25                                                                      | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 20              | 500                      | 9                                      | 10        | 8                          | 6         | 210                                               | 200       | MKP1848C62550JP*             |
|                                         | 30                                                                      | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 20              | 600                      | 11                                     | 13        | 7                          | 5         | 210                                               | 200       | MKP1848C63050JP*             |
|                                         | 35                                                                      | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 20              | 700                      | 12                                     | 14        | 6                          | 4.5       | 210                                               | 200       | MKP1848C63550JP              |
|                                         | 40                                                                      | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 20              | 800                      | 13                                     | 15        | 5                          | 4         | 210                                               | 200       | MKP1848C64050JP*             |
|                                         | 45                                                                      | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 20              | 900                      | 14                                     | 16        | 4.5                        | 3.5       | 210                                               | 200       | MKP1848C64550JP*             |
|                                         | 50                                                                      | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 20              | 1000                     | 15                                     | 17        | 4                          | 3         | 210                                               | 200       | MKP1848C65050JP*             |
|                                         | 55                                                                      | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 20              | 1100                     | 16                                     | 18        | 3.5                        | 3         | 210                                               | 200       | MKP1848C65550JP*             |
|                                         | 60                                                                      | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 20              | 1200                     | 16                                     | 18        | 3.5                        | 3         | 210                                               | 200       | MKP1848C66050JP*             |
|                                         | 65                                                                      | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 20              | 1300                     | 18                                     | 19        | 2.5                        | 2         | 210                                               | 200       | MKP1848C66550JP*             |
|                                         | 50                                                                      | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 10              | 500                      | 10                                     | 11        | 7                          | 6         | 450                                               | 400       | MKP1848C65050JY*             |
|                                         | 55                                                                      | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 10              | 550                      | 11                                     | 13        | 7                          | 6         | 450                                               | 400       | MKP1848C65550JY*             |
|                                         | 60                                                                      | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 10              | 600                      | 12                                     | 14        | 6                          | 5         | 450                                               | 400       | MKP1848C66050JY*             |
|                                         | 65                                                                      | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 10              | 650                      | 12                                     | 14        | 6                          | 5         | 450                                               | 400       | MKP1848C66550JY*             |
|                                         | 70                                                                      | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 10              | 700                      | 13                                     | 15        | 6                          | 5         | 450                                               | 400       | MKP1848C67050JY*             |
|                                         | 75                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 10              | 750                      | 14                                     | 16        | 5                          | 4         | 450                                               | 400       | MKP1848C67550JY*             |
|                                         | 80                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 10              | 800                      | 15                                     | 17        | 4.5                        | 3         | 450                                               | 400       | MKP1848C68050JY*             |
|                                         | 90                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 10              | 900                      | 16                                     | 18        | 4                          | 3         | 450                                               | 400       | MKP1848C69050JY*             |
|                                         | 100                                                                     | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 10              | 1000                     | 17                                     | 19        | 4                          | 3         | 450                                               | 400       | MKP1848C71050JY*             |
|                                         | 110                                                                     | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 10              | 1100                     | -                                      | 19        | -                          | 2.5       | -                                                 | 450       | MKP1848C71150JY5             |
|                                         | 120                                                                     | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 10              | 1200                     | -                                      | 19        | -                          | 2.5       | -                                                 | 450       | MKP1848C71250JY5             |
|                                         | 250 <sup>(6)</sup>                                                      | 65.5                             | 65.0 | 57.5 | 52.5       | 20.3        | 10              | 833                      | -                                      | 25        | -                          | 2         | -                                                 | 450       | MKP1848C72550JY5             |
|                                         | 500 <sup>(7)</sup>                                                      | 130.0                            | 65.0 | 57.5 | 52.5       | 20.3        | 10              | 833                      | -                                      | 45        | -                          | 1.5       | -                                                 | 500       | MKP1848C75050JY5             |
| 600                                     | U <sub>OPDC</sub> AT 70 °C = 720 V, U <sub>OPDC</sub> AT 105 °C = 420 V |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |           |                              |
|                                         | 1                                                                       | 9.0                              | 19.0 | 32.0 | 27.5       | -           | 50              | 50                       | 2.5                                    | -         | 55                         | -         | 85                                                | -         | MKP1848C51060JK2             |
|                                         | 2                                                                       | 9.0                              | 19.0 | 32.0 | 27.5       | -           | 50              | 100                      | 3                                      | -         | 35                         | -         | 85                                                | -         | MKP1848C52060JK2             |
|                                         | 3                                                                       | 11.0                             | 21.0 | 32.0 | 27.5       | -           | 50              | 150                      | 4                                      | -         | 23                         | -         | 85                                                | -         | MKP1848C53060JK2             |
|                                         | 4                                                                       | 11.0                             | 21.0 | 32.0 | 27.5       | -           | 50              | 200                      | 4                                      | -         | 21                         | -         | 85                                                | -         | MKP1848C54060JK2             |
|                                         | 5                                                                       | 13.0                             | 23.0 | 32.0 | 27.5       | -           | 50              | 250                      | 5                                      | -         | 17                         | -         | 85                                                | -         | MKP1848C55060JK2             |
|                                         | 6                                                                       | 15.0                             | 25.0 | 32.0 | 27.5       | -           | 50              | 300                      | 6                                      | -         | 14                         | -         | 85                                                | -         | MKP1848C56060JK2             |
|                                         | 7                                                                       | 15.0                             | 25.0 | 32.0 | 27.5       | -           | 50              | 350                      | 6                                      | -         | 12                         | -         | 85                                                | -         | MKP1848C57060JK2             |
|                                         | 8                                                                       | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 50              | 400                      | 8                                      | -         | 9                          | -         | 85                                                | -         | MKP1848C58060JK2             |
|                                         | 9                                                                       | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 50              | 450                      | 8                                      | -         | 9                          | -         | 85                                                | -         | MKP1848C59060JK2             |
|                                         | 10                                                                      | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 50              | 500                      | 9                                      | -         | 8                          | -         | 85                                                | -         | MKP1848C61060JK2             |
|                                         | 12                                                                      | 21.0                             | 31.0 | 32.0 | 27.5       | -           | 50              | 600                      | 10                                     | -         | 7                          | -         | 85                                                | -         | MKP1848C61260JK2             |
|                                         | 15                                                                      | 20.0                             | 35.0 | 32.0 | 27.5       | -           | 50              | 750                      | 10                                     | -         | 6                          | -         | 85                                                | -         | MKP1848C61560JK2             |
|                                         | 10                                                                      | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 25              | 250                      | 7                                      | 8         | 14                         | 12        | 160                                               | 140       | MKP1848C61060JP*             |
|                                         | 12                                                                      | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 25              | 300                      | 8                                      | 9         | 12                         | 10        | 160                                               | 140       | MKP1848C61260JP*             |
|                                         | 15                                                                      | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 25              | 375                      | 9                                      | 10        | 9                          | 8         | 160                                               | 140       | MKP1848C61560JP*             |
|                                         | 20                                                                      | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 25              | 500                      | 11                                     | 12        | 7                          | 6         | 160                                               | 140       | MKP1848C62060JP*             |
|                                         | 22                                                                      | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 25              | 550                      | 11                                     | 12        | 8                          | 7         | 160                                               | 140       | MKP1848C62260JP*             |
|                                         | 25                                                                      | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 25              | 625                      | 11                                     | 13        | 7                          | 6         | 160                                               | 140       | MKP1848C62560JP*             |
|                                         | 30                                                                      | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 25              | 750                      | 13                                     | 15        | 6                          | 5         | 160                                               | 140       | MKP1848C63060JP*             |
|                                         | 35                                                                      | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 25              | 875                      | 17                                     | 18        | 4                          | 3.5       | 160                                               | 140       | MKP1848C63560JP*             |
|                                         | 40                                                                      | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 25              | 1000                     | 17                                     | 18        | 4                          | 3.5       | 160                                               | 140       | MKP1848C64060JP*             |
|                                         | 45                                                                      | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 25              | 1125                     | 17                                     | 18        | 4                          | 3.5       | 160                                               | 140       | MKP1848C64560JP*             |
|                                         | 50                                                                      | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 25              | 1250                     | 18                                     | 19        | 3.0                        | 2.5       | 160                                               | 140       | MKP1848C65060JP*             |



## ELECTRICAL DATA AND ORDERING CODE

| U <sub>NDC</sub><br>AT<br>85 °C<br>(V) | CAP. <sup>(6)</sup><br>(μF)                                             | DIMENSION <sup>(5)</sup><br>(mm) |      |      | P1<br>(mm) | P2<br>(mm)  | dV/dt<br>(V/μs) | I <sub>PEAK</sub><br>(A) | I <sub>RMS</sub> <sup>(2)</sup><br>(A) |           | ESR <sup>(3)</sup><br>(mΩ) |           | tan δ<br>10 kHz<br>( $< 10^{-4}$ ) <sup>(4)</sup> |                  | ORDERING CODE <sup>(1)</sup> |
|----------------------------------------|-------------------------------------------------------------------------|----------------------------------|------|------|------------|-------------|-----------------|--------------------------|----------------------------------------|-----------|----------------------------|-----------|---------------------------------------------------|------------------|------------------------------|
|                                        |                                                                         | w                                | h    | l    |            |             |                 |                          | 2<br>PINS                              | 4<br>PINS | 2<br>PINS                  | 4<br>PINS | 2<br>PINS                                         | 4<br>PINS        |                              |
|                                        |                                                                         |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |                  |                              |
| 600                                    | U <sub>OPDC</sub> AT 70 °C = 720 V, U <sub>OPDC</sub> AT 105 °C = 420 V |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |                  |                              |
|                                        | 40                                                                      | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 14              | 560                      | 13                                     | 14        | 7                          | 6         | 350                                               | 300              | MKP1848C64060JY*             |
|                                        | 45                                                                      | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 14              | 630                      | 13                                     | 14        | 7                          | 6         | 350                                               | 300              | MKP1848C64560JY*             |
|                                        | 50                                                                      | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 14              | 700                      | 15                                     | 16        | 6                          | 5         | 350                                               | 300              | MKP1848C65060JY*             |
|                                        | 55                                                                      | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 14              | 770                      | 15                                     | 16        | 6                          | 5         | 350                                               | 300              | MKP1848C65560JY*             |
|                                        | 60                                                                      | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 14              | 840                      | 15                                     | 17        | 5                          | 4         | 350                                               | 300              | MKP1848C66060JY*             |
|                                        | 65                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 14              | 910                      | 18                                     | 20        | 4                          | 3.5       | 350                                               | 300              | MKP1848C66560JY*             |
|                                        | 70                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 14              | 980                      | 18                                     | 20        | 4.5                        | 4         | 350                                               | 300              | MKP1848C67060JY*             |
|                                        | 75                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 14              | 1050                     | 18                                     | 21        | 4                          | 3.5       | 350                                               | 300              | MKP1848C67560JY*             |
|                                        | 80                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 14              | 1120                     | 18                                     | 21        | 4                          | 3.5       | 350                                               | 300              | MKP1848C68060JY*             |
|                                        | 90                                                                      | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 14              | 1260                     | -                                      | 22        | -                          | 3         | -                                                 | 300              | MKP1848C69060JY5             |
|                                        | 100                                                                     | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 14              | 1400                     | -                                      | 23        | -                          | 2.5       | -                                                 | 300              | MKP1848C71060JY5             |
| 200 <sup>(6)</sup>                     | 65.5                                                                    | 65.0                             | 57.5 | 52.5 | 20.3       | 14          | 933             | -                        | 30                                     | -         | 2                          | -         | 350                                               | MKP1848C72060JY5 |                              |
| 400 <sup>(7)</sup>                     | 130.0                                                                   | 65.0                             | 57.5 | 52.5 | 20.3       | 14          | 933             | -                        | 50                                     | -         | 1.5                        | -         | 400                                               | MKP1848C74060JY5 |                              |
| 800                                    | U <sub>OPDC</sub> AT 70 °C = 960 V, U <sub>OPDC</sub> AT 105 °C = 560 V |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |                  |                              |
|                                        | 1                                                                       | 9.0                              | 19.0 | 32.0 | 27.5       | -           | 60              | 60                       | 2.5                                    | -         | 55                         | -         | 70                                                | -                | MKP1848C51080JK2             |
|                                        | 2                                                                       | 9.0                              | 19.0 | 32.0 | 27.5       | -           | 60              | 120                      | 3                                      | -         | 35                         | -         | 70                                                | -                | MKP1848C52080JK2             |
|                                        | 3                                                                       | 11.0                             | 21.0 | 32.0 | 27.5       | -           | 60              | 180                      | 4                                      | -         | 23                         | -         | 70                                                | -                | MKP1848C53080JK2             |
|                                        | 4                                                                       | 13.0                             | 23.0 | 32.0 | 27.5       | -           | 60              | 240                      | 5                                      | -         | 17                         | -         | 70                                                | -                | MKP1848C54080JK2             |
|                                        | 5                                                                       | 15.0                             | 25.0 | 32.0 | 27.5       | -           | 60              | 300                      | 6                                      | -         | 14                         | -         | 70                                                | -                | MKP1848C55080JK2             |
|                                        | 6                                                                       | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 60              | 360                      | 7                                      | -         | 12                         | -         | 70                                                | -                | MKP1848C56080JK2             |
|                                        | 7                                                                       | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 60              | 420                      | 8                                      | -         | 10                         | -         | 70                                                | -                | MKP1848C57080JK2             |
|                                        | 8                                                                       | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 60              | 480                      | 8                                      | -         | 9                          | -         | 70                                                | -                | MKP1848C58080JK2             |
|                                        | 9                                                                       | 21.0                             | 31.0 | 32.0 | 27.5       | -           | 60              | 540                      | 10                                     | -         | 7.5                        | -         | 70                                                | -                | MKP1848C59080JK2             |
|                                        | 10                                                                      | 21.0                             | 31.0 | 32.0 | 27.5       | -           | 60              | 600                      | 10                                     | -         | 7                          | -         | 70                                                | -                | MKP1848C61080JK2             |
|                                        | 12                                                                      | 20.0                             | 35.0 | 32.0 | 27.5       | -           | 60              | 720                      | 11                                     | -         | 6                          | -         | 70                                                | -                | MKP1848C61280JK2             |
|                                        | 10                                                                      | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 350                      | 7                                      | 8         | 14                         | 12        | 140                                               | 120              | MKP1848C61080JP*             |
|                                        | 12                                                                      | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 420                      | 8                                      | 9         | 12                         | 10        | 140                                               | 120              | MKP1848C61280JP*             |
|                                        | 15                                                                      | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 525                      | 9                                      | 10        | 9                          | 8         | 140                                               | 120              | MKP1848C61580JP*             |
|                                        | 20                                                                      | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 35              | 700                      | 11                                     | 12        | 7                          | 6         | 140                                               | 120              | MKP1848C62080JP*             |
|                                        | 22                                                                      | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 35              | 770                      | 13                                     | 14        | 6                          | 5         | 140                                               | 120              | MKP1848C62280JP*             |
|                                        | 25                                                                      | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 35              | 875                      | 13                                     | 14        | 6                          | 5         | 140                                               | 120              | MKP1848C62580JP*             |
|                                        | 30                                                                      | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 35              | 1050                     | 16                                     | 17        | 5                          | 4         | 140                                               | 120              | MKP1848C63080JP*             |
|                                        | 35                                                                      | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 35              | 1225                     | 17                                     | 18        | 4                          | 3.5       | 140                                               | 120              | MKP1848C63580JP*             |
|                                        | 40                                                                      | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 35              | 1400                     | 18                                     | 19        | 3                          | 2.5       | 140                                               | 120              | MKP1848C64080JP*             |
|                                        | 30                                                                      | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 18              | 540                      | 11                                     | 12        | 9                          | 8         | 280                                               | 240              | MKP1848C63080JY*             |
|                                        | 35                                                                      | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 18              | 630                      | 12                                     | 13        | 8                          | 7         | 280                                               | 240              | MKP1848C63580JY*             |
|                                        | 40                                                                      | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 18              | 720                      | 13                                     | 14        | 7                          | 6         | 280                                               | 240              | MKP1848C64080JY*             |
|                                        | 45                                                                      | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 810                      | 14                                     | 15        | 6                          | 5         | 280                                               | 240              | MKP1848C64580JY*             |
|                                        | 50                                                                      | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 900                      | 15                                     | 16        | 6                          | 5         | 280                                               | 240              | MKP1848C65080JY*             |
|                                        | 55                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 18              | 990                      | 17                                     | 18        | 5                          | 4         | 280                                               | 240              | MKP1848C65580JY*             |
|                                        | 60                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 18              | 1080                     | 18                                     | 19        | 5                          | 4         | 280                                               | 240              | MKP1848C66080JY*             |
|                                        | 65                                                                      | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 18              | 1170                     | 19                                     | 20        | 4                          | 3.5       | 280                                               | 240              | MKP1848C66580JY*             |
|                                        | 70                                                                      | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 1260                     | -                                      | 20        | -                          | 3.5       | -                                                 | 240              | MKP1848C67080JY5             |
|                                        | 75                                                                      | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 1350                     | -                                      | 22        | -                          | 3         | -                                                 | 240              | MKP1848C67580JY5             |
|                                        | 80                                                                      | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 1440                     | -                                      | 22        | -                          | 3         | -                                                 | 240              | MKP1848C68080JY5             |
|                                        | 160 <sup>(6)</sup>                                                      | 65.5                             | 65.0 | 57.5 | 52.5       | 20.3        | 18              | 960                      | -                                      | 30        | -                          | 2.5       | -                                                 | 280              | MKP1848C71680JY5             |
|                                        | 320 <sup>(7)</sup>                                                      | 130.0                            | 65.0 | 57.5 | 52.5       | 20.3        | 18              | 960                      | -                                      | 55        | -                          | 1.5       | -                                                 | 280              | MKP1848C73280JY5             |



## ELECTRICAL DATA AND ORDERING CODE

| U <sub>NDC</sub><br>AT<br>85 °C<br>(V)                                   | CAP. <sup>(6)</sup><br>(μF) | DIMENSION <sup>(5)</sup><br>(mm) |      |      | P1<br>(mm) | P2<br>(mm)  | dV/dt<br>(V/μs) | I <sub>PEAK</sub><br>(A) | I <sub>RMS</sub> <sup>(2)</sup><br>(A) |           | ESR <sup>(3)</sup><br>(mΩ) |           | tan δ<br>10 kHz<br>( $< 10^{-4}$ ) <sup>(4)</sup> |           | ORDERING CODE <sup>(1)</sup> |
|--------------------------------------------------------------------------|-----------------------------|----------------------------------|------|------|------------|-------------|-----------------|--------------------------|----------------------------------------|-----------|----------------------------|-----------|---------------------------------------------------|-----------|------------------------------|
|                                                                          |                             | w                                | h    | l    |            |             |                 |                          | 2<br>PINS                              | 4<br>PINS | 2<br>PINS                  | 4<br>PINS | 2<br>PINS                                         | 4<br>PINS |                              |
|                                                                          |                             |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |           |                              |
| U <sub>OPDC</sub> AT 70 °C = 1100 V, U <sub>OPDC</sub> AT 105 °C = 650 V |                             |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |           |                              |
| 900                                                                      | 1                           | 9.0                              | 19.0 | 32.0 | 27.5       | -           | 65              | 65                       | 2                                      | -         | 65                         | -         | 60                                                | -         | MKP1848C51090JK2             |
|                                                                          | 2                           | 11.0                             | 21.0 | 32.0 | 27.5       | -           | 65              | 130                      | 3                                      | -         | 30                         | -         | 60                                                | -         | MKP1848C52090JK2             |
|                                                                          | 3                           | 13.0                             | 23.0 | 32.0 | 27.5       | -           | 65              | 195                      | 4                                      | -         | 20                         | -         | 60                                                | -         | MKP1848C53090JK2             |
|                                                                          | 4                           | 15.0                             | 25.0 | 32.0 | 27.5       | -           | 65              | 260                      | 5                                      | -         | 16                         | -         | 60                                                | -         | MKP1848C54090JK2             |
|                                                                          | 5                           | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 65              | 325                      | 7                                      | -         | 13                         | -         | 60                                                | -         | MKP1848C55090JK2             |
|                                                                          | 6                           | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 65              | 390                      | 7                                      | -         | 11                         | -         | 60                                                | -         | MKP1848C56090JK2             |
|                                                                          | 7                           | 21.0                             | 31.0 | 32.0 | 27.5       | -           | 65              | 455                      | 9                                      | -         | 9                          | -         | 60                                                | -         | MKP1848C57090JK2             |
|                                                                          | 8                           | 21.0                             | 31.0 | 32.0 | 27.5       | -           | 65              | 520                      | 9                                      | -         | 8                          | -         | 60                                                | -         | MKP1848C58090JK2             |
|                                                                          | 9                           | 20.0                             | 35.0 | 32.0 | 27.5       | -           | 65              | 585                      | 9                                      | -         | 7                          | -         | 60                                                | -         | MKP1848C59090JK2             |
|                                                                          | 10                          | 20.0                             | 35.0 | 32.0 | 27.5       | -           | 65              | 650                      | 9                                      | -         | 7                          | -         | 60                                                | -         | MKP1848C61090KK2             |
|                                                                          | 9                           | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 315                      | 8                                      | 9         | 14                         | 12        | 120                                               | 110       | MKP1848C59090JP*             |
|                                                                          | 10                          | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 350                      | 8                                      | 9         | 13                         | 11        | 120                                               | 110       | MKP1848C61090JP*             |
|                                                                          | 12                          | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 420                      | 8                                      | 9         | 11                         | 9         | 120                                               | 110       | MKP1848C61290JP*             |
|                                                                          | 15                          | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 35              | 525                      | 10                                     | 11        | 9                          | 8         | 120                                               | 110       | MKP1848C61590JP*             |
|                                                                          | 20                          | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 35              | 700                      | 13                                     | 14        | 6                          | 5         | 120                                               | 110       | MKP1848C62090JP*             |
|                                                                          | 22                          | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 35              | 770                      | 14                                     | 15        | 6                          | 5         | 120                                               | 110       | MKP1848C62290JP*             |
|                                                                          | 25                          | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 35              | 875                      | 15                                     | 16        | 5                          | 4.5       | 120                                               | 110       | MKP1848C62590JP*             |
|                                                                          | 30                          | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 35              | 1050                     | 17                                     | 18        | 4.5                        | 4         | 120                                               | 110       | MKP1848C63090JP*             |
|                                                                          | 35                          | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 35              | 1225                     | 18                                     | 19        | 3.5                        | 3         | 120                                               | 110       | MKP1848C63590JP*             |
|                                                                          | 30                          | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 18              | 540                      | 12                                     | 13        | 8                          | 7         | 240                                               | 220       | MKP1848C63090JY*             |
|                                                                          | 35                          | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 630                      | 13                                     | 14        | 7                          | 6         | 240                                               | 220       | MKP1848C63590JY*             |
|                                                                          | 40                          | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 720                      | 14                                     | 15        | 6                          | 5         | 240                                               | 220       | MKP1848C64090JY*             |
|                                                                          | 45                          | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 18              | 810                      | 16                                     | 17        | 6                          | 5         | 240                                               | 220       | MKP1848C64590JY*             |
|                                                                          | 50                          | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 18              | 900                      | 17                                     | 18        | 5                          | 4.5       | 240                                               | 220       | MKP1848C65090JY*             |
|                                                                          | 55                          | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 990                      | -                                      | 19        | -                          | 4         | -                                                 | 220       | MKP1848C65590JY5             |
|                                                                          | 60                          | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 1080                     | -                                      | 20        | -                          | 3.5       | -                                                 | 220       | MKP1848C66090JY5             |
|                                                                          | 120 <sup>(6)</sup>          | 65.5                             | 65.0 | 57.5 | 52.5       | 20.3        | 18              | 720                      | -                                      | 25        | -                          | 3         | -                                                 | 240       | MKP1848C71290JY5             |
|                                                                          | 240 <sup>(7)</sup>          | 130.0                            | 65.0 | 57.5 | 52.5       | 20.3        | 18              | 720                      | -                                      | 45        | -                          | 1.5       | -                                                 | 240       | MKP1848C72490JY5             |
| U <sub>OPDC</sub> AT 70 °C = 1200 V, U <sub>OPDC</sub> AT 105 °C = 700 V |                             |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |           |                              |
| 1000                                                                     | 1                           | 9.0                              | 19.0 | 32.0 | 27.5       | -           | 70              | 70                       | 2                                      | -         | 65                         | -         | 50                                                | -         | MKP1848C51010JK2             |
|                                                                          | 2                           | 13.0                             | 23.0 | 32.0 | 27.5       | -           | 70              | 140                      | 3.5                                    | -         | 30                         | -         | 50                                                | -         | MKP1848C52010JK2             |
|                                                                          | 3                           | 15.0                             | 25.0 | 32.0 | 27.5       | -           | 70              | 210                      | 5                                      | -         | 21                         | -         | 50                                                | -         | MKP1848C53010JK2             |
|                                                                          | 4                           | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 70              | 280                      | 6                                      | -         | 16                         | -         | 50                                                | -         | MKP1848C54010JK2             |
|                                                                          | 5                           | 21.0                             | 31.0 | 32.0 | 27.5       | -           | 70              | 350                      | 7                                      | -         | 13                         | -         | 50                                                | -         | MKP1848C55010JK2             |
|                                                                          | 6                           | 21.0                             | 31.0 | 32.0 | 27.5       | -           | 70              | 420                      | 8                                      | -         | 10                         | -         | 50                                                | -         | MKP1848C56010JK2             |
|                                                                          | 7                           | 20.0                             | 35.0 | 32.0 | 27.5       | -           | 70              | 490                      | 9                                      | -         | 9                          | -         | 50                                                | -         | MKP1848C57010JK2             |
|                                                                          | 5                           | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 175                      | 6                                      | 7         | 21                         | 19        | 100                                               | 90        | MKP1848C55010JP*             |
|                                                                          | 6                           | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 210                      | 6                                      | 7         | 18                         | 16        | 100                                               | 90        | MKP1848C56010JP*             |
|                                                                          | 7                           | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 245                      | 6                                      | 7         | 18                         | 16        | 100                                               | 90        | MKP1848C57010JP*             |
|                                                                          | 8                           | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 280                      | 7                                      | 8         | 16                         | 14        | 100                                               | 90        | MKP1848C58010JP*             |
|                                                                          | 9                           | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 35              | 315                      | 7                                      | 8         | 14                         | 12        | 100                                               | 90        | MKP1848C59010JP*             |
|                                                                          | 10                          | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 35              | 350                      | 8                                      | 9         | 12                         | 11        | 100                                               | 90        | MKP1848C61010JP*             |
|                                                                          | 12                          | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 35              | 420                      | 9                                      | 10        | 10                         | 9         | 100                                               | 90        | MKP1848C61210JP*             |
|                                                                          | 15                          | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 35              | 525                      | 11                                     | 12        | 8                          | 7         | 100                                               | 90        | MKP1848C61510JP*             |
|                                                                          | 20                          | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 35              | 700                      | 14                                     | 15        | 6                          | 5         | 100                                               | 90        | MKP1848C62010JP*             |
|                                                                          | 22                          | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 35              | 770                      | 14                                     | 15        | 6                          | 5         | 100                                               | 90        | MKP1848C62210JP*             |
|                                                                          | 25                          | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 35              | 875                      | 16                                     | 17        | 4                          | 3.5       | 100                                               | 90        | MKP1848C62510JP*             |



## ELECTRICAL DATA AND ORDERING CODE

| U <sub>ND</sub> C<br>AT<br>85 °C<br>(V) | CAP. <sup>(6)</sup><br>(μF)                                              | DIMENSION <sup>(5)</sup><br>(mm) |      |      | P1<br>(mm) | P2<br>(mm)  | dV/dt<br>(V/μs) | I <sub>PEAK</sub><br>(A) | I <sub>RMS</sub> <sup>(2)</sup><br>(A) |           | ESR <sup>(3)</sup><br>(mΩ) |           | tan δ<br>10 kHz<br>( $< 10^{-4}$ ) <sup>(4)</sup> |                  | ORDERING CODE <sup>(1)</sup> |
|-----------------------------------------|--------------------------------------------------------------------------|----------------------------------|------|------|------------|-------------|-----------------|--------------------------|----------------------------------------|-----------|----------------------------|-----------|---------------------------------------------------|------------------|------------------------------|
|                                         |                                                                          | w                                | h    | l    |            |             |                 |                          | 2<br>PINS                              | 4<br>PINS | 2<br>PINS                  | 4<br>PINS | 2<br>PINS                                         | 4<br>PINS        |                              |
|                                         |                                                                          |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |                  |                              |
| 1000                                    | U <sub>OPDC</sub> AT 70 °C = 1200 V, U <sub>OPDC</sub> AT 105 °C = 700 V |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |                  |                              |
|                                         | 15                                                                       | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 18              | 270                      | 9                                      | 10        | 14                         | 12        | 210                                               | 190              | MKP1848C61510JY*             |
|                                         | 20                                                                       | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 18              | 360                      | 9                                      | 10        | 12                         | 11        | 210                                               | 190              | MKP1848C62010JY*             |
|                                         | 22                                                                       | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 18              | 396                      | 10                                     | 11        | 11                         | 10        | 210                                               | 190              | MKP1848C62210JY*             |
|                                         | 25                                                                       | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 450                      | 11                                     | 12        | 10                         | 9         | 210                                               | 190              | MKP1848C62510JY*             |
|                                         | 30                                                                       | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 540                      | 12                                     | 13        | 8                          | 7         | 210                                               | 190              | MKP1848C63010JY*             |
|                                         | 35                                                                       | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 18              | 630                      | 14                                     | 15        | 7                          | 6         | 210                                               | 190              | MKP1848C63510JY*             |
|                                         | 40                                                                       | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 18              | 720                      | 15                                     | 17        | 6                          | 5         | 210                                               | 190              | MKP1848C64010JY*             |
|                                         | 45                                                                       | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 810                      | -                                      | 17        | -                          | 5         | -                                                 | 190              | MKP1848C64510JY5             |
|                                         | 50                                                                       | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 18              | 900                      | -                                      | 18        | -                          | 4         | -                                                 | 190              | MKP1848C65010JY5             |
|                                         | 100 <sup>(6)</sup>                                                       | 65.5                             | 65.0 | 57.5 | 52.5       | 20.3        | 18              | 600                      | -                                      | 25        | -                          | 3.5       | -                                                 | 210              | MKP1848C71010JY5             |
| 200 <sup>(7)</sup>                      | 130.0                                                                    | 65.0                             | 57.5 | 52.5 | 20.3       | 18          | 600             | -                        | 45                                     | -         | 1.5                        | -         | 210                                               | MKP1848C72010JY5 |                              |
| 1200                                    | U <sub>OPDC</sub> AT 70 °C = 1440 V, U <sub>OPDC</sub> AT 105 °C = 850 V |                                  |      |      |            |             |                 |                          |                                        |           |                            |           |                                                   |                  |                              |
|                                         | 1                                                                        | 11.0                             | 21.0 | 32.0 | 27.5       | -           | 85              | 85                       | 3                                      | -         | 45                         | -         | 45                                                | -                | MKP1848C51012JK2             |
|                                         | 2                                                                        | 15.0                             | 25.0 | 32.0 | 27.5       | -           | 85              | 170                      | 4                                      | -         | 23                         | -         | 45                                                | -                | MKP1848C52012JK2             |
|                                         | 3                                                                        | 18.0                             | 28.0 | 32.0 | 27.5       | -           | 85              | 255                      | 6                                      | -         | 15                         | -         | 45                                                | -                | MKP1848C53012JK2             |
|                                         | 4                                                                        | 21.0                             | 31.0 | 32.0 | 27.5       | -           | 85              | 340                      | 8                                      | -         | 12                         | -         | 45                                                | -                | MKP1848C54012JK2             |
|                                         | 5                                                                        | 20.0                             | 35.0 | 32.0 | 27.5       | -           | 85              | 425                      | 8                                      | -         | 10                         | -         | 45                                                | -                | MKP1848C55012JK2             |
|                                         | 5                                                                        | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 40              | 200                      | 6                                      | 7         | 18                         | 16        | 90                                                | 80               | MKP1848C55012JP*             |
|                                         | 6                                                                        | 18.5                             | 35.5 | 43.0 | 37.5       | 10.2        | 40              | 240                      | 7                                      | 8         | 15                         | 14        | 90                                                | 80               | MKP1848C56012JP*             |
|                                         | 7                                                                        | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 40              | 280                      | 8                                      | 9         | 13                         | 12        | 90                                                | 80               | MKP1848C57012JP*             |
|                                         | 8                                                                        | 21.5                             | 38.5 | 42.0 | 37.5       | 10.2        | 40              | 320                      | 9                                      | 10        | 11                         | 10        | 90                                                | 80               | MKP1848C58012JP*             |
|                                         | 9                                                                        | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 40              | 360                      | 10                                     | 11        | 10                         | 9         | 90                                                | 80               | MKP1848C59012JP*             |
|                                         | 10                                                                       | 24.0                             | 44.0 | 42.0 | 37.5       | 10.2        | 40              | 400                      | 10                                     | 11        | 9                          | 8         | 90                                                | 80               | MKP1848C61012JP*             |
|                                         | 12                                                                       | 30.0                             | 45.0 | 42.0 | 37.5       | 10.2 / 20.3 | 40              | 480                      | 12                                     | 13        | 8                          | 7         | 90                                                | 80               | MKP1848C61212JP*             |
|                                         | 15                                                                       | 30.0                             | 57.0 | 42.0 | 37.5       | 20.3        | 40              | 600                      | 14                                     | 14        | 6                          | 5         | 90                                                | 80               | MKP1848C61512JP*             |
|                                         | 10                                                                       | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 20              | 200                      | 8                                      | 9         | 18                         | 16        | 180                                               | 160              | MKP1848C61012JY*             |
|                                         | 12                                                                       | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 20              | 240                      | 8                                      | 9         | 15                         | 13        | 180                                               | 160              | MKP1848C61212JY*             |
|                                         | 15                                                                       | 25.0                             | 45.0 | 57.5 | 52.5       | 10.2        | 20              | 300                      | 9                                      | 10        | 12                         | 11        | 180                                               | 160              | MKP1848C61512JY*             |
|                                         | 20                                                                       | 30.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 20              | 400                      | 11                                     | 12        | 9                          | 8         | 180                                               | 160              | MKP1848C62012JY*             |
|                                         | 22                                                                       | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 20              | 440                      | 13                                     | 14        | 8                          | 7         | 180                                               | 160              | MKP1848C62212JY*             |
|                                         | 25                                                                       | 35.0                             | 50.0 | 57.5 | 52.5       | 20.3        | 20              | 500                      | 14                                     | 15        | 7                          | 6         | 180                                               | 160              | MKP1848C62512JY*             |
|                                         | 30                                                                       | 45.0                             | 45.0 | 57.5 | 52.5       | 20.3        | 20              | 600                      | -                                      | 16        | -                          | 5         | -                                                 | 160              | MKP1848C63012JY5             |
|                                         | 60 <sup>(6)</sup>                                                        | 65.5                             | 65   | 57.5 | 52.5       | 20.3        | 20              | 400                      | -                                      | 40        | -                          | 2.5       | -                                                 | 180              | MKP1848C66012JY5             |
|                                         | 65 <sup>(6)</sup>                                                        | 65.5                             | 65   | 57.5 | 52.5       | 20.3        | 20              | 433                      | -                                      | 40        | -                          | 2         | -                                                 | 180              | MKP1848C66512JY5             |
|                                         | 140 <sup>(7)</sup>                                                       | 130.0                            | 65   | 57.5 | 52.5       | 20.3        | 20              | 466                      | -                                      | 45        | -                          | 1.5       | -                                                 | 180              | MKP1848C71412JY5             |

## Notes

- (1) Change the \* symbol with special code for the terminals
- (2) Maximum RMS current at 10 kHz, +85 °C, Δt = +15 °C, capacitance tolerance ≤ ± 5 %
- (3) Equivalent series resistance typical values at f = 10 kHz to 100 kHz for P = 27.5 mm, at f = 10 kHz to 70 kHz for P = 37.5 mm, at f = 10 kHz to 50 kHz for P = 52.5 mm
- (4) Maximum tan δ values
- (5) Standard dimension
- (6) 6 pins. The dV/dt and I<sub>PEAK</sub> specified are for individual capacitance value
- (7) 12 pins. The dV/dt and I<sub>PEAK</sub> specified are for individual capacitance value
- (8) Intermediate capacitance values available on request





## PACKAGING INFORMATION

| U <sub>NDC</sub><br>(V) | HEIGHT<br>(mm) | CAP. <sup>(5)</sup><br>(μF) | Ø dt | ORDERING CODE <sup>(1)</sup> | MASS<br>(g) | SPQ <sup>(2)</sup><br>(pcs) |
|-------------------------|----------------|-----------------------------|------|------------------------------|-------------|-----------------------------|
| 500                     | 19             | 1                           | 0.8  | MKP1848C51050JK2             | 6           | 160                         |
|                         | 19             | 2                           | 0.8  | MKP1848C52050JK2             | 5.5         | 160                         |
|                         | 19             | 3                           | 0.8  | MKP1848C53050JK2             | 5.5         | 160                         |
|                         | 21             | 4                           | 0.8  | MKP1848C54050JK2             | 8.5         | 130                         |
|                         | 21             | 5                           | 0.8  | MKP1848C55050JK2             | 8.5         | 130                         |
|                         | 25             | 6                           | 0.8  | MKP1848C56050JK2             | 10.5        | 100                         |
|                         | 25             | 7                           | 0.8  | MKP1848C57050JK2             | 12.5        | 100                         |
|                         | 25             | 8                           | 0.8  | MKP1848C58050JK2             | 11.5        | 100                         |
|                         | 28             | 9                           | 0.8  | MKP1848C59050JK2             | 15          | 80                          |
|                         | 28             | 10                          | 0.8  | MKP1848C61050JK2             | 16          | 80                          |
|                         | 28             | 12                          | 0.8  | MKP1848C61250JK2             | 15          | 80                          |
|                         | 31             | 15                          | 0.8  | MKP1848C61550JK2             | 21.5        | 65                          |
|                         | 35             | 18                          | 0.8  | MKP1848C61850JK2             | 20          | 70                          |
|                         | 35.5           | 20                          | 1.0  | MKP1848C62050JP*             | 36          | 105                         |
|                         | 38.5           | 22                          | 1.0  | MKP1848C62250JP*             | 38          | 91                          |
|                         | 38.5           | 25                          | 1.0  | MKP1848C62550JP*             | 36          | 91                          |
|                         | 44             | 30                          | 1.0  | MKP1848C63050JP*             | 48          | 77                          |
|                         | 44             | 35                          | 1.0  | MKP1848C63550JP*             | 57          | 77                          |
|                         | 45             | 40                          | 1.0  | MKP1848C64050JP*             | 60          | 63                          |
|                         | 45             | 45                          | 1.0  | MKP1848C64550JP*             | 70          | 63                          |
|                         | 45             | 50                          | 1.0  | MKP1848C65050JP*             | 75          | 63                          |
|                         | 57             | 55                          | 1.0  | MKP1848C65550JP*             | 68          | 63                          |
|                         | 57             | 60                          | 1.0  | MKP1848C66050JP*             | 68          | 63                          |
|                         | 57             | 65                          | 1.0  | MKP1848C66550JP*             | 70          | 63                          |
|                         | 45             | 50                          | 1.2  | MKP1848C65050JY*             | 70          | 55                          |
|                         | 45             | 55                          | 1.2  | MKP1848C65550JY*             | 96          | 55                          |
|                         | 45             | 60                          | 1.2  | MKP1848C66050JY*             | 91          | 45                          |
|                         | 45             | 65                          | 1.2  | MKP1848C66550JY*             | 100         | 45                          |
|                         | 45             | 70                          | 1.2  | MKP1848C67050JY*             | 112         | 45                          |
|                         | 50             | 75                          | 1.2  | MKP1848C67550JY*             | 108         | 40                          |
|                         | 50             | 80                          | 1.2  | MKP1848C68050JY*             | 115         | 40                          |
|                         | 50             | 90                          | 1.2  | MKP1848C69050JY*             | 127         | 40                          |
|                         | 50             | 100                         | 1.2  | MKP1848C71050JY*             | 130         | 40                          |
|                         | 45             | 110                         | 1.2  | MKP1848C71150JY5             | 135         | 30                          |
|                         | 45             | 120                         | 1.2  | MKP1848C71250JY5             | 150         | 30                          |
|                         | 65             | 250 <sup>(3)</sup>          | 1.2  | MKP1848C72550JY5             | 266         | 20                          |
|                         | 65             | 500 <sup>(4)</sup>          | 1.2  | MKP1848C75050JY5             | 490         | 10                          |
| 600                     | 19             | 1                           | 0.8  | MKP1848C51060JK2             | 6           | 160                         |
|                         | 19             | 2                           | 0.8  | MKP1848C52060JK2             | 5.5         | 160                         |
|                         | 21             | 3                           | 0.8  | MKP1848C53060JK2             | 8.5         | 130                         |
|                         | 21             | 4                           | 0.8  | MKP1848C54060JK2             | 8.5         | 130                         |
|                         | 23             | 5                           | 0.8  | MKP1848C55060JK2             | 10.5        | 115                         |
|                         | 25             | 6                           | 0.8  | MKP1848C56060JK2             | 12.5        | 100                         |
|                         | 25             | 7                           | 0.8  | MKP1848C57060JK2             | 11.5        | 100                         |
|                         | 28             | 8                           | 0.8  | MKP1848C58060JK2             | 15          | 80                          |
|                         | 28             | 9                           | 0.8  | MKP1848C59060JK2             | 16          | 80                          |
|                         | 28             | 10                          | 0.8  | MKP1848C61060JK2             | 15          | 80                          |
|                         | 31             | 12                          | 0.8  | MKP1848C61260JK2             | 21.5        | 65                          |
|                         | 35             | 15                          | 0.8  | MKP1848C61560JK2             | 20          | 70                          |
|                         | 35.5           | 10                          | 1.0  | MKP1848C61060JP*             | 34          | 105                         |
|                         | 35.5           | 12                          | 1.0  | MKP1848C61260JP*             | 32          | 105                         |
|                         | 35.5           | 15                          | 1.0  | MKP1848C61560JP*             | 30          | 105                         |
|                         | 38.5           | 20                          | 1.0  | MKP1848C62060JP*             | 36          | 91                          |
|                         | 38.5           | 22                          | 1.0  | MKP1848C62260JP*             | 38          | 91                          |
|                         | 38.5           | 25                          | 1.0  | MKP1848C62560JP*             | 36          | 91                          |
|                         | 44             | 30                          | 1.0  | MKP1848C63060JP*             | 48          | 77                          |
|                         | 45             | 35                          | 1.0  | MKP1848C63560JP*             | 57          | 63                          |





## PACKAGING INFORMATION

| U <sub>NDC</sub><br>(V) | HEIGHT<br>(mm) | CAP. <sup>(5)</sup><br>(μF) | Ø dt | ORDERING CODE <sup>(1)</sup> | MASS<br>(g) | SPQ <sup>(2)</sup><br>(pcs) |
|-------------------------|----------------|-----------------------------|------|------------------------------|-------------|-----------------------------|
| 600                     | 45             | 40                          | 1.0  | MKP1848C64060JP*             | 60          | 63                          |
|                         | 45             | 45                          | 1.0  | MKP1848C64560JP*             | 60          | 63                          |
|                         | 57             | 50                          | 1.0  | MKP1848C65060JP*             | 68          | 63                          |
|                         | 45             | 40                          | 1.2  | MKP1848C64060JY*             | 66          | 55                          |
|                         | 45             | 45                          | 1.2  | MKP1848C64560JY*             | 70          | 55                          |
|                         | 45             | 50                          | 1.2  | MKP1848C65060JY*             | 88          | 45                          |
|                         | 45             | 55                          | 1.2  | MKP1848C65560JY*             | 96          | 45                          |
|                         | 45             | 60                          | 1.2  | MKP1848C66060JY*             | 91          | 45                          |
|                         | 50             | 65                          | 1.2  | MKP1848C66560JY*             | 100         | 40                          |
|                         | 50             | 70                          | 1.2  | MKP1848C67060JY*             | 112         | 40                          |
|                         | 50             | 75                          | 1.2  | MKP1848C67560JY*             | 108         | 40                          |
|                         | 50             | 80                          | 1.2  | MKP1848C68060JY*             | 102         | 40                          |
|                         | 45             | 90                          | 1.2  | MKP1848C69060JY5             | 127         | 30                          |
|                         | 45             | 100                         | 1.2  | MKP1848C71060JY5             | 120         | 30                          |
|                         | 65             | 200 <sup>(3)</sup>          | 1.2  | MKP1848C72060JY5             | 266         | 20                          |
|                         | 65             | 400 <sup>(4)</sup>          | 1.2  | MKP1848C74060JY5             | 490         | 10                          |
| 800                     | 19             | 1                           | 0.8  | MKP1848C51080JK2             | 6           | 160                         |
|                         | 19             | 2                           | 0.8  | MKP1848C52080JK2             | 5.5         | 160                         |
|                         | 21             | 3                           | 0.8  | MKP1848C53080JK2             | 8.5         | 130                         |
|                         | 23             | 4                           | 0.8  | MKP1848C54080JK2             | 10.5        | 115                         |
|                         | 25             | 5                           | 0.8  | MKP1848C55080JK2             | 12          | 100                         |
|                         | 28             | 6                           | 0.8  | MKP1848C56080JK2             | 17          | 80                          |
|                         | 28             | 7                           | 0.8  | MKP1848C57080JK2             | 16          | 80                          |
|                         | 28             | 8                           | 0.8  | MKP1848C58080JK2             | 15          | 80                          |
|                         | 31             | 9                           | 0.8  | MKP1848C59080JK2             | 22          | 65                          |
|                         | 31             | 10                          | 0.8  | MKP1848C61080JK2             | 21          | 65                          |
|                         | 35             | 12                          | 0.8  | MKP1848C61280JK2             | 20          | 70                          |
|                         | 35.5           | 10                          | 1.0  | MKP1848C61080JP*             | 34          | 105                         |
|                         | 35.5           | 12                          | 1.0  | MKP1848C61280JP*             | 32          | 105                         |
|                         | 35.5           | 15                          | 1.0  | MKP1848C61580JP*             | 30          | 105                         |
|                         | 38.5           | 20                          | 1.0  | MKP1848C62080JP*             | 36          | 91                          |
|                         | 44             | 22                          | 1.0  | MKP1848C62280JP*             | 49          | 77                          |
|                         | 44             | 25                          | 1.0  | MKP1848C62580JP*             | 47          | 77                          |
|                         | 45             | 30                          | 1.0  | MKP1848C63080JP*             | 62          | 63                          |
|                         | 45             | 35                          | 1.0  | MKP1848C63580JP*             | 55          | 63                          |
|                         | 57             | 40                          | 1.0  | MKP1848C64080JP*             | 60          | 63                          |
|                         | 45             | 30                          | 1.2  | MKP1848C63080JY*             | 76          | 55                          |
|                         | 45             | 35                          | 1.2  | MKP1848C63580JY*             | 71          | 55                          |
|                         | 45             | 40                          | 1.2  | MKP1848C64080JY*             | 66          | 55                          |
|                         | 45             | 45                          | 1.2  | MKP1848C64580JY*             | 95          | 45                          |
|                         | 45             | 50                          | 1.2  | MKP1848C65080JY*             | 88          | 45                          |
|                         | 50             | 55                          | 1.2  | MKP1848C65580JY*             | 112         | 40                          |
|                         | 50             | 60                          | 1.2  | MKP1848C66080JY*             | 107         | 40                          |
|                         | 50             | 65                          | 1.2  | MKP1848C66580JY*             | 100         | 40                          |
|                         | 45             | 70                          | 1.2  | MKP1848C67080JY5             | 128         | 30                          |
|                         | 45             | 75                          | 1.2  | MKP1848C67580JY5             | 123         | 30                          |
|                         | 45             | 80                          | 1.2  | MKP1848C68080JY5             | 119         | 30                          |
|                         | 65             | 160 <sup>(3)</sup>          | 1.2  | MKP1848C71680JY5             | 264         | 20                          |
|                         | 65             | 320 <sup>(4)</sup>          | 1.2  | MKP1848C73280JY5             | 359         | 10                          |



## PACKAGING INFORMATION

| U <sub>NDC</sub><br>(V) | HEIGHT<br>(mm) | CAP. <sup>(5)</sup><br>(μF) | Ø dt | ORDERING CODE <sup>(1)</sup> | MASS<br>(g) | SPQ <sup>(2)</sup><br>(pcs) |
|-------------------------|----------------|-----------------------------|------|------------------------------|-------------|-----------------------------|
| 900                     | 19             | 1                           | 0.8  | MKP1848C51090JK2             | 6.5         | 160                         |
|                         | 21             | 2                           | 0.8  | MKP1848C52090JK2             | 9           | 130                         |
|                         | 23             | 3                           | 0.8  | MKP1848C53090JK2             | 11          | 115                         |
|                         | 25             | 4                           | 0.8  | MKP1848C54090JK2             | 12          | 100                         |
|                         | 28             | 5                           | 0.8  | MKP1848C55090JK2             | 17          | 80                          |
|                         | 28             | 6                           | 0.8  | MKP1848C56090JK2             | 16          | 80                          |
|                         | 31             | 7                           | 0.8  | MKP1848C57090JK2             | 23          | 65                          |
|                         | 31             | 8                           | 0.8  | MKP1848C58090JK2             | 21          | 65                          |
|                         | 35             | 9                           | 0.8  | MKP1848C59090JK2             | 20          | 70                          |
|                         | 35             | 10                          | 0.8  | MKP1848C61090JK2             | 20          | 70                          |
|                         | 35.5           | 9                           | 1.0  | MKP1848C59090JP*             | 32          | 105                         |
|                         | 35.5           | 10                          | 1.0  | MKP1848C61090JP*             | 32          | 105                         |
|                         | 35.5           | 12                          | 1.0  | MKP1848C61290JP*             | 30          | 105                         |
|                         | 38.5           | 15                          | 1.0  | MKP1848C61590JP*             | 37          | 91                          |
|                         | 44             | 20                          | 1.0  | MKP1848C62090JP*             | 47          | 77                          |
|                         | 45             | 22                          | 1.0  | MKP1848C62290JP*             | 65          | 63                          |
|                         | 45             | 25                          | 1.0  | MKP1848C62590JP*             | 61          | 63                          |
|                         | 57             | 30                          | 1.0  | MKP1848C63090JP*             | 68          | 63                          |
|                         | 57             | 35                          | 1.0  | MKP1848C63590JP*             | 70          | 63                          |
|                         | 45             | 30                          | 1.2  | MKP1848C63090JY*             | 69          | 55                          |
|                         | 45             | 35                          | 1.2  | MKP1848C63590JY*             | 97          | 45                          |
|                         | 45             | 40                          | 1.2  | MKP1848C64090JY*             | 91          | 45                          |
|                         | 50             | 45                          | 1.2  | MKP1848C64590JY*             | 112         | 40                          |
|                         | 50             | 50                          | 1.2  | MKP1848C65090JY*             | 104         | 40                          |
|                         | 45             | 55                          | 1.2  | MKP1848C65590JY5             | 131         | 30                          |
|                         | 45             | 60                          | 1.2  | MKP1848C66090JY5             | 125         | 30                          |
|                         | 65             | 120 <sup>(3)</sup>          | 1.2  | MKP1848C71290JY5             | 276         | 20                          |
|                         | 65             | 240 <sup>(4)</sup>          | 1.2  | MKP1848C72490JY5             | 393         | 10                          |
| 1000                    | 19             | 1                           | 0.8  | MKP1848C51010JK2             | 6           | 160                         |
|                         | 23             | 2                           | 0.8  | MKP1848C52010JK2             | 11          | 115                         |
|                         | 25             | 3                           | 0.8  | MKP1848C53010JK2             | 12          | 100                         |
|                         | 28             | 4                           | 0.8  | MKP1848C54010JK2             | 16.5        | 80                          |
|                         | 31             | 5                           | 0.8  | MKP1848C55010JK2             | 22.5        | 65                          |
|                         | 31             | 6                           | 0.8  | MKP1848C56010JK2             | 21          | 65                          |
|                         | 35             | 7                           | 0.8  | MKP1848C57010JK2             | 21          | 70                          |
|                         | 35.5           | 5                           | 1.0  | MKP1848C55010JP*             | 32          | 105                         |
|                         | 35.5           | 6                           | 1.0  | MKP1848C56010JP*             | 30          | 105                         |
|                         | 35.5           | 7                           | 1.0  | MKP1848C57010JP*             | 33          | 105                         |
|                         | 35.5           | 8                           | 1.0  | MKP1848C58010JP*             | 31          | 105                         |
|                         | 35.5           | 9                           | 1.0  | MKP1848C59010JP*             | 30          | 105                         |
|                         | 38.5           | 10                          | 1.0  | MKP1848C61010JP*             | 39          | 91                          |
|                         | 38.5           | 12                          | 1.0  | MKP1848C61210JP*             | 36          | 91                          |
|                         | 44             | 15                          | 1.0  | MKP1848C61510JP*             | 47          | 77                          |
|                         | 45             | 20                          | 1.0  | MKP1848C62010JP*             | 57          | 63                          |
|                         | 57             | 22                          | 1.0  | MKP1848C62210JP*             | 60          | 63                          |
|                         | 57             | 25                          | 1.0  | MKP1848C62510JP*             | 60          | 63                          |
|                         | 45             | 15                          | 1.2  | MKP1848C61510JY*             | 70          | 55                          |
|                         | 45             | 20                          | 1.2  | MKP1848C62010JY*             | 73          | 55                          |
|                         | 45             | 22                          | 1.2  | MKP1848C62210JY*             | 70          | 55                          |
|                         | 45             | 25                          | 1.2  | MKP1848C62510JY*             | 98          | 45                          |
|                         | 45             | 30                          | 1.2  | MKP1848C63010JY*             | 89          | 45                          |
|                         | 50             | 35                          | 1.2  | MKP1848C63510JY*             | 109         | 40                          |
|                         | 50             | 40                          | 1.2  | MKP1848C64010JY*             | 99          | 40                          |
|                         | 45             | 45                          | 1.2  | MKP1848C64510JY5             | 124         | 30                          |
|                         | 45             | 50                          | 1.2  | MKP1848C65010JY5             | 117         | 30                          |
|                         | 65             | 100 <sup>(3)</sup>          | 1.2  | MKP1848C71010JY5             | 259         | 20                          |
|                         | 65             | 200 <sup>(4)</sup>          | 1.2  | MKP1848C72010JY5             | 608         | 10                          |

| PACKAGING INFORMATION   |                |                             |      |                              |             |                             |
|-------------------------|----------------|-----------------------------|------|------------------------------|-------------|-----------------------------|
| U <sub>NDC</sub><br>(V) | HEIGHT<br>(mm) | CAP. <sup>(5)</sup><br>(μF) | Ø dt | ORDERING CODE <sup>(1)</sup> | MASS<br>(g) | SPQ <sup>(2)</sup><br>(pcs) |
| 1200                    | 21             | 1                           | 0.8  | MKP1848C51012JK2             | 9           | 130                         |
|                         | 25             | 2                           | 0.8  | MKP1848C52012JK2             | 12          | 100                         |
|                         | 28             | 3                           | 0.8  | MKP1848C53012JK2             | 16          | 80                          |
|                         | 31             | 4                           | 0.8  | MKP1848C54012JK2             | 21.5        | 65                          |
|                         | 35             | 5                           | 0.8  | MKP1848C55012JK2             | 20          | 70                          |
|                         | 35.5           | 5                           | 1.0  | MKP1848C55012JP*             | 33          | 105                         |
|                         | 35.5           | 6                           | 1.0  | MKP1848C56012JP*             | 30          | 105                         |
|                         | 38.5           | 7                           | 1.0  | MKP1848C57012JP*             | 39          | 91                          |
|                         | 38.5           | 8                           | 1.0  | MKP1848C58012JP*             | 37          | 91                          |
|                         | 44             | 9                           | 1.0  | MKP1848C59012JP*             | 50          | 77                          |
|                         | 44             | 10                          | 1.0  | MKP1848C61012JP*             | 48          | 77                          |
|                         | 45             | 12                          | 1.0  | MKP1848C61212JP*             | 63          | 63                          |
|                         | 57             | 15                          | 1.0  | MKP1848C61512JP*             | 60          | 63                          |
|                         | 45             | 10                          | 1.2  | MKP1848C61012JY*             | 81          | 55                          |
|                         | 45             | 12                          | 1.2  | MKP1848C61212JY*             | 77          | 55                          |
|                         | 45             | 15                          | 1.2  | MKP1848C61512JY*             | 70          | 55                          |
|                         | 45             | 20                          | 1.2  | MKP1848C62012JY*             | 91          | 45                          |
|                         | 50             | 22                          | 1.2  | MKP1848C62212JY*             | 115         | 40                          |
|                         | 50             | 25                          | 1.2  | MKP1848C62512JY*             | 108         | 40                          |
|                         | 45             | 30                          | 1.2  | MKP1848C63012JY5             | 126         | 30                          |
|                         | 65             | 60 <sup>(3)</sup>           | 1.2  | MKP1848C66012JY5             | 256         | 20                          |
|                         | 65             | 65 <sup>(3)</sup>           | 1.2  | MKP1848C66512JY5             | 257         | 20                          |
|                         | 65             | 140 <sup>(4)</sup>          | 1.2  | MKP1848C71412JY5             | 608         | 10                          |

**Notes**

- (1) Change the \* symbol with special code for the terminals  
(2) SPQ = Standard Packing Quantity  
(3) 6 pins  
(4) 12 pins  
(5) Intermediate capacitance values available on request

**CONSTRUCTION DESCRIPTION**

Low inductive wound cell elements of metallized polypropylene film, potted with resin in a flame retardant case.

**SPECIFIC METHOD OF MOUNTING TO WITHSTAND VIBRATION AND SHOCK**

The capacitor unit is designed for mounting on a printed circuit board.

In order to withstand vibration and shock tests, it must be insured that the stand-off pips are in good contact with the printed circuit board.

The capacitors shall be mechanically fixed by the leads and the body clamped.

**SPACE REQUIREMENTS ON PRINTED-CIRCUIT BOARD**

For product height with seating plane as given by "IEC 60717" as reference.

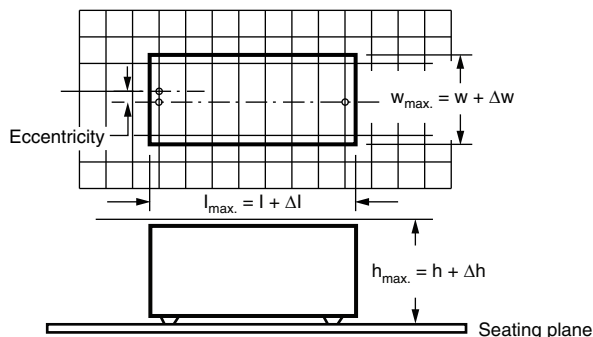
**For 2 pins:**

The maximum space for length ( $l_{max.}$ ), width ( $w_{max.}$ ) and height ( $h_{max.}$ ) of film capacitors to take in account on the printed circuit board is shown in the drawings.

- For products with  $15 \text{ mm} < \text{pitch} \leq 27.5 \text{ mm}$   $\Delta w = \Delta l = 0.5 \text{ mm}$  and  $\Delta h = 0.1 \text{ mm}$
- For products with  $\text{pitch} = 37.5 \text{ mm}$ ,  $\Delta w = \Delta l = 0.7 \text{ mm}$  and  $\Delta h = 0.5 \text{ mm}$
- For products with  $\text{pitch} = 52.5 \text{ mm}$ ,  $\Delta w = \Delta l = 1.0 \text{ mm}$  and  $\Delta h = 0.5 \text{ mm}$

Eccentricity defined as in drawing. The maximum eccentricity is smaller than or equal to the lead diameter of the product concerned.

The maximum length and width of film capacitors is shown in the figure:

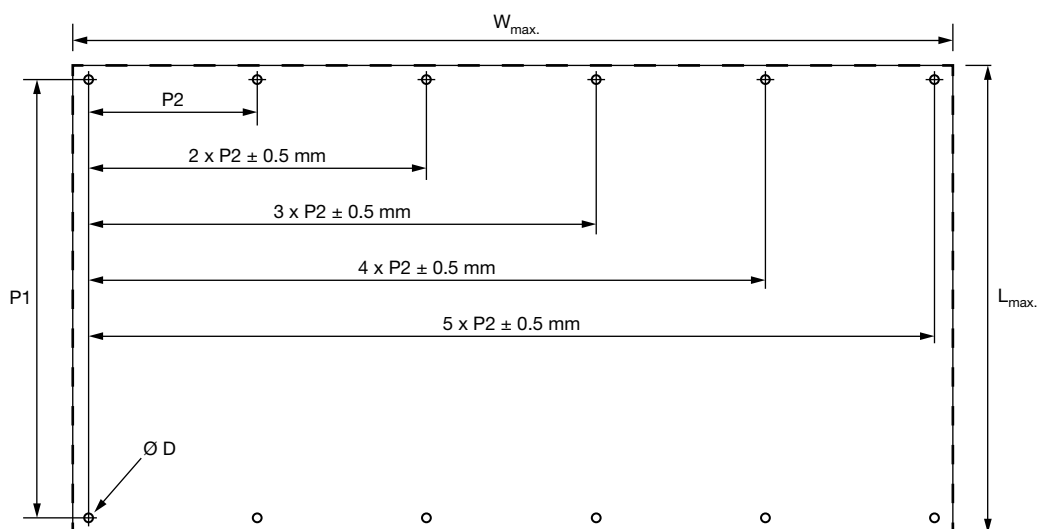


For the minimum product dimensions for length ( $l_{min.}$ ), width ( $w_{min.}$ ) and height ( $h_{min.}$ ) following tolerances of the components are valid:

$l_{min.} = l - \Delta l$ ,  $w_{min.} = w - \Delta w$ , and  $h_{min.} = h - \Delta h$  following

- for products with  $15 \text{ mm} < \text{pitch} \leq 27.5 \text{ mm}$ ,  $\Delta l = 1.0 \text{ mm}$ , and  $\Delta w = \Delta h = 0.5 \text{ mm}$
- for products with  $\text{pitch} = 37.5 \text{ mm}$ ,  $\Delta l = 1.0 \text{ mm}$ , and  $\Delta w = \Delta h = 1.0 \text{ mm}$
- for products with  $\text{pitch} = 52.5 \text{ mm}$ ,  $\Delta l = 1.5 \text{ mm}$ , and  $\Delta w = \Delta h = 1.0 \text{ mm}$

For 4 pins, 6 pins, and 12 pins:

| DIMENSIONS in millimeters                                                           |                   |                   |     |           |
|-------------------------------------------------------------------------------------|-------------------|-------------------|-----|-----------|
|  |                   |                   |     |           |
| P1                                                                                  | L <sub>max.</sub> | W <sub>max.</sub> | Ø D | H         |
| 37.5                                                                                | $l + 1.5$         | $w + 1.8$         | 1.5 | $h + 0.5$ |
| 52.5                                                                                | $l + 1.8$         | $w + 2.0$         | 1.7 | $h + 0.5$ |

## SOLDERING CONDITIONS

For general soldering conditions and wave soldering profile we refer to the document “Soldering Conditions Vishay Film Capacitors”: [www.vishay.com/doc?28171](http://www.vishay.com/doc?28171)

## STORAGE TEMPERATURE

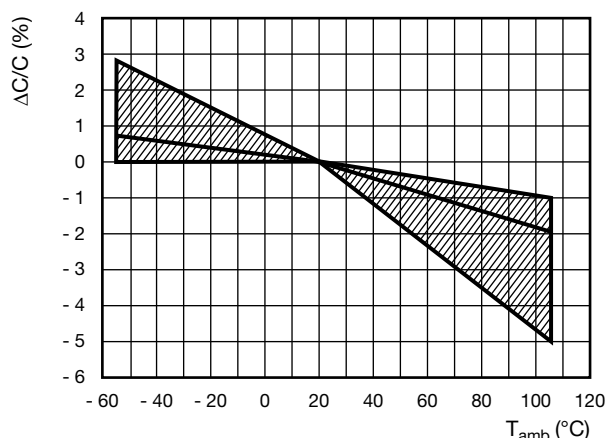
$T_{stg} = -25 \text{ °C}$  to  $+35 \text{ °C}$  with relative humidity of maximum 75 % without condensation

## RATINGS AND CHARACTERISTICS REFERENCE CONDITIONS

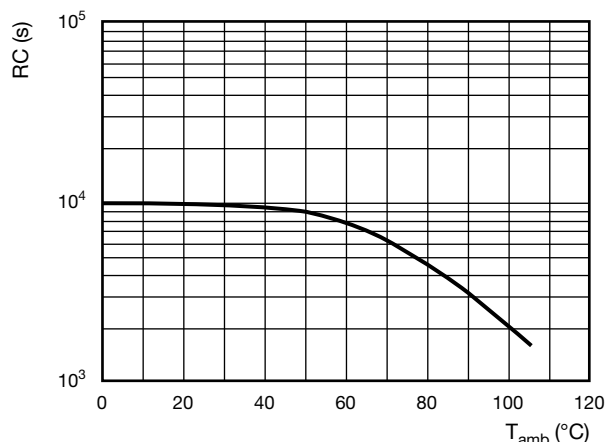
Unless otherwise specified, all electrical values apply to an ambient temperature of  $23\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ , an atmospheric pressure of 86 kPa to 106 kPa and a relative humidity of  $50\text{ \%} \pm 2\text{ \%}$ .

For reference testing, a conditioning period shall be applied over  $96\text{ h} \pm 4\text{ h}$  by heating the products in a circulating air oven at the rated temperature and a relative humidity not exceeding 20 %.

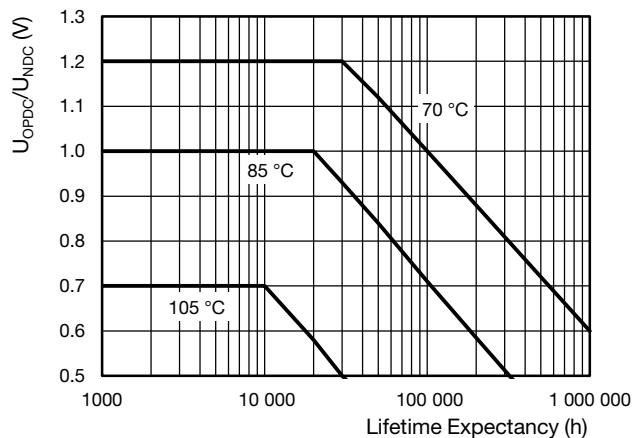
## CHARACTERISTICS



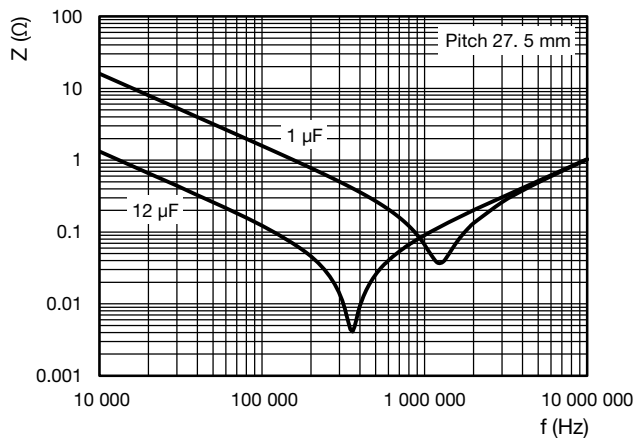
Capacitance as a function of ambient temperature (typical)



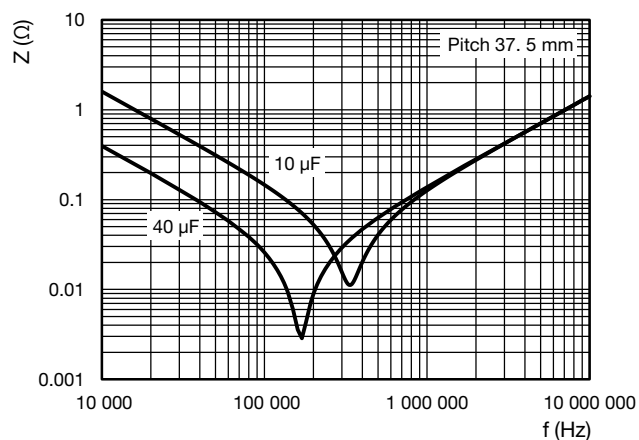
Insulation resistance as a function of ambient temperature (typical)



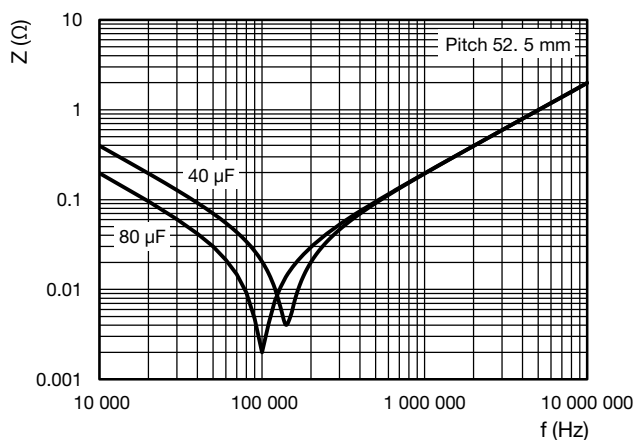
Lifetime expectancy (typical)



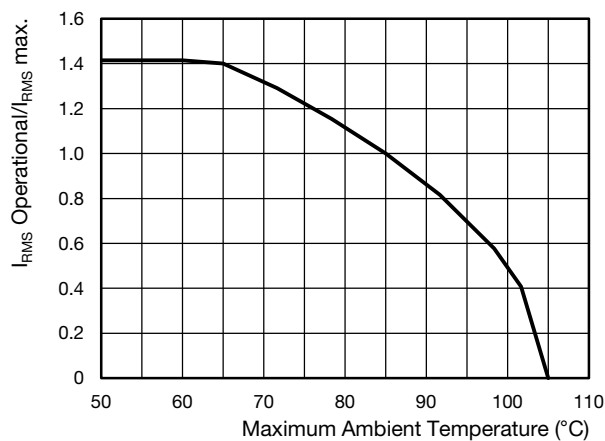
Impedance vs. Frequency (typical)



Impedance vs. Frequency  
(typical)



Impedance vs. Frequency  
(typical)



Maximum  $I_{RMS}$  current in function of the ambient temperature

| HEAT CONDUCTIVITY |      |      |                              |
|-------------------|------|------|------------------------------|
| DIMENSION (mm)    |      |      | HEAT CONDUCTIVITY<br>(mW/°C) |
| w                 | h    | l    |                              |
| 9.0               | 19.0 | 32.0 | 24                           |
| 11.0              | 21.0 | 32.0 | 28                           |
| 13.0              | 23.0 | 32.0 | 32                           |
| 15.0              | 25.0 | 32.0 | 36                           |
| 18.0              | 28.0 | 32.0 | 44                           |
| 21.0              | 31.0 | 32.0 | 51                           |
| 20.0              | 35.0 | 32.0 | 56                           |
| 18.5              | 35.5 | 43.0 | 54                           |
| 21.5              | 38.5 | 42.0 | 61                           |
| 24.0              | 44.0 | 42.0 | 70                           |
| 30.0              | 45.0 | 42.0 | 81                           |
| 25.0              | 45.0 | 57.5 | 77                           |
| 30.0              | 45.0 | 57.5 | 85                           |
| 35.0              | 50.0 | 57.5 | 100                          |
| 45.0              | 45.0 | 57.5 | 94                           |
| 65.5              | 65.0 | 57.5 | 152                          |
| 130.0             | 65.0 | 57.5 | 243                          |

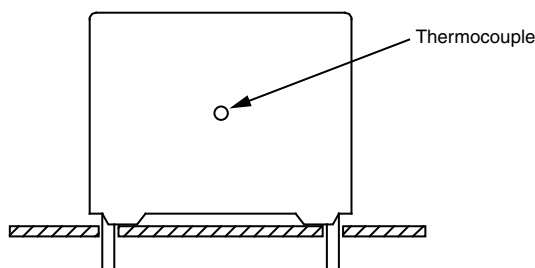
## POWER DISSIPATION AND MAXIMUM COMPONENT TEMPERATURE RISE

The power dissipation must be limited in order not to exceed the maximum allowed component temperature rise as a function of the free air ambient temperature.

The component temperature rise ( $\Delta T$ ) can be measured or calculated by  $\Delta T = P/G$ :

- $\Delta T = T_{\text{case}} - T_{\text{ambient}}$  = case temperature rise ( $^{\circ}\text{C}$ ) with a maximum of  $15^{\circ}\text{C}$  at rated temperature.
- $P = I_{\text{RMS}}^2 \times \text{ESR}$  = power dissipation of the component (mW)
- $G$  = heat conductivity of the component ( $\text{mW}/^{\circ}\text{C}$ )

## MEASURING THE COMPONENT TEMPERATURE



The case temperature is measured in unloaded condition ( $T_{\text{amb}}$ ) and loaded condition ( $T_{\text{C}}$ ).

To avoid external thermal radiation or convection, the capacitor must be tested in a closed area, free from air circulation.

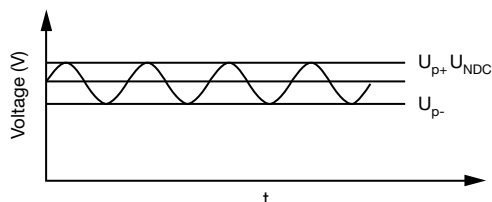
## APPLICATION NOTES AND LIMITING CONDITIONS

These capacitors are not suitable for mains applications as across-the-line capacitors without additional protection. These mains applications are strictly regulated in safety standards and therefore electromagnetic interference suppression capacitors conforming the standards must be used.

To select the capacitor for a certain application, the following conditions must be checked:

1. The continuous peak voltage ( $U_{\text{p+}}$ ) shall not exceed the DC voltage rating ( $U_{\text{NDC}}$ )
2. The peak-to-peak ripple voltage ( $U_{\text{pp}}$ ) shall not be greater than  $0.2 \times U_{\text{NDC}}$

Non reversing recurrent waveform



3. For capacitors connected in parallel, normally the proof voltage and possibly the rated voltage must be reduced. For information depending of the capacitance value and the number of parallel connections contact [dc-film@vishay.com](mailto:dc-film@vishay.com).
4. The voltage peak slope ( $dU/dt$ ) shall not exceed the pulse slope at the DC voltage rating. If the pulse voltage is lower than the rated DC voltage, the rated voltage pulse slope may be multiplied by  $U_{\text{NDC}}$  and divided by the applied voltage.

For all other pulses following equation must be fulfilled:

$$2 \times \int_0^T \left( \frac{dU}{dt} \right)^2 \times dt < U_{\text{NDC}} \times \left( \frac{dU}{dt} \right)_{\text{rated}}$$

$T$  is the pulse duration

| MAXIMUM REPETITIVE PEAK VOLTAGES |                          |
|----------------------------------|--------------------------|
| REPETITIVE SURGE VOLTAGE         | MAXIMUM DURATION PER DAY |
| $1.1 \times U_{\text{NDC}}$      | 30 % of on load duration |
| $1.15 \times U_{\text{NDC}}$     | 30 min                   |
| $1.2 \times U_{\text{NDC}}$      | 5 min                    |
| $1.3 \times U_{\text{NDC}}$      | 1 min                    |
| $1.5 \times U_{\text{NDC}}$      | 110 ms                   |

### Note

- The capacitor unit may be subjected to the surge above without any significant reduction of lifetime expectancy





| INSPECTION REQUIREMENTS                                    |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| SUB-CLAUSE NUMBER AND TEST                                 | CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                         | PERFORMANCE REQUIREMENTS                                                                                       |
| <b>ROUTINE TEST - FINAL INSPECTION</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                |
| 5.14.2-1<br>External inspection, visual examination        |                                                                                                                                                                                                                                                                                                                                                                                                                    | Legible marking as specified                                                                                   |
| 5.14.2-2<br>Dimensions                                     |                                                                                                                                                                                                                                                                                                                                                                                                                    | See specification drawing                                                                                      |
| 5.3-1<br>Capacitance                                       | 1 kHz at room temperature                                                                                                                                                                                                                                                                                                                                                                                          | See specific reference data                                                                                    |
| 5.3-2<br>tan $\delta$                                      | 1 kHz at room temperature<br>10 kHz at room temperature                                                                                                                                                                                                                                                                                                                                                            | See specific reference data                                                                                    |
| 5.5.1-2<br>Voltage test between terminals                  | 1.5 x $U_{NDC}$ at $T_{amb}$<br>Duration: 10 s                                                                                                                                                                                                                                                                                                                                                                     | No visible damage or puncture<br>No flashover                                                                  |
| 5.7<br>Insulation resistance                               | $U_{NDC} \leq 500$ V measuring voltage 100 V at room temperature<br>$U_{NDC} > 500$ V measuring voltage 500 V at room temperature<br>Duration: 1 min                                                                                                                                                                                                                                                               | See specific reference data                                                                                    |
| <b>TYPE TESTS</b>                                          |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                |
| 5.14.2<br>External inspection                              | Check for finish, marking and overall dimensions                                                                                                                                                                                                                                                                                                                                                                   | Legible marking and finish as specified<br>Dimensions: see specification drawing                               |
| 5.14.0<br>Initial measurements                             | Capacitance at 1 kHz<br>tan $\delta$ at 10 kHz                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                |
| 5.14.1-1/4<br>Robustness of terminations<br>IEC 60068-2-21 | Tensile $U_{a1}$<br>Wire diameter    Section modulus    Load<br>$\leq 0.8$ mm $\leq 0.5$ mm <sup>2</sup> 10 N<br>$\leq 1.25$ mm $\leq 1.2$ mm <sup>2</sup> 20 N<br>Duration: 10 s $\pm$ 1 s<br><br>Bending, $U_b$ method 1<br>Wire diameter    Section modulus    Load<br>$\leq 0.8$ mm $\leq 0.05$ mm <sup>2</sup> 10 N<br>$\leq 1.25$ mm $\leq 0.019$ mm <sup>2</sup> 20 N<br>4 x 90°, duration: 2 s to 3 s/bend |                                                                                                                |
| 5.14.1-6<br>Resistance to soldering heat<br>IEC 60068-2-20 | No pre-drying, method 1A<br>Solder bath: 260 °C $\pm$ 5 °C<br>Duration: 10 s $\pm$ 1 s                                                                                                                                                                                                                                                                                                                             |                                                                                                                |
| 5.14.4<br>Final measurements                               | Capacitance<br>tan $\delta$                                                                                                                                                                                                                                                                                                                                                                                        | $ \Delta C/C  \leq 0.5$ %<br>Increase of tan $\delta \leq 0.0050$<br>compared to the values measured in 5.14.0 |
| 5.14.0<br>Initial measurements                             | Capacitance at 1 kHz<br>tan $\delta$ at 10 kHz                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                |
| 5.14.3-1<br>Vibration<br>IEC 60068-2-6                     | 10 Hz to 55 Hz; amplitude $\pm 0.35$ mm or acceleration 98 m/s <sup>2</sup><br>Test duration: 10 frequency cycles<br>3 axes offset from each other by 90°<br>1 octave/min<br><br>Visual examination                                                                                                                                                                                                                | No visible damage                                                                                              |
| 5.14.3-2<br>Shock or impact<br>IEC 60068-2-6               | Pulse shape: half sine<br>Acceleration: 490 m/s <sup>2</sup><br>Duration of pulse: 11 ms<br><br>Visual examination                                                                                                                                                                                                                                                                                                 | No visible damage                                                                                              |
| 5.14.4<br>Final measurements                               | Capacitance<br>tan $\delta$                                                                                                                                                                                                                                                                                                                                                                                        | $ \Delta C/C  \leq 0.5$ %<br>Increase of tan $\delta \leq 0.0050$<br>compared to the values measured in 5.14.0 |



| INSPECTION REQUIREMENTS                                         |                                                                                                                                                                                                                              |                                                                                                                                                                                           |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SUB-CLAUSE NUMBER AND TEST                                      | CONDITIONS                                                                                                                                                                                                                   | PERFORMANCE REQUIREMENTS                                                                                                                                                                  |
| 5.5.3-1<br>Initial measurements                                 | Capacitance at 1 kHz<br>tan $\delta$ at 10 kHz<br>R insulation                                                                                                                                                               | $ \Delta C/C  \leq 0.5 \%$<br>Increase of tan $\delta \leq 0.0050$<br>R insulation $\leq 50 \%$ of specified values                                                                       |
| 5.5.3-2<br>Voltage test between terminals                       | 1.5 x $U_{NDC}$ at $T_{amb}$<br>Duration: 60 s                                                                                                                                                                               |                                                                                                                                                                                           |
| 5.5.3-3<br>Final measurements                                   | Capacitance<br>tan $\delta$<br>R insulation                                                                                                                                                                                  |                                                                                                                                                                                           |
| 5.9-1<br>Initial measurements                                   | Capacitance at 1 kHz<br>tan $\delta$ at 10 kHz                                                                                                                                                                               | $ \Delta C/C  \leq 1.0 \%$<br>tan $\delta \leq 1.2 \times \text{initial tan } \delta + 0.0001$<br>compared to the values measured in 5.9-1                                                |
| 5.9-2<br>Surge discharge test                                   | 1.1 x $U_{NDC}$<br>Number of discharges: 5<br>Time lapse: every 2 min (10 min total)                                                                                                                                         |                                                                                                                                                                                           |
| 5.9-2<br>Voltage test between terminals                         | Within 5 min after the surge<br>discharge test<br>Duration: 60 s<br>1.5 x $U_{NDC}$ at $T_{amb}$                                                                                                                             |                                                                                                                                                                                           |
| 5.9-3<br>Final measurements                                     | Capacitance<br>tan $\delta$ at 10 kHz                                                                                                                                                                                        |                                                                                                                                                                                           |
| 5.11-1<br>Initial measurements                                  | Capacitance at 1 kHz<br>tan $\delta$ at 10 kHz                                                                                                                                                                               | $ \Delta C/C  \leq 0.5 \%$<br>tan $\delta \leq 1.2 \times \text{initial tan } \delta + 0.0001$<br>compared to the values measured in 5.11-1                                               |
| 5.11-2<br>Self healing test                                     | 1.5 x $U_{NDC}$<br>Duration: 10 s<br>Number of clearings $\leq 5$<br>Clearing = voltage drop of 5 %<br>increase the voltage at 100 V/s till<br>5 clearings occur<br>with a max. of 2.5 x $U_{NDC}$<br>for a duration of 10 s |                                                                                                                                                                                           |
| 5.11-3<br>Final measurements                                    | Capacitance<br>tan $\delta$                                                                                                                                                                                                  |                                                                                                                                                                                           |
| 5.13-0<br>Initial measurements                                  | Capacitance at 1 kHz<br>tan $\delta$ at 10 kHz                                                                                                                                                                               | No puncturing or flashover<br>Self healing punctures are permitted<br><br>$ \Delta C/C  \leq 2.0 \%$<br>Increase of tan $\delta \leq 0.0150$<br>compared to the values measured in 5.13-0 |
| 5.13-1<br>Change of temperature according to<br>IEC 60682-2-14  | Test Nb<br>$T_{max.} = 85 \text{ }^{\circ}\text{C}$<br>$T_{min.} = -55 \text{ }^{\circ}\text{C}$<br>Transition time: 1 h, equivalent to 1 $^{\circ}\text{C}/$<br>min. 5 cycles                                               |                                                                                                                                                                                           |
| 5.13-2<br>Damp heat steady state according to<br>IEC 60682-2-78 | Test Ca<br>$T_{max.} = 40 \text{ }^{\circ}\text{C} + 2 \text{ }^{\circ}\text{C}$<br>RH = 93 % $\pm$ 3 %<br>Duration: 56 days                                                                                                 |                                                                                                                                                                                           |
| 5.5.3-2<br>Voltage test between terminals                       | 1.5 x $U_{NDC}$ at ambient temperature<br>Duration: 60 s                                                                                                                                                                     |                                                                                                                                                                                           |
| 5.13-3<br>Final measurements                                    | Visual examination<br><br>Capacitance<br>tan $\delta$ at 1 $V_{RMS}$ 10 kHz                                                                                                                                                  |                                                                                                                                                                                           |



| INSPECTION REQUIREMENTS                                            |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                  |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| SUB-CLAUSE NUMBER AND TEST                                         | CONDITIONS                                                                                                                                                                                                                                                                                                                                                            | PERFORMANCE REQUIREMENTS                                                                                                                         |
| 5.10.0<br>Initial measurements                                     | Capacitance at 1 kHz<br>tan $\delta$ at 10 kHz                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                  |
| 5.10-1<br>Thermal stability test under overload conditions         | Natural cooling $T_{amb} \pm 5^\circ\text{C}$<br>$1.21 \times P_{max.} = (U_2/2) \times W_2 \times C \times \tan \delta =$<br>$1.21 \times (I_{max.}^2 / W_2 \times C) \times \tan \delta$<br>with $W_2 = 2 \times p \times f_2$ for $I_{max.}$<br>(see specific reference data)<br>$f_2 = 10\text{ kHz}$<br>Duration: 48 h                                           |                                                                                                                                                  |
| 5.10-2<br>Final measurements                                       | Measure the temperature every 1.5 h during the last 6 h                                                                                                                                                                                                                                                                                                               | Temperature rise $\leq 1^\circ\text{C}$<br>$ \Delta C/C  \leq 2.0\%$<br>Increase of tan $\delta \leq 1.2 \times \text{initial } \delta + 0.0150$ |
| 5.12<br>Resonance frequency measurement                            | Impedance analyser at $T_{amb}$                                                                                                                                                                                                                                                                                                                                       | $< 0.9$ times the value as specified in typical curve "Resonant frequency" of this specification                                                 |
| 5.15-0<br>Initial measurements                                     | Capacitance at 1 kHz<br>tan $\delta$ at 10 kHz                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                  |
| 5.15-1<br>Endurance test between terminals                         | Sequence:<br>$1.3 \times U_{NDC}$ at $85^\circ\text{C}$<br>$1.3 \times U_{OPDC}$ at $105^\circ\text{C}$<br><br>Duration: 500 h<br><br>1000 x discharge<br>at $1.3 \times I_{peak}$ (maximum respective peak current in continuous operation)<br><br>$1.3 \times U_{NDC}$ at $85^\circ\text{C}$<br>$1.3 \times U_{OPDC}$ at $105^\circ\text{C}$<br><br>Duration: 500 h |                                                                                                                                                  |
| 5.15-2<br>Final measurement                                        | Capacitance<br>tan $\delta$                                                                                                                                                                                                                                                                                                                                           | $ \Delta C/C  \leq 3.0\%$<br>Increase of tan $\delta \leq 0.0150$<br>compared to the values measured in 5.15-0                                   |
| 5.16.3-0A<br>Initial measurements                                  | Capacitance at 1 kHz                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                  |
| 5.16.3-1A<br>Destruction test sequence for <u>non segment film</u> | $T_{max.} = 85^\circ\text{C}$<br>Product enveloped with cheese cloth                                                                                                                                                                                                                                                                                                  |                                                                                                                                                  |
| High DC voltage test                                               | $3 \times U_{NDC}$ or DC voltage<br>until repetitive product healings occur<br>Duration = 15 min                                                                                                                                                                                                                                                                      | Audible healings or check healings with oscilloscope                                                                                             |
| High AC voltage test                                               | AC RMS voltage = $U_{NDC}/2 \sqrt{2}$<br>with minimum of $250\text{ V}_{AC}$<br>Duration = 5 min<br>Repeat destruction sequence 3 x                                                                                                                                                                                                                                   |                                                                                                                                                  |
| 5.16.3-2A<br>Final measurements                                    | Visual examination                                                                                                                                                                                                                                                                                                                                                    | No puncturing, flashover or burning of the cheese cloth<br>Self healing punctures are permitted                                                  |



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