https://product.tdk.com/en/search/emc/emc/power-line/tec_data/nf_rsan

https://www.emea.lambda.tdk.com/uk/products/r-series

# Single phase 250Vac 3 to 60A EMC Filters with DIN rail option

Medical | Industrial | Test | LED | COMM | Broadcast

The RSAN single-phase EMC filters are enclosed in a compact case and part numbers up to 30A can be either chassis or DIN rail mounted (up to 30A) with low leakage current options. They are rated for 250Vac with nine current ratings of 3 to 60A enabling the optimum attenuation to match the current rating. The series uses TDK's amorphous core material to provide both pulse and noise attenuation. Amorphous materials offer a higher resistance to saturation from high voltage pulses and greater long term reliability than semiconductor clamps. The connection terminals are integrated into the case with both the screws and terminal covers captive. This avoids dropped or lost hardware. The RSAN 3A to 30A models are UL certified for a short circuit current rating of up to 14kA and the 40, 50 and 60A models 35kA with the appropriate breaker.

| Features | Benefits |
|---|---|
| • 3 to 60A Current Ratings | • Optimizes the Attenuation for the Current Rating |
| • DIN Rail Bracket Option | • Flexible Mounting |
| • Amorphous Core Technology | • Reduces High Voltage Pulse Core Saturation |
| • Captive Hardware | • No Lost Screws or Terminal Covers |
| • Safety Certified | • Global Use |

## Model Selector

| Model | Rated Current (A) | SCCR (kA)(1) | HV Pulse Protection | Leakage Current 250V/60Hz (mA) | Maximum DC Resistance (mΩ) | Attenuation frequency range (MHz) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Common mode at 25dB | Common mode at 20dB | Differential mode at 25dB |
| RSAN-2003 | 3 | 14 | Y | 1.0 | 250 | 0.1 to 10 | - | 0.1 to 30 |
| RSAN-2006 | 6 | 14 | Y | 1.0 | 110 | 0.1 to 10 | - | 0.1 to 30 |
| RSAN-2010 | 10 | 14 | Y | 1.0 | 40 | 0.3 to 10 | - | 0.2 to 30 |
| RSAN-2016 | 16 | 14 | Y | 1.0 | 20 | 0.8 to 10 | - | 0.3 to 30 |
| RSAN-2020 | 20 | 14 | Y | 1.0 | 10 | 1 to 10 | - | 0.3 to 30 |
| RSAN-2030 | 30 | 14 | Y | 1.0 | 6 | 2 to 10 | - | 0.4 to 30 |
| RSAN-2040 | 40 | 35 | Y | 1.0 | 6 | 0.8 to 10 | - | 0.1 to 30 |
| RSAN-2050 | 50 | 35 | Y | 1.0 | 4 | - | 1 to 10 | 0.1 to 30 |
| RSAN-2060 | 60 | 35 | Y | 1.0 | 3 | 2 to 10 | - | 0.2 to 30 |

## Model Selector

| Model | Rated Current (A) | SCCR (kA)(1) | HV Pulse Protection | Leakage Current 250V/60Hz (mA) | Maximum DC Resistance (mΩ) | Attenuation frequency range (MHz) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Common mode at 20dB | Common mode at 10dB | Differential mode at 25dB |
| RSAN-2003L | 6 | 14 | Y | 0.01 | 250 | 0.1 to 3 | - | 0.1 to 30 |
| RSAN-2006L | 6 | 14 | Y | 0.01 | 110 | 0.1 to 3 | - | 0.1 to 30 |
| RSAN-2010L | 10 | 14 | Y | 0.01 | 40 | 0.5 to 6 | - | 0.2 to 30 |
| RSAN-2016L | 16 | 14 | Y | 0.01 | 20 | - | 0.3 to 10 | 0.3 to 30 |
| RSAN-2020L | 20 | 14 | Y | 0.01 | 10 | - | 0.5 to 8 | 0.3 to 30 |
| RSAN-2030L | 30 | 14 | Y | 0.01 | 6 | - | 3 to 20 | 0.4 to 30 |

| RSAN | - | 2 | 006 | L | D |
|---|---|---|---|---|---|
| Series Name | | Rated Voltage<br>2 = 250Vac | Rated Current<br>003 = 3A<br>060 = 60A | Low Leakage Current<br>3A to 30A models | DIN Rail Mount<br>3A to 30A models |

## Related Products

| Type | Current Rating (A) | Series | Low Leakage | Faston on Terminals | Wire Leads | DIN Rail Mount | Fused | Discharge Resistor | Metal Case |
|---|---|---|---|---|---|---|---|---|---|
| Board mount line filter, HV Pulse | 0.5 - 6 | RSAG | | | | | | | |
| Board mount line filter | 0.5 - 6 | RSEG | | | | | | | |
| General purpose with faston terminals | 6 | RSEC | | | | | | | |
| General purpose | 0.5 - 6 | RSEL | Y | Y | Y | | | | Y |
| HV pulse protection | 0.5 - 6 | RSAL | Y | Y | Y | | | | |
| Power Entry Module with line filter | 3, 6, 10 | RPE | Y | | | | Y | Y | |
| Power Entry Module with line filter, HV Pulse | 3, 6, 10 | RPA | Y | | | | | Y | |
| Compact size with screw terminals | 6 - 30 | RSEV | | | | DIN-RSEV* | | | |
| Multipurpose | 3 - 300 | RSEN | Y (Up to 30A) | | | Y (Up to 30A) | | | |
| Multipurpose with HV pulse protection | 3 - 60 | RSAN | Y (Up to 30A) | | | Y (Up to 30A) | | | |
| High attenuation | 3 - 300 | RSHN | Y (Up to 30A) | | | Y (Up to 30A) | | | |
| High attenuation with pulse protection | 3 - 300 | RSMN | Y (Up to 30A) | | | Y (Up to 30A) | | | |
| Wide band, high attenuation | 6 - 30 | RSKN | | | | | | | |

* Separate mounting bracket
Click here for TDK-Lambda three phase filters.

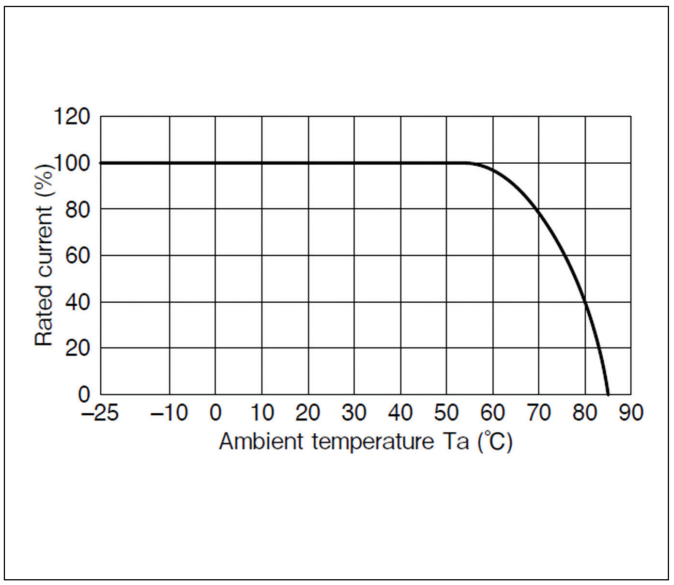
## Specification

| Model | | |
|---|---|---|
| **Input** | | |
| Rated Voltage | Vac/Vdc | 250 (Safety certified for AC input only) |
| Input Frequency | Hz | 47 - 63 |
| Leakage Current | - | See model selector |
| Safety Certifications and Markings | - | UL1283, CSA C22.2 No.8 (cUL), EN60939-1, -2), conforms to RoHS Directive |
| **Environmental** | | |
| Operating Temperature | °C | -25 to +85, derating above 55. See derating curve below |
| Storage Temperature | °C | -25 to +85 |
| Humidity (non condensing) | %RH | Operating and storage 15 - 85 |
| Cooling | - | Convection |
| Withstand Voltage | Vac | 2,500 input to earth |
| Isolation Resistance (For 1 minute) | MΩ | >100 at 500Vdc |
| Vibration | - | 10-55Hz Amplitude 1.5mm, Sweep for 1 min. X, Y and Z directions for 2 hours each |
| **Other** | | |
| Weight (Typ) | g | RSAN2003: 170, RSAN2006-2030: 230, RSAN2040-2060: 870 |
| Size (LxWxH) | mm | RSAN2003-2030: 87 x 52 x 35, RSAN2040-60: 170 x 90 x 54 |
| Size (LxWxH) | Inches | RSAN2003-2030: 3.43 x 2.05 x 1.38, RSAN2040-60: 6.69 x 3.54 x 2.13 |
| Connectors | | RSAN2003-2030: M4 screw terminals, RSAN2040-60: M5 screw terminals |
| MIL-HDBK-217F NOTICE2 | Hours | RSAN2003: 6,914,673, RSAN2060: 6,241,418 |
| Warranty | Years | 5 |

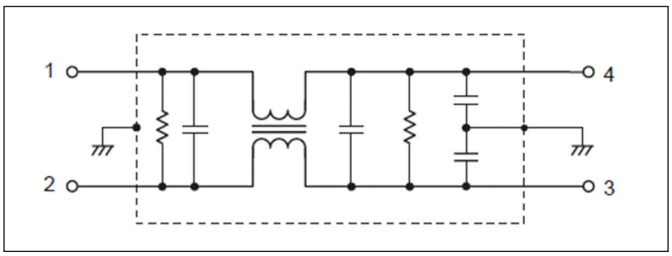
Notes
(1) With inverse time circuit breaker. See UL 508 report on website
See website for detailed specifications, test methods and installation manual
RSAN technical files

## Mechanical Specification

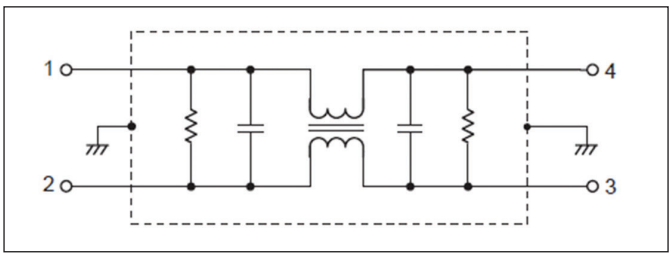
### Derating Curve (All models)




### Schematic standard leakage current

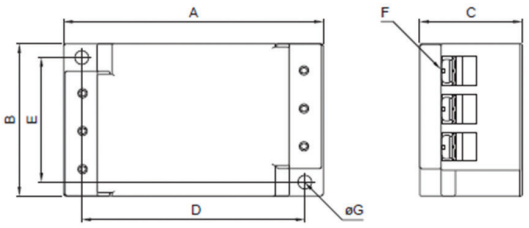



### Schematic low leakage current (L option)

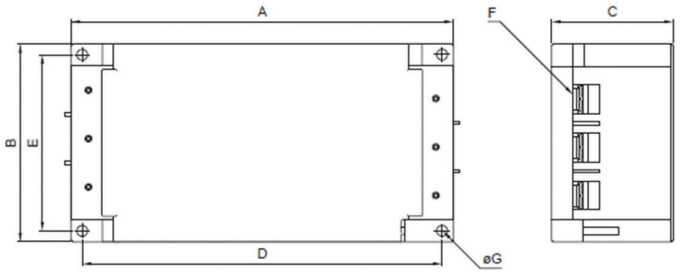


## RSAN Outline Drawing

RSAN-2003/2006/2010/2016/2020/2030




RSAN-2040/2050/2060

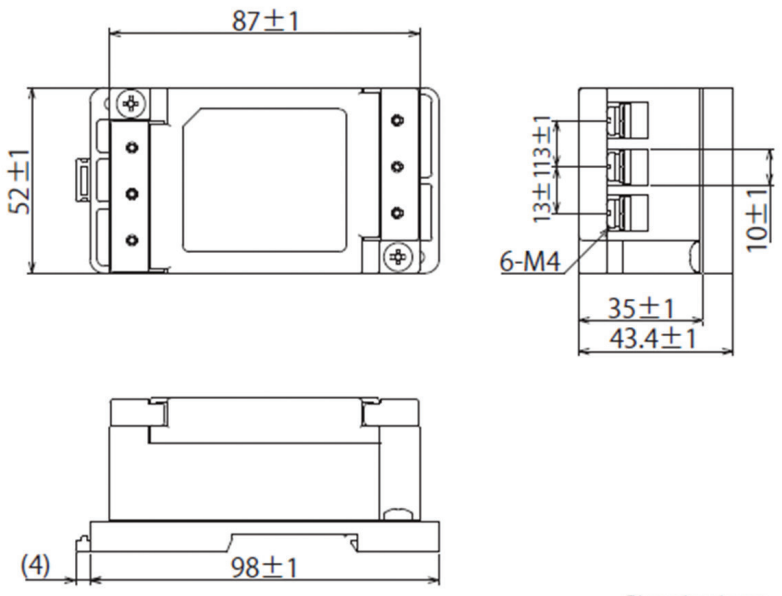



Dimensions in mm

| Part No. | A | B | C | D | E | F | ϕG | Recommended clamping torque |
|---|---|---|---|---|---|---|---|---|
| RSAN-2003 | 87 | 52 | 35 | 75 | 43 | M4 | 4.5 | 1.27N・m |
| RSAN-2006 | | | | | | | | |
| RSAN-2010 | | | | | | | | |
| RSAN-2016 | | | | | | | | |
| RSAN-2020 | | | | | | | | |
| RSAN-2030 | | | | | | | | |
| RSAN-2040 | 170 | 90 | 54 | 160 | 80 | M5 | 4.5 | 2.5N・m |
| RSAN-2050 | | | | | | | | |
| RSAN-2060 | | | | | | | | |

## DIN-RSAN Outline Drawing

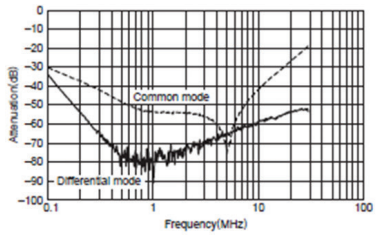
RSAN-2003D/2006D/2010D/2016D/2020D/2030D



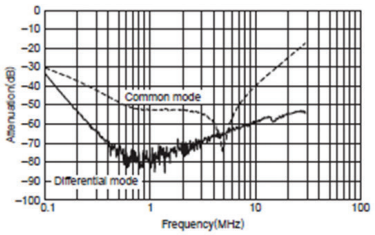

Dimensions in mm

## RSAN2xxx Attenuation vs. Frequency

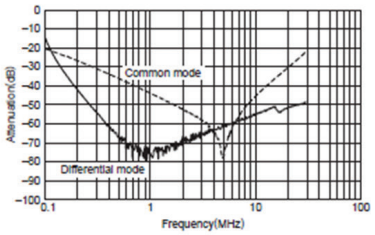
RSAN-2003



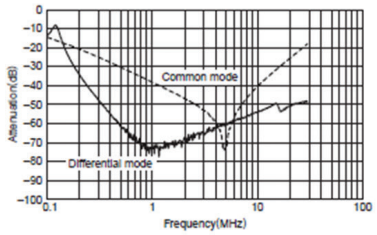

RSAN-2006



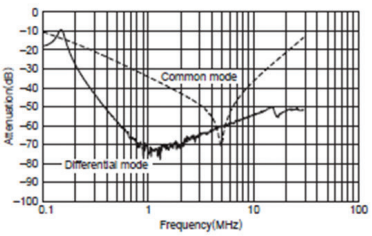

RSAN-2010



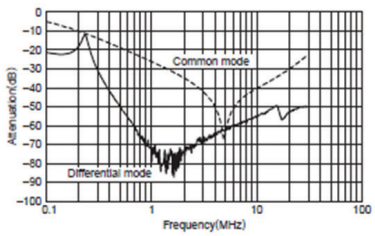

RSAN-2016



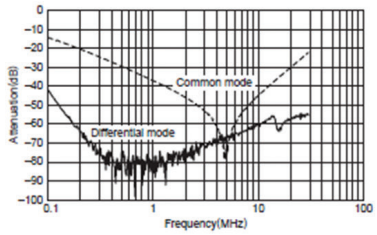

RSAN-2020



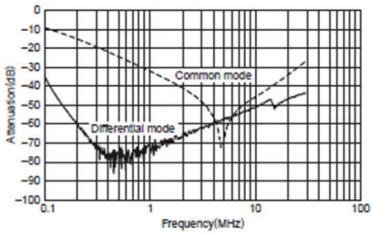

RSAN-2030



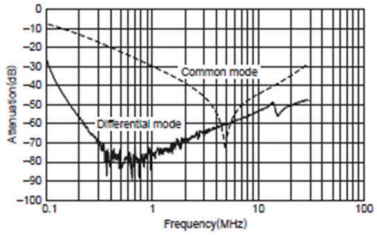

RSAN-2040




RSAN-2050

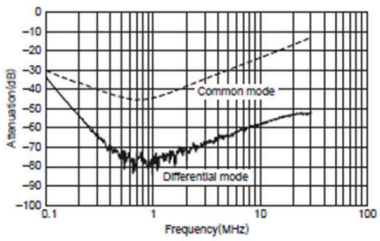



RSAN-2060

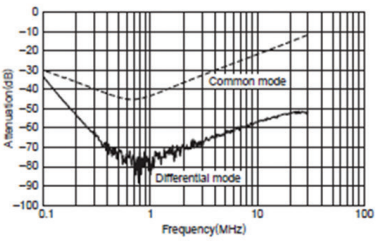



## RSAN2xxxL Attenuation vs. Frequency

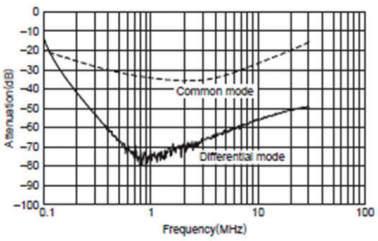
RSAN-2003L



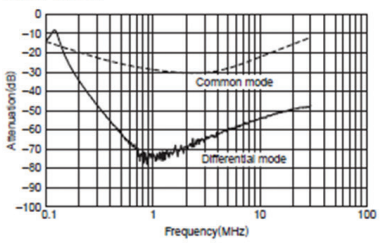

RSAN-2006L



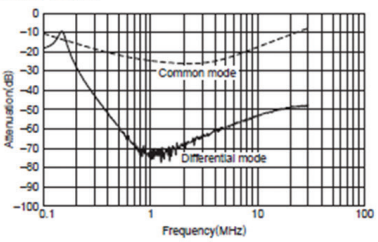

RSAN-2010L



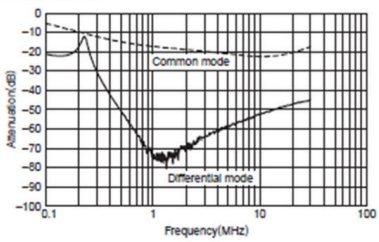

RSAN-2016L




RSAN-2020L

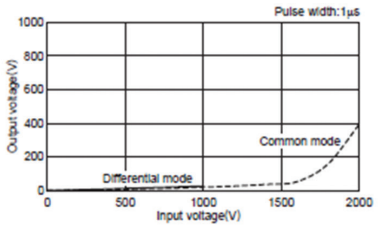



RSAN-2030L

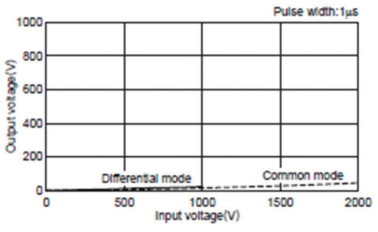


## RSAN2xxx Pulse Attenuation Characteristics

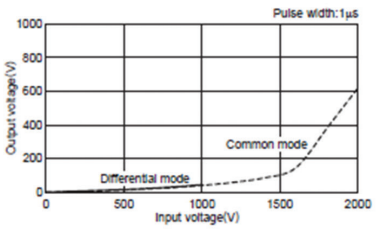
RSAN–2003/2003D



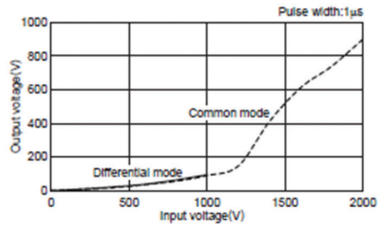

RSAN–2006/2006D



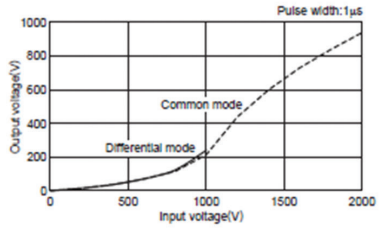

RSAN–2010/2010D



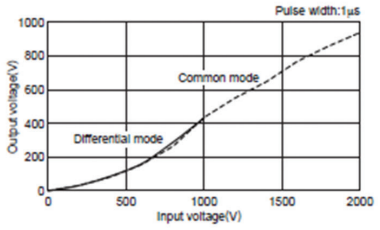

RSAN–2016/2016D



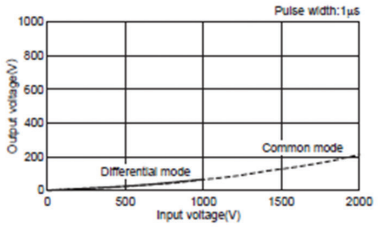

RSAN–2020/2020D



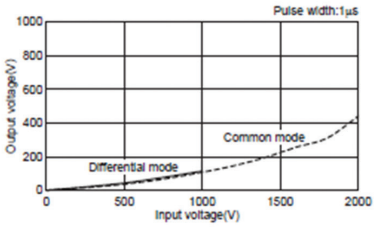

RSAN–2030/2030D



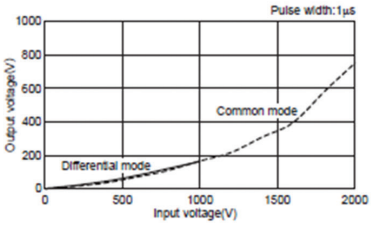

RSAN–2040




RSAN–2050

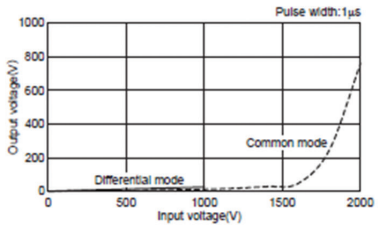



RSAN–2060

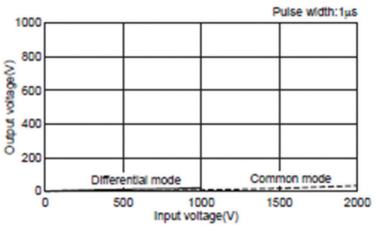



## RSAN2xxxL Pulse Attenuation Characteristics

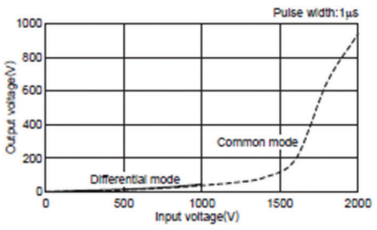
RSAN–2003L/LD



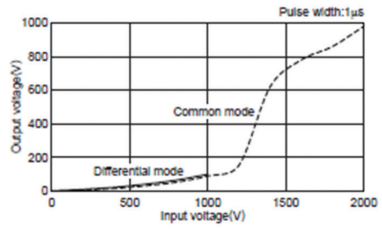

RSAN–2006L/LD



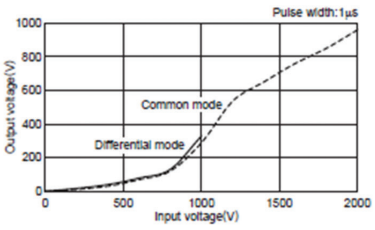

RSAN–2010L/LD



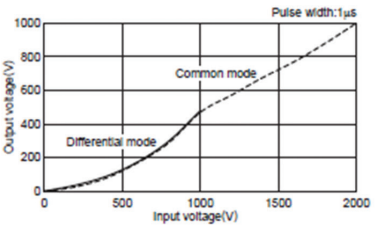

RSAN–2016L/LD




RSAN–2020L/LD




RSAN–2030L/LD



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