

General Specifications

Electrical Capacity (Resistive Load)

Low/Logic Level: 50mA @ 24V DC

Other Ratings

Contact Resistance: 50 milliohms maximum

Insulation Resistance: 500 megohms minimum @ 250V DC

Dielectric Strength: 250V AC minimum for 1 minute minimum

Mechanical Life: 500,000 operations minimum

Electrical Life: 500,000 operations minimum

Nominal Operating Force: 3.0N for flush actuator

2.0N for sculptured actuator

Total Travel: Flush Actuators .016" (0.4mm); Sculptured Actuator: .031" (0.8mm)

Materials & Finishes

Actuator: Polyamide for spot illuminated; polycarbonate for full face

Case: Glass fiber reinforced polyamide

Seal: Nitrile butadiene rubber

Base: Glass fiber reinforced polyester

Movable Contact: Phosphor bronze with silver plating

Stationary Contacts: Brass with silver plating

Terminals: Brass with silver plating

Environmental Data

Operating Temperature Range: -25°C through +70°C (-13°F through +158°F)

Humidity: 90 ~ 95% humidity for 96 hours @ 40°C (104°F)

Vibration: 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours

Shock: 50G (490m/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

PCB Processing

Soldering: Wave Soldering recommended. See Profile A in Supplement section.

Manual Soldering: See Profile A in Supplement section.

Cleaning: Automated cleaning. See Cleaning specifications in Supplement section.

Switches should not be operated or have any pressure on the actuators during cleaning.

Full face illuminated models suitable only for bottom board spray wash to avoid contamination of the 2-layered actuator, which may compromise the aesthetics.

Standards & Certifications

The JF Series tactiles have not been tested for UL recognition or CSA certification.

These switches are designed for use in a low-voltage, low-current, logic-level circuit.

When used as intended in a logic-level circuit, the results do not produce hazardous energy.

Distinctive Characteristics

Extremely low profile of .224" (5.7mm) from PCB to top of switch.

Red, green, or yellow LED with spot or full face illumination.

Rubber seal construction prevents contact contamination and allows automated soldering and cleaning.

Minimal operating force and short stroke permit light touch operation.

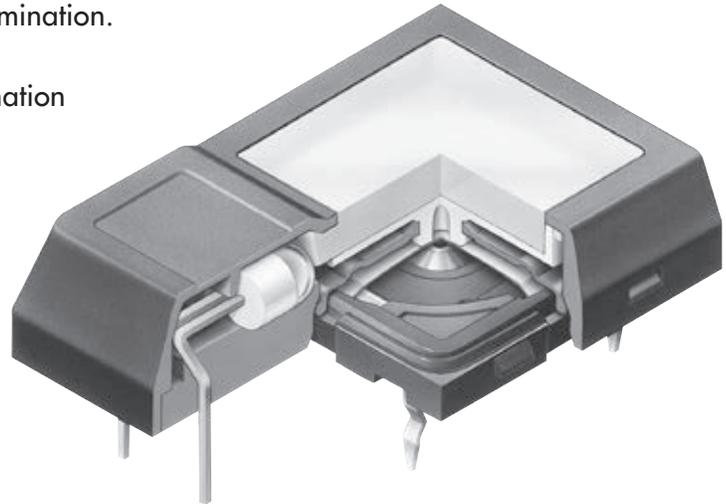
Dome contact gives crisp tactile and audible feedback to positively indicate circuit transfer and assures high reliability and long life.

Space saving body dimensions provide for compact, side-by-side mounting on a standard grid.

Crimped terminals ensure secure mounting and prevent dislodging during wave soldering.

Terminal spacing conforms to standard .100" (2.54mm) PCB grid.

Matching indicator available and shown at the end of Section M.

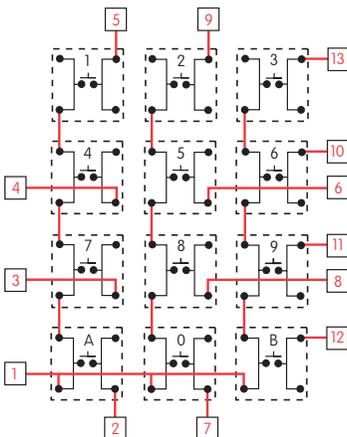


Actual Size



Common Bus Matrix

These single pole, single throw switches can be used in a keyboard matrix and, using strapped terminals, achieve a common bus electrical configuration on a single-sided PC board.

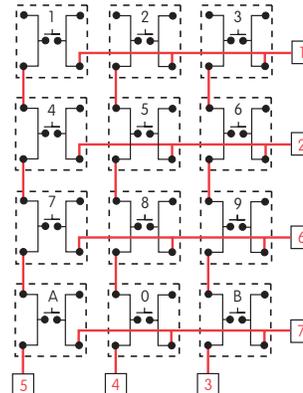


| PC Terminations | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-----------------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|
| Keys (Switches) | 1 | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | |
| A | | | | | | | | | | | | | | |
| B | | | | | | | | | | | | | | |

● = ON

X-Y Matrix

These single pole, single throw switches can be arranged on a single-sided PC board matrix with strapped terminals to achieve an X-Y type electrical interconnection.



| PC Terminations | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------------|---|---|---|---|---|---|---|---|
| Keys (Switches) | 1 | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 0 | | | | | | | | |
| A | | | | | | | | |
| B | | | | | | | | |

● = ON

Red = PCB Trace Black = Switch Circuit

TYPICAL SWITCH ORDERING EXAMPLE

JF 15 R P 2 C C

| Pole & Circuit | | | |
|-----------------|------|-----|------|
| 15 | SPST | OFF | (ON) |
| () = Momentary | | | |

| Terminals | |
|-----------|-------------|
| P | Straight PC |

| Actuator Types | |
|----------------|------------|
| 1 | Square |
| 2 | Round |
| 3 | Sculptured |

| LED Colors | |
|------------|--------|
| C | Red |
| E | Yellow |
| F | Green |

| Illumination | |
|--------------|---------------------------------------|
| R | Spot |
| A | Full Face (with square actuator only) |

| Actuator Colors | |
|------------------------|--------|
| Spot Illuminated | |
| C | Red |
| D | Orange |
| F | Green |
| G | Blue |
| H | Gray |
| *Full Face Illuminated | |
| C | Red |
| E | Yellow |
| F | Green |

*LED color must match actuator color.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

JF15RP2CC



POLE & CIRCUIT

| Pole | Model | Actuator Position () = Momentary | | Switch Throw & Schematic | LED Schematic | Notes: Terminal numbers are shown on switch. LED circuit is isolated & requires external power source. |
|------|-------|--------------------------------------|------|-----------------------------|---------------|--|
| | | Normal | Down | | | |
| SP | JF15 | OFF | (ON) | | | |

Toggles
Rockers
Pushbuttons
Illuminated PB
Programmable
Keylocks
Rotaries
Slides
Tactiles
Tilt
Touch
Indicators
Accessories
Supplement

ILLUMINATION & ACTUATOR TYPES

R Spot Illumination

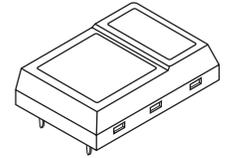
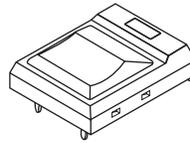
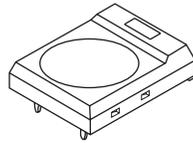
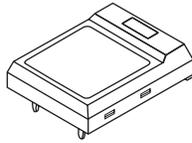
A Full Face Illumination

1 Square Actuator

2 Round Actuator

3 Sculptured Actuator

1 Square Actuator



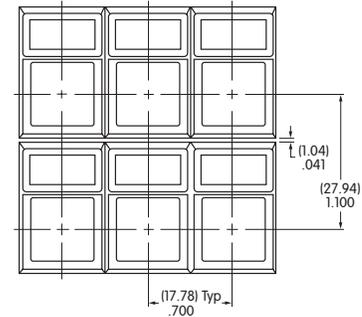
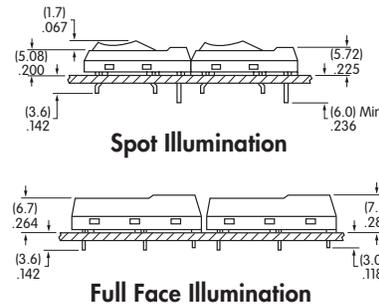
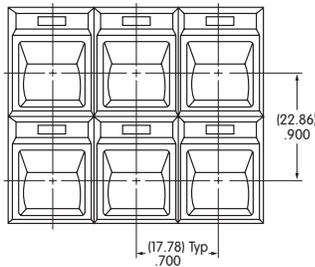
Actuator Colors Available: C, D, F, G, H
Housing is black

Actuator Colors Available: C, E, F
Housing is black

Color Codes: **C** Red **D** Orange **E** Yellow **F** Green **G** Blue **H** Gray

Flexible Panel Design

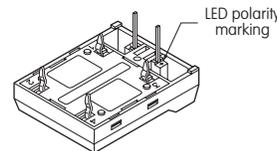
Versatile panel arrangements can be made to fit individual design needs.



TERMINALS

P Straight PC Terminals

With isolated lamp circuit
Further details in Typical Switch Dimensions



LED COLORS & SPECIFICATIONS

LEDs are supplied as an integral part of the switch. The electrical specifications shown are determined at a basic temperature of 25°C. The LED circuit is isolated and requires an external power source. For best results and safe use of LEDs, the supply voltage should be more than the LED forward voltage. Also, an appropriately valued ballast resistor should be used, or the LED will be damaged or destroyed. The resistor value can be calculated by using the formula in the Supplement section.

| Color | | Spot Illumination | | | Full Face Illumination | | |
|-----------------------------------|--------------|-------------------|-----------------|----------------|------------------------|-----------------|----------------|
| | | Red C | Yellow E | Green F | Red C | Yellow E | Green F |
| Maximum Forward Current | I_{FM} | 30mA | 30mA | 30mA | 30mA | 30mA | 30mA |
| Typical Forward Current | I_F | 20mA | 20mA | 20mA | 20mA | 20mA | 20mA |
| Forward Voltage | V_F | 2.0V | 1.9V | 2.0V | 1.77V | 2.1V | 2.3V |
| Maximum Reverse Voltage | V_{RM} | 5V | 5V | 5V | 4V | 4V | 4V |
| Current Reduction Rate Above 25°C | ΔI_F | 0.40mA/°C | 0.40mA/°C | 0.40mA/°C | 0.4mA/°C | 0.4mA/°C | 0.4mA/°C |
| Ambient Temperature Range | | -25° ~ +70°C | | | -25° ~ +70°C | | |

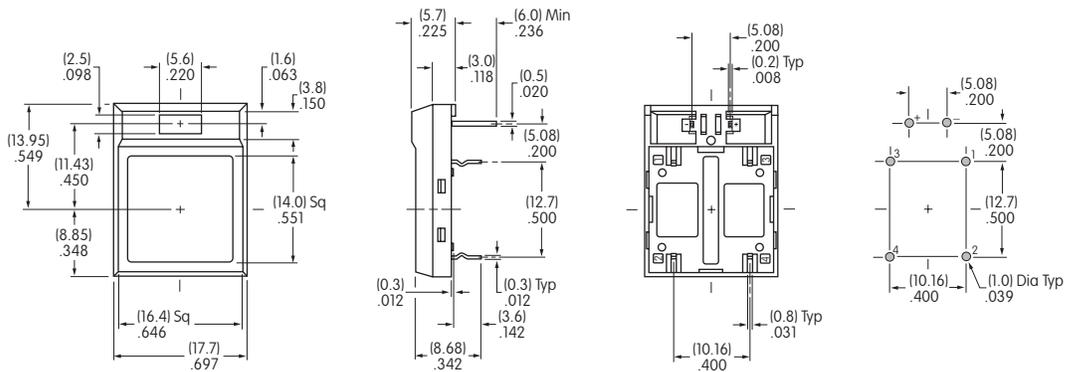
Toggles
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TYPICAL SWITCH DIMENSIONS

Spot Illuminated with Square Actuator



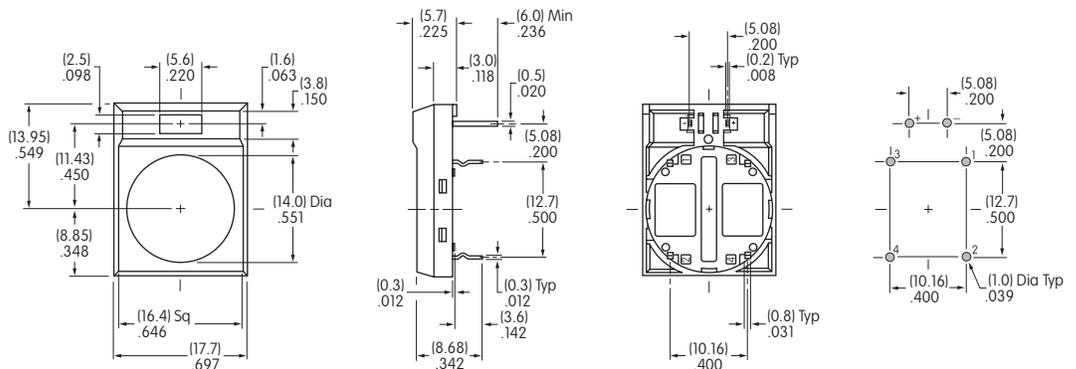
JF15RP1CC



Spot Illuminated with Round Actuator



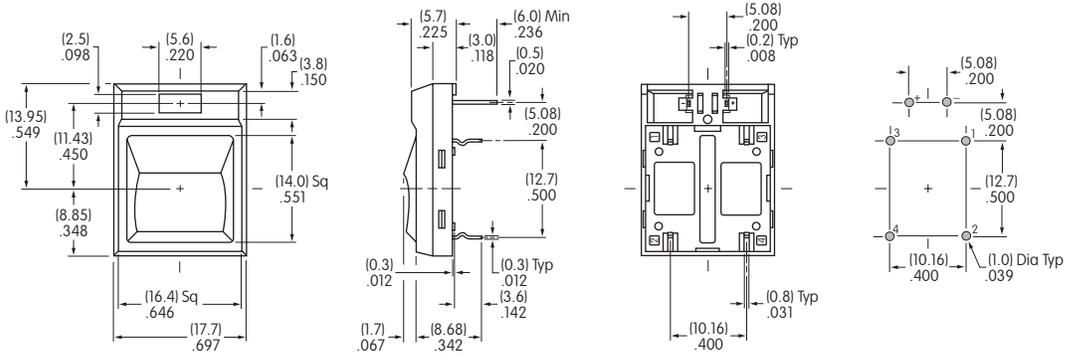
JF15RP2CC



Spot Illuminated with Sculptured Actuator



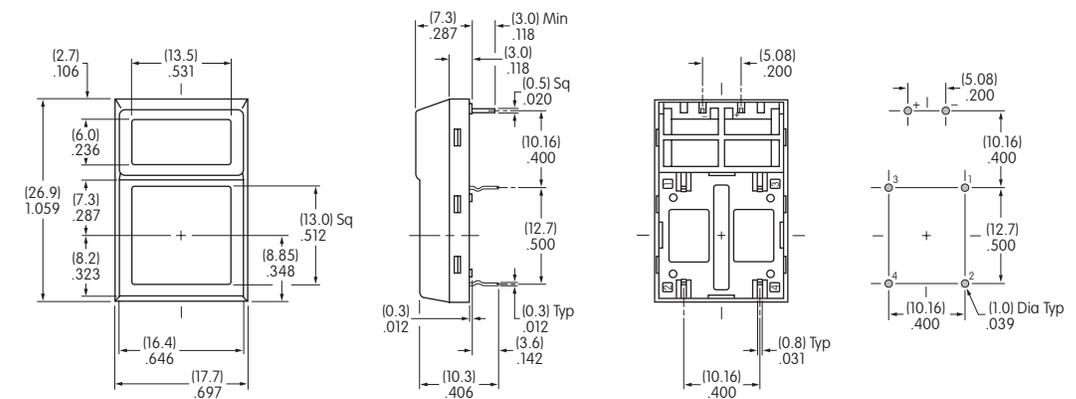
JF15RP3CC



Full Face Illuminated with Square Actuator



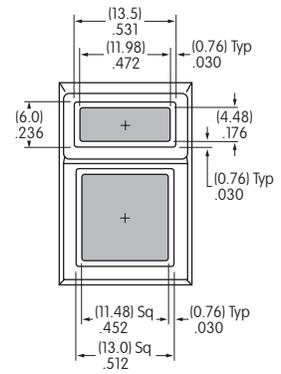
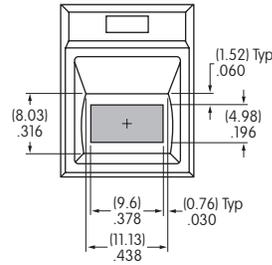
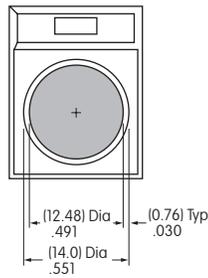
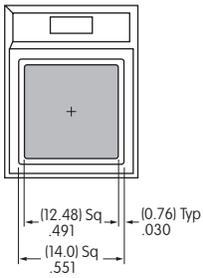
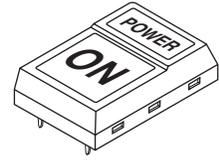
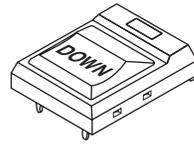
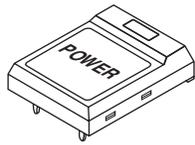
JF15AP1CC



LEGENDS

NKK Switches can provide custom legends for caps. Contact factory for more information.

Suggested Printable Area



Recommended Print Method:

Screen Print or Pad Print

Epoxy based ink is recommended.

Shaded areas are printable areas.