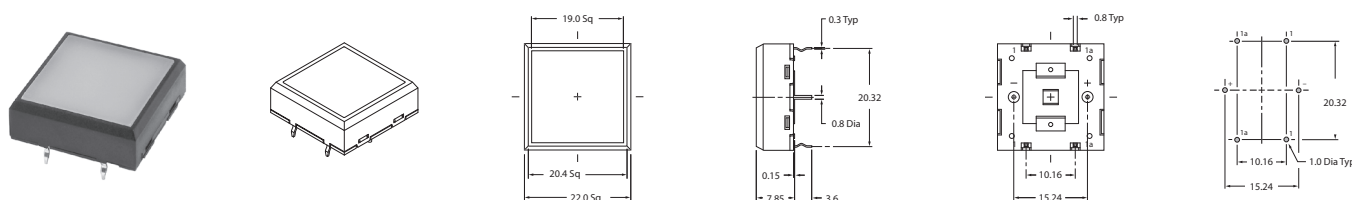


Illuminated Switches

Ultra-Thin Illuminated Tactile Switches

JL Series



JL15SKCCP2

POLE & CIRCUIT

		Actuator Position		Switch Throw & Schematic	LED Schematic	Notes
Pole	Model	Normal	Down	SPST 		Terminal markings 1, 1a, - & + are shown on the switch
SP	JL15	OFF	MOM			

LED COLORS & SPECIFICATIONS

Red LED model has 6 LEDs.

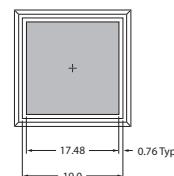
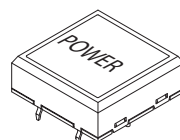
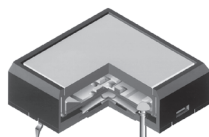
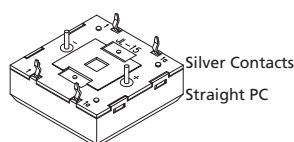
Amber & Green models each have 8 LEDs.

1-color, 1-element LEDs grouped in arrays of 6 or 8.	Colors	C Red	D Amber	F Green
Forward Peak Current	I_{FM}	75mA	100mA	100mA
Continuous Forward Current	I_F	60mA	80mA	80mA
Forward Voltage	V_F	4.0V	4.2V	4.2V
Reverse Peak Voltage	V_{RM}	8V	8V	8V
Current Reduction Rate Above 25°C	ΔI_F	0.98mA/°C	1.31mA/°C	1.31mA/°C
Ambient Temperature Range		-25°C ~ +50°C		

TERMINALS

CUTAWAY

SUGGESTED PRINTABLE AREA



Shaded areas is printable area.
Recommended Print Method: Screen Print or Pad Print
Epoxy based ink is recommended.

How to order:

JL 1 2 3 4 5 6

- 1 POLE & CIRCUIT:**
15 SPST OFF-MOM
- 2 HOUSING & COLOR:**
SK Square Black
- 3 ACTUATOR SHAPE:**
S Square
- 4 ACTUATOR COLORS:**
B White
C Red
D Amber
F Green
- 5 TERMINALS:**
P2 Silver Contacts Straight PC
- 6 LED COLORS:**
C Red
D Amber
F Green

General Specifications:

ELECTRICAL CAPACITY (Resistive Load)

» Low Level: 50mA@24VDC

OTHER RATINGS:

- » Contact Resistance: 50mΩ max.
- » Insulation Resistance: 500MΩ min.@250VDC
- » Mechanical Life: 1,000,000 operations min.
- » Electrical Life: 1,000,000 operations min.
- » Nominal Operating Force: 3.0N
- » Total Travel: 0.75mm

MATERIALS

- » Movable Contacts: Phosphor bronze with silver plating
- » Stationary Contacts: Brass with silver plating
- » Switch Terminals: Brass with silver plating
- » Lamp Terminals: Brass with tin plating

ENVIRONMENTAL DATA

» Operating Temperature: -25°C through +50°C

PCB PROCESSING

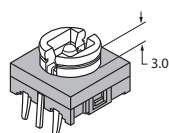
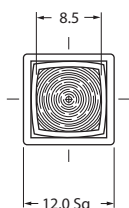
- » Soldering:
Wave soldering 5 sec. max. @ 270°C max.
Manual Soldering 3 sec. max. @ 350°C max.



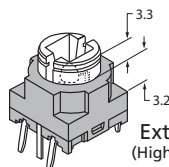
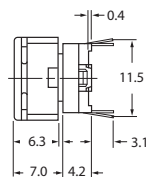
Illuminated Switches

Low Profile Process Sealed Illuminated Tactile Switches

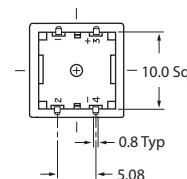
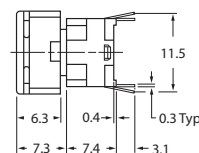
JB Series



Short Actuator

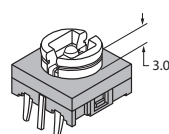
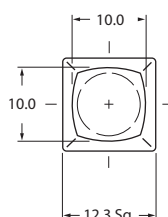
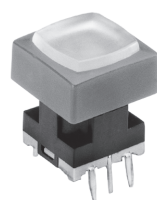


Extended Actuator
(High operating force only)

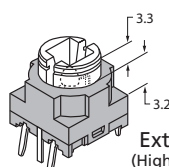
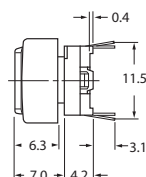


Spring action terminals conform to 2.54mm PCB spacing.

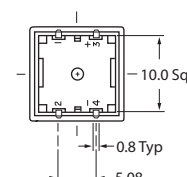
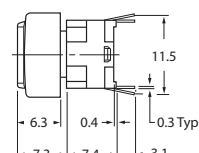
JB15LPC-JC



Short Actuator

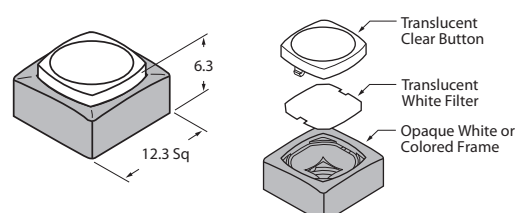
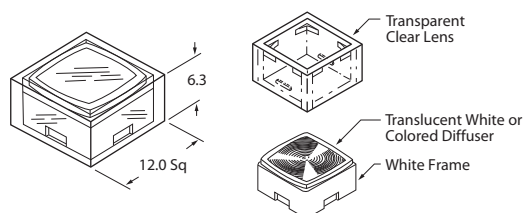


Extended Actuator
(High operating force only)



Spring action terminals conform to 2.54mm PCB spacing.

JB15HBPC-BC



AT4060 Flat Cap

AT4076 Framed Cap

How to order:

General Specifications:

JB - (CAPS)

ELECTRICAL CAPACITY (Resistive Load)

» Low Level: 50mA@24VDC max. for standard operating force models; 125mA@24VDC max. for high operating force models.

OTHER RATINGS:

» Contact Resistance: 50mΩ max.
 » Insulation Resistance: 500MΩ min. @250VDC
 » Mechanical Life: 5,000,000 operations min. for standard operating force models; 1,000,000 operations min. for high operating force models.
 » Electrical Life: 5,000,000 operations min. for standard operating force models; 1,000,000 operations min. for high operating force models.
 » Nominal Operating Force: 1.76N for standard; 2.65N for high.
 » Total Travel: 0.254mm for standard operating force models; 0.300mm for high operating force models.

MATERIALS

» Movable Contacts: Beryllium copper with silver plating
 » Stationary Contacts: Brass with silver plating
 » Terminals: Brass with silver plating

ENVIRONMENTAL DATA

» Operating Temperature: -25°C through +70°C

PCB PROCESSING

» Soldering: Wave soldering recommended.
 Manual Soldering 4 sec. max. @ 390°C max.

- 1** POLE & CIRCUIT:
15 SPST OFF-MOM
- 2** OPERATING FORCE:
No Code Standard 1.76N (L actuator only)
H High 2.65N
- 3** ACTUATORS:
L Short
B Extended
(H operating force only)
- 4** TERMINALS:
P Straight PC
- 5** LED COLORS:
C Red
E Yellow
F Green

- 6** CAP TYPES & COLORS:
- Flat Cap (Lens/Diffuser Colors):*
 JB Clear/White
 JC Clear/Red
 JE Clear/Yellow
 JF Clear/Green
 (For JC, JE & JF, diffuser color must match LED color)
- Framed Cap (Button/Frame Colors):*
 BB White/White
 BC White/Red
 BE White/Yellow
 BF White/Green
 BH White/Gray

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Illuminated Switches

Low Profile Process Sealed Illuminated Tactile Switches

JB Series

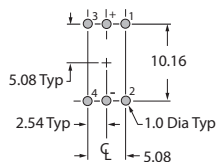
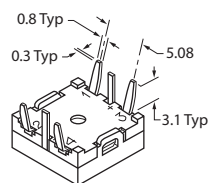
POLE & CIRCUIT

		Actuator Position		Switch Throw & Schematic	LED Schematic	Notes
Pole	Model	Normal	Down			Terminal numbers are shown on switch. LED circuit is isolated and requires external power source.
SPST	JB15	OFF	MOM			

LED COLORS & SPECIFICATIONS

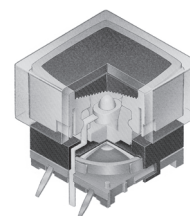
Color		Spot Illumination		
		C Red	E Yellow	F Green
Forward Peak Current	I_{FM}	25mA	25mA	25mA
Continuous Forward Current	I_F	20mA	20mA	20mA
Forward Voltage	V_F	2.0V	2.2V	2.1V
Reverse Peak Voltage	V_{RM}	4V	4V	4V
Current Reduction Rate Above 25°C	ΔI_F	0.42mA/°C		
Ambient Temperature Range		-25°C ~ +70°C		

TERMINALS

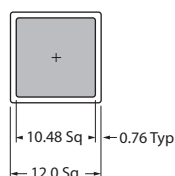


Straight PC Terminals

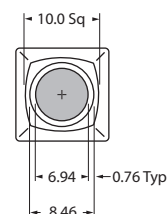
CUTAWAY



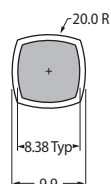
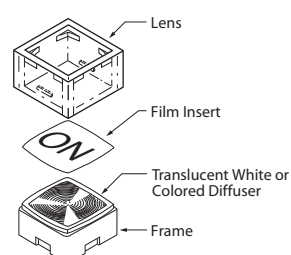
SUGGESTED PRINTABLE AREA FOR LENS



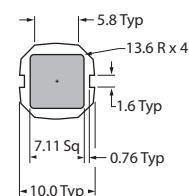
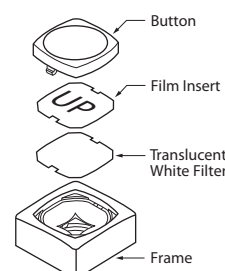
Shaded areas are printable areas.
Recommended Print Method: Screen Print or Pad Print
Epoxy based ink is recommended.



SUGGESTED PRINTABLE AREA FOR FILM INSERTS



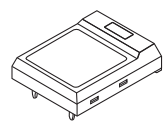
Shaded areas are printable areas.
Recommended Methods:
Laser Etch on clear lens, screen print, or pad print on lens; Screen print on film insert.
Epoxy based ink is recommended.



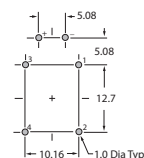
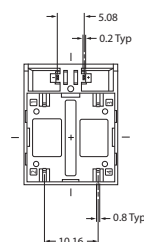
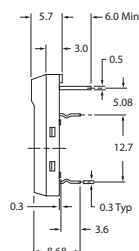
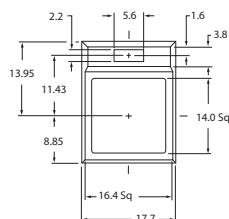
Illuminated Switches

Ultra-Thin Process Sealed Illuminated Tactile Switches

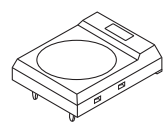
JF Series



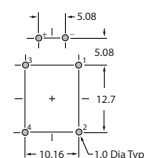
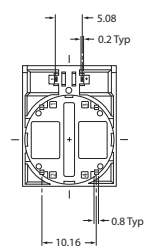
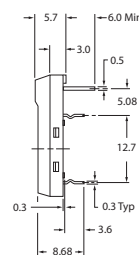
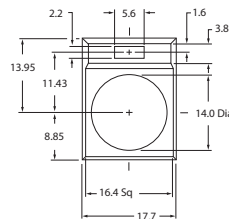
Spot Illumination
Square Actuator



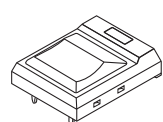
JF15RP1_ _



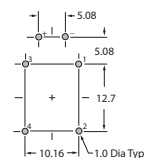
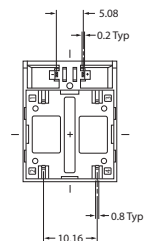
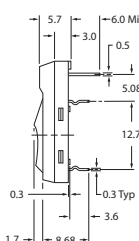
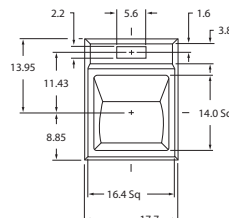
Spot Illumination
Round Actuator



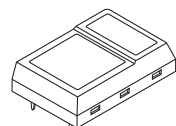
JF15RP2_ _



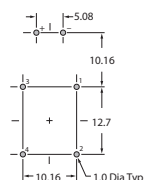
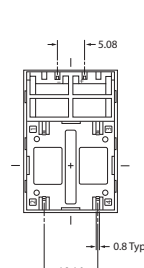
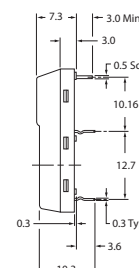
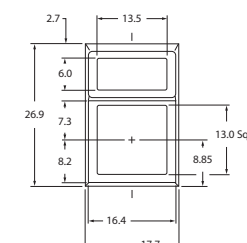
Spot Illumination
Sculptured Actuator



JF15RP3_ _



Full Face Illumination
Square Actuator



JF15AP1_ _

How to order:

JF 1 2 3 4 5 6

- 1 POLE & CIRCUIT:**
15 SPST OFF-MOM
- 2 ILLUMINATION:**
R Spot
A Full Face (with square actuator only)
- 3 TERMINALS:**
P Straight PC
- 4 ACTUATOR TYPES:**
1 Square
2 Round
3 Sculptured

- 5 ACTUATOR COLORS:**
Spot Illuminated:
C Red
D Orange
F Green
G Blue
H Gray
Full Face Illuminated (LED color must match actuator color):
C Red
E Yellow
F Green
- 6 LED COLORS:**
C Red
E Yellow
F Green

General Specifications:

ELECTRICAL CAPACITY (Resistive Load)

» Low Level: 50mA@24VDC

OTHER RATINGS:

- » Contact Resistance: 50mΩ max.
» Insulation Resistance: 500MΩ min.@250VDC
» Mechanical Life: 500,000 operations min.
» Electrical Life: 500,000 operations min.
» Nominal Operating Force: 3.0N for flush actuator
2.0N for sculptured actuator
» Total Travel: 0.4mm for flush actuator
0.8mm for sculptured actuator

MATERIALS

- » Movable Contacts: Phosphor bronze with silver plating
» Stationary Contacts: Brass with silver plating
» Terminals: Brass with silver plating

ENVIRONMENTAL DATA

» Operating Temperature: -25°C through +70°C

PCB PROCESSING

- » Soldering: Wave soldering recommended.
Manual Soldering 4 sec. max. @ 390°C max.

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Illuminated Switches

Ultra-Thin Process Sealed Illuminated Tactile Switches

JF Series

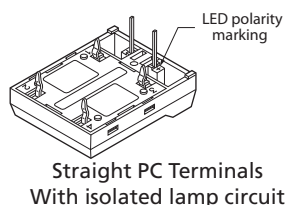
POLE & CIRCUIT

		Actuator Position		Switch Throw & Schematic	LED Schematic	Notes
Pole	Model	Normal	Down			Terminal numbers are shown on switch. LED circuit is isolated and requires external power source.
SP	JF15	OFF	MOM			

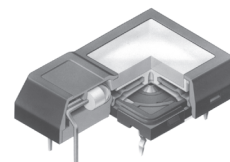
LED COLORS & SPECIFICATIONS

Color		Spot Illumination			Full Face Illumination		
		C Red	E Yellow	F Green	C Red	E Yellow	F Green
Forward Peak Current	I_{FM}	40mA	40mA	40mA	30mA	30mA	30mA
Continuous Forward Current	I_F	30mA	30mA	30mA	20mA	20mA	20mA
Forward Voltage	V_F	1.7V	2.2V	2.2V	1.77V	2.1V	2.3V
Reverse Peak Voltage	V_{RM}	4V	4V	4V	4V	4V	4V
Current Reduction Rate Above 25°C	ΔI_F	0.67mA/°C	0.67mA/°C	0.67mA/°C	0.4mA/°C	0.4mA/°C	0.4mA/°C
Ambient Temperature Range		-25°C ~ +70°C			-25°C ~ +70°C		

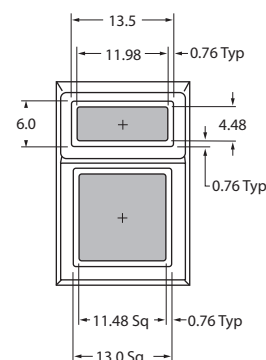
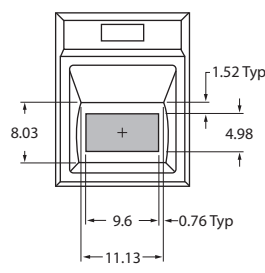
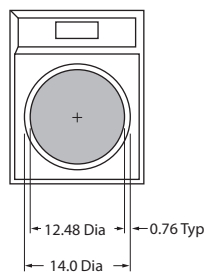
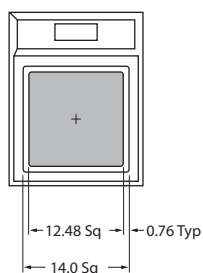
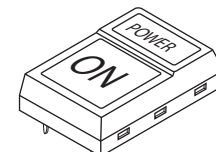
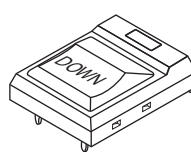
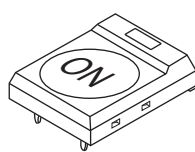
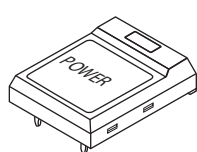
TERMINALS



CUTAWAY



SUGGESTED PRINTABLE AREA



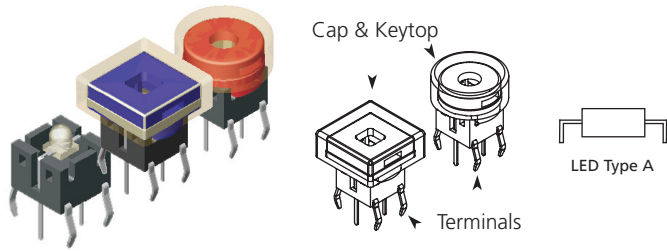
Shaded areas are printable areas.

Recommended Print Method: Screen Print or Pad Print
Epoxy based ink is recommended.

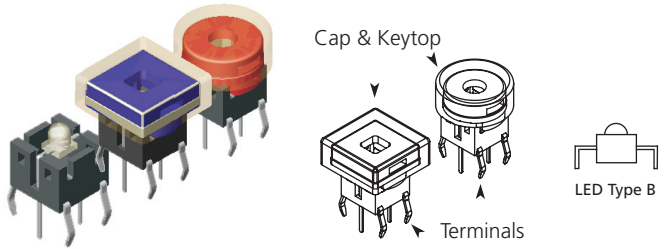
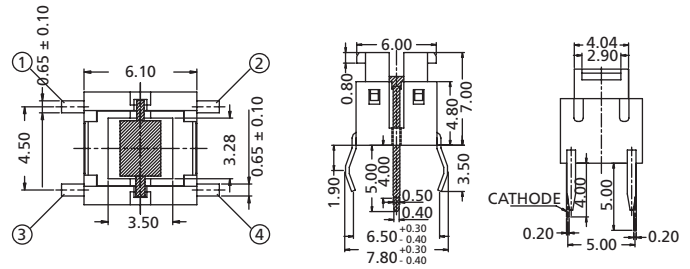


Illuminated Switches

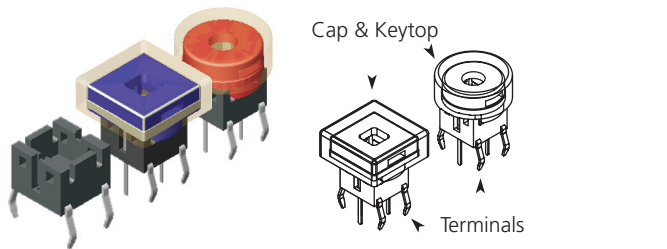
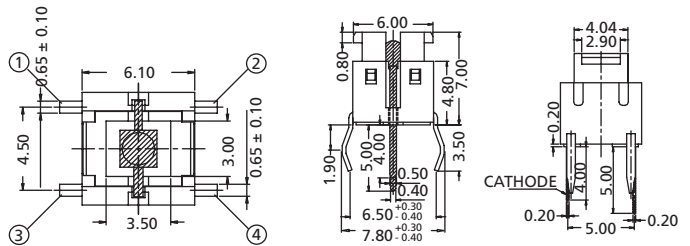
6 mm THT Tactile Switches with LED & 10 mm Clear Cap TL6 Series



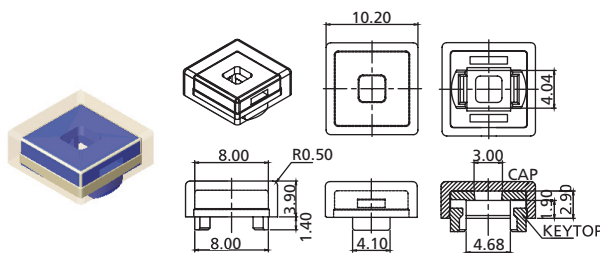
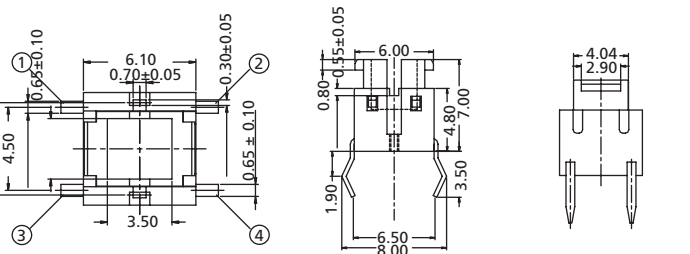
TL6A Tactile Switch with LED Type A



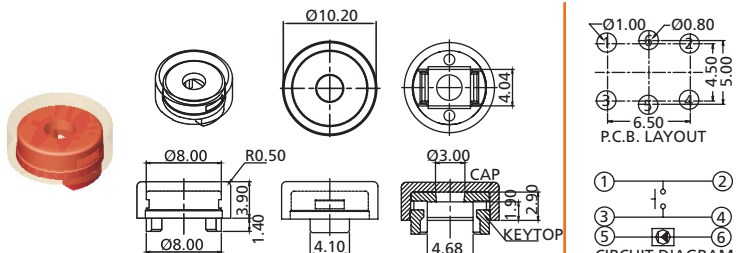
TL6B Tactile Switch with LED Type B



TL6N Tactile Switch without LED



KTS Square Cap



KTR Round Cap

How to order:

TL6 + (Caps)

1 TYPE OF LED:

- A LED Type A
- B LED Type B
- N Without LED

2 OPERATING FORCE:

- 10 100 ± 50 gf
- 16 160 ± 50 gf
- 26 260 ± 50 gf

4 PACKAGE:

- TB Tube

3 LED COLOR:

- C Red
- E Yellow
- F Green
- G Blue
- B White
- D Orange

5 CAP TYPE:

- KTS Square Cap
 - KTR Round Cap
- (The color of the caps is clear)

6 COLOR OF KEYTOP

- C Red
- E Yellow
- F Green
- G Blue
- U Ivory
- A Black
- S Salmon

General Specifications:

FEATURES

- » Sharp click feel with a positive tactile feedback

MATERIALS

- » Contact: Stainless with silver cladding
- » Terminal: Brass with silver cladding

MECHANICAL

- » Stroke: 0.20 ± 0.10 mm
- » Operation Temperature: -20°C to +70°C
- » Storage Temperature: -30°C to +80°C

ELECTRICAL

- » Electrical Life: 200,000 cycles
- » Rating: 50mA, 12VDC
- » Contact Arrangement: Single pole single throw

LEADFREE SOLDERING PROCESSES

- » Wave Soldering: Recommended solder temperature at 260°C max. 5 seconds subject to P.C.B. 1.6 mm thickness.

General Tolerance: ± 0.2 mm