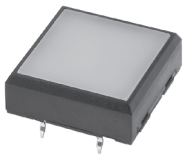
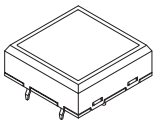
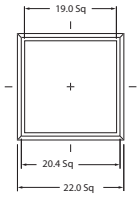
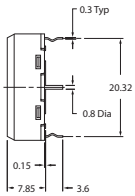
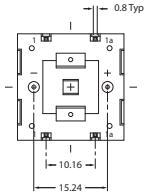
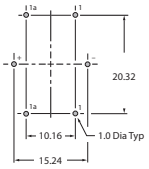
Ultra-Thin Illuminated Tactile Switches — JL Series







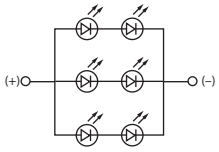
JL15SKSCCP2

POLE & CIRCUIT

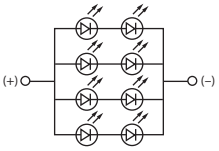
		Actuator Position		Switch Throw & Schematic	LED Schematic	Notes
Pole	Model	Normal	Down			
SP	JL15	OFF	MOM	SPST		Terminal markings 1, 1a, - & + are shown on the switch

LED COLORS & SPECIFICATIONS

Red LED model has 6 LEDs.

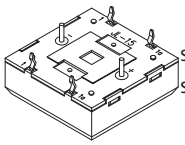


Amber & Green models each have 8 LEDs.

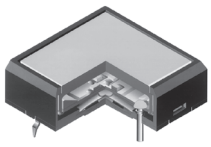


1-color, 1-element LEDs grouped in arrays of 6 or 8. Colors		C Red	D Amber	F Green
Forward Peak Current	I_{FM}	75mA	100mA	100mA
Continuous Forward Current	I_F	60mA	80mA	80mA
Forward Voltage	V_F	4.0V	4.2V	4.2V
Reverse Peak Voltage	V_{RM}	8V	8V	8V
Current Reduction Rate Above 25°C	ΔI_F	0.98mA/°C	1.31mA/°C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

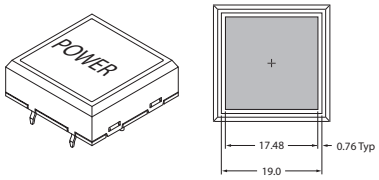
TERMINALS



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.
» Norminal 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

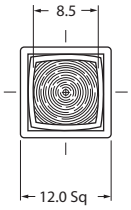
ENVIRONMENTAL DATA
» Operating Temperature: -25°C through +50°C

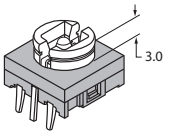
PCB PROCESSING
» Soldering:
Wave soldering 5 sec. max. @ 270°C max.
Manual Soldering 3 sec. max. @ 350°C max.

NKK nikkai

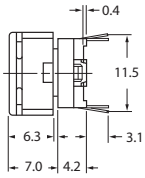
Low Profile Process Sealed Illuminated Tactile Switches — JB Series

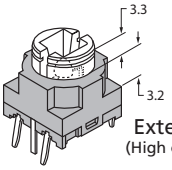




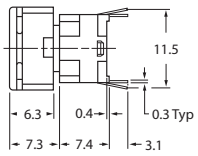


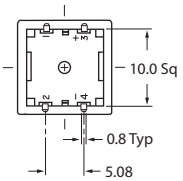
Short Actuator





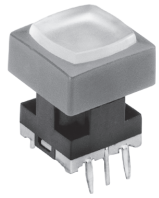
Extended Actuator
(High operating force only)

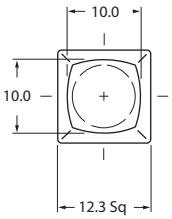


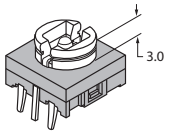


Spring action terminals conform to 2.54mm PCB spacing.

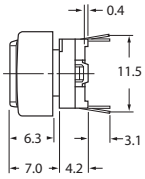
JB15LPC-JC

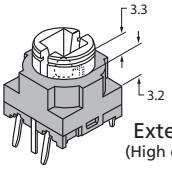




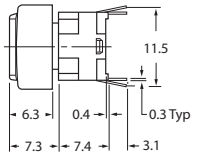


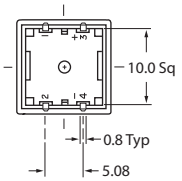
Short Actuator





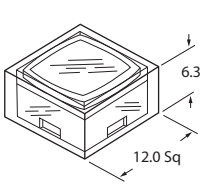
Extended Actuator
(High operating force only)

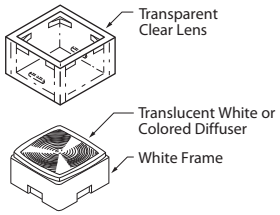




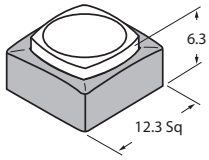
Spring action terminals conform to 2.54mm PCB spacing.

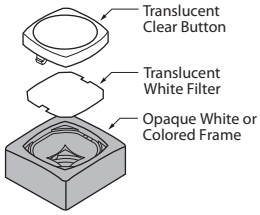
JB15HBPC-BC





AT4060 Flat Cap





AT4076 Framed Cap

How to order:

JB [1] [2] [3] [4] [5] - [6] (CAPS)

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

General Specifications:

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 oversting forces models; 1,000,000 operations min. for high operating force models.
» Electrical Life: 5,000,000 operations min. for standard oversting forces models; 1,000,000 operations min. for high operating force models.
» Norminal 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

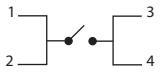
ENVIRONMENTAL DATA
» Operating Temperature: -25°C through +70°C

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

NKK nikkai

Low Profile Process Sealed Illuminated Tactile Switches — JB Series

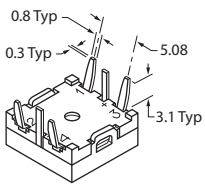
POLE & CIRCUIT

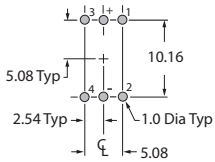
		Actuator Position		Switch Throw & Schematic	LED Schematic	Notes
Pole	Model	Normal	Down			Terminal numbers are shown on switch. LED circuit is isolated and requires external power source.
SPST	JB15	OFF	MOM			

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		

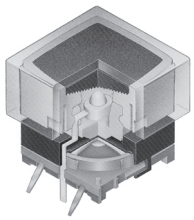
TERMINALS





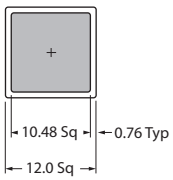
Straight PC Terminals

CUTAWAY



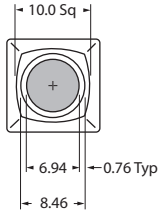
SUGGESTED PRINTABLE AREA FOR LENS



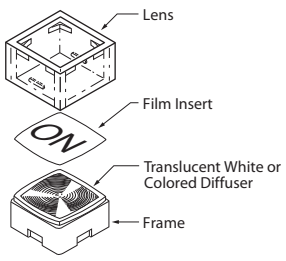


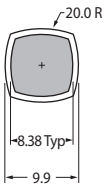
Shaded areas are printable areas.
Recommended Print Method: Screen Print or Pad Print
Epoxy based ink is recommended.



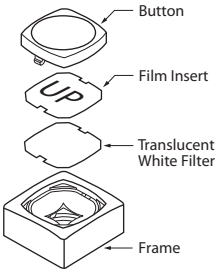


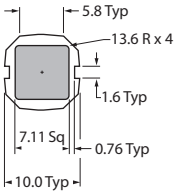
SUGGESTED PRINTABLE AREA FOR FILM INSERTS





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.

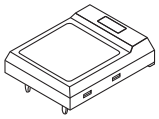




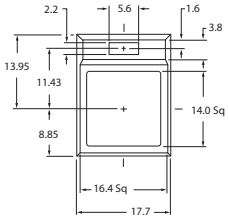
nikkai

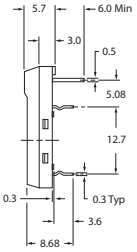
Ultra-Thin Process Sealed Illuminated Tactile Switches JF Series

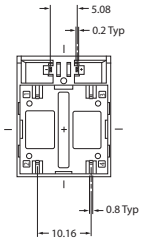


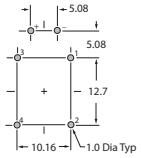


Spot Illumination
Square Actuator



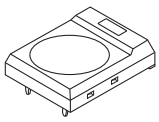




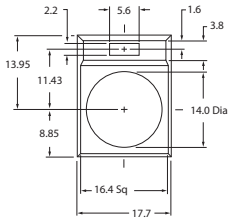


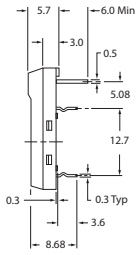
JF15RP1_ _

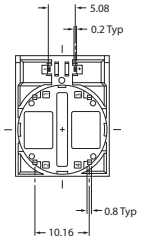


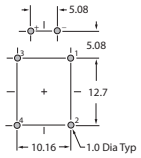


Spot Illumination
Round Actuator



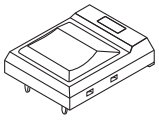




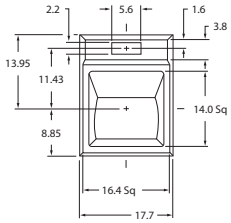


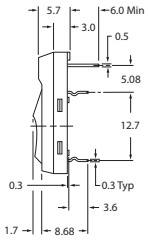
JF15RP2_ _

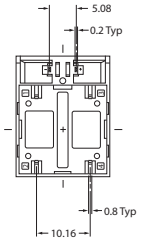


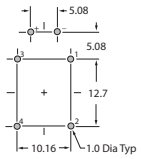


Spot Illumination
Sculptured Actuator

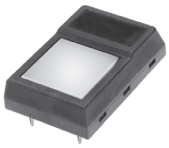


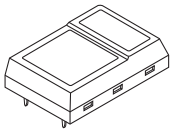




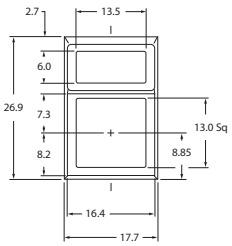


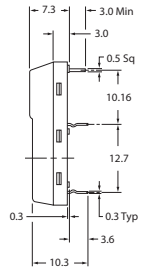
JF15RP3_ _

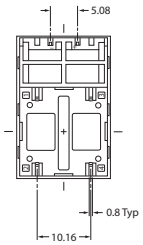


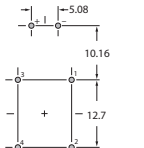


Full Face Illumination
Square Actuator









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.
» Norminal 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.

NKK nikkai

Ultra-Thin Process Sealed Illuminated Tactile Switches JF Series

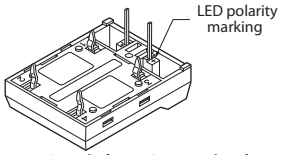
POLE & CIRCUIT

		Actuator Position		Switch Throw & Schematic	LED Schematic	Notes
Pole	Model	Normal	Down			
SP	JF15	OFF	MOM	1 2 3 4	(+) (-)	Terminal numbers are shown on switch. LED circuit is isolated and requires external power source.

LED COLORS & SPECIFICATIONS

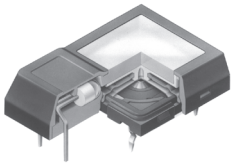
Color		Spot Illumination			Full Face Illumination		
		C Red	E Yellow	F Green	C Red	E Yellow	F Green
Forward Peak Current	I_{FM}	40mA	40mA	40mA	30mA	30mA	30mA
Continuous Forward Current	I_F	30mA	30mA	30mA	20mA	20mA	20mA
Forward Voltage	V_F	1.7V	2.2V	2.2V	1.77V	2.1V	2.3V
Reverse Peak Voltage	V_{RM}	4V	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

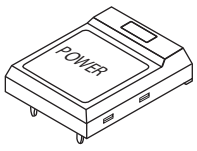


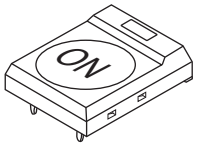
Straight PC Terminals
With isolated lamp circuit

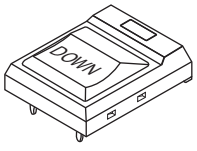
CUTAWAY

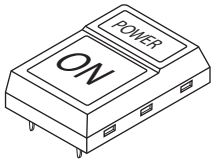


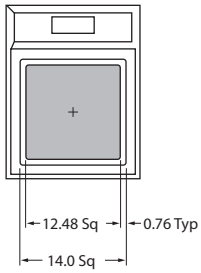
SUGGESTED PRINTABLE AREA

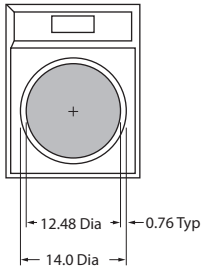


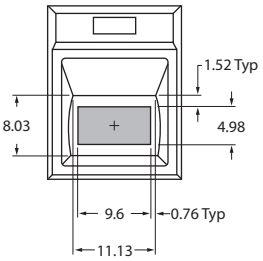


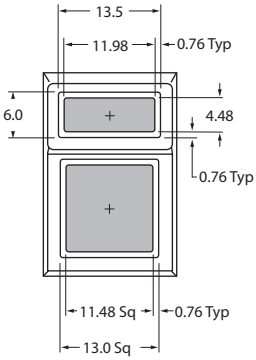








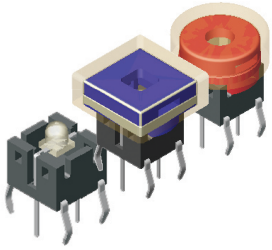


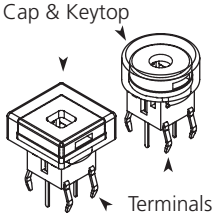


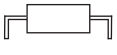
Shaded areas are printable areas.

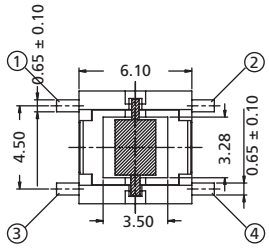
Recommended Print Method: Screen Print or Pad Print
Epoxy based ink is recommended.

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

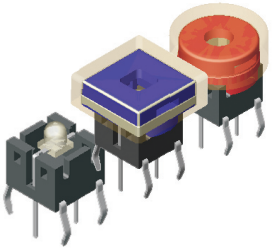


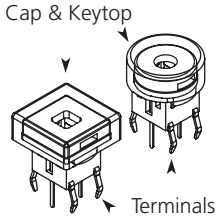




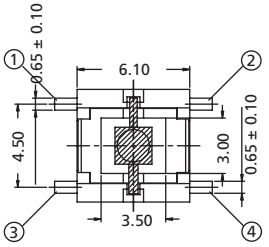


TL6A Tactile Switch with LED Type A

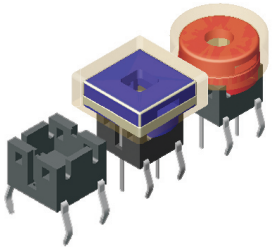


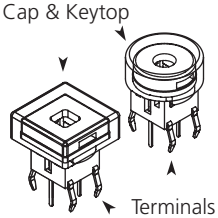


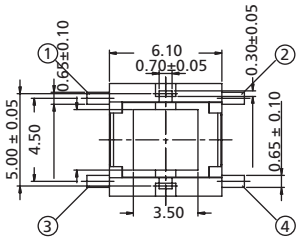




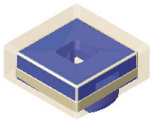
TL6B Tactile Switch with LED Type B

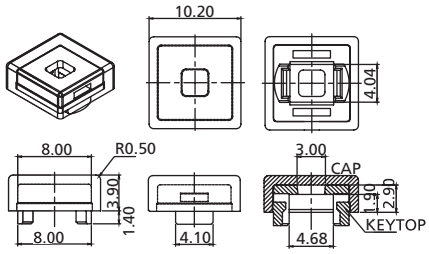




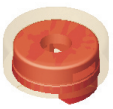


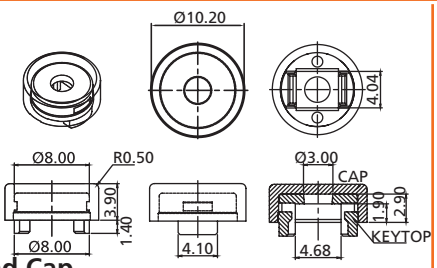
TL6N Tactile Switch without LED



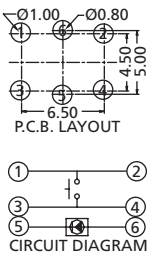


KTS Square Cap





KTR Round Cap



How to order:

TL6 [1] [2] [3] [4] + [5] [6] (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

[3] LED COLOR:
- C Red
- E Yellow
- F Green
- G Blue
- B White
- D Orange

[4] PACKAGE:
- TB Tube

[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 Tolerance: ± 0.2 mm

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.