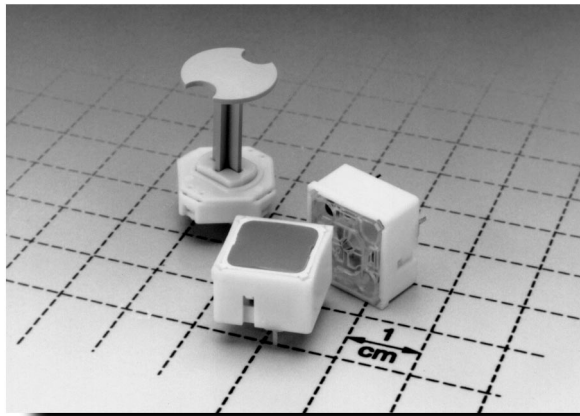


# RF 15 & 15 N Series Tactile Switches & Signal Indicators



## Features/Benefits

- Long life—1,000,000 cycles
- Highly reliable contact design
- Illumination available
- Positive tactile feedback

## Typical Applications

- Medical equipment
- Test instrumentation equipment
- Construction equipment

## How To Order

To order RF 15, select switch/housing part number. To order RF 15 N, select switch part number and plunger part number in catalog section L. Other illuminated styles available, consult Customer Service Center.

## Specifications

CONTACT RATING: 0.01 - 100 mA @ 0.02 - 42 V AC/DC (Au).  
0.1 - 250 mA @ 3 - 50 V AC/DC (Ag).  
RATED POWER: 2 W (Au), 12.5 W (Ag) resistive load.  
CONTACT RESISTANCE:  $\leq 100$  milliohms when new.  
SENSITIVITY TO ELECTROSTATIC CHARGES: (RF 15 N)  
< 15 V if the keyswitches are covered by an overlay.  
BOUNCE:  $\leq 5$  ms.  
CONTACT SYSTEM: Snap-action contact.  
CONTACT ARRANGEMENT: SPST NO.  
ILLUMINATION: 1 or 2 LEDs, spot or full illumination.  
FIXING: By soldering.  
SOLDERING TEMPERATURE: 250°C.  
SOLDERING TIME: 2.5 sec. max.  
SWITCHING TRAVEL: 0.5 + 0.2 mm.  
FULL TRAVEL: (RF 15 N) 0.5 + 0.2 mm.

OPERATING LIFE: 1,000,000 cycles min.  
OPERATING FORCE: 2 - 3 N max.  
AMBIENT OPERATING TEMPERATURE: -25°C to + 70°C;  
-13°F to + 158°F.  
AMBIENT STORAGE TEMPERATURE: -40°C to + 80°C;  
-40°F to + 176°F.  
PACKAGING: RF15: Tube packaging, 32 switches;  
RF15N: Paper packaging, 25 switches.

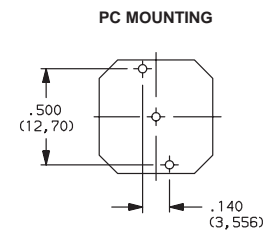
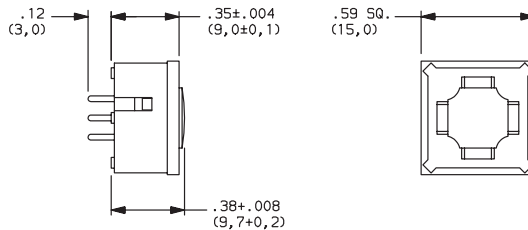
## Materials

SWITCH HOUSING: Pocan B.  
TRANSPARENT ACTUATOR: (RF 15) Makrolon.  
KEYCAP: (RF 15) Novodur.  
CONTACT MATERIAL: Au or Ag.  
TERMINALS: Contact spring: Tin-plated. Stationary contact:  
Au version tin-plated, Ag version silver-plated.  
FLAMMABILITY OF PLASTIC MATERIALS: UL 94 HB.

## RF 15 Non-illuminated Short Travel Tactile Switches

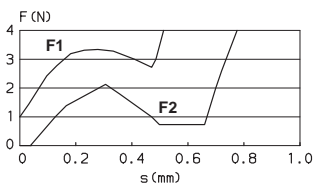


3.14100.0010000  
SPST N.O.



View on component side.  
All hole diameters: (1.1 ± 0.1 mm) .043 ± .004  
PCB layout: 1/400" grid.

## FORCE/TRAVEL DIAGRAM

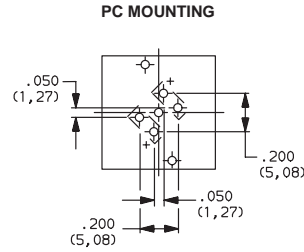
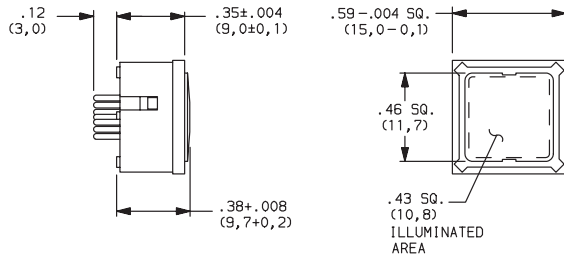


F1 = Max. operating force  
F2 = Force at contact  
F2 is max. 55% of F1.

SWITCH & HOUSING				KEYCAP ACCESSORY		SCHEMATIC
PART NUMBER	FUNCTION	CONTACT MATERIAL	ACTUATOR COLOR	PART NUMBER	DESCRIPTION	
3.14100.0010000	SPST N.O.	Au	Opaque White	5.46654.0590227	Beige Snap-in Keycap	
3.14100.0060000		Ag				

Tactile

## RF 15 Illuminated Short Travel Tactile Switches

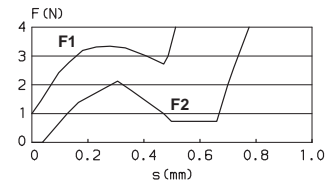


3.14200.0110000  
SPST N.O.

View on component side.  
 All hole diameters: (1.1 ± 0.1 mm) .043 ± .004  
 PCB layout: 1/400" grid.

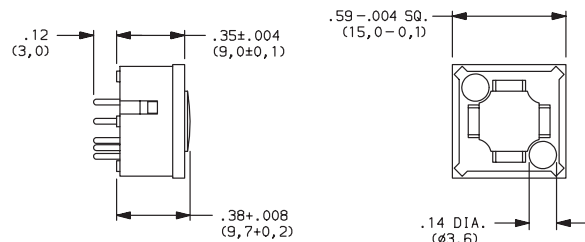
SWITCH & HOUSING				ILLUMINATION		SCHEMATIC
PART NUMBER	FUNCTION	CONTACT MATERIAL	ACTUATOR COLOR	STANDARD LEDs	LED COLOR	
3.14200.0110000	SPST N.O.	Au	Red	2 LEDs Fully Illuminated	Red	
3.14200.0120000			Green		Green	
3.14200.0130000			Yellow		Yellow	
3.14200.0210000		Ag	Red		Red	
3.14200.0220000			Green		Green	
3.14200.0230000			Yellow		Yellow	

FORCE/TRAVEL DIAGRAM

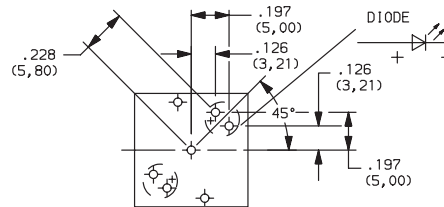


F1 = Max. operating force  
 F2 = Force at contact  
 F2 is max. 55% of F1.

## RF 15 Illuminated Short Travel Tactile Switches



PC MOUNTING

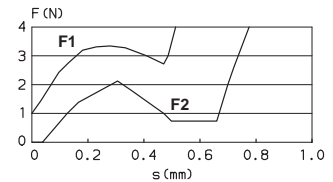


3.14100.0300000  
SPST N.O.

View on component side.  
 All hole diameters: (1.1 ± 0.1 mm) .043 ± .004  
 PCB layout: 1/400" grid.  
 LED may be positioned on either left-hand or right-hand side.

SWITCH & HOUSING				ILLUMINATION		SCHEMATIC
PART NUMBER	FUNCTION	CONTACT MATERIAL	ACTUATOR COLOR	STANDARD LED	LED COLOR	
3.14100.0300000	SPST N.O.	Au	White	1 LED Spot Illuminated	Blue	
3.14100.0310000					Red	
3.14100.0320000					Green	
3.14100.0330000					Yellow	
3.14100.0400000		Ag			Blue	
3.14100.0410000					Red	
3.14100.0420000					Green	
3.14100.0430000					Yellow	

FORCE/TRAVEL DIAGRAM



F1 = Max. operating force  
 F2 = Force at contact  
 F2 is max. 55% of F1.



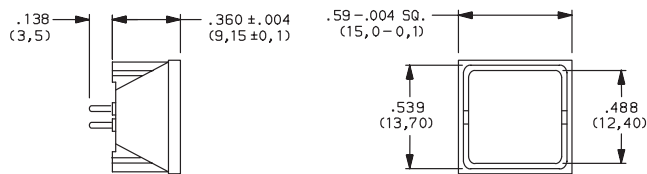
# RF 15 & 15 N Series Tactile Switches & Signal Indicators



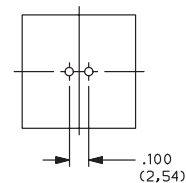
## RF 15 Illuminated Signal Indicators



3.14200.0510000



### PC MOUNTING



View on component side.  
 All hole diameters: (1.1 ± 0.1 mm) .043 ± .004  
 PCB layout: 1/40" grid.

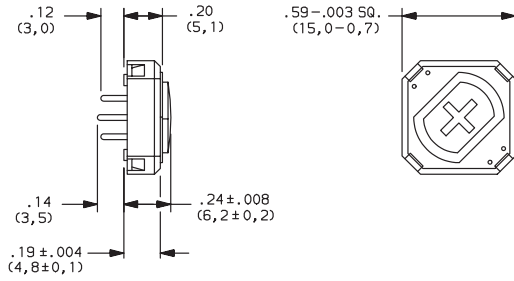
INDICATOR HOUSING		ILLUMINATION	
PART NUMBER	ACTUATOR COLOR	STANDARD LED	LED COLOR
<b>3.14200.0510000</b>	Red	1 LED Fully illuminated	Red
<b>3.14200.0520000</b>	Green		Green
<b>3.14200.0530000</b>	Yellow		Yellow

LED SPECIFICATIONS FOR RF 15 FULLY ILLUMINATED TACTILE SWITCHES			
SPECIFICATIONS	RED LED	YELLOW LED	GREEN LED
Maximum admissible current $I_F$ max.	30 mA	50 mA	30 mA
Current reduction from 50°C on	0.5 mA/°C	0.8 mA/°C	0.5 mA/°C
Luminous flux typical $\phi_V/I_F$	—	250 mlm/20 mA	—
Wavelength typical $\lambda_{PEAK}$	637 nm	590 nm	569 nm
Forward voltage typical $U_F/I_F$	1.8 V/20 mA	1.9 V/20 mA	2.1 V/10 mA
Reverse voltage $U_R/I_F$	5 V/100 $\mu$ A min.	5 V/100 $\mu$ A min.	5 V/100 $\mu$ A min.
Ambient operating temperature	-55°C to +100°C -67°F to +212°F	-40°C to +100°C -40°F to +212°F	-40°C to +100°C -40°F to +212°F

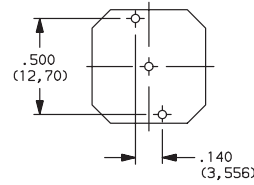
LED SPECIFICATIONS FOR RF 15 SPOT ILLUMINATED TACTILE SWITCHES				
SPECIFICATIONS	RED LED	YELLOW LED	GREEN LED	BLUE LED
Maximum admissible current $I_F$ max.	30 mA	20 mA	30 mA	20 mA
Current reduction from $T_0 = 50^\circ\text{C}$ (Approx.)	0.5 mA /°C	0.2 mA/°C	0.5 mA/°C	0.6 mA/°C
Wavelength typical $\lambda_{PEAK}$	635 nm	586 nm	565 nm	470 nm
Forward voltage typical $U_F/I_F$	2 V/10 mA	2 V/10 mA	2 V/10 mA	2.7 V/10 mA
Reverse voltage $U_R/I_F$	5 V/100 $\mu$ A min.	5 V/100 $\mu$ A min.	5 V/100 $\mu$ A min.	5 V/100 $\mu$ A min.
Ambient operating temperature	-20°C to +80°C -4°F to +176°F	-20°C to +80°C -4°F to +176°F	-20°C to +80°C -4°F to +176°F	-20°C to +80°C -4°F to +176°F



## RF 15 N Non-Illuminated Short Travel Tactile Switches



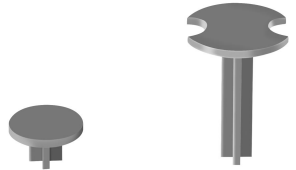
### PC MOUNTING



3.14100.6010000  
SPST N.O.

View on component side.  
 All hole diameters: (1.1 ± 0.1 mm) .043 ± .004  
 PCB layout: 1/400" grid.

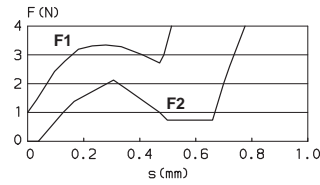
### PLUNGERS



5.46011.030

5.46017.028

### FORCE/TRAVEL DIAGRAM



F1 = Max. operating force  
 F2 = Force at contact  
 F2 is max. 55% of F1.

SWITCH				PLUNGER ACCESSORY		
PART NUMBER	FUNCTION	CONTACT MATERIAL	SCHEMATIC	PART NUMBER	DIAMETER	HEIGHT
3.14100.6010000	SPST N.O.	Au		5.46011.0360000	10 mm	9.0 mm
				5.46011.0300000	10 mm	9.7 mm
				5.46011.0370000	10 mm	12.5 mm
				5.46011.0380000	10 mm	13.0 mm
3.14100.6060000	SPST N.O.	Ag		5.46011.0280000	10 mm	22.5 mm
				5.46017.0360000	15 mm	9.0 mm
				5.46017.0300000	15 mm	9.7 mm
				5.46017.0370000	15 mm	12.5 mm
			5.46017.0380000	15 mm	13.0 mm	
			5.46017.0280000	15 mm	22.5 mm	



C

Tactile