



Datasheet

RS PRO Sub-Miniature Pushbutton Switches

Stock number: 175-XXXX (Details as follows)

EN



The picture above is for reference only.

Specifications:

RATING : 2A/36VDC

ELECTRICAL LIFE : 200,000 make-and-break cycles at full load

MECHANICAL LIFE : 1,000,000 cycles

INSULATION RESISTANCE : 1,000 M Ω min. at 500VDC

DIELECTRIC STRENGTH : 2,000V RMS @ sea level

CONTACT RESISTANCE : 50 m Ω max.

OPERATION TEMPERATURE : -20°C~+70°C

TRAVEL: About 2.0 \pm 0.20mm

OPERATION PRESSURE : 4.5N \pm 1.5N

INGRESS PROTECTION : IP67

TORQUE : 11.5 kgf · cm

THICKNESS : 8.0mm (Max.)

Current limiting resistor is required to limit LED forward current to 20mA.

RS Part no.

RS Pro MPN	Packs of 1	Packs of 20
MPB16-CARE-0-T1R-0V	1759368	1758552
MPB16-CARE-1-T1R-0V	1759494	1758545
MPB16-CARE-1-T1R-6V	1759379	1758540
MPB16-CARE-1-T1R-12V	1759346	1758543
MPB16-CARE-1-T1R-24V	1759386	1758541
MPB16-CARE-3-T1R-0V	1759512	1758530
MPB16-CARE-3-T1R-3V	1759385	1758526
MPB16-CARE-3-T1R-6V	1759378	1758524
MPB16-CARE-3-T1R-12V	1759491	1758529
MPB16-CARE-3-T1R-24V	1759392	1758527
MPB16-CARE-5-T1R-0V	1759363	1758537
MPB16-CARE-5-T1R-3V	1759514	1758589
MPB16-CARE-5-T1R-6V	1759496	1758587
MPB16-CARE-5-T1R-12V	1759555	1758593
MPB16-CARE-5-T1R-24V	1759542	1758590
MPB16-CARE-6-T1R-0V	1759549	1758579
MPB16-CARE-6-T1R-6V	1759539	1758575
MPB16-CARE-6-T1R-12V	1759577	1758578
MPB16-CARE-6-T1R-24V	1759383	1758555
MPB16-CARE-7-T1R-0V	1759581	1758567
MPB16-CARE-7-T1R-6V	1759527	1758561
MPB16-CARE-7-T1R-12V	1759559	1758565
MPB16-CARE-7-T1R-24V	1759537	1758563
MPB16-CARE-A-T1R-0V	1759352	1758440
MPB16-CARE-A-T1R-6V	1759571	1758471
MPB16-CARE-A-T1R-12V	1759345	1758518
MPB16-CARE-A-T1R-24V	1759598	1758473
MPB16-CARE-RGB-T1R-0V	1759387	1758464
MPB16-CARE-RGB-T1R-6V	1759344	1758439
MPB16-CARE-RGB-T1R-12V	1759380	1758462
MPB16-CARE-RGB-T1R-24V	1759373	1758460
MPB16-CARP-0-T1R-0V	1759483	1758475
MPB16-CARP-1-T1R-0V	1759391	1758449
MPB16-CARP-1-T1R-6V	1759370	1758444
MPB16-CARP-1-T1R-12V	1759384	1758447
MPB16-CARP-1-T1R-24V	1759377	1758446
MPB16-CARP-3-T1R-0V	1759481	1758512
MPB16-CARP-3-T1R-3V	1759375	1758507
MPB16-CARP-3-T1R-6V	1759367	1758506
MPB16-CARP-3-T1R-12V	1759389	1758511
MPB16-CARP-3-T1R-24V	1759381	1758510

MPB16-CARP-5-T1R-0V	1759478	1758497
MPB16-CARP-5-T1R-3V	1759374	1758493
MPB16-CARP-5-T1R-6V	1759369	1758492
MPB16-CARP-5-T1R-12V	1759524	1758515
MPB16-CARP-5-T1R-24V	1759382	1758495
MPB16-CARP-6-T1R-0V	1759567	1758483
MPB16-CARP-6-T1R-6V	1759621	1758474
MPB16-CARP-6-T1R-12V	1759548	1758482
MPB16-CARP-6-T1R-24V	1759608	1758632
MPB16-CARP-7-T1R-0V	1759604	1758730
MPB16-CARP-7-T1R-6V	1759445	1758724
MPB16-CARP-7-T1R-12V	1759463	1758727
MPB16-CARP-7-T1R-24V	1759451	1758726
MPB16-CARP-A-T1R-0V	1759394	1758712
MPB16-CARP-A-T1R-6V	1759465	1758707
MPB16-CARP-A-T1R-12V	1759421	1758738
MPB16-CARP-A-T1R-24V	1759597	1758708
MPB16-CARP-RGB-T1R-0V	1759658	1759131
MPB16-CARP-RGB-T1R-6V	1759619	1759171
MPB16-CARP-RGB-T1R-12V	1759676	1759133
MPB16-CARP-RGB-T1R-24V	1759635	1759172

Specifications:

1. Style :

This specification describes “Metal Pushbutton Switch ”, mainly used as signal switch of electric devices, with the general requirements of mechanical and electrical characteristic.

- ①Switch combination : Off-Mom. Single Pole
- ②Enclosure material : Aluminum alloy / Stainless steel.
- ③Operating Type : Momentary.
- ④Operating Temperature Range : -20 °C~+70 °C.
- ⑤Degrees of protection provided by enclosures
IP code: IP67.

2. Electrical Rating : 2A /36VDC (resistive load).

3. Type of Actuation : Pushbutton Switch.

4. Test Sequence :

	ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
APPEARANCE	1	Visual Examination	By Visual Examination check without and out pressure & testing.	There shall be no defects that affect the serviceability of the product.
ELECTRIC PERFORMANCE	2	Contact Resistance	To be measured between the two terminals associated with each switch pole.	50mΩ Max.
	3	Insulation Resistance	Measurements shall be made following application of 500 VDC / 100mA potential across terminals and cover for 1 minute.	1000MΩ/500VDC min.
	4	Dielectric Withstanding Voltage	2000VAC(50Hz or 60Hz) / between terminals /1minute.	There shall be no breakdown or flashover.

	ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
MECHANICAL PERFORMANCE	5	Operation pressure	MODEL-1305N MECHANICAL TEST 500gram · 1000gram · 2000gram.	4.5N±1.5N
	6	Operation Travel	Full Travel.	2.0mm±0.20
	7	Torque	Applied to nut.	11.5kgf · cm.
	8	Panel Thickness	Applied to nut.	8.0mm MAX.
OPERATING LIFE	9	Operating Life	Measurements shall be made following the test forth below : ① 2A / 36VDC.(resistive load) ② Electronics Life Test : 200,000 cycles. ③ Rate of Operation : 6-8 operation cycles per minute. ④ Operating force:8N (MAX).	①Dielectric Strength : between terminals :1000VAC. ②Insulation Resistance : 1000MΩ (at 500VDC)min. ③Contact Resistance : 150mΩ Max.
			① Mechanical Life Test : Resettable : 1,000,000 cycles. ② Operating force:8N (MAX).	④Operation pressure: 3N±1.5N (for Mechanical Life Test).

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HUMIDITY RESISTANCE			
ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
10	Resistance Low Temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made: ① Temperature : $-20\pm 3^{\circ}\text{C}$. ② Time : 96 hours.	As shown in item 2~4.
11	Resistance High Temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made: ① Temperature : $70\pm 3^{\circ}\text{C}$. ② Time : 96 hours.	As shown in item 2~4.
12	Resistance Humidity	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made: ① Temperature: $40\pm 2^{\circ}\text{C}$ ② Relative Humidity: 90~95% ③ Time: 96 hours.	① Contact Resistance: 100 m Ω Max. ② Insulation Resistance: 1000M Ω min.

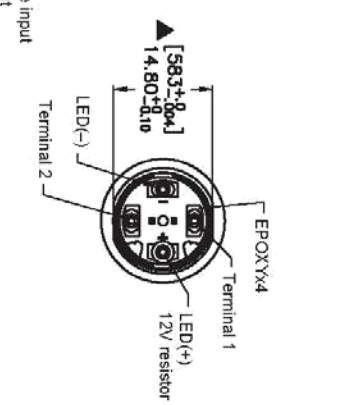
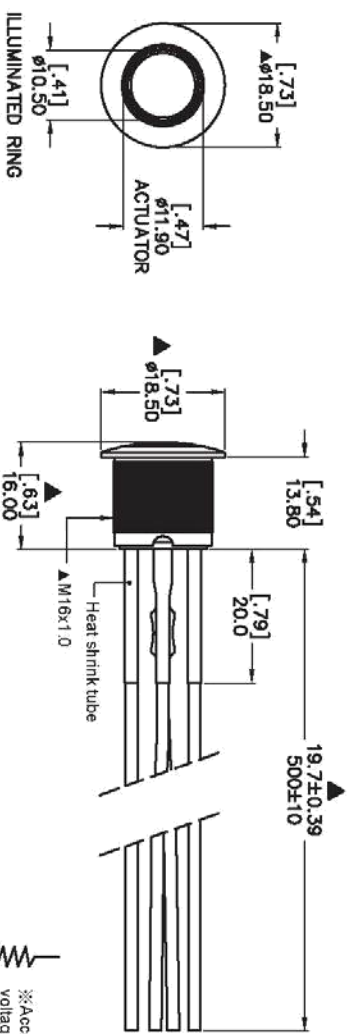
	ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
HUMIDITY RESISTANCE	13	Salt spray Testing	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before the measurements are made: ①Temperature:35±2°C. ②The ratio of salt-water : 5%. ③The spray amount of salt- water : 1-2 ml/h. ④Time:48 hours.	The testing standard based on bubble, crack, And magnifying glass with gauge.
	14	Test of IP 67	Protected against the effects of Temporary immersion in water. (1m below the surface of the water for a duration of 30 min).	IP67 According to EN 60529 : 1991+A1 : 2000 IEC 60529 : 2001
RoHS	15	HSF	Refer RoHS Standard : The electronic electrical machinery product limits with six big chemical materials.	Cd : 100ppm Pb : 1000ppm Hg : 1000ppm Cr6+ : 1000ppm PBB · PBDE : 1000ppm
SOLDER HEAT RESISTANCE	16	Manual Soldering	■ hand Soldering : ①Soldering Temperature : 280°C. ②Duration of Solder Heated : 3 seconds (Max). ■ Precautions in Handling: ③Please make sure that there is no flux rose over the surface of the PCB.	④Shall be free from pronounced backlash and falling-off or breakage terminals. ⑤As shown in item 2-4.

Wiring:

- 1.Solder the terminals using a 60W soldering iron at 280°C within 3 seconds.
(Sn-Ag-Cu type solder is recommended.)
- 2.When soldering, be sure to keep the soldering iron as far away from the housing as possible.
- 3.Also ensure that no tensile force is applied to the terminal. Do not bend the terminal or apply excessive force to the terminal.

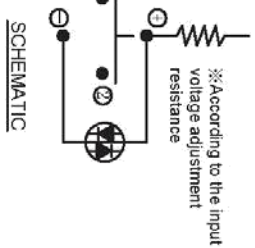
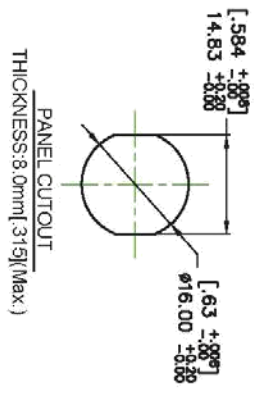
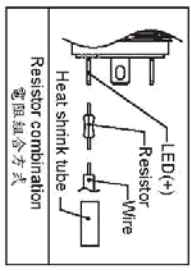
5. LED Specifications : (LED Without resistor)

Color	VF(v) Min.	VF(v) MAX.	IF(Typ.)
White	2.8	3.7	20mA
Red	1.7	2.5	20mA
yellow	1.7	2.5	20mA
Blue	2.8	3.7	20mA
Green	2.8	3.7	20mA
Orange (Amber)	1.7	2.5	20mA



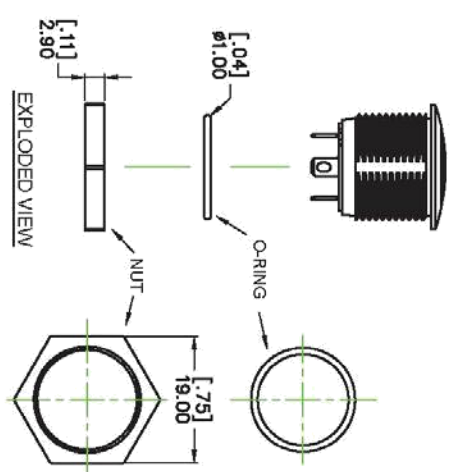
Multi-wire lead AWG20 section
0.6mm² UL approved

SWITCH	WIRE
Terminal 1	BLACK
Terminal 2	BLACK
LED+	RED
LED-	GREEN



- Specifications:
- Rating : 2AV/36VDC.
 - Electrical Life : 200,000 Make-And-Break Cycles At Full Load
 - Mechanical Life : 1,000,000 Cycles.
 - Insulation Resistance : 1,000 MΩ Min. at 500VDC.
 - Dielectric Strength : 2,000V RMS@sea level.
 - Contact Resistance : 50 mΩ Max.
Note: When the switches with the wire assembly, we only test the electric conduction and will not test the contact resistance on the wire.
 - Operation Temperature : -20°C~+70°C.
 - Travel : About 2.0mm±0.20mm
 - Operation Pressure : 4.5N±1.5N.
 - Ingress Protection : IP67.
 - Torque : 11.5 kgf · cm.
 - Current limiting resistor is required to limit LED forward current to 20mA.

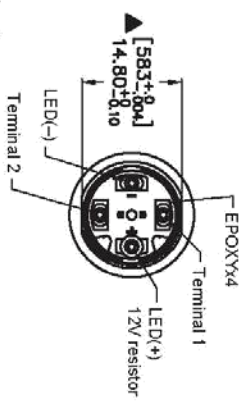
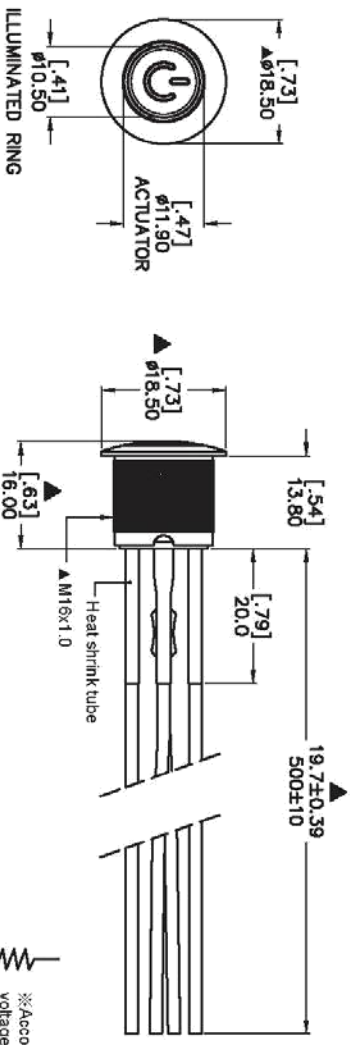
- PANEL CUTOUT
THICKNESS: 3.0mm[3.19](Max.)
- MATERIAL:
- Bushing : Aluminum alloy.
 - Base : PBT(UL-94V0).
 - Actuator : PC(Translucent UL-94V2).
 - Cap: Aluminum alloy.
 - Spring : Steel.
 - Sealing : Silicone(Translucent).
 - O-Ring : Silicone(Nickel Plated).
 - Nut : Brass(Nickel Plated).
 - Terminal : Brass Gold flash plated.
 - Contact : Silver alloy.



MPB16-XXRE-X-XR-XV

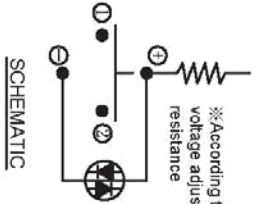
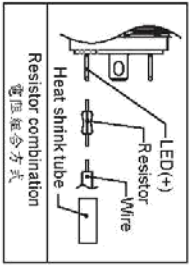
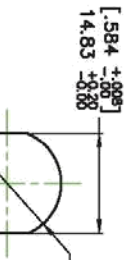
Body type & color	Accessories
CA AL alloy	Resistance (about LED Voltage)
CA Natural Anodized	0 Without Resistance
CB AL alloy	3V LED input 3 VDC/470
CB Black Anodized	6V LED input 6 VDC/1800
	12V LED input 12 VDC/4700
	24V LED input 24 VDC/10000
	※ Other value of resistance
	Tolerance: ±5%
Button type	Terminal plating
R Round	R Gold flash
Light type	Terminal shape
E Ring	J Solder terminal
LED color	T1 Wire length 500mm
1 White	
3 Red	
5 Yellow	
6 Green	
7 Blue	

TOLERANCE (公差):
0.00 mm ± 0.25mm
0.0 mm ± 0.40mm
ANGULAR: ±5°



Multi-wire lead AWG20 section
0.6mm², UL approved

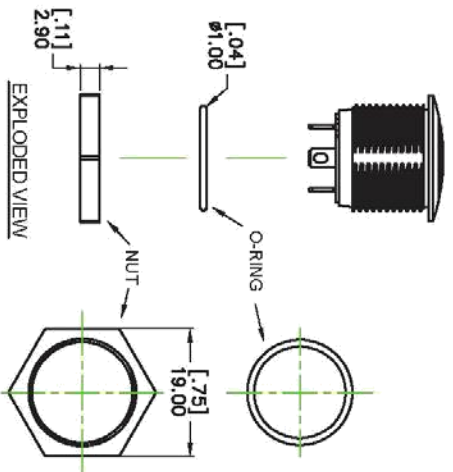
SWITCH	WIRE
Terminal 1	BLACK
Terminal 2	BLACK
LED+	RED
LED-	GREEN



PANEL CUTOUT
THICKNESS: 8.0mm(315)(Max.)

- Specifications:
1. Rating : 2A/36VDC
 2. Electrical Life : 200,000 Make-And-Break Cycles At Full Load
 3. Mechanical Life : 1,000,000 Cycles
 4. Insulation Resistance : 1,000 MΩ Min. at 500VDC.
 5. Dielectric Strength : 2,000V RMS@sea level.
 6. Contact Resistance : 50 mΩ Max.
Note : When the switches with the wire assembly, we only test the electric conduction and will not test the contact resistance on the wire.
 7. Operation Temperature : -20°C~+70°C.
 8. Travel : About 2.0mm±0.20mm
 9. Operation Pressure : 4.5N±1.5N
 10. Ingress Protection : IP67.
 11. Torque : 11.5 kgf · cm.
 12. Current limiting resistor is required to limit LED forward current to 20mA.

- MATERIAL:
- Bushing : Aluminum alloy.
 - Base : PBT(UL-94V0).
 - Actuator : PC(Translucent UL-94V2).
 - Cap : Aluminum alloy.
 - Spring : Steel
 - Sealing : Silicone(Translucent).
 - O-ring : Silicone(Translucent).
 - Nut : Brass(Nickel Plated).
 - Terminal : Brass, Gold flash plated.
 - Contact : Silver alloy.

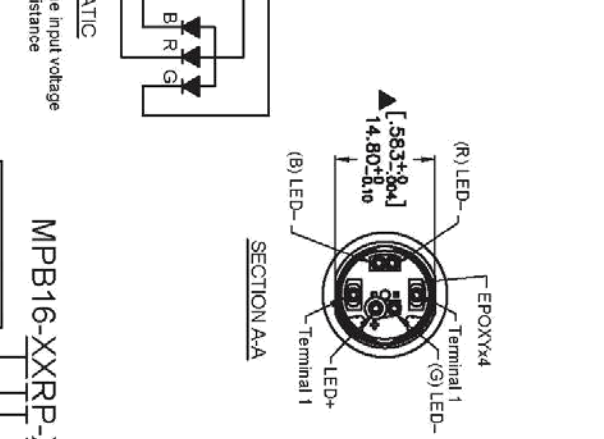
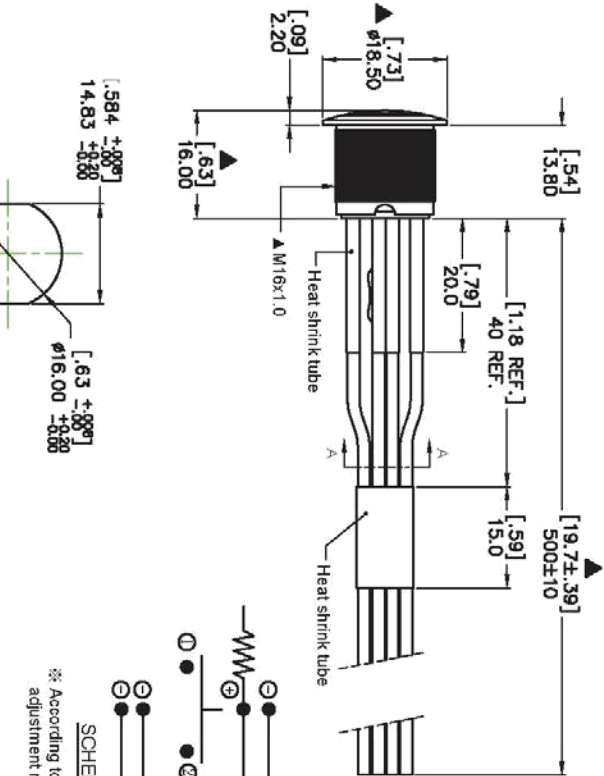
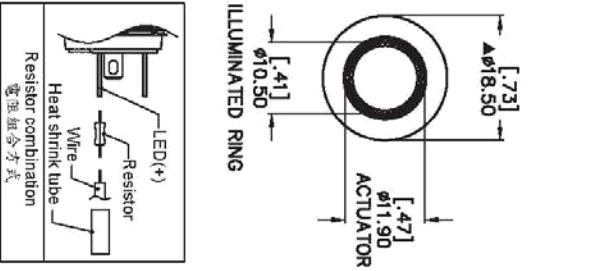


MPB16-XXRP-X-XR-XV

Body type & color	CA AL alloy Natural Anodized
CB	AL alloy Black Anodized
Button type	R Round
Light type	P Power Logo
LED color	1 White 3 Red 5 Yellow 6 Green 7 Blue
Accessories	Resistance (About LED Voltage) 0 Without Resistance 3V LED input 3 VDC±170 6V LED input 6 VDC±180 12V LED input 12 VDC±700 24V LED input 24 VDC±1000
Terminal plating	R Gold Flash
Terminal shape	J Solder terminal T1 Wire length 500mm

TOLERANCE (公差):
0.00 mm ± 0.25mm
0.0 mm ± 0.40mm
ANGULAR: ±5°

* ohms value of resistance tolerance ±5%

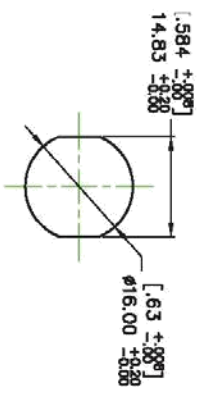


Multi-wire lead AWG20 section
0.6mm² UL approved

SWITCH	WIRE
Terminal 1	BLACK
Terminal 2	BLACK
LED+	WHITE
(R) LED-	RED
(B) LED-	BLUE
(G) LED-	GREEN

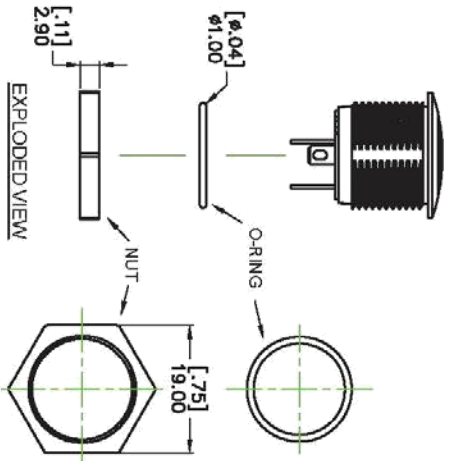


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 - Travel: About 2.0mm±0.20mm
 - Operation Pressure: 4.5N±1.5N.
 - Ingress Protection: IP67.
 - Torque: 11.5 Kgf·cm.
 - Current limiting resistor is required to limit LED forward current to 20mA.



PANEL CUTOUT
THICKNESS: 8.0mm(315)(Max.)

MATERIAL:
Bushing: Aluminum alloy.
Base: PBT(UL-94V0).
Actuator: PC(Translucent UL-94V2).
Cap: Aluminum alloy.
Spring: Steel.
Sealing: Silicone(Translucent).
O-ring: Silicone(Translucent).
Nut: Brass(Nickel Plated).
Terminal: Brass, Gold flash plated.
Contact: Silver alloy.



MPB16-XXRP-X-R-XV

Body type & color	Accessories
CA Al alloy Natural Anodized	Resistance (about LED Voltage)
CB Al alloy Black Anodized	0 Without Resistance
Button type Round	3V LED input 3 VDC, 47Ω
Light type E RING	6V LED input 6 VDC, 180Ω
LED color RGB RED/RENVBLUE	12V LED input 12 VDC, 470Ω
	24V LED input 24 VDC, 1000Ω
	* omits value of resistance tolerance: ±5%
	Terminal plating
	R Gold Flash
	Terminal shape
	J Solder terminal
	T1 Wire length 500mm

TOLERANCE (公差):
0.00 mm ± 0.25mm
0.0 mm ± 0.40mm
ANGULAR: ±5°