



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-JR-0V	1759526	1758480
MPB16-CARE-1-JR-0V	1759360	1758550
MPB16-CARE-1-JR-6V	1759515	1758546
MPB16-CARE-1-JR-12V	1759349	1758549
MPB16-CARE-1-JR-24V	1759340	1758548
MPB16-CARE-3-JR-0V	1759372	1758538
MPB16-CARE-3-JR-3V	1759376	1758553
MPB16-CARE-3-JR-6V	1759338	1758532
MPB16-CARE-3-JR-12V	1759336	1758516
MPB16-CARE-3-JR-24V	1759354	1758534
MPB16-CARE-5-JR-0V	1759371	1758523
MPB16-CARE-5-JR-3V	1759511	1758573
MPB16-CARE-5-JR-6V	1759348	1758533
MPB16-CARE-5-JR-12V	1759362	1758522
MPB16-CARE-5-JR-24V	1759353	1758519
MPB16-CARE-6-JR-0V	1759477	1758585
MPB16-CARE-6-JR-6V	1759568	1758580
MPB16-CARE-6-JR-12V	1759617	1758583
MPB16-CARE-6-JR-24V	1759591	1758582
MPB16-CARE-7-JR-0V	1759574	1758594
MPB16-CARE-7-JR-6V	1759605	1758568
MPB16-CARE-7-JR-12V	1759493	1758572
MPB16-CARE-7-JR-24V	1759628	1758571
MPB16-CARE-A-JR-0V	1759506	1758560
MPB16-CARE-A-JR-6V	1759500	1758499
MPB16-CARE-A-JR-12V	1759484	1758559
MPB16-CARE-A-JR-24V	1759390	1758556
MPB16-CARE-RGB-JR-0V	1759546	1758470
MPB16-CARE-RGB-JR-6V	1759475	1758465
MPB16-CARE-RGB-JR-12V	1759518	1758468
MPB16-CARE-RGB-JR-24V	1759497	1758467
MPB16-CARP-0-JR-0V	1759355	1758457
MPB16-CARP-1-JR-0V	1759339	1758454
MPB16-CARP-1-JR-6V	1759488	1758450
MPB16-CARP-1-JR-12V	1759531	1758453
MPB16-CARP-1-JR-24V	1759509	1758452
MPB16-CARP-3-JR-0V	1759361	1758443
MPB16-CARP-3-JR-3V	1759364	1758459
MPB16-CARP-3-JR-6V	1759503	1758514
MPB16-CARP-3-JR-12V	1759388	1758496
MPB16-CARP-3-JR-24V	1759347	1758456
MPB16-CARP-5-JR-0V	1759356	1758504
MPB16-CARP-5-JR-3V	1759521	1758500
MPB16-CARP-5-JR-6V	1759505	1758478
MPB16-CARP-5-JR-12V	1759350	1758503
MPB16-CARP-5-JR-24V	1759341	1758502

MPB16-CARP-6-JR-0V	1759357	1758490
MPB16-CARP-6-JR-6V	1759593	1758484
MPB16-CARP-6-JR-12V	1759351	1758488
MPB16-CARP-6-JR-24V	1759342	1758487
MPB16-CARP-7-JR-0V	1759558	1758576
MPB16-CARP-7-JR-6V	1759366	1758731
MPB16-CARP-7-JR-12V	1759410	1758735
MPB16-CARP-7-JR-24V	1759398	1758734
MPB16-CARP-A-JR-0V	1759439	1758721
MPB16-CARP-A-JR-6V	1759610	1758688
MPB16-CARP-A-JR-12V	1759433	1758720
MPB16-CARP-A-JR-24V	1759423	1758717
MPB16-CARP-RGB-JR-0V	1759455	1758704
MPB16-CARP-RGB-JR-6V	1759448	1758703
MPB16-CARP-RGB-JR-12V	1759492	1759121
MPB16-CARP-RGB-JR-24V	1759603	1759159
MPB16-A1HE-0-JR-0V	1759637	1759183
MPB16-A1HE-1-JR-0V	1759626	1759182
MPB16-A1HE-3-JR-0V	1759599	1759181
MPB16-A1HE-5-JR-0V	1759576	1759180
MPB16-A1HE-6-JR-0V	1759547	1759178
MPB16-A1HE-7-JR-0V	1759525	1759177
MPB16-A1HE-A-JR-0V	1759498	1759176
MPB16-A1HE-RGB-JR-0V	1759588	1759213
MPB16-A1FP-0-JR-0V	1759596	1759192
MPB16-A1FP-1-JR-0V	1759572	1759190
MPB16-A1FP-3-JR-0V	1759551	1759189
MPB16-A1FP-5-JR-0V	1759456	1759174
MPB16-A1FP-6-JR-0V	1759501	1759187
MPB16-A1FP-7-JR-0V	1759560	1759200
MPB16-A1FP-A-JR-0V	1759460	1759185
MPB16-A1FP-RGB-JR-0V	1759645	1759184
MPB16-A1FE-0-JR-0V	1759609	1759148
MPB16-A1FE-1-JR-0V	1759529	1759199
MPB16-A1FE-3-JR-0V	1759504	1759198
MPB16-A1FE-5-JR-0V	1759479	1759197
MPB16-A1FE-6-JR-0V	1759462	1759196
MPB16-A1FE-7-JR-0V	1759644	1759195
MPB16-A1FE-A-JR-0V	1759636	1759194
MPB16-A1FE-RGB-JR-0V	1759622	1759193
MPB16-A2HE-0-JR-0V	1759541	1759211
MPB16-A2HE-1-JR-0V	1759513	1759210
MPB16-A2HE-3-JR-0V	1759489	1759209
MPB16-A2HE-5-JR-0V	1759468	1759207
MPB16-A2HE-6-JR-0V	1759452	1759206
MPB16-A2HE-7-JR-0V	1759648	1759205
MPB16-A2HE-A-JR-0V	1759638	1759204
MPB16-A2HE-RGB-JR-0V	1759629	1759203

MPB16-A2FP-0-JR-0V	1759670	1759221
MPB16-A2FP-1-JR-0V	1759661	1759219
MPB16-A2FP-3-JR-0V	1759654	1759218
MPB16-A2FP-5-JR-0V	1759642	1759217
MPB16-A2FP-6-JR-0V	1759585	1759201
MPB16-A2FP-7-JR-0V	1759612	1759215
MPB16-A2FP-A-JR-0V	1759681	1759228
MPB16-A2FP-RGB-JR-0V	1759563	1759212
MPB16-A2FE-0-JR-0V	1759476	1759186
MPB16-A2FE-1-JR-0V	1759522	1759188
MPB16-A2FE-3-JR-0V	1759772	1759227
MPB16-A2FE-5-JR-0V	1759755	1759226
MPB16-A2FE-6-JR-0V	1759738	1759225
MPB16-A2FE-7-JR-0V	1759721	1759224
MPB16-A2FE-A-JR-0V	1759702	1759223
MPB16-A2FE-RGB-JR-0V	1759684	1759222
MPB16-A3HE-0-JR-0V	1759651	1759130
MPB16-A3HE-1-JR-0V	1759640	1759128
MPB16-A3HE-3-JR-0V	1759634	1759127
MPB16-A3HE-5-JR-0V	1759615	1759126
MPB16-A3HE-6-JR-0V	1759592	1759125
MPB16-A3HE-7-JR-0V	1759566	1759124
MPB16-A3HE-A-JR-0V	1759538	1759123
MPB16-A3HE-RGB-JR-0V	1759516	1759122
MPB16-A3FP-0-JR-0V	1759761	1759139
MPB16-A3FP-1-JR-0V	1759744	1759138
MPB16-A3FP-3-JR-0V	1759727	1759137
MPB16-A3FP-5-JR-0V	1759709	1759136
MPB16-A3FP-6-JR-0V	1759691	1759134
MPB16-A3FP-7-JR-0V	1759454	1759119
MPB16-A3FP-A-JR-0V	1759666	1759132
MPB16-A3FP-RGB-JR-0V	1759554	1759146
MPB16-A3FE-0-JR-0V	1759606	1759202
MPB16-A3FE-1-JR-0V	1759641	1759161
MPB16-A3FE-3-JR-0V	1759469	1759120
MPB16-A3FE-5-JR-0V	1759473	1759175
MPB16-A3FE-6-JR-0V	1759507	1759144
MPB16-A3FE-7-JR-0V	1759482	1759143
MPB16-A3FE-A-JR-0V	1759464	1759142
MPB16-A3FE-RGB-JR-0V	1759550	1759140

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	<p>Measurements shall be made following the test forth below :</p> <p>① 2A / 36VDC. (resistive load)</p> <p>② Electronics Life Test : 200,000 cycles.</p> <p>③ Rate of Operation : 6-8 operation cycles per minute.</p> <p>④ Operating force:8N (MAX).</p>	<p>ⓄDielectric Strength : between terminals :1000VAC.</p> <p>ⓄInsulation Resistance : 1000MΩ (at 500VDC)min.</p> <p>ⓄContact Resistance : 150mΩ Max.</p> <p>ⓄOperation pressure: 3N±1.5N (for Mechanical Life Test).</p>
			<p>① Mechanical Life Test : Resettable : 1,000,000 cycles.</p> <p>② Operating force:8N (MAX).</p>	

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: $100\text{ m}\Omega$ Max. ② Insulation Resistance: $1000\text{M}\Omega$ min.

HUMIDITY RESISTANCE

	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:

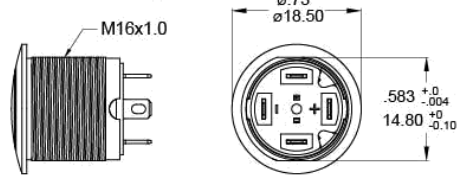
1. Solder the terminals using a 60W soldering iron at 280°C within 3 seconds. (Sn-Ag-Cu type solder is recommended.)
2. When soldering, be sure to keep the soldering iron as far away from the housing as possible.
3. Also ensure that no tensile force is applied to the terminal. Do not bend the terminal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

5. LED Specifications : (LED Without resistor)

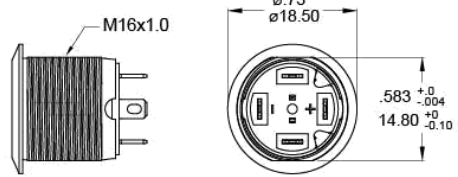
Color	VF(v) Min.	VF(v) MAX.	IF(Typ.)
White	2.8	3.7	20mA
Red	1.7	2.5	20mA
yellow	1.7	2.5	20mA
Blue	2.8	3.7	20mA
Green	2.8	3.7	20mA
Orange (Amber)	1.7	2.5	20mA

BODY TYPE

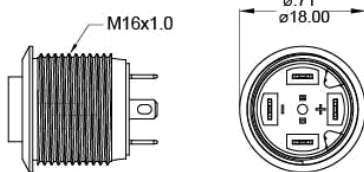
CA/CB Aluminum alloy



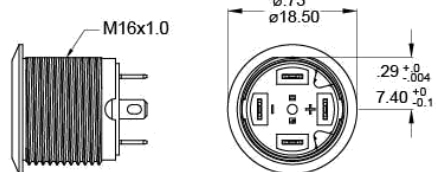
A1 Stainless Steel



A2 Stainless Steel



A3 Stainless Steel (D Shape)

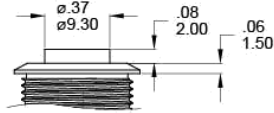


BUTTON TYPE

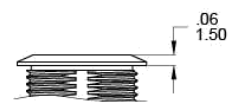
R Round Button



H High Button

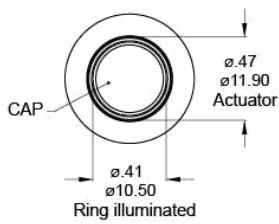


F Flat Button

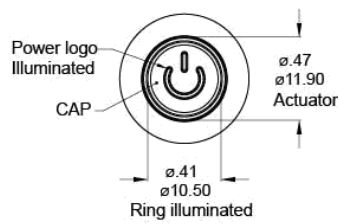


LIGHT TYPE

E Ring, Round

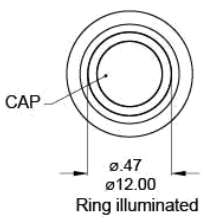


P Power logo, Round

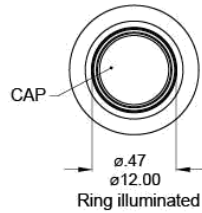


* E,P light type only for CA,CB body.
* HE,FE,FP light type only for A1,A2,A3 body.

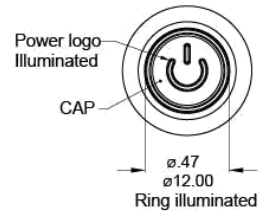
HE Ring, High

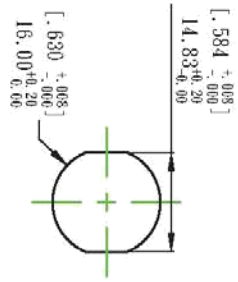
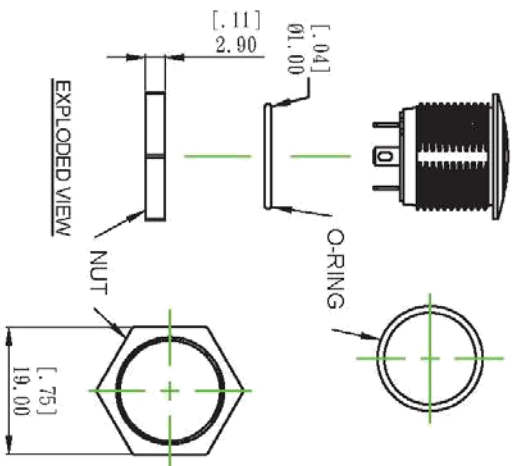
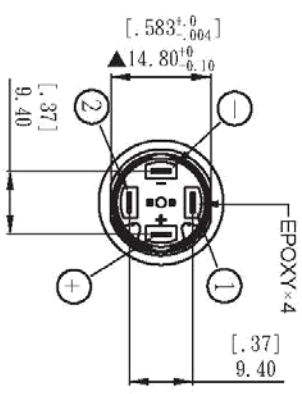
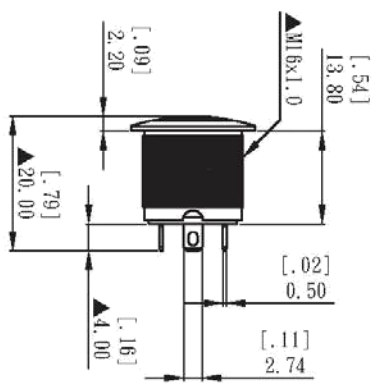
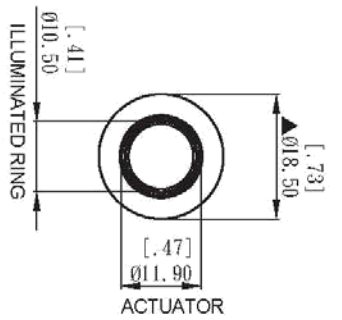


FE Ring, Flat

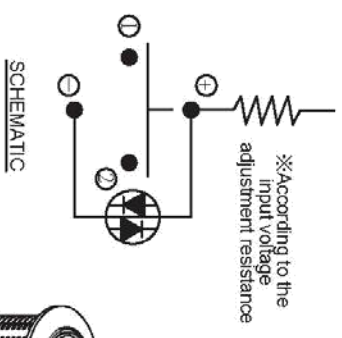


FP Power logo, Flat

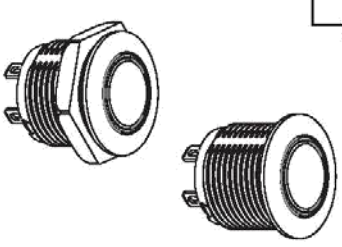




PANEL CUTOUT
THICKNESS: 8.0mm[.315](Max.)



SCHEMATIC



ASSEMBLED VIEW

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.

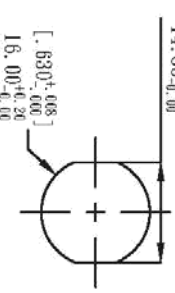
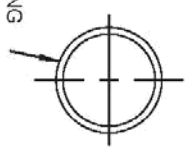
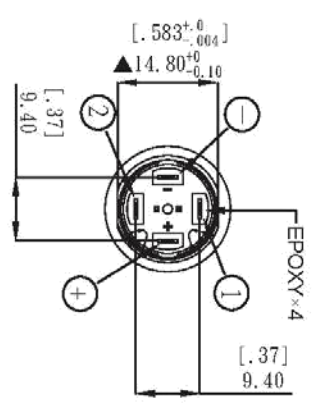
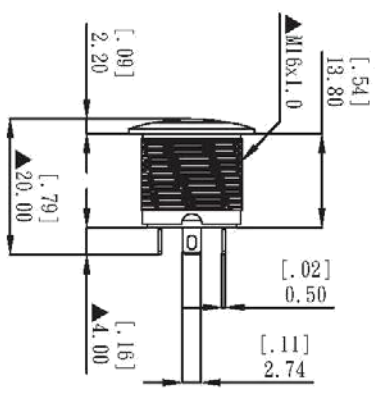
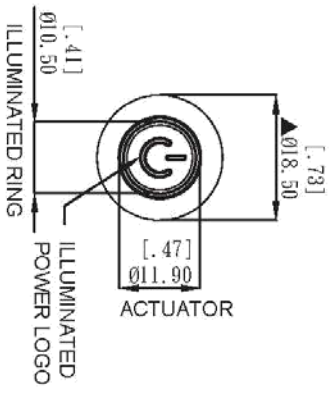
MPB16-XXRE-X-XR-XV

Body type & color	Al alloy Natural Anodized	Accessories	Resistance (About LED Voltage)
CA	Al alloy Black Anodized	0	Without Resistance
CB	Al alloy Black Anodized	3V	LED Input 3 VDC 47Ω ※ Red/Yellow led type only
Button type	R Round	6V	LED Input 6 VDC 180Ω
R	Round	12V	LED Input 12 VDC 470Ω
Light type	E Ring	24V	LED Input 24 VDC 1000Ω
LED color	1 White 3 Red 5 Yellow 6 Green 7 Blue	Terminal plating	※ ohms value of resistance tolerance: ±5%
		R	Gold Flash
		J	Solder terminal
		T1	Wire length 500mm

Specifications

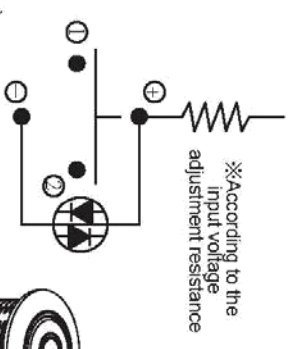
- Rating : 2A/36VDC.
- Electrical Life : 200,000 Make-And-Break Cycles
At Full Load
- Mechanical Life : 1,000,000 Cycles.
- Insulation Resistance : 1,000MΩ Min. at 500VDC.
- Dielectric Strength : 2,000V RMS@sea level.
- Contact Resistance : 50 mΩ Max.
- Operation Temperature : -20°C~+70°C.
- Travel : 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.

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

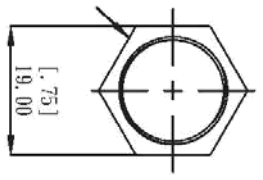
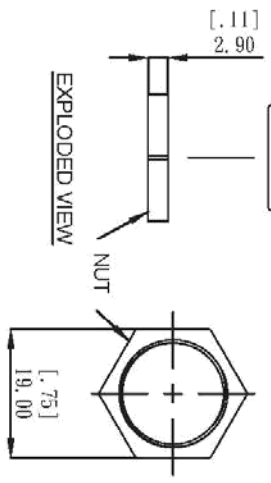
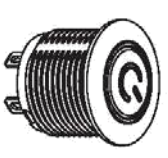


THICKNESS: 0.8mm[.315](Max.)

SCHEMATIC



※According to the input voltage adjustment resistance



MATERIAL
 Bushing : Aluminum alloy.
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 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.

ASSEMBLED VIEW

MPB16-XXRP-X-XR-XV

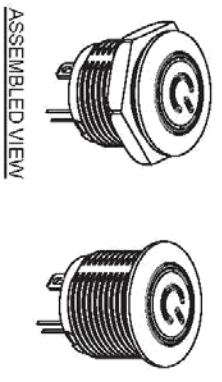
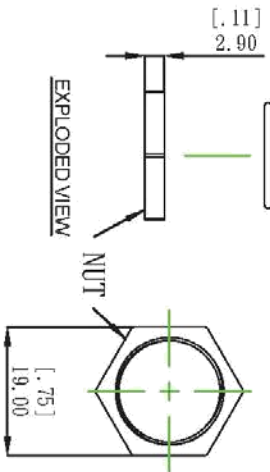
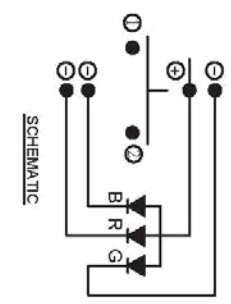
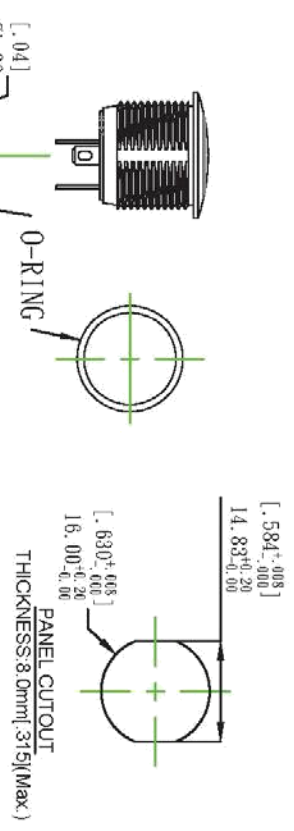
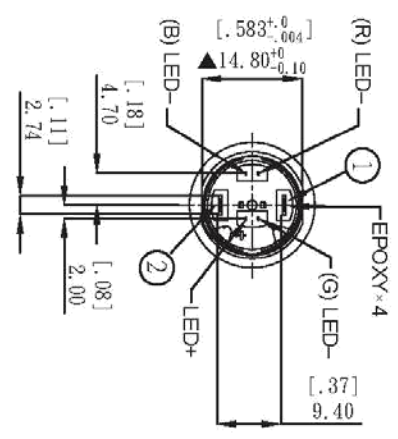
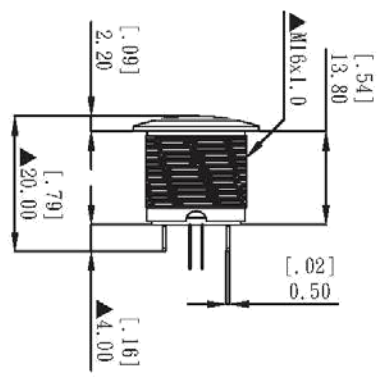
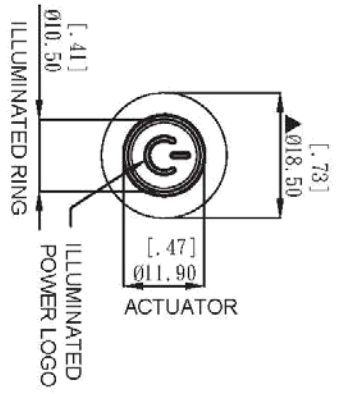
Body type & color	Al alloy CA Neutral Anodized CB Al alloy Black Anodized
Button type	R Round
Light type	P Power Logo
LED color	1 White 3 Red 5 Yellow 6 Green 7 Blue
Accessories	Resistance (about LED Voltage) Without Resistance 3V LED input 3 VDC 47Ω 6V LED input 6 VDC 180Ω 12V LED input 12 VDC 470Ω 24V LED input 24 VDC 1000Ω
Terminal plating	R Gold Flash
Terminal shape	J Solder terminal T1 Wire length 500mm

※ ohms value of resistance tolerance : ±5%

Specifications :

- Rating : 2A/36VDC.
- Electrical Life : 200,000 Make-And-Break Cycles
At Full Load.
- Mechanical Life : 1,000,000 Cycles.
- Insulation Resistance : 1,000MΩ Min. at 500VDC.
- Dielectric Strength : 2,000V RMS@sea level.
- Contact Resistance : 50mΩMax.
- 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.

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



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-0V

Body type & color		Accessories	
CA	Al alloy Natural Anodized	Resistance (About LED Voltage)	0 Without Resistance
CB	Al alloy Black Anodized	LED Input 3 VDC, 47Ω	3V *Red/yellow led type only
Button type	Round	6V LED Input 6 VDC, 180Ω	12V LED Input 12 VDC, 470Ω
Light type	Power Logo	24V LED Input 24 VDC, 1000Ω	※ omits value of resistance tolerance : ±5%
LED color	RGB / RED/GREEN/BLUE	Terminal plating	R Gold flash
		Terminal Shape	J Solder terminal
			T1 Wire length 500mm

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2. Electrical Life : 200,000 Make-And-Break Cycles
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7. Operation Temperature : -20°C~+70°C.
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