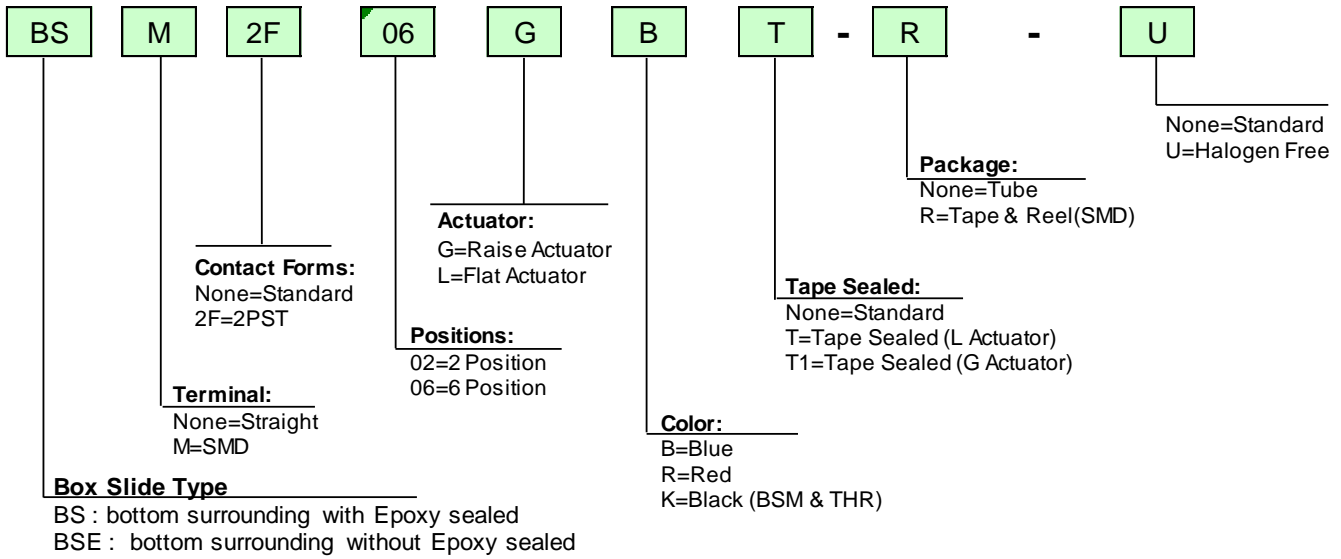


| | | | |
|--|---|--------|------|
| MODEL | SPECIFICATION | | Page |
| BS(E)/BSM series Box Slide Type | DIP SWITCH RoHS & REACH Compliant / Halogen Free | SP-001 | 1/11 |

Order Information



Specifications

| | |
|-------------------------|--|
| ◆ Contact Rating | Switching..... 25mA, 24VDC Non-Switching..... 100mA, 50VDC |
| ◆ Contact Resistance | Initial..... 50mΩ Max After Reliability Test..... 100mΩ Max |
| ◆ Insulation Resistance | 100MΩ Min. at 500 VDC |
| ◆ Dielectric Strength | 500VAC/ 1 minute |
| ◆ Operating Force | 1,000g Max |
| ◆ Travel | 1.8mm |
| ◆ Mechanical Life | 5,000 cycles (Min.) |
| ◆ Electrical Life | 2,000 cycles/ 25mA, 24VDC |
| ◆ Operating Temperature | SMD/THR..... -40°C ~ +105°C THT..... -40°C ~ +85°C |
| ◆ Storage Temperature | -40°C ~ +85°C |

Recommended Soldering Information

- ◆ **Hand Soldering**
Soldering iron of 30W or under at 350°C for 3 sec. max. or at 270°C for 5 sec. max.
- ◆ **Reflow Soldering: (for BSM)**
(1) The peak temperature of the oven for BSM and BS-THR series should be 245°C max. The time above 240°C must be 30 sec. max.
(1) For Vapor Phase Heating (VPH) use, the switch must be tape-sealed.
- ◆ **Wave Soldering**
For lead free wave solder simulation of typical components, the solder bath temperature shall be maintained at (1) BS: 260±5°C for 10 sec. max.
(2) BSE: 260±5°C for 5 sec. max.
- ◆ **Keep all actuators in "OFF" position during soldering and cleaning processes.**

| | | | |
|--|---|--------|------|
| MODEL | SPECIFICATION | | Page |
| BS(E)/BSM series Box Slide Type | DIP SWITCH RoHS & REACH Compliant / Halogen Free | SP-002 | 2/11 |

Classification Reflow Profiles

| Profile Feature | Pb-Free Assembly |
|---|---|
| Preheat / Soak | |
| Temperature Min ($T_{S_{min}}$) | 150°C |
| Temperature Max ($T_{S_{max}}$) | 200°C |
| Time(ts) from ($T_{S_{min}}$ to $T_{S_{max}}$) | 60 ~120 seconds |
| Ramp-up Rate (T_L to T_p) | 3°C/second max |
| Liquidous temperature (T_L) | 217°C |
| Time (t_L) maintained above to T_L | 60 ~ 150 seconds |
| Peak package body temperature (T_p) | For users T_p must not exceed the Classification temp: 245°C (Package Thickness:>2.5mm) Reference Table 4-2 For suppliers T_p must equal or exceed the Classification temp: 245°C (Package Thickness:>2.5mm) Reference Table 4-2 |
| Time (t_p) within 5°C of specified classification Temperature (T_c) | 30 seconds |
| Ramp-Down Rate (T_p to T_L) | 6°C/second max |
| Time 25°C to Peak Temperature | 8 minutes max |
| * Tolerance for peak profile temperature(T_p) is defined as a supplier minimum and a user maximum | |

Note 1: All temperatures refer to topside of the package, measured on the package body surface.

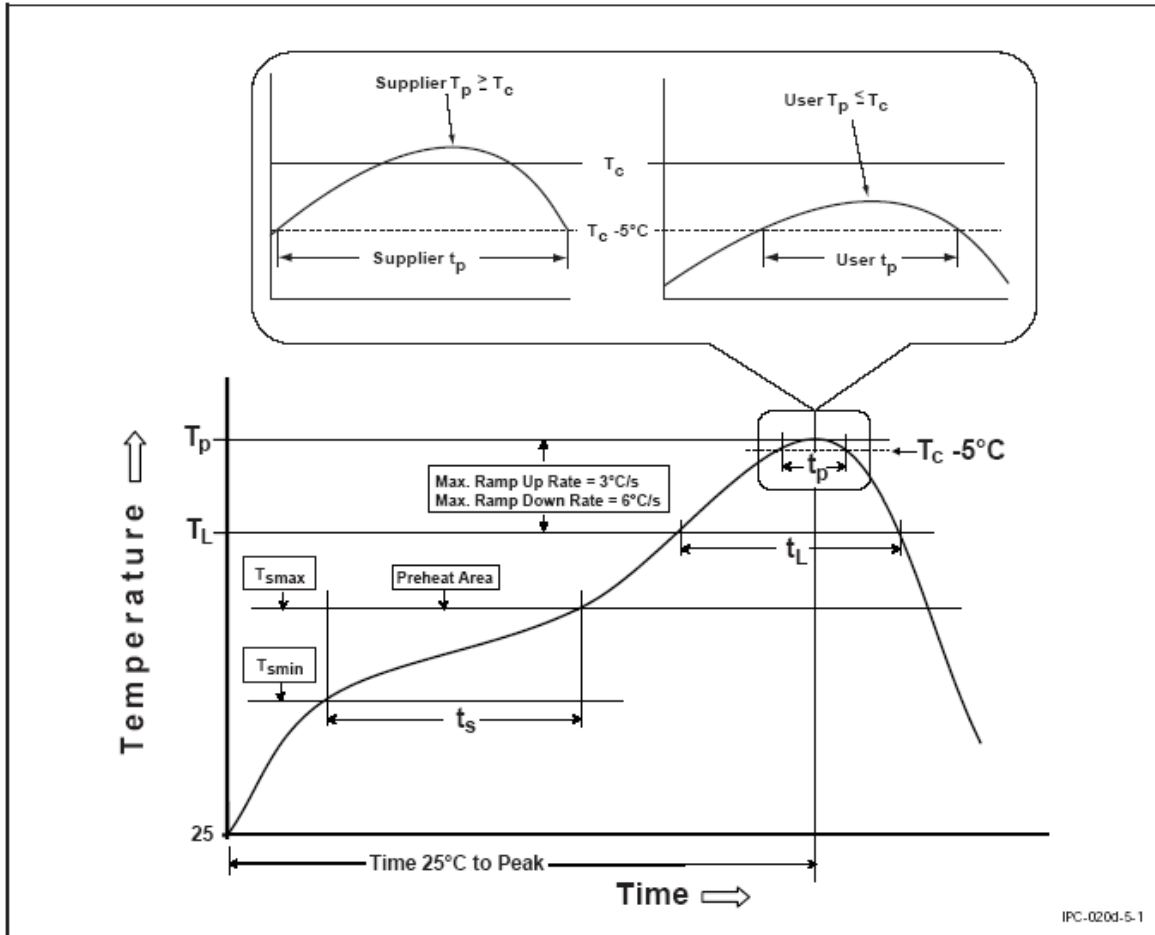
Note 2: Time within 5°C of actual peak temperature (t_p) specified for the reflow profiles is a “supplier” minimum and “user” maximum.

Table 4-2 Pb-Free Process - Classification Temperatures (T_c)

| Package Thickness | Volume mm ³ <350 | Volume mm ³ 350 - 2000 | Volume mm ³ >2000 |
|-------------------|--------------------------------|--------------------------------------|---------------------------------|
| <1.6 mm | 260 °C | 260 °C | 260 °C |
| 1.6 mm - 2.5 mm | 260 °C | 250 °C | 245 °C |
| >2.5 mm | 250 °C | 245 °C | 245 °C |

| | | |
|---------------------------------------|-----------------------------|--------|
| MODEL | SPECIFICATION DIP SWITCH | Page |
| BS(E)/BSM series Box Slide Type | | SP-003 |
| RoHS & REACH Compliant / Halogen Free | | 3/11 |

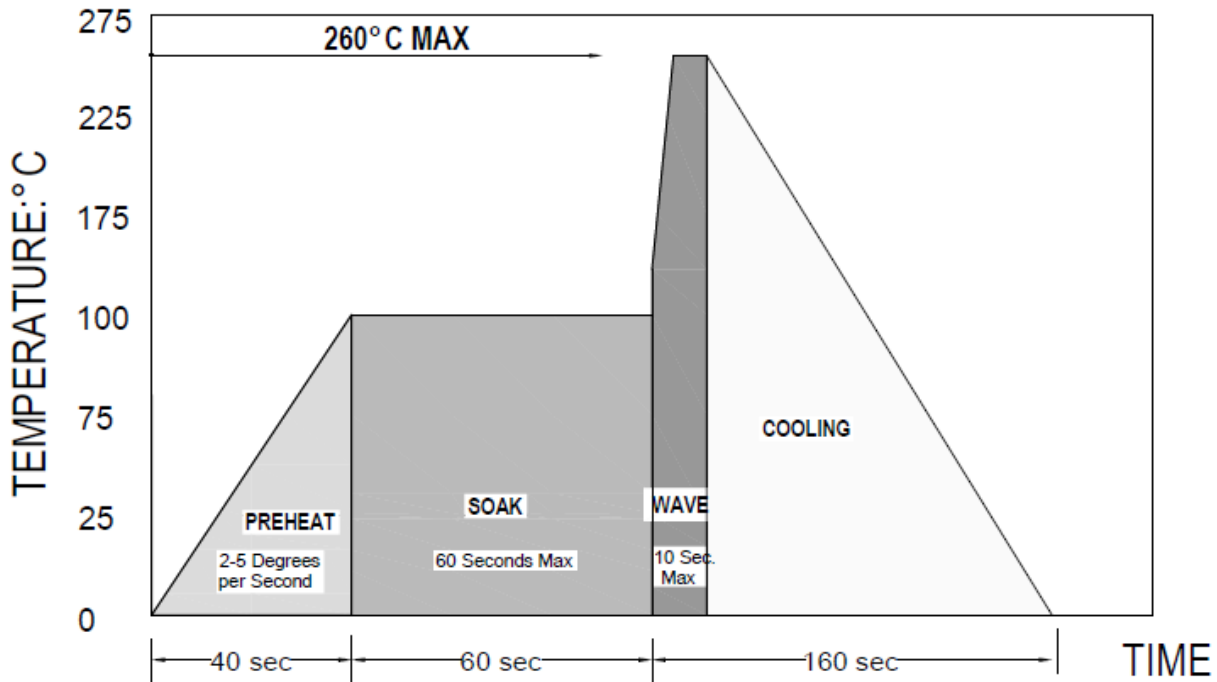
Recommended Reflow Soldering



Source: IPC/JEDEC J-STD-020D.1

| | | | |
|--|---|--------|------|
| MODEL | SPECIFICATION | SP-004 | Page |
| BS(E)/BSM series Box Slide Type | DIP SWITCH RoHS & REACH Compliant / Halogen Free | | 4/11 |

Recommended Wave Soldering Profiles



BS type: Maximum dwell time in the solder wave (260°C) shall not exceed 10 seconds.

BSE type: Maximum dwell time in the solder wave (260°C) shall not exceed 5 seconds.

Switch Operation and Taping

- (1) Use tweezers for operation
- (2) Flux cleaning should be done without removing the Tape.
- (3) If the tape is removed, it adheres less than before when it is placed back on, possibly causing flux inflow.
- (4) Do Not Remove Tape sealed before Reflow processing.
- (5) Ultrasonic cleaning not recommended without Tape sealed.

※ All switches must set in OFF position when through Soldering process.

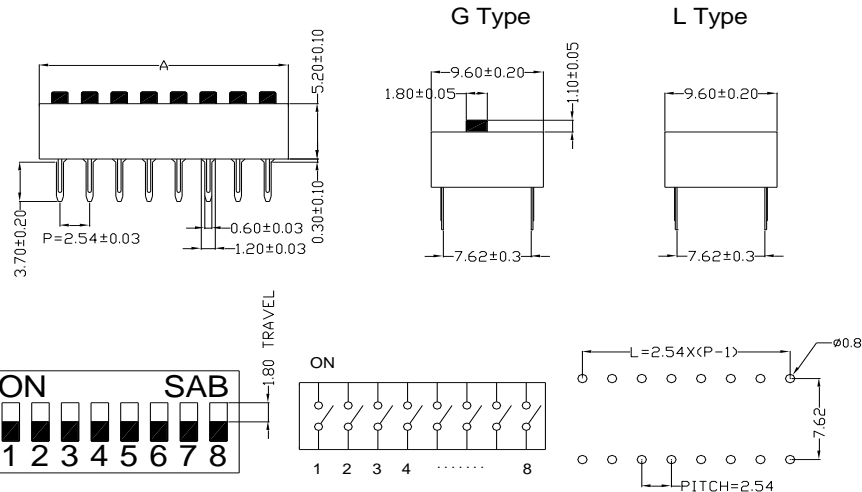
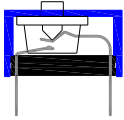
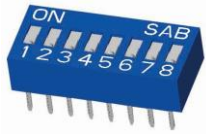
※ Any flux enters the switch may influence contact function.

| | | | |
|--|---|---------------|-------------|
| MODEL | SPECIFICATION | SP-005 | Page |
| BS(E)/BSM series Box Slide Type | DIP SWITCH RoHS & REACH Compliant / Halogen Free | | 5/11 |

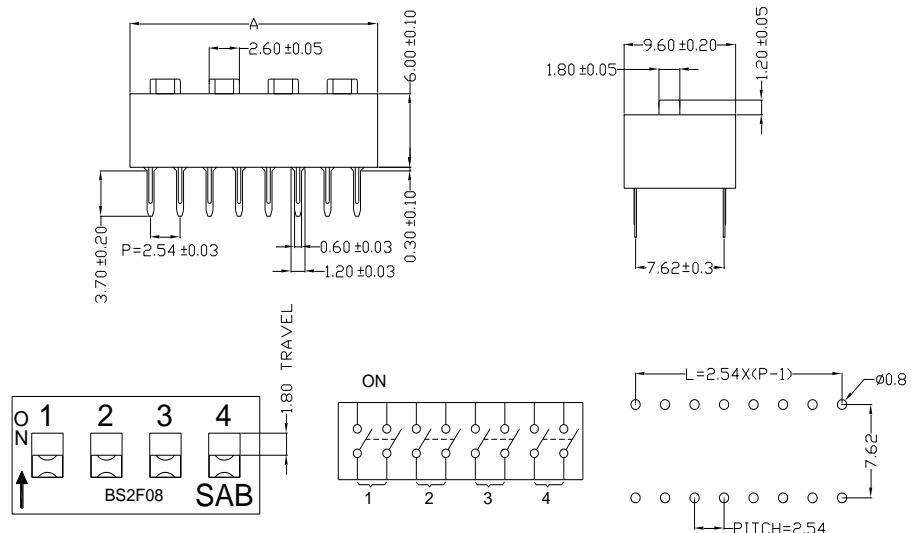
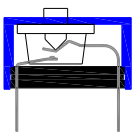
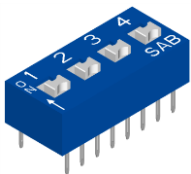
Materials

| | |
|------------|--|
| ◆ Cover | RoHS&REACH Compliant... Thermoplastic UL 94V-0, Red/ Blue/ Black(BSM) Halogen Free..... Thermoplastic UL 94-HB, Red/ Blue Halogen Free..... Thermoplastic UL 94V-0, Black(BSM) |
| ◆ Base | BS/BSE..... Thermoplastic UL 94-HB, Black BSM/BSEM..... Thermoplastic UL 94V-0, Black |
| ◆ Actuator | Thermoplastic UL 94-HB, White |
| ◆ Contact | Cooper Alloy, 1u" Gold-Plated over Nickel |
| ◆ Terminal | Cooper Alloy, Tin-Plated over Nickel |
| ◆ Tape | Polyimide Film |

BS/BSE

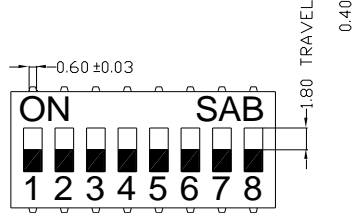
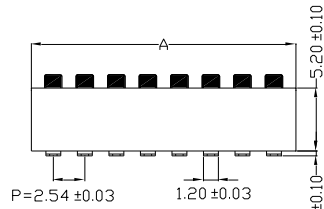
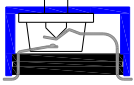
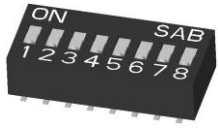


BS2F/BSE2F

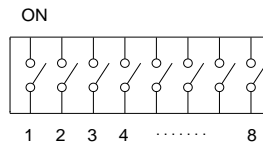
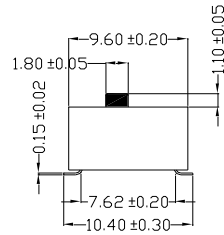


| | | | |
|---------------------------------------|-----------------------------|--------|------|
| MODEL | SPECIFICATION DIP SWITCH | SP-006 | Page |
| BS(E)/BSM series Box Slide Type | | | 6/11 |
| RoHS & REACH Compliant / Halogen Free | | | |

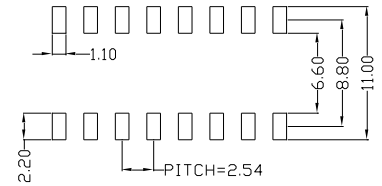
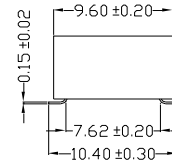
BSM



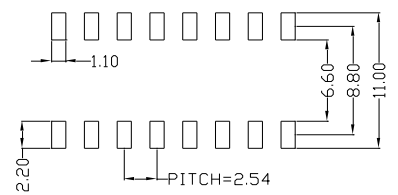
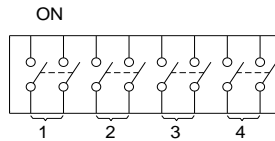
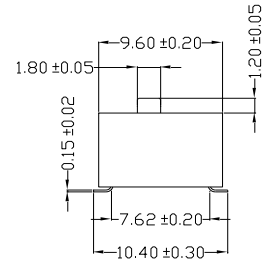
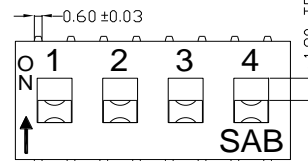
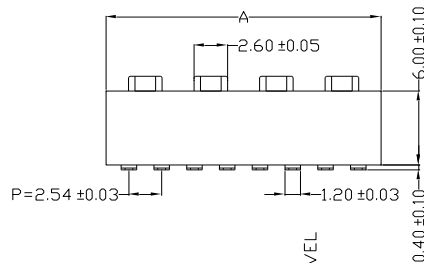
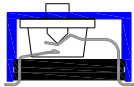
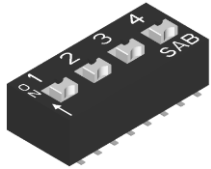
G Type



L Type



BSM2F



| | | | |
|--|---|--------|------|
| MODEL | SPECIFICATION | SP-007 | Page |
| BS(E)/BSM series Box Slide Type | DIP SWITCH RoHS & REACH Compliant / Halogen Free | | 7/11 |

Part Number Table

BS(E) / BS(E)M

| No. Pos. | Dim. "A" | Through Hole | | SMD | | |
|----------|----------|---|--|--|---|---|
| | | BSE Raise Actuator Blue Tube Package | BS Flat Actuator Red Tube Package | BSM Raise Actuator Black Tube Package | BSM Flat Actuator Black Tube Package | BSM Raise Actuator Black Tape & Reel |
| 1 | 3.54 | BSE01GB | BS01LR | BSM01GK | BSM01LK | BSM01GK-R |
| 2 | 6.08 | BSE02GB | BS02LR | BSM02GK | BSM02LK | BSM02GK-R |
| 3 | 8.62 | BSE03GB | BS03LR | BSM03GK | BSM03LK | BSM03GK-R |
| 4 | 11.16 | BSE04GB | BS04LR | BSM04GK | BSM04LK | BSM04GK-R |
| 5 | 13.70 | BSE05GB | BS05LR | BSM05GK | BSM05LK | BSM05GK-R |
| 6 | 16.24 | BSE06GB | BS06LR | BSM06GK | BSM06LK | BSM06GK-R |
| 7 | 18.78 | BSE07GB | BS07LR | BSM07GK | BSM07LK | BSM07GK-R |
| 8 | 21.32 | BSE08GB | BS08LR | BSM08GK | BSM08LK | BSM08GK-R |
| 9 | 23.86 | BSE09GB | BS09LR | BSM09GK | BSM09LK | BSM09GK-R |
| 10 | 26.40 | BSE10GB | BS10LR | BSM10GK | BSM10LK | BSM10GK-R |
| 12 | 31.48 | BSE12GB | BS12LR | BSM12GK | BSM12LK | BSM12GK-R |

BS(E)2F/BS(E)M2F

| No. Pos. | Dim. "A" | Through Hole | | SMD | |
|----------|----------|---|--|---|--|
| | | BS2F Raise Actuator Standard Red Tube Package | BS2F Raise Actuator Standard Blue Tube Package | BSEM2F Raise Actuator Standard Black Tube Package | BSM2F Raise Actuator Standard Black Tube Package |
| 1 | 6.08 | BS2F01GR | BS2F01GB | BSM2F01GK | BSM2F01GK |
| 2 | 11.16 | BS2F02GR | BS2F02GB | BSM2F02GK | BSM2F02GK |
| 3 | 16.24 | BS2F03GR | BS2F03GB | BSM2F03GK | BSM2F03GK |
| 4 | 21.32 | BS2F04GR | BS2F04GB | BSM2F04GK | BSM2F04GK |
| 5 | 26.40 | BS2F05GR | BS2F05GB | BSM2F05GK | BSM2F05GK |

| | | | |
|--|---|--------|------|
| MODEL | SPECIFICATION DIP SWITCH RoHS & REACH Compliant / Halogen Free | SP-008 | Page |
| BS(E)/BSM series Box Slide Type | | | 8/11 |

Tube Package

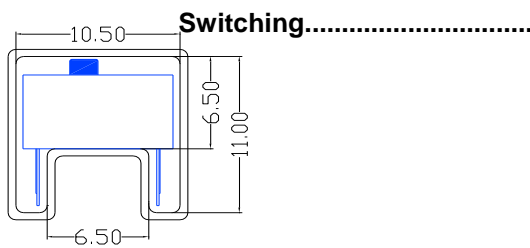
◆ BS(E)/BSM

| POLE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 |
|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|
| TUBE | 148 | 85 | 61 | 47 | 38 | 32 | 28 | 24 | 22 | 20 | 16 |
| BOX | 11840 | 6800 | 4880 | 3760 | 3040 | 2560 | 2240 | 1920 | 1760 | 1600 | 1280 |
| CTN 1 | 23680 | 13600 | 9760 | 7520 | 6080 | 5120 | 4480 | 3840 | 3520 | 3200 | 2560 |
| CTN 2 | 47360 | 27200 | 19520 | 15040 | 12160 | 10240 | 8960 | 7680 | 7040 | 6400 | 5120 |

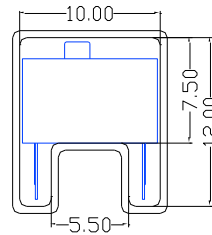
◆ BS2F/BSM2F

| POLE | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|-------|-------|------|------|------|------|
| TUBE | 85 | 47 | 32 | 24 | 20 | 16 |
| BOX | 4760 | 2632 | 1792 | 1344 | 1120 | 896 |
| CTN 1 | 9520 | 5264 | 3584 | 2688 | 2240 | 1792 |
| CTN 2 | 19040 | 10528 | 7168 | 5376 | 4480 | 3584 |

BS(E)/BSM



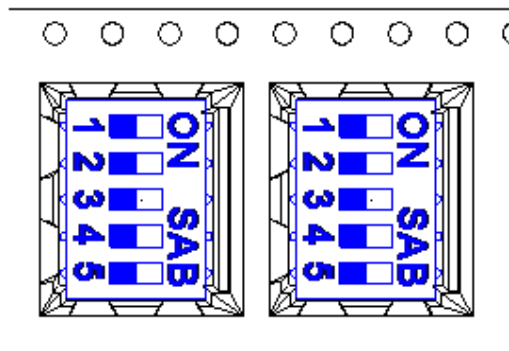
BS(E)2F/BSM2F



Tape & Reel package

◆ BSM

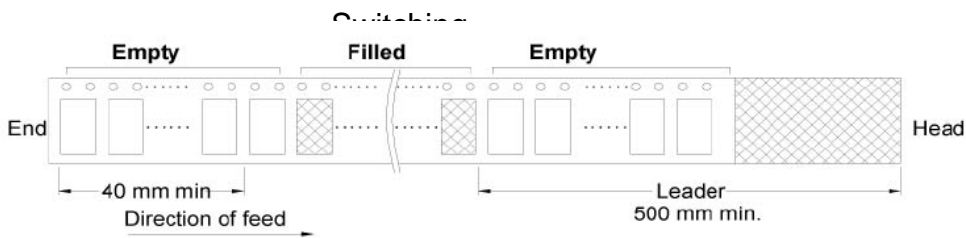
| POLE | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 10 | 12 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pitch (mm) | 12 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Width (mm) | 24 | 24 | 24 | 24 | 24 | 44 | 44 | 44 | 44 |
| Per Reel | 700 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |



| | | | |
|--|---|--------|------|
| MODEL | SPECIFICATION DIP SWITCH RoHS & REACH Compliant / Halogen Free | SP-009 | Page |
| BS(E)/BSM series Box Slide Type | | | 9/11 |

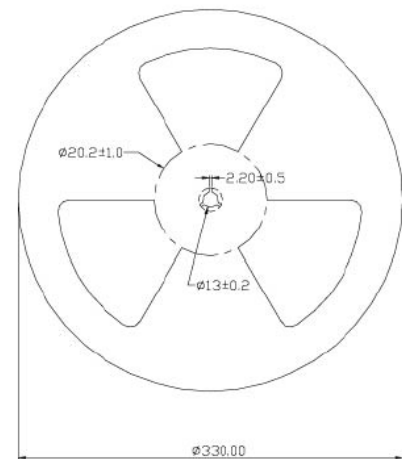
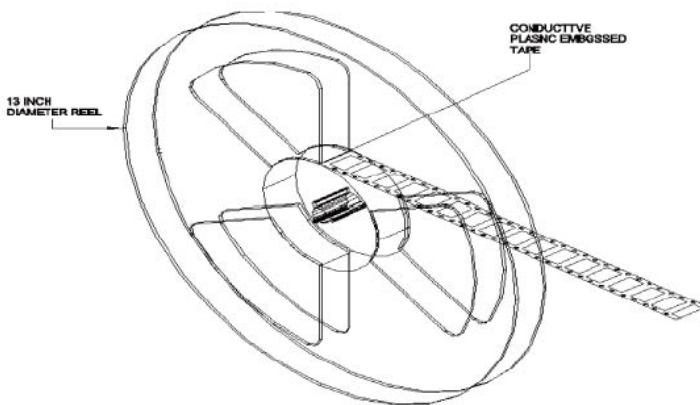
Carry Tape Table

| P/N | Pitch(mm) | Thickness(mm) | Width(mm) | Sellota[e(mm) | @REEL/BOX | Q'ty/Reel |
|-------|-----------|---------------|-----------|---------------|-----------|-----------|
| BSM02 | 12 | 0.4 | 24 | 21.3 | 4 | 700 |
| BSM03 | 16 | 0.4 | 24 | 21.3 | | 500 |
| BSM04 | 16 | 0.4 | 24 | 21.3 | | 500 |
| BSM05 | 16 | 0.4 | 24 | 21.3 | | 500 |
| BSM06 | 16 | 0.4 | 32 | 25.5 | 3 | 500 |
| BSM08 | 16 | 0.4 | 44 | 37.5 | 2 | 500 |
| BSM10 | 16 | 0.4 | 44 | 37.5 | | 500 |
| BSM12 | 16 | 0.4 | 44 | 37.5 | | 500 |



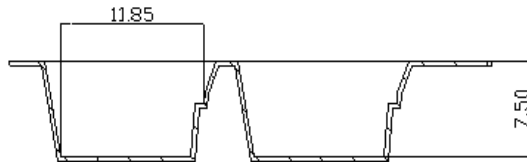
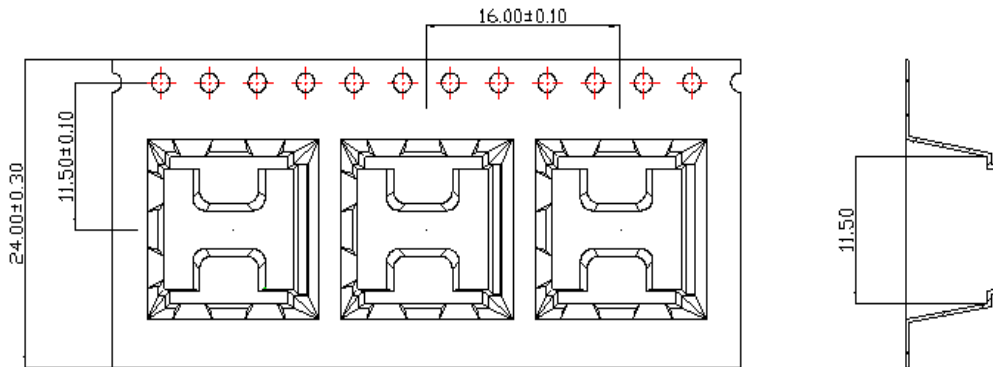
TAPE AND REEL PACKAGING

Meet EIA 481-2D & EIA 481-3



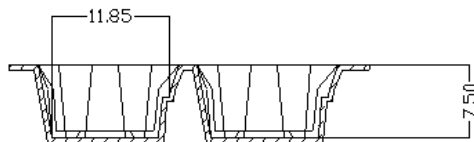
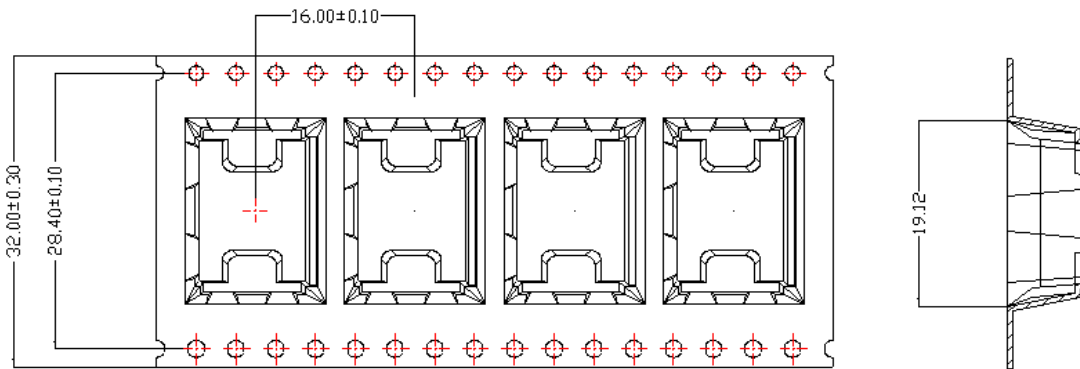
| | | | |
|------------------------------------|--|--------|-------|
| MODEL | SPECIFICATION DIP SWITCH RoHS & REACH Compliant / Halogen Free | SP-010 | Page |
| BS(E)/BSM series Box Slide Type | | | 10/11 |

24mm



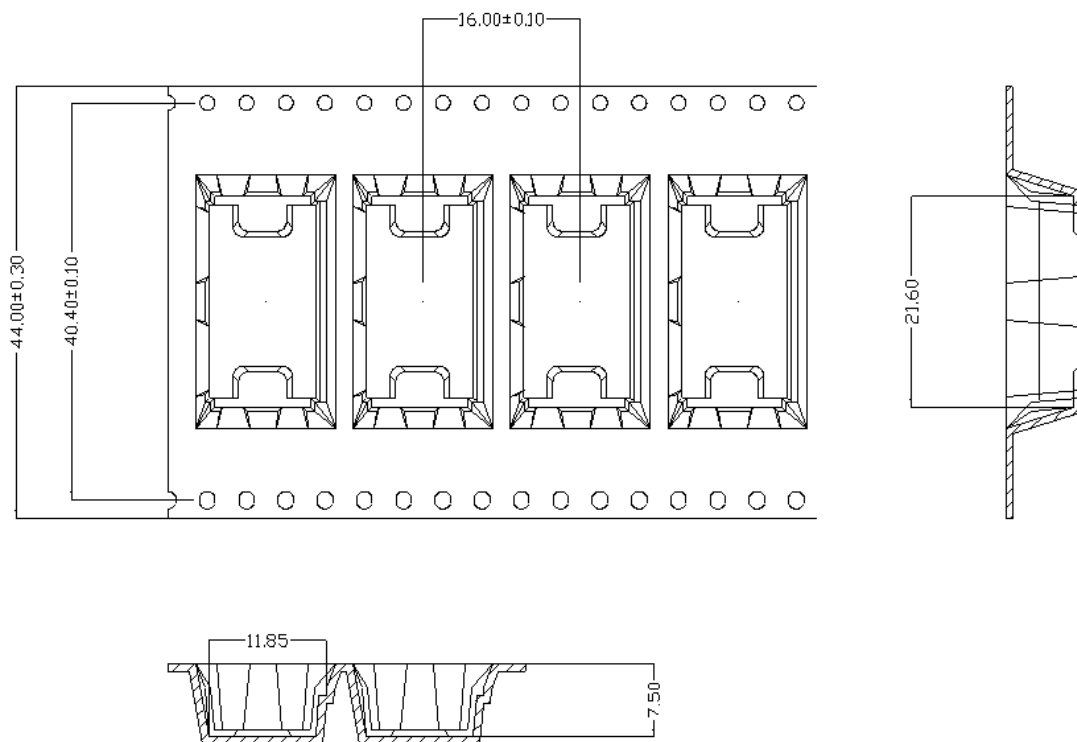
Switching.....

32mm



| | | | |
|--|---|--------|-------|
| MODEL | SPECIFICATION DIP SWITCH RoHS & REACH Compliant / Halogen Free | SP-011 | Page |
| BS(E)/BSM series Box Slide Type | | | 11/11 |

44mm



Box Dimension

- ◆ Tube 56.5cm x 12.8cm x 12.3cm
- ◆ Tape & Reel 34.2cm x 34.2cm x 14.0cm

Carton Dimension

- ◆ Tube
 - 2 Boxes..... 58.0cm x 28.0cm x 14.5cm
 - 4 Boxes..... 58.0cm x 28.0cm x 26.0cm
- ◆ Tape & Reel
 - 1 Box..... 34.2cm x 34.2cm x 14.0cm
 - 2 Boxes..... 36.0cm x 27.5cm x 37.0cm

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