

## Solid State PIN Control Products

2-18 GHz

### 3 Watt PIN Switches

- 3 Watt CW
- High Speed
- Low Insertion Loss
- High Isolation
- Small Size
- Hermetically Sealed



### Description

These SPST and SP2T switches are hermetically sealed high speed PIN switches that provide high isolation, low VSWR and Insertion Loss. Special attention has been given to high packaging density for military environments.

### Specifications

Reflective Switches, SMA (F), 2 to 18 GHz

| MODEL     | TYPE | SWITCHING<br>TIME<br>MODULATION<br>(ns) | BAND<br>SEGMENTS<br>(GHz) | INSERTION<br>LOSS<br>(dB max.) | VSWR<br>(max.) | ISOLATION<br>(dB min.) | POWER<br>HANDLING<br>(W) | POWER SUPPLY<br>REQUIREMENTS |           |
|-----------|------|---|---------------------------|--------------------------------|----------------|------------------------|--------------------------|------------------------------|-----------|
|           |      |   |                           |                                |                |                        |                          | mA @+5 V                     | mA @-12 V |
| S213D     | SPST | 10                                      | 2-4                       | 1.0                            | 1.70           | 55                     | 3.0                      | 100                          | 50        |
|           |      |   | 4-8                       | 1.2                            | 1.70           | 60                     |                          |                              |           |
|           |      |   | 8-12                      | 1.5                            | 1.70           | 60                     |                          |                              |           |
|           |      |   | 12-18                     | 2.0                            | 1.70           | 60                     |                          |                              |           |
| S213D-04* | SPST | 10                                      | 2-4                       | 1.0                            | 1.70           | 55                     | 3.0                      | 100                          | 50        |
|           |      |   | 4-8                       | 1.2                            | 1.70           | 60                     |                          |                              |           |
|           |      |   | 8-12                      | 1.5                            | 1.70           | 60                     |                          |                              |           |
|           |      |   | 12-18                     | 2.0                            | 1.70           | 60                     |                          |                              |           |
| S123BD    | SP2T | 50                                      | 2-4                       | 1.5                            | 1.75           | 60                     | 1.0                      | 100                          | 50        |
|           |      |   | 4-8                       | 1.7                            | 1.75           | 60                     |                          |                              |           |
|           |      |   | 8-12                      | 2.0                            | 1.75           | 60                     |                          |                              |           |
|           |      |   | 12-18                     | 2.5                            | 2.00           | 55                     |                          |                              |           |

\* Suffix "-04" denotes solder control terminals instead of SMC connectors

# Solid State PIN Control Products

## Electrical Specifications

### TTL CONTROL LOGIC (Models with Driver)

Logic 0 (-0.3 to 0.8 V, 1.6 mA max. sink @ 0.4 V) = Insertion Loss  
 Logic 1 (2.4 to 5.0 V, 40  $\mu$ A max. source @ 2.4 V) = Isolation

### SWITCHING SPEED

Rise Time = 10% to 90% of detected RF power  
 Fall Time = 90% to 10% of detected RF power

### SURVIVAL POWER at 25°C (Cold Switching)

3 W CW, 75 W Peak (1  $\mu$ s max. pulse width, 1% duty cycle)  
 Derate linearly to 50% at +95°C

### INPUT VOLTAGES

+5 V  $\pm$ 2%  
 -5V to -15V

### CONNECTORS

RF .....SMA Female  
 Control..... SMC Male  
 Power Supply ..... Solder Terminal

## Environmental Specifications

### TEMPERATURE

Operating ..... -54°C to +95°C  
 Storage ..... -65°C to +125°C

### HUMIDITY

Per MIL-STD-202F, method 103B, condition B  
 (96 hours at 95% R.H.)

### SHOCK

Per MIL-STD-202F, method 213B, condition B  
 (75 G, 6 ms)

### ALTITUDE

Per MIL-STD-202F, method 105C, condition B  
 (50,000 feet)

### VIBRATION

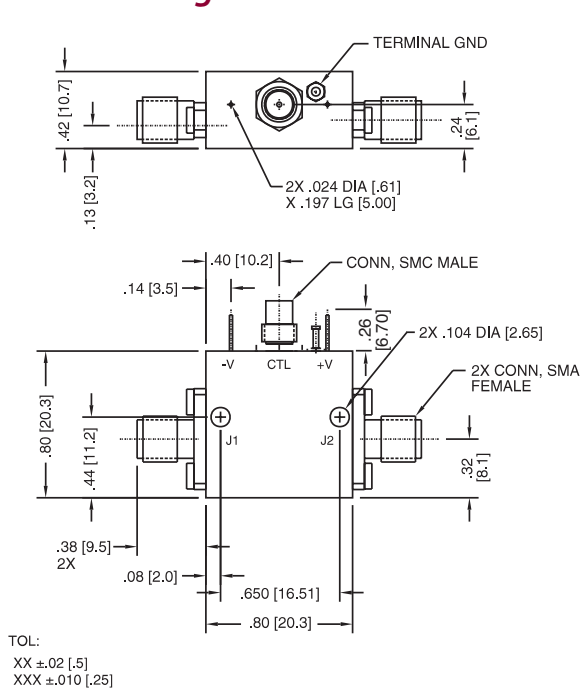
Per MIL-STD-202F, method 204D, condition B  
 (.06" double amplitude or 15 G, whichever is less)

### THERMAL SHOCK

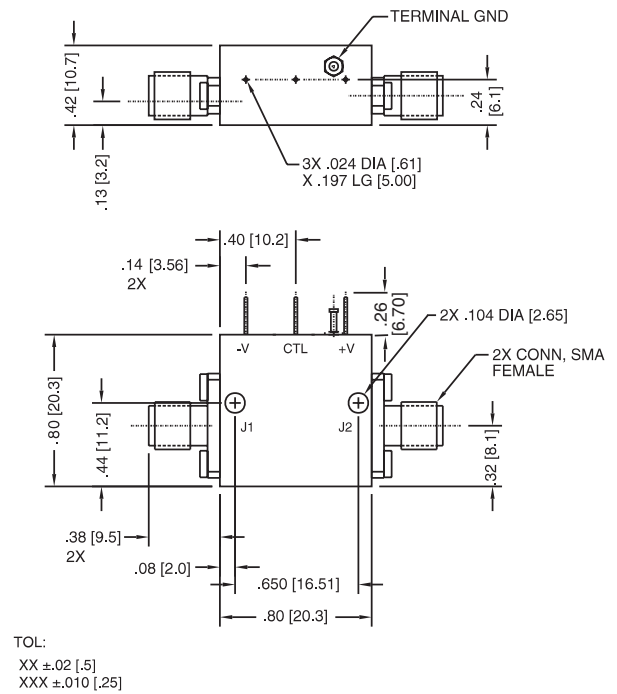
Per MIL-STD-202F, method 107G, condition B (5 cycles)

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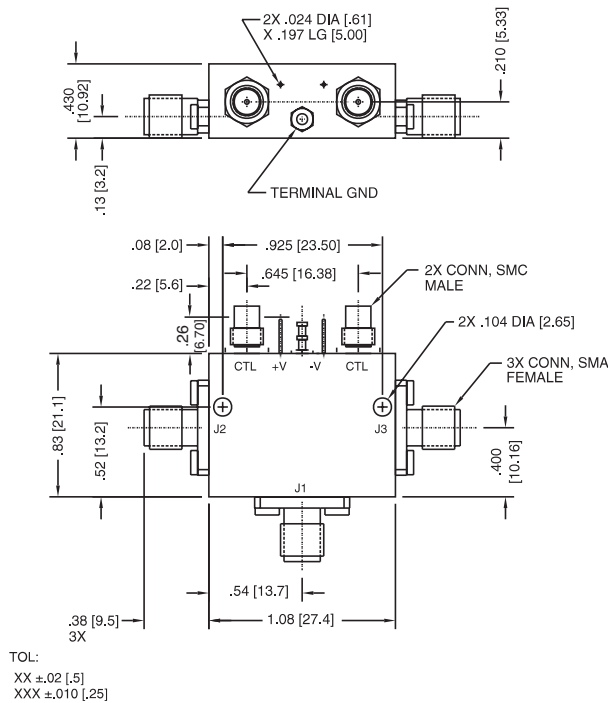
## Outline Drawings



S213D



S213D-04



S123BD

Dimensions in inches (mm in parentheses), unless otherwise specified.