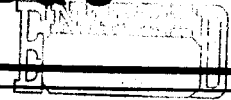




# SOLID STATE DEVICES, INC

14849 Firestone Boulevard · La Mirada, CA 90638  
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

## SXM33B thru SXM63B & C



### PIN DIODE SERIES

### RF POWER SWITCH AND ATTENUATOR

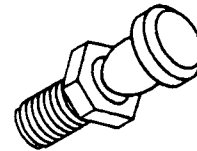
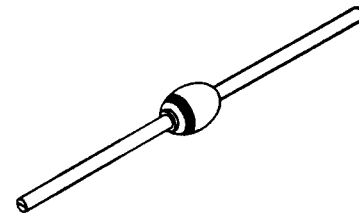
The SXM Series is constructed from a single chip metallurgically bonded both sides. The series provide large chip area for high power applications when higher junction capacitance is acceptable. The high reverse voltage ratings allow operation with large swing RF signals.

## Designer's Data Sheet

### FEATURES:

- Operating Frequency up to 3GHz
- Voltage Ratings to 3000 Volts
- Power Dissipation to 40 Watts Continuous
- 500kW Peak Pulse Power Dissipation
- For RF Switches and Attenuator Applications
- Long Carrier Life Time Design
- Various Intrinsic Region Lengths Available
- Axial, Surface Mount and Ministud Versions
- Custom Design Upon Request
- Screening to TX, TXV and Space Levels

### CASE STYLE B



CASE STYLE C

### AVERAGE POWER RATINGS

| RATING                          |                         | SYMBOL     | SXM33       | SXM43 | SXM63 | UNIT  |
|---------------------------------|-------------------------|------------|-------------|-------|-------|-------|
|                                 |                         |            | VALUE       |       |       |       |
| Power Dissipation               | Add "B" Suffix (note 1) | PD         | 1.0         | 12    | 15    | Watts |
|                                 | Add "B" Suffix (note 2) |            | 0.4         | 2.5   | 4     |       |
|                                 | Add "C" Suffix          |            | ---         | 25    | 40    |       |
| Thermal Resistance              | Add "B" Suffix (note 1) | RθJL       | 60          | 75    | 75    | °C/W  |
|                                 | Add "B" Suffix (note 2) | RθJL       | ---         | ---   | ---   |       |
|                                 | Add "C" Suffix          | RθJC       | 25          | 37.5  | 37.5  |       |
| Peak Power Dissipation          |                         | PPD        | 75          | 250   | 500   | kW    |
| Operating & Storage Temperature |                         | Top & Tstg | -65 to +175 |       |       | °C    |

### NOTES:

- 1) 1/2" total length to 25°C contact/derate linearly to 175°C for TL>25°C  
Free Air

NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: RP0035 A

RMD

HIGH FREQUENCY

# SXM33B thru SXM63B & C



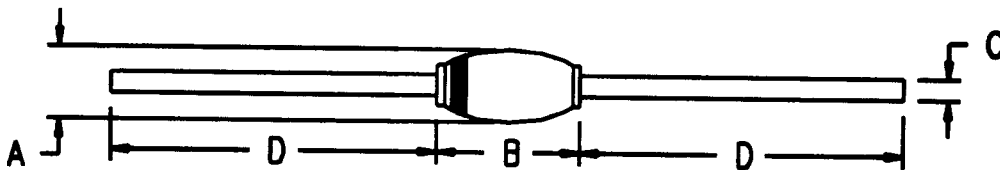
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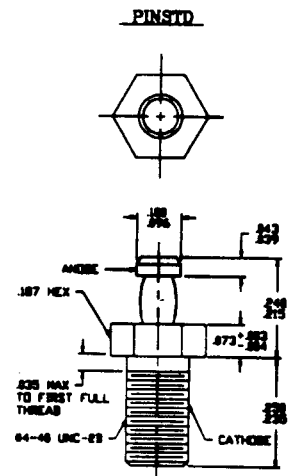
| ELECTRICAL CHARACTERISTICS                                               |        | SXM33           |          | SXM43           |        | SXM63           |          |                        |
|--------------------------------------------------------------------------|--------|-----------------|----------|-----------------|--------|-----------------|----------|------------------------|
| CHARACTERISTICS                                                          | SYMBOL | MIN             | MAX      | MIN             | MAX    | MIN             | MAX      | UNIT                   |
| Reverse Breakdown Voltage<br>(at 10mA)                                   | BVR    | ---             | 2500     | ---             | 2500   | ---             | 2000     | V                      |
| Forward Voltage Drop<br>(at IF = 1 Amp)                                  | VF     | ---             | 1.7      | ---             | 1.2    | ---             | 0.9      | V                      |
| Reverse Leakage Current<br>(at VR = 300 Volts)                           | IR     | ---             | 200      | ---             | 200    | ---             | 200      | nA                     |
| Junction Capacitance<br>(VR = 100 Volts, 1 MHz)                          | CJ     | 0.3             | 0.7      | 1.25            | 1.70   | 3.5             | 4.5      | pF                     |
| Carrier Lifetime<br>(at IF = 10mA)                                       | $\tau$ | 5.0             | ---      | 5.0             | ---    | 5.0             | ---      | $\mu$ sec              |
| Intrinsic Region Width                                                   | W      | 150             | ---      | 150             | ---    | 150             | ---      | $\mu$ m                |
| Series Resistance<br>(IF = 100mA, 100 MHz)<br>(IF = 10 $\mu$ A, 100 MHz) | Rs     | 1.7(typ)<br>--- | 2.5<br>5 | 0.7(typ)<br>--- | 1<br>3 | 0.5(typ)<br>--- | 0.8<br>1 | $\Omega$<br>K $\Omega$ |
| RF Parallel Resistance<br>(VR=100Volts, 100 MHz)                         | Rp     | 10(typ)         | ---      | 10(typ)         | ---    | 7(typ)          | ---      | K $\Omega$             |

## CASE OUTLINE:

### CASE B



### CASE C



| DIMENSIONS: SXM33 |       |       | DIMENSIONS: SXM43 |       |       | DIMENSIONS: SXM63 |       |       |
|-------------------|-------|-------|-------------------|-------|-------|-------------------|-------|-------|
| DIM               | MIN.  | MAX.  | DIM               | MIN.  | MAX.  | DIM               | MIN.  | MAX.  |
| A                 | ---   | .100" | A                 | ---   | .135" | A                 | ---   | .160" |
| B                 | ---   | .225" | B                 | ---   | .200" | B                 | ---   | .200" |
| C                 | .016" | .020" | C                 | .025" | .032" | C                 | .036" | .040" |
| D                 | 1.0"  | ---   | D                 | 1.0"  | ---   | D                 | 1.0"  | ---   |