**Solid State Devices, Inc.**
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# SDR1-12 thru SDR1-16 and SDR1-12SMS and SDR1-16SMS

## 1.0 AMP
## 1200 – 1600 VOLTS
## 70 nsec ULTRA FAST RECTIFIER

## Designer's Data Sheet

**Part Number/Ordering Information** [1/]

**SDR1** ___ ___ ___

- **Screening** [2/]
  - __ = Not Screened
  - TX = TX Level
  - TXV = TXV
  - S = S Level
- **Package Type**
  - __ = Axial Leaded
  - SMS = Surface Mount Square Tab
- **Family**
  - -12 = 1200 V
  - -14 = 1400 V
  - -16 = 1600 V

### FEATURES:

- **Ultra Fast Recovery: 70 ns Max @ 25°C** [4/]
- **Single Chip Construction**
- **PIV to 1600 Volts**
- **Low Reverse Leakage Current**
- **Hermetically Sealed**
- **For High Efficiency Applications**
- **Available in Axial and Surface Mount Versions**
- **Metallurgically Bonded**
- **TX, TXV, and S-Level Screening Available** [2/]
- **Hyper Fast Versions available**

## MAXIMUM RATINGS [3/]

| RATING | | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage And DC Blocking Voltage | SDR1-12 and SDR1-12SMS<br>SDR1-14 and SDR1-14SMS<br>SDR1-16 and SDR1-16SMS | $V_{RRM}$ $V_{RWM}$ $V_R$ | 1200<br>1400<br>1600 | Volts |
| Rectified Forward Forward Current (Resistive Load, 60 Hz, Sine Wave, $T_A$ = 25°C) | | $I_O$ | 1 | Amp |
| Peak Surge Current (8.3 msec Pulse, Half Sine Wave Superimposed on Io, allow junction to reach equilibrium between pulses, $T_A$ = 25°C) | | $I_{FSM}$ | 25 | Amps |
| Operating & Storage Temperature | | $T_{OP}$ and $T_{STG}$ | -65 to +175 | °C |
| Thermal Resistance, Junction to Lead, L = 3/8" (Axial)<br>Junction to End Tab (SMS) | | $R_{\theta JL}$<br>$R_{\theta JE}$ | 35<br>18 | °C/W |

**NOTES:**

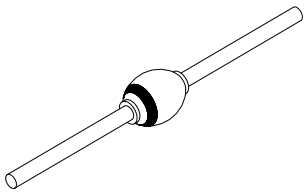
**1/** For Ordering Information, Price, and Availability- Contact Factory.

**2/** Screening Based on MIL-PRF-19500. Screening Flows Available on Request.

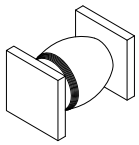
**3/** Unless Otherwise Specified, All Electrical Characteristics @25ºC.

**4/** Recovery Conditions: $I_F$ = 0.5 Amp, $I_R$ = 1.0 Amp, $I_{RR}$ to .25 Amp.

**Axial Leaded**



**SMS**



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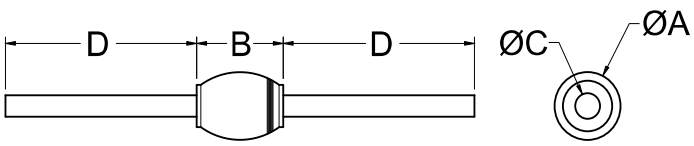
## ELECTRICAL CHARACTERISTICS [3/]

| CHARACTERISTICS | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Instantaneous Forward Voltage Drop ($I_F$ = 1Adc, 300- 500 µs Pulse, $T_A$ = 25°C) | $V_{F1}$ | 2.90 | Vdc |
| Instantaneous Forward Voltage Drop ($I_F$ = 1Adc, 300- 500 µs Pulse, $T_A$ = -55°C) | $V_{F2}$ | 3.60 | Vdc |
| Maximum Reverse Leakage Current (Rated $V_R$, 300 µs Pulse Minimum , $T_A$ = 25°C) | $I_{R1}$ | 5 | µA |
| Maximum Reverse Leakage Current (Rated $V_R$, 300 µs Pulse Minimum , $T_A$ = 100°C) | $I_{R2}$ | .5 | mA |
| Junction Capacitance (VR = 10Vdc, $T_A$ = 25°C , f = 1MHz) | $C_J$ | 20 | pf |
| Maximum Reverse Recovery Time [4/] | $t_{rr}$ | 70 | ns |

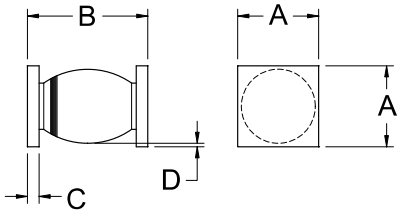
**Axial Leaded Case Outline [5/]:**

| DIMENSIONS | | |
|---|---|---|
| DIM. | MIN. | MAX. |
| A | --- | .150” |
| B | --- | .190” |
| C | .027” | .033” |
| D | .95” | --- |




**Square Tab Surface Mount Case Outline [5/]:**

| DIMENSIONS | | |
|---|---|---|
| DIM. | MIN. | MAX. |
| A | .134” | .153” |
| B | .200” | .280” |
| C | .022” | .028” |
| D | .002” | --- |

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**3/** Unless Otherwise Specified, All Electrical Characteristics @25ºC.
**4/** Recovery Conditions: $I_F$ = 0.5 Amp, $I_R$ = 1.0 Amp, $I_{RR}$ to .25 Amp.
**5/** For information on operating curves, contact factory.