



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, Ca 90638
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SDR1ASM, SMM, & SMS thru SDR1MSM, SMM, & SMS

1.0 AMPS
50 – 1000 VOLTS
50 – 70 nsec ULTRA FAST RECTIFIER

Designer's Data Sheet

Part Number/Ordering Information ^{1/}

SDR1 — — —

 | | |

 | | | **L Screening ^{2/}**

 | | | — = Not Screened

 | | | TX = TX Level

 | | | TXV = TXV

 | | | S = S Level

 | | | **Package Type**

 | | | SM = Surface Mount Round Tab

 | | | SMM = Surface Mount Mini

 | | | SMS = Surface Mount Square Tab

Voltage A = 50 V J = 600 V

 B = 100 V K = 800 V

 D = 200 V M = 1000 V

 G = 400 V

- FEATURES:**
- **Ultra Fast Recovery:** 50-70 ns Max @ 25°C ^{4/}
80-120 ns Max @ 100°C ^{4/}
 - **Single Chip Construction**
 - **PIV to 1000 Volts (1200V Version available)**
 - **Low Reverse Leakage Current**
 - **Hermetically Sealed**
 - **For High Efficiency Applications**
 - **Available in Round, Mini, and Square Tab Versions**
 - **Metallurgically Bonded**
 - **TX, TXV, and S-Level Screening Available ^{2/}**
 - **Hyper Fast Version available**

MAXIMUM RATINGS ^{3/}

| RATING | | SYMBOL | VALUE | UNIT |
|---|----------|---|-------------|-------|
| Peak Repetitive Reverse Voltage And DC Blocking Voltage | SDR1A .. | V_{RRM} V_{RWM} V_R | 50 | Volts |
| | SDR1B .. | | 100 | |
| | SDR1D .. | | 200 | |
| | SDR1G .. | | 400 | |
| | SDR1J .. | | 600 | |
| | SDR1K .. | | 800 | |
| | SDR1M .. | | 1000 | |
| Average Rectified 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 I _O , 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 End Tab | SM | R_{θJE} | 28 | °C/W |
| | SMM | | 45 | |
| | SMS | | 35 | |

NOTES:

- 1/** For Ordering Information, Price, Operating Curves, and Availability-Contact Factory.
- 2/** Screened to MIL-PRF-19500.
- 3/** Unless Otherwise Specified, All Electrical Characteristics @25°C.
- 4/** Recovery Conditions: I_F = 0.5 Amp, I_R = 1.0 Amp, I_{RR} to .25 Amp.

SM (Round Tab) SMM (Mini) SMS (Square Tab)

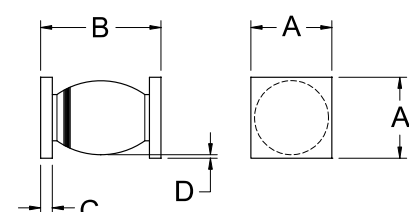
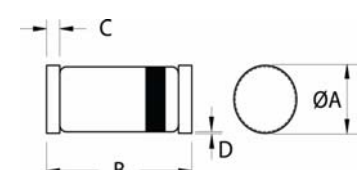
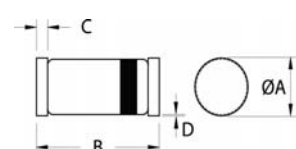




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**SDR1ASM, SMM, & SMS
 thru
 SDR1MSM, SMM, & SMS**

| ELECTRICAL CHARACTERISTICS ^{3/} | | | | Maximum Limit | | | |
|---|------------------------|---------------|----------------|---|------------|---------------|--|
| CHARACTERISTICS | | SYMBOL | Package | | | UNIT | |
| | | | SMM | SM | SMS | | |
| Instantaneous Forward Voltage Drop ($I_F = 1\text{A}_{dc}$, 300 μs Pulse, $T_A = 25^\circ\text{C}$) | SDR1A .. thru SDR1D .. | V_{F1} | 0.96 | 1.3 | 0.96 | Vdc | |
| | SDR1G .. thru SDR1J .. | | 2.7 | 1.3 | 1.3 | | |
| | SDR1K .. thru SDR1M .. | | 2.7 | 2.5 | 1.9 | | |
| Instantaneous Forward Voltage Drop ($I_F = 1\text{A}_{dc}$, 300 μs Pulse, $T_A = -55^\circ\text{C}$) | SDR1A .. thru SDR1D .. | V_{F2} | 1.05 | 1.45 | 2.1 | Vdc | |
| | SDR1G .. thru SDR1J .. | | 2.85 | 1.45 | 2.1 | | |
| | SDR1K .. thru SDR1M .. | | 2.85 | 2.65 | 2.3 | | |
| Reverse Leakage Current (Rated V_R , 300 μs Pulse Minimum, $T_A = 25^\circ\text{C}$) | SDR1A .. thru SDR1D .. | I_{R1} | 5 | | | μA | |
| | SDR1G .. thru SDR1J .. | | | | | | |
| | SDR1K .. thru SDR1M .. | | | | | | |
| Reverse Leakage Current (Rated V_R , 300 μs Pulse Minimum, $T_A = 100^\circ\text{C}$) | SDR1A .. thru SDR1D .. | I_{R2} | 250 | | | μA | |
| | SDR1G .. thru SDR1J .. | | | | | | |
| | SDR1K .. thru SDR1M .. | | | | | | |
| Junction Capacitance ($V_R = 10\text{V}_{dc}$, $T_A = 25^\circ\text{C}$, $f = 1\text{MHz}$) | SDR1A .. thru SDR1D .. | C_J | 20 | 15 | 40 | pf | |
| | SDR1G .. thru SDR1J .. | | 10 | 15 | 25 | | |
| | SDR1K .. thru SDR1M .. | | 10 | 10 | 15 | | |
| Reverse Recovery Time ^{4/} | SDR1A .. thru SDR1D .. | t_{rr} | 50 | | 50 | ns | |
| | SDR1G .. thru SDR1J .. | | | 60 | 60 | | |
| | SDR1K .. thru SDR1M .. | | 70 | 70 | 70 | | |
| Round Tab Surface Mount (SM): | DIMENSIONS | | | Square Tab Surface Mount (SMS) :  | | | |
| | DIM. | MIN. | MAX. | | | | |
|  | A | .095" | .105" | A | .134" | .153" | |
| | B | .190" | .210" | B | .200" | .280" | |
| | C | .010" | .030" | C | .022" | .028" | |
| | D | --- | --- | D | .002" | --- | |
| Mini (SMM): | DIMENSIONS | | |  | | | |
| | DIM. | MIN. | MAX. | | | | |
| | A | .075" | .085" | A | .075" | .085" | |
| | B | .135" | .145" | B | .135" | .145" | |
| | C | .010" | .030" | C | .010" | .030" | |
| | D | --- | --- | D | --- | --- | |

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| | | |
|---|------------------------------|------------|
| NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release. | DATA SHEET #: RU0003D | DOC |
|---|------------------------------|------------|