



**Solid State Devices, Inc.**

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**SDR1PHF thru SDR1WHF  
and  
SDR1PHFSMS and SDR1WHFSMS**

**Designer's Data Sheet**

**Part Number/Ordering Information <sup>1/</sup>**

SDR1    \_    \_    \_    \_

|    |    |    |

L **Screening <sup>2/</sup>**  
   \_ = Not Screened  
   TX = TX Level  
   TXV = TXV  
   S = S Level

|    |

**Package Type**  
   \_ = Axial Leaded  
   SMS = Surface Mount Square Tab

|    |

**Reverse Recovery**  
   HF = Hyper Fast

|    |

**Family/Voltage**    P = 1300 V    T = 1600 V  
                          R = 1400 V    V = 1700 V  
                          S = 1500 V    W = 1800 V

**1 AMP  
HYPER FAST RECTIFIER**  
  
1300 – 1800 VOLTS  
40 nsec

**FEATURES:**

- Hyper Fast Recovery: 40 ns Max @ 25°C <sup>4/</sup>
- Single Chip Construction
- PIV to 1800 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 <sup>2/</sup>

**MAXIMUM RATINGS <sup>3/</sup>**

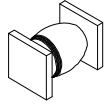
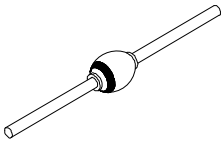
RATING	SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage And DC Blocking Voltage	SDR1PHF SDR1RHF SDR1SHF SDR1THF SDR1VHF SDR1WHF	$V_{RRM}$ $V_{RWM}$ $V_R$	Volts
Rectified Forward Current (Resistive Load, 60 Hz, Sine Wave, $T_L = 25^\circ C$ , L = 1/8")		$I_o$	Amp
Peak Surge Current (8.3 msec Pulse, Half Sine Wave Superimposed on $I_o$ , allow junction to reach equilibrium between pulses, $T_A = 25^\circ C$ )		$I_{FSM}$	Amps
Operating & Storage Temperature		$T_{OP}$ and $T_{STG}$	$^\circ C$
Thermal Resistance, Junction to Lead, L = 3/8" (Axial) Junction to End Tab (SMS)		$R_{\theta JL}$ $R_{\theta JE}$	$^\circ C/W$

**NOTES:**

- <sup>1/</sup> For Ordering Information, Price, and Availability- Contact Factory.
- <sup>2/</sup> Screening Based on MIL-PRF-19500. Screening Flows Available on Request.
- <sup>3/</sup> Unless Otherwise Specified, All Electrical Characteristics @25°C.
- <sup>4/</sup> Recovery Conditions:  $I_F = 0.5$  Amp,  $I_R = 1.0$  Amp,  $I_{RR}$  to .25 Amp.
- <sup>5/</sup> For information on operating curves, contact factory.

Axial Lead

SMS





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**ELECTRICAL CHARACTERISTICS <sup>3/</sup>**

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Instantaneous Forward Voltage Drop ( $I_F = 1 \text{ Adc}$ , 300- 500 $\mu\text{s}$ Pulse, $T_A = 25^\circ\text{C}$ )	$V_{F1}$	4.80	Vdc
Instantaneous Forward Voltage Drop ( $I_F = 1 \text{ Adc}$ , 300- 500 $\mu\text{s}$ Pulse, $T_A = -55^\circ\text{C}$ )	$V_{F2}$	5.0	Vdc
Maximum Reverse Leakage Current (Rated $V_R$ , 300 $\mu\text{s}$ Pulse Minimum , $T_A = 25^\circ\text{C}$ )	$I_{R1}$	20	$\mu\text{A}$
Maximum Reverse Leakage Current (Rated $V_R$ , 300 $\mu\text{s}$ Pulse Minimum , $T_A = 100^\circ\text{C}$ )	$I_{R2}$	200	$\mu\text{A}$
Junction Capacitance ( $V_R = 100\text{Vdc}$ , $T_A = 25^\circ\text{C}$ , $f = 1\text{MHz}$ )	$C_J$	20	pf
Maximum Reverse Recovery Time <sup>4/</sup>	$t_{rr}$	40	ns

Axial Leaded Case Outline:	DIMENSIONS			Square Tab Surface Mount Case Outline:	DIMENSIONS		
	DIM.	MIN.	MAX.		DIM.	MIN.	MAX.
	A	.100"	.150"		A	.135"	.155"
	B	.125"	.200"		B	.175"	.250"
	C	.027"	.033"		C	.022"	.028"
	D	1.00"	---		D	.002"	---