



# Solid State Devices, Inc.

14701 Firestone Blvd \* La Mirada, CA 90638  
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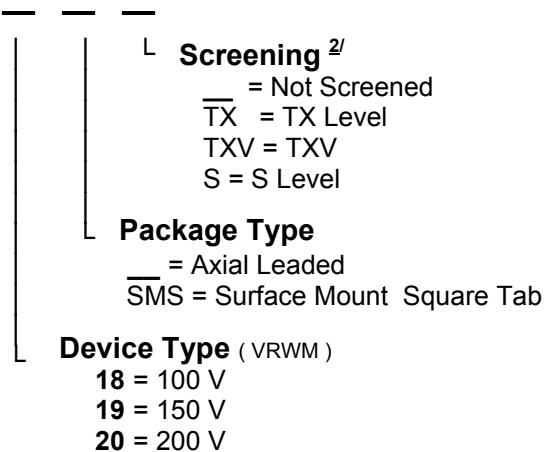
## 1N8018 thru 1N8020 SERIES

**1 AMP**  
**100 – 200 VOLTS**  
**9 nsec**  
**HYPER FAST**  
**SOFT RECOVERY RECTIFIER**

### Designer's Data Sheet

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

1N80



#### FEATURES:

- Hyper fast reverse recovery time 9 ns max
- Low forward voltage drop
- Low reverse leakage current
- Avalanche breakdown
- Void free ceramic frit glass construction
- High temperature category I eutectic metallurgical bond
- Hermetically sealed
- Solid silver lead
- Excellent liquid-to-liquid cryogenic thermal shock performance
- Available in axial & square tab versions
- For high efficiency applications
- TX, TXV, and S-level screening available<sup>2/</sup>
- Available as a QPL product per MIL-PRF-19500/769
- Replacement for 1N6638, 1N6642 and 1N5806

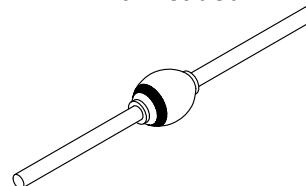
#### MAXIMUM RATINGS <sup>3/</sup>

RATING		SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage DC Blocking Voltage	1N8018	$V_{RWM}$ $V_R$	100	Volts
	1N8019		150	
	1N8020		200	
Average Rectified Forward Current (Resistive Load, 60 Hz, Sine Wave, $T_C = 25^\circ C$ )		$I_o$	1	Amp
Peak Surge Current (8.3 msec Pulse, Half Sine Wave Superimposed on $I_o$ , allow junction to reach equilibrium between pulses, $T_C = 25^\circ C$ )		$I_{FSM}$	20	Amps
Operating & Storage Temperature		$T_{OP}$ and $T_{STG}$	-65 to +175	$^\circ C$
Thermal Resistance SMS- Junction to End Tab Axial- Junction to Lead @ .375"		$R_{\theta JE}$	20	$^\circ C/W$
		$R_{\theta JL}$	80	

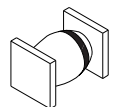
#### NOTES:

- <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.

Axial Leaded



SMS



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

DATA SHEET #: RC0158D

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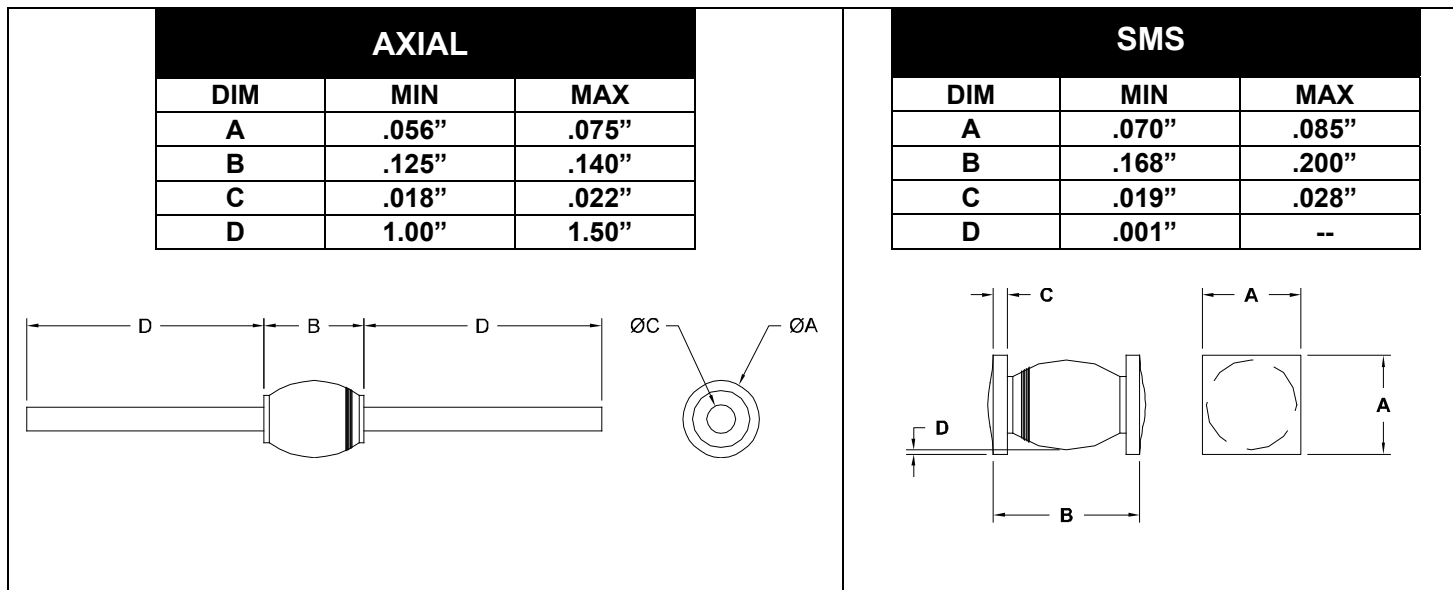
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**1N8018 thru 1N8020  
 SERIES**

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

CHARACTERISTICS	SYMBOL	LIMIT	UNIT
Maximum Instantaneous Forward Voltage Drop (Pulsed, T <sub>A</sub> = 25°C)	@ I <sub>F</sub> = 1mA	V <sub>F1</sub>	0.575
	@ I <sub>F</sub> = 10mA	V <sub>F2</sub>	0.700
	@ I <sub>F</sub> = 100mA	V <sub>F3</sub>	0.800
	@ I <sub>F</sub> = 200mA	V <sub>F4</sub>	0.850
	@ I <sub>F</sub> = 500mA	V <sub>F5</sub>	0.900
	@ I <sub>F</sub> = 1A	V <sub>F6</sub>	0.975
Maximum Instantaneous Forward Voltage Drop (Pulsed, T <sub>A</sub> = 150°C)	@ I <sub>F</sub> = 10mA	V <sub>F7</sub>	0.50
	@ I <sub>F</sub> = 100mA	V <sub>F8</sub>	0.62
Maximum Instantaneous Forward Voltage Drop (Pulsed, T <sub>A</sub> = -55°C)	@ I <sub>F</sub> = 10mA	V <sub>F9</sub>	0.81
	@ I <sub>F</sub> = 100mA	V <sub>F10</sub>	0.92
Minimum Breakdown Voltage I <sub>R</sub> = 100 μA	1N8018	BV <sub>R</sub>	110
	1N8019		165
	1N8020		220
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T <sub>A</sub> = 25°C)	@ V <sub>R</sub> = 20V	I <sub>R1</sub>	50
	@ V <sub>R</sub> = 75V	I <sub>R2</sub>	75
	@ V <sub>R</sub> = max rated	I <sub>R3</sub>	150
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T <sub>A</sub> = 150°C)	@ V <sub>R</sub> = 20V	I <sub>R4</sub>	50
	@ V <sub>R</sub> = 75V	I <sub>R5</sub>	75
	@ V <sub>R</sub> = max rated	I <sub>R6</sub>	150
Maximum Junction Capacitance (T <sub>A</sub> = 25°C , f = 1MHz) V <sub>R</sub> = 0V	C <sub>J1</sub>	14	pf
Maximum Junction Capacitance (T <sub>A</sub> = 25°C , f = 1MHz) V <sub>R</sub> = 1.5V	C <sub>J2</sub>	10	pf
Maximum Junction Capacitance (T <sub>A</sub> = 25°C , f = 1MHz) V <sub>R</sub> = 10V	C <sub>J3</sub>	6	pf
Maximum Reverse Recovery Time (I <sub>F</sub> = 50 mA, I <sub>R</sub> = 100 mA, I <sub>RR</sub> = 25 mA)	t <sub>rr</sub>	9	nsec
Maximum Forward Recovery Time (I <sub>F</sub> = 50 mA)	t <sub>fr</sub>	18	nsec



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