



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

Designer's Data Sheet

Part Number/Ordering Information ^{1/}

1N80

Screening ^{2/}

— = Not Screened

TX = TX Level

TXV = TXV

S = S Level

Package Type

— = Axial Leaded

SMS = Surface Mount Square Tab

Device Type (VRWM)

18 = 100 V

19 = 150 V

20 = 200 V

1N8018 thru 1N8020 SERIES

1 AMP
100 – 200 VOLTS
9 nsec

HYPER FAST
SOFT RECOVERY RECTIFIER

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 ^{2/}
- Available as a QPL product per MIL-PRF-19500/769
- Replacement for 1N6638, 1N6642 and 1N5806

MAXIMUM RATINGS ^{3/}

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, $T_C = 25^\circ\text{C}$)		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, $T_C = 25^\circ\text{C}$)		I_{FSM}	20	Amps
Operating & Storage Temperature		T_{OP} and T_{STG}	-65 to +175	$^\circ\text{C}$
Thermal Resistance SMS- Junction to End Tab Axial- Junction to Lead @ .375"		$R_{\theta JE}$ $R_{\theta JL}$	20 80	$^\circ\text{C/W}$

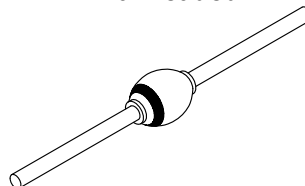
NOTES:

^{1/} For Ordering Information, Price, and Availability- Contact Factory.

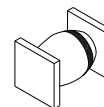
^{2/} Screening Based on MIL-PRF-19500. Screening Flows Available on Request.

^{3/} Unless Otherwise Specified, All Electrical Characteristics @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

DOC



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

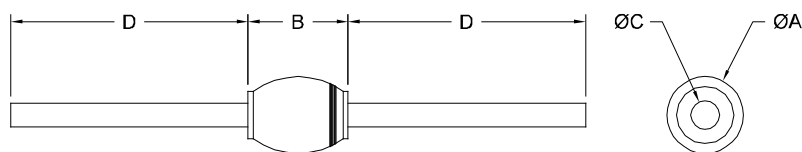
1N8018 thru 1N8020 SERIES

ELECTRICAL CHARACTERISTICS ^{3/}

CHARACTERISTICS		SYMBOL	LIMIT	UNIT
Maximum Instantaneous Forward Voltage Drop (Pulsed, $T_A = 25^\circ\text{C}$)	@ $I_F = 1\text{mA}$	V_{F1}	0.575	Vdc
	@ $I_F = 10\text{mA}$	V_{F2}	0.700	
	@ $I_F = 100\text{mA}$	V_{F3}	0.800	
	@ $I_F = 200\text{mA}$	V_{F4}	0.850	
	@ $I_F = 500\text{mA}$	V_{F5}	0.900	
	@ $I_F = 1\text{A}$	V_{F6}	0.975	
Maximum Instantaneous Forward Voltage Drop (Pulsed, $T_A = 150^\circ\text{C}$)	@ $I_F = 10\text{mA}$	V_{F7}	0.50	Vdc
	@ $I_F = 100\text{mA}$	V_{F8}	0.62	
Maximum Instantaneous Forward Voltage Drop (Pulsed, $T_A = -55^\circ\text{C}$)	@ $I_F = 10\text{mA}$	V_{F9}	0.81	Vdc
	@ $I_F = 100\text{mA}$	V_{F10}	0.92	
Minimum Breakdown Voltage $I_R = 100\text{ }\mu\text{A}$	1N8018	BV_R	110	Vdc
	1N8019		165	
	1N8020		220	
Maximum Reverse Leakage Current (300 μs Pulse Minimum, $T_A = 25^\circ\text{C}$)	@ $V_R = 20\text{V}$	I_{R1}	50	nA
	@ $V_R = 75\text{V}$	I_{R2}	75	
	@ $V_R = \text{max rated}$	I_{R3}	150	
Maximum Reverse Leakage Current (300 μs Pulse Minimum, $T_A = 150^\circ\text{C}$)	@ $V_R = 20\text{V}$	I_{R4}	50	μA
	@ $V_R = 75\text{V}$	I_{R5}	75	
	@ $V_R = \text{max rated}$	I_{R6}	150	
Maximum Junction Capacitance ($T_A = 25^\circ\text{C}$, $f = 1\text{MHz}$) $V_R = 0\text{V}$		C_{J1}	14	pf
Maximum Junction Capacitance ($T_A = 25^\circ\text{C}$, $f = 1\text{MHz}$) $V_R = 1.5\text{V}$		C_{J2}	10	pf
Maximum Junction Capacitance ($T_A = 25^\circ\text{C}$, $f = 1\text{MHz}$) $V_R = 10\text{V}$		C_{J3}	6	pf
Maximum Reverse Recovery Time ($I_F = 50\text{ mA}$, $I_R = 100\text{ mA}$, $I_{RR} = 25\text{ mA}$)		t_{rr}	9	nsec
Maximum Forward Recovery Time ($I_F = 50\text{ mA}$)		t_{fr}	18	nsec

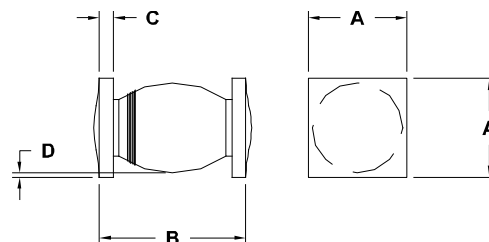
AXIAL

DIM	MIN	MAX
A	.056"	.075"
B	.125"	.140"
C	.018"	.022"
D	1.00"	1.50"



SMS

DIM	MIN	MAX
A	.070"	.085"
B	.168"	.200"
C	.019"	.028"
D	.001"	--



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

DOC