Maximum Ratings (@T_A = +25°C unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current (See Figure 1)	I_O	2.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	50	A
Repetitive Peak Avalanche Power (1µs, +25°C)	P_{ARM}	6,000	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance Thermal Resistance Junction to Soldering (Note 7) Thermal Resistance Junction to Ambient (Note 8) Thermal Resistance Junction to Ambient (Note 9)	 $R_{\theta JS}$ $R_{\theta JA}$ $R_{\theta JA}$	 5 180 115	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)R}$	40	-	-	V	I_R = 100µA
Forward Voltage Drop	V_F	-	0.265	0.315	V	I_F = 0.1A, T_J = +25°C
		-	0.38	0.43		I_F = 1.0A, T_J = +25°C
		-	0.45	0.50		I_F = 2.0A, T_J = +25°C
		-	0.17	0.22		I_F = 0.1A, T_J = +125°C
		-	0.325	0.375		I_F = 1.0A, T_J = +125°C
		-	0.42	0.47		I_F = 2.0A, T_J = +125°C
Leakage Current (Note 5)	I_R	-	8	40	µA	V_R = 5V, T_J = +25°C
		-	16	100	µA	V_R = 40V, T_J = +25°C
		-	1.3	8	mA	V_R = 5V, T_J = +125°C
		-	2.1	10	mA	V_R = 40V, T_J = +125°C

Notes:
7. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB cathode tab solder junction.
8. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
9. Polymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
10. Short duration pulse test used to minimize self-heating effect.

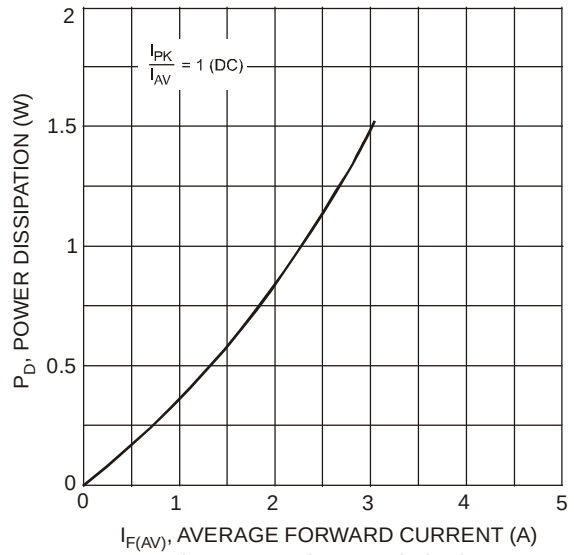


Fig. 1 Forward Power Dissipation

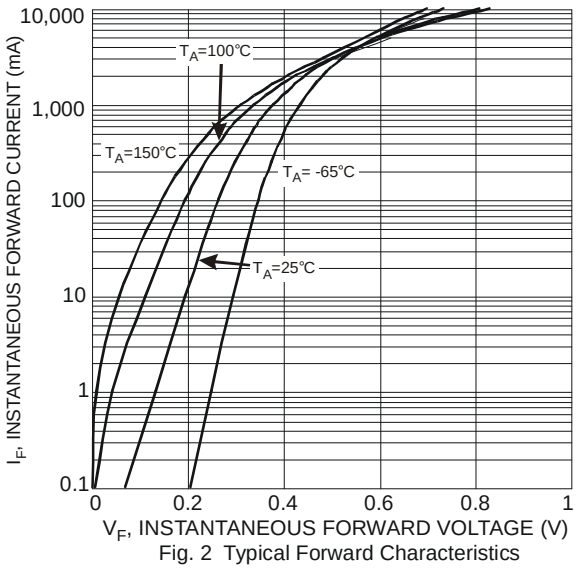


Fig. 2 Typical Forward Characteristics

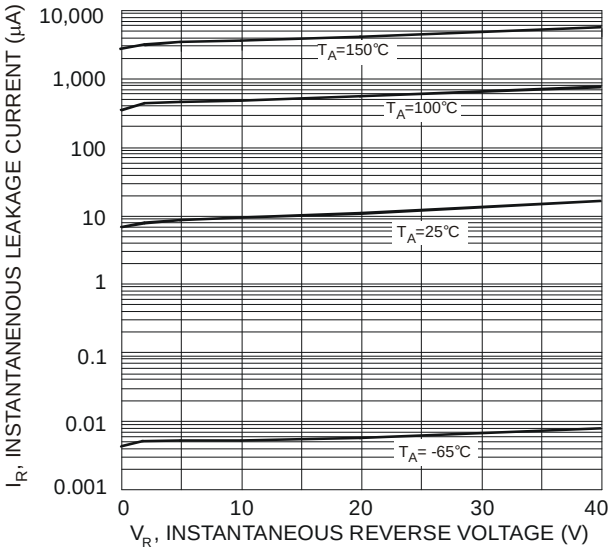


Fig. 3 Typical Reverse Characteristics

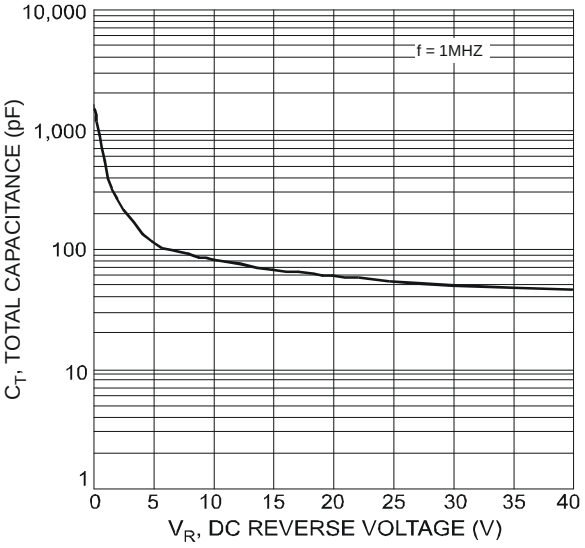


Fig. 4 Total Capacitance vs. Reverse Voltage

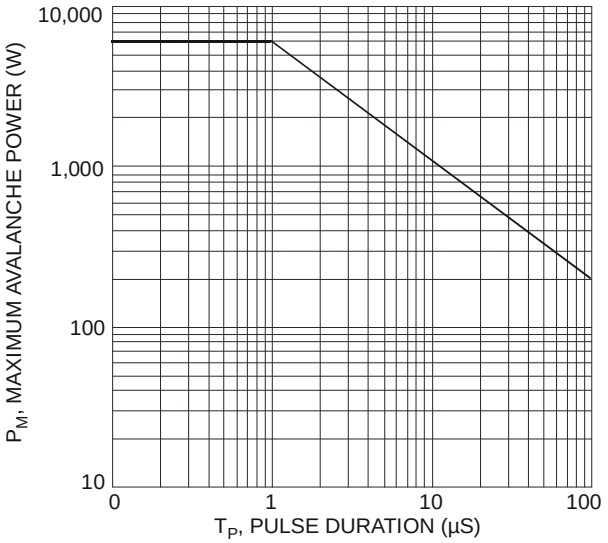


Fig. 5 Maximum Avalanche Power vs. Pulse Duration

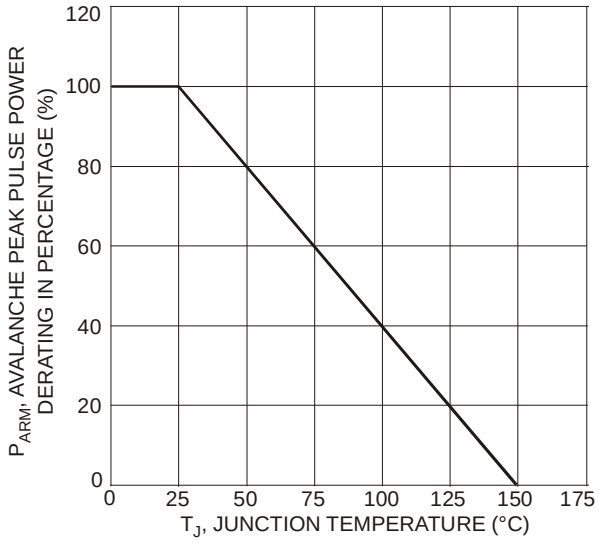


Fig. 6 Pulse Derating Curve

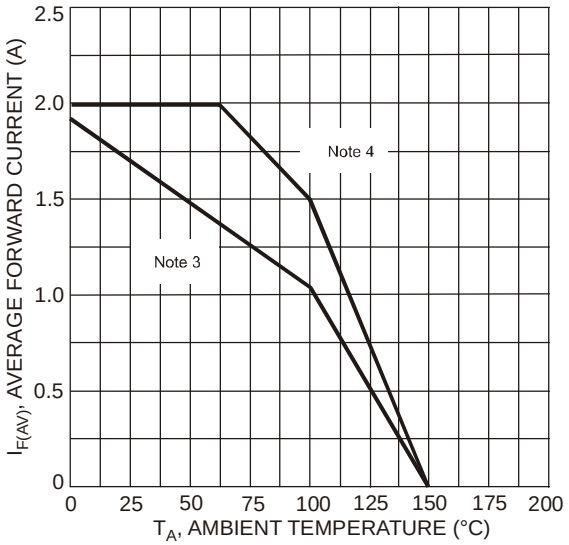


Fig. 7 Forward Current Derating Curve

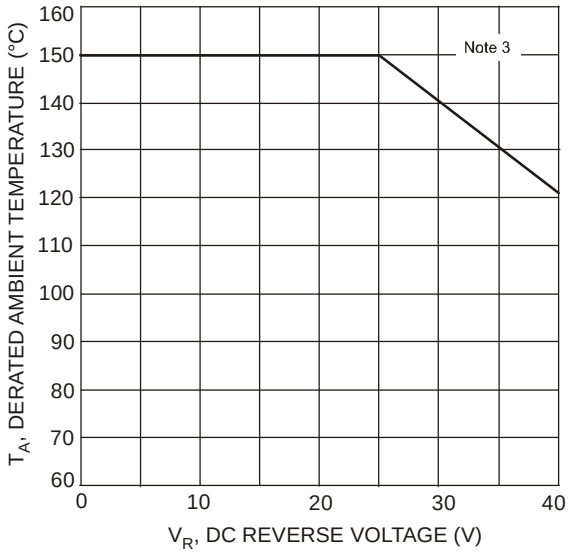


Fig. 8 Operating Temperature Derating

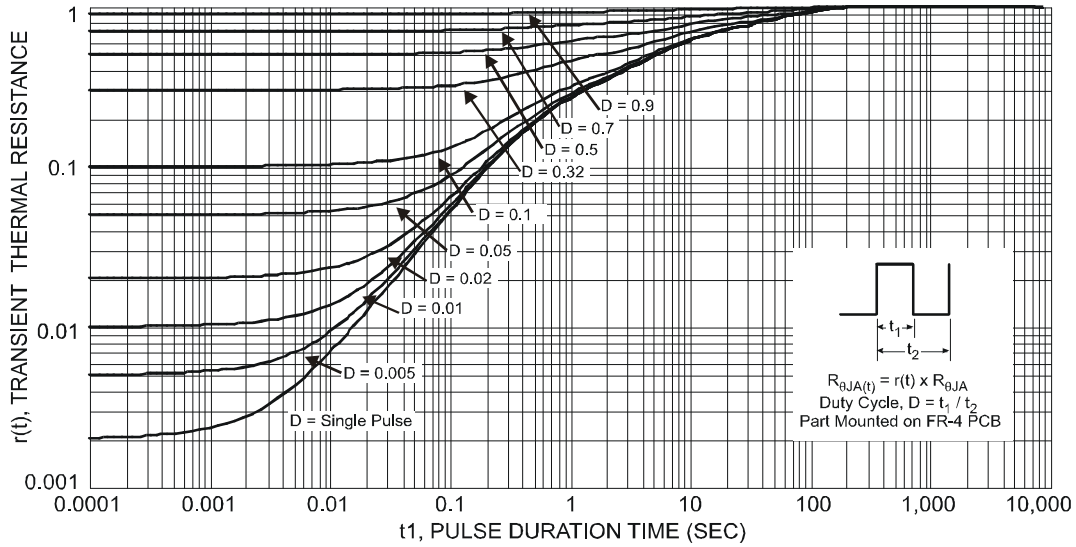
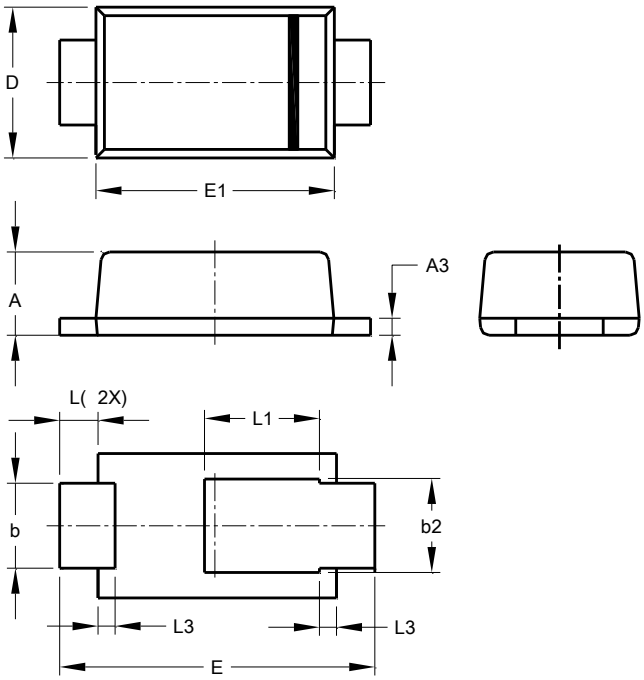


Fig. 9 Transient Thermal Resistance

Package Outline Dimensions

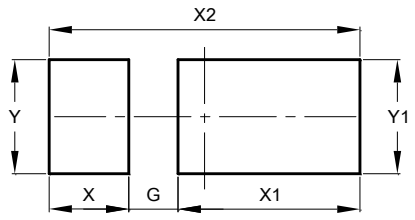
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



POWERDI®123			
Dim	**Min**	**Max**	**Typ**
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
G	0.65
X	1.05
X1	2.40
X2	4.10
Y	1.50
Y1	1.50

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