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}	30	V
RMS Reverse Voltage	$V_{R(RMS)}$	21	V
Average Rectified Output Current (See Figure 1)	I_O	3.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	75	A
Non-Repetitive Avalanche Energy (Per Element) (T_J = +25ºC, I_{AS} = 5A, L = 8.5mH)	E_{AS}	105	mJ
Repetitive Peak Avalanche Energy (Per Element) (1µs, +25ºC)	P_{ARM}	1100	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance Thermal Resistance Junction to Soldering (Note 5) Thermal Resistance Junction to Ambient (Note 6) Thermal Resistance Junction to Ambient (Note 7)	 $R_{\theta JS}$ $R_{\theta JA}$ $R_{\theta JA}$	 5 183 125	ºC/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	ºC

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	30	-	-	V	I_R = 250µA
Forward Voltage Drop	V_F	- - - - - -	0.26 0.37 0.46 0.16 0.29 0.42	0.30 0.41 0.50 0.19 0.32 0.45	V	I_F = 0.1A, T_J = +25ºC I_F = 1.0A, T_J = +25ºC I_F = 3.0A, T_J = +25ºC I_F = 0.1A, T_J = +125ºC I_F = 1.0A, T_J = +125ºC I_F = 3.0A, T_J = +125ºC
Leakage Current (Note 8)	I_R	-	8.5 19 1.7 3.1	100 200 15 20	µA µA mA mA	V_R = 5V, T_J = + 25ºC V_R = 30V, T_J = +25ºC V_R = 5V, T_J = +125ºC V_R = 30V, T_J = +125ºC

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

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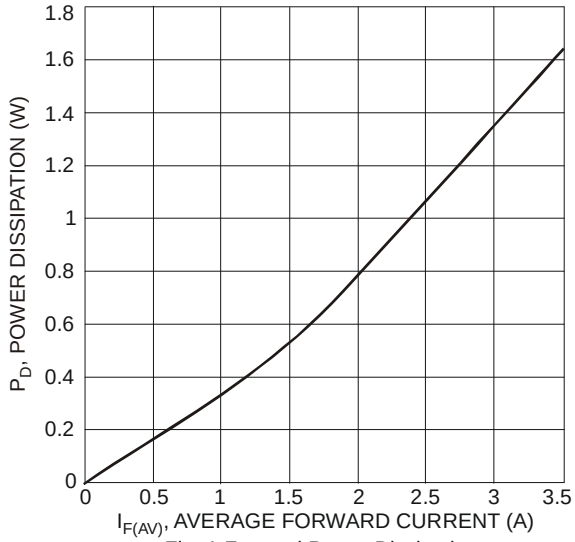

Fig. 1 Forward Power Dissipation

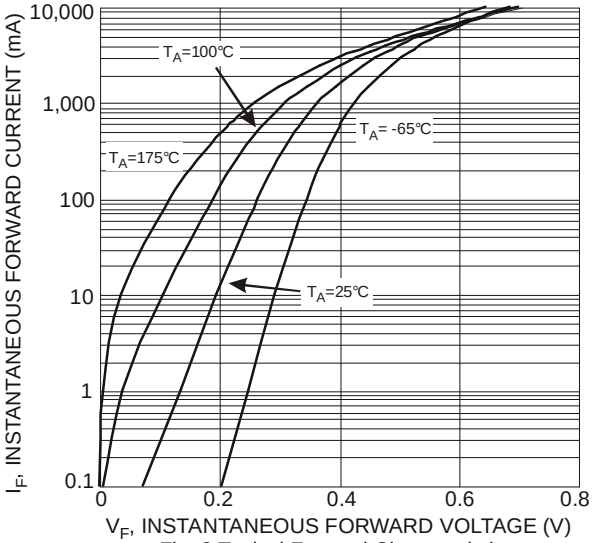

Fig. 2 Typical Forward Characteristics

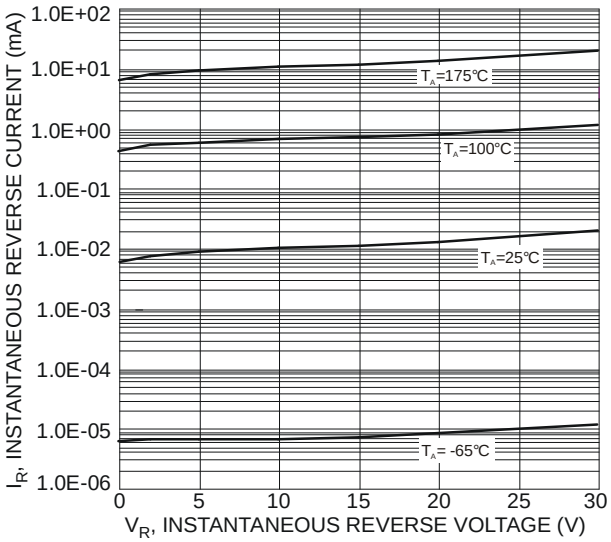

Fig. 3 Typical Reverse Characteristics

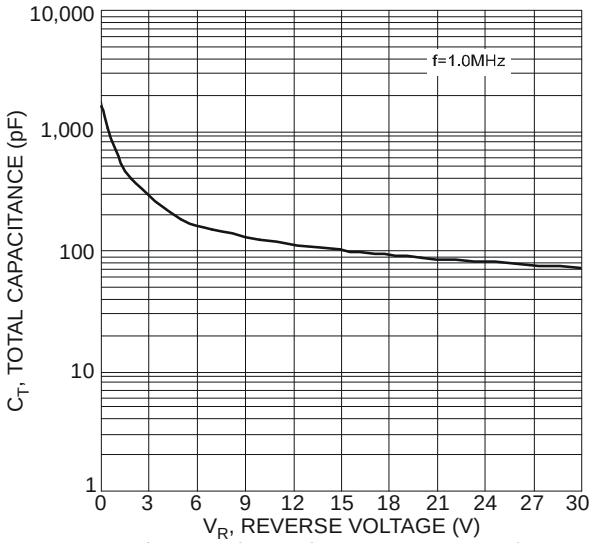

Fig. 4 Total Capacitance vs. Reverse Voltage

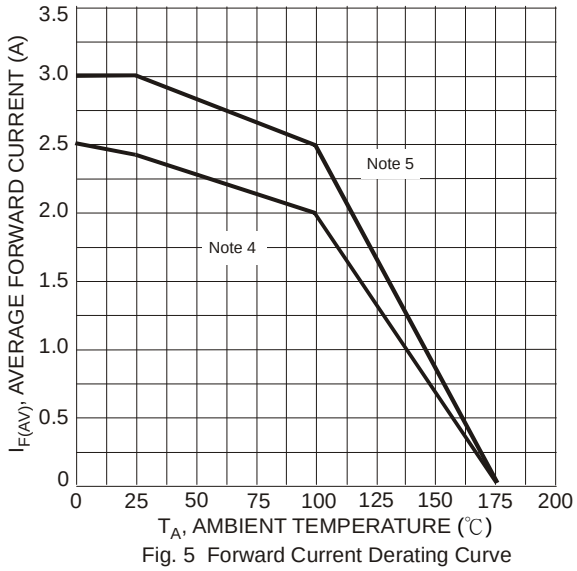

Fig. 5 Forward Current Derating Curve

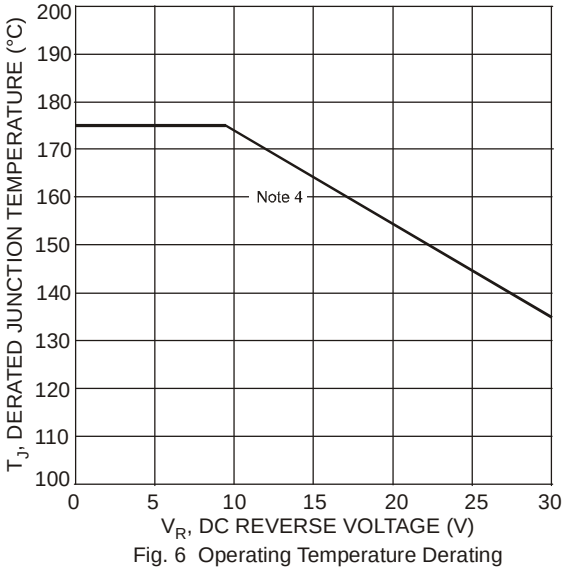

Fig. 6 Operating Temperature Derating

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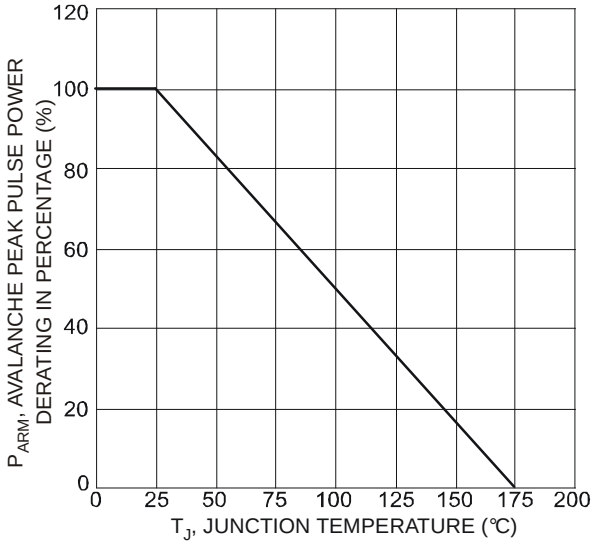

Fig. 7 Pulse Derating Curve

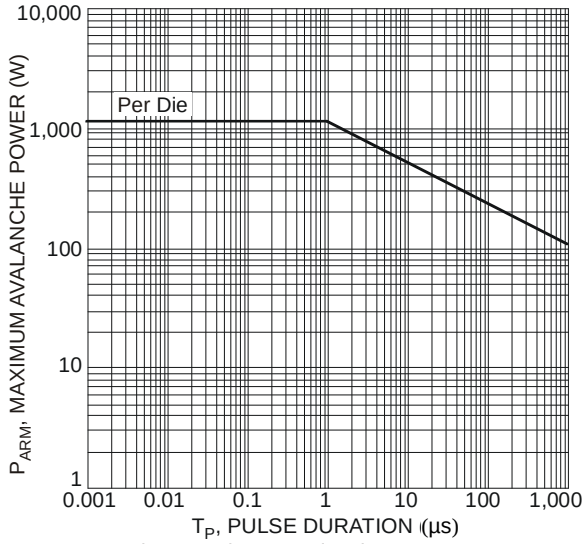

Fig. 8 Maximum Avalanche Power Curve

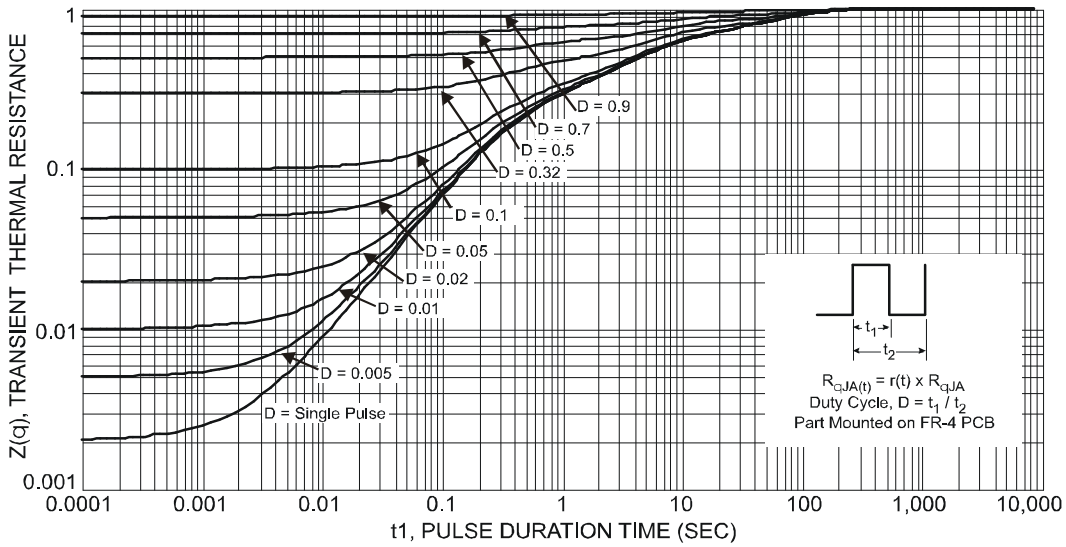

Fig. 9 Transient Thermal Resistance

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Package Outline Dimensions

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

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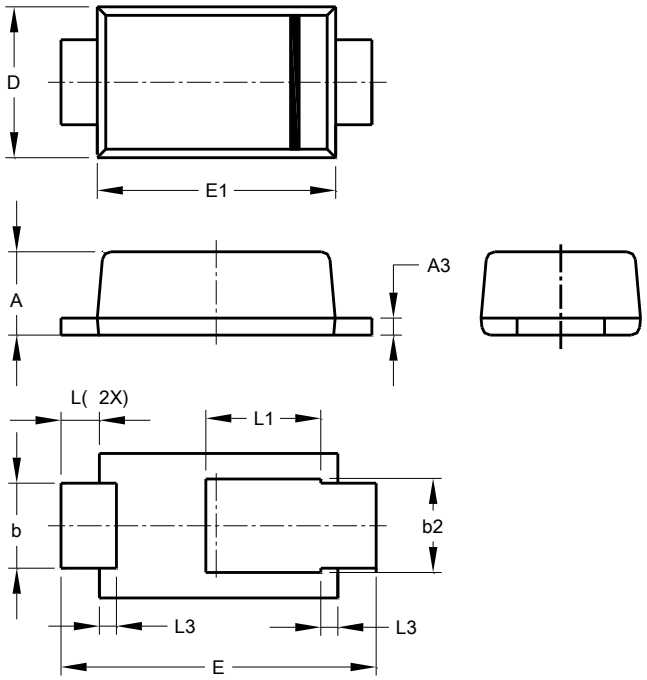
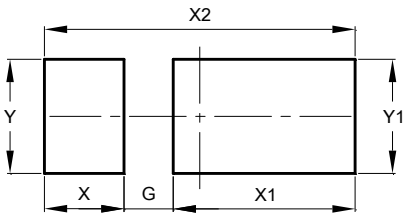


POWERDI®123			
Dim	**Min**	**Max**	**Typ**
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

Suggested Pad Layout

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

POWERDI®123



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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