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_R	30	V
Average Forward Current	$I_{F(AV)}$	2.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	40	A

Characteristic	Symbol	Ratings	Unit
Human Body Mode ESD Protection	ESD HBM	4000	V
Machine Model ESD Protection	ESD MM	400	V
Charged Device Model	ESD CDM	1	kV

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Ambient (Note 6)	$R_{\Theta JA}$	60	—	°C/W
Thermal Resistance Junction to Ambient (Note 7)	$R_{\Theta JA}$	180	—	°C/W
Thermal Resistance Junction to Ambient (Note 8)	$R_{\Theta JA}$	110	—	°C/W
Thermal Resistance Junction to Ambient (Note 9)	$R_{\Theta JA}$	55	—	°C/W
Thermal Resistance Junction to Soldering (Note 10)	$R_{\Theta JS}$	10	—	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +125		°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 11)	$V_{(BR)R}$	30	—	—	V	I_R = 1.5mA
Forward Voltage	V_F	—	0.36 0.4	0.42 0.49	V	I_F = 1.0A, T_A = +25°C I_F = 2.0A, T_A = +25°C
Leakage Current (Note 11)	I_R	—	0.15	1.0	mA	V_R = 30V, T_A = +25°C
Total Capacitance	C_T	—	75	—	pF	V_R = 10V, f = 1.0MHz
Switching Speed t_{RR}	t_{RR}	—	17	—	ns	I_F = 0.5A, I_R = 1A, I_{RR} = 0.25A (RG1)

Notes:
6. Part mounted on 50.8mm × 50.8mm GETEK board with 25.4mm × 25.4mm copper pad, 25% anode, 75% cathode. T_A = +25°C.
7. Part mounted on FR-4 board with 1.8mm × 2.5mm cathode and 1.8mm × 1.2mm anode, 1 oz. copper pads. T_A = +25°C.
8. Part mounted on FR4 PCB, 2oz.
9. Part Mounted on 1inch sq. copper pad, 2oz.
10. Theoretical $R_{\Theta JS}$ calculated from the top center of the die straight down to the PCB cathode tab solder junction.
11. Short duration pulse test to minimize self-heating effect.

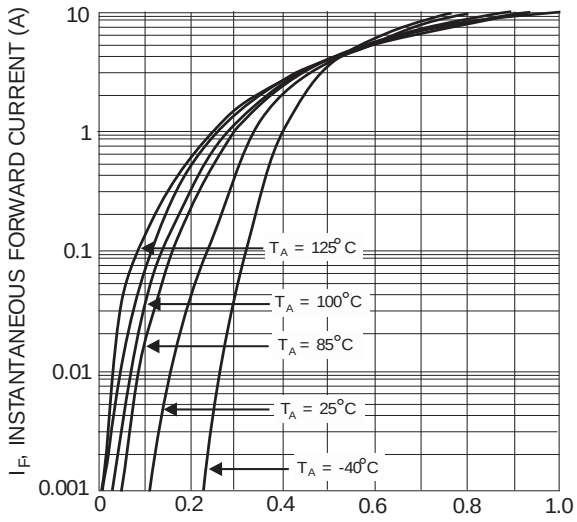


Figure 1 Typical Forward Characteristics

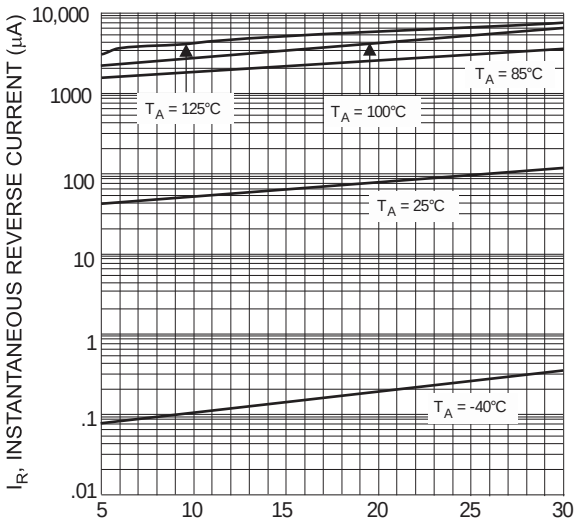


Figure 2 Typical Reverse Characteristics

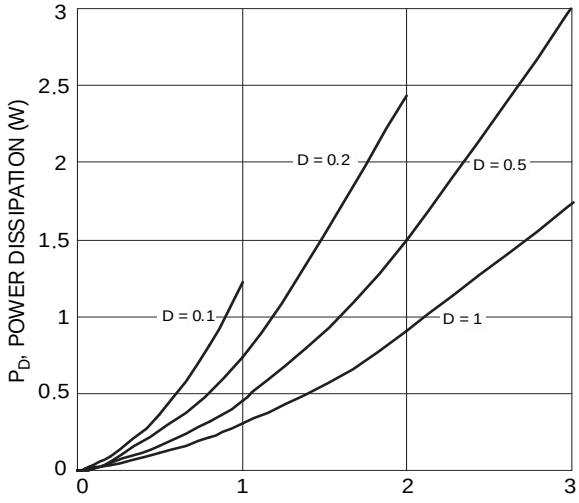


Figure 3 Forward Power Dissipation T_J=125°C

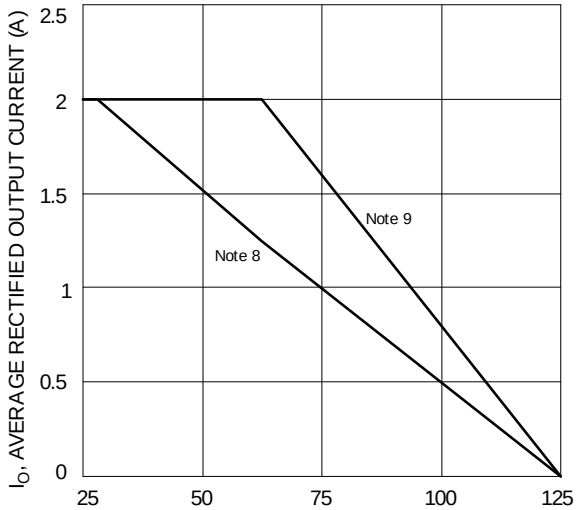


Figure 4 DC Forward Current Derating

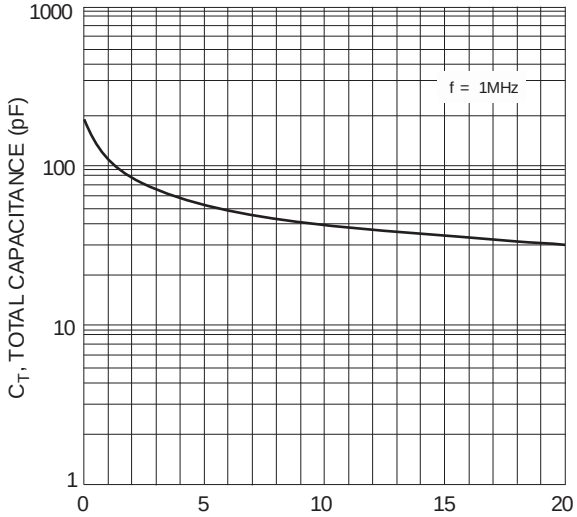


Figure 5 Typical Total Capacitance

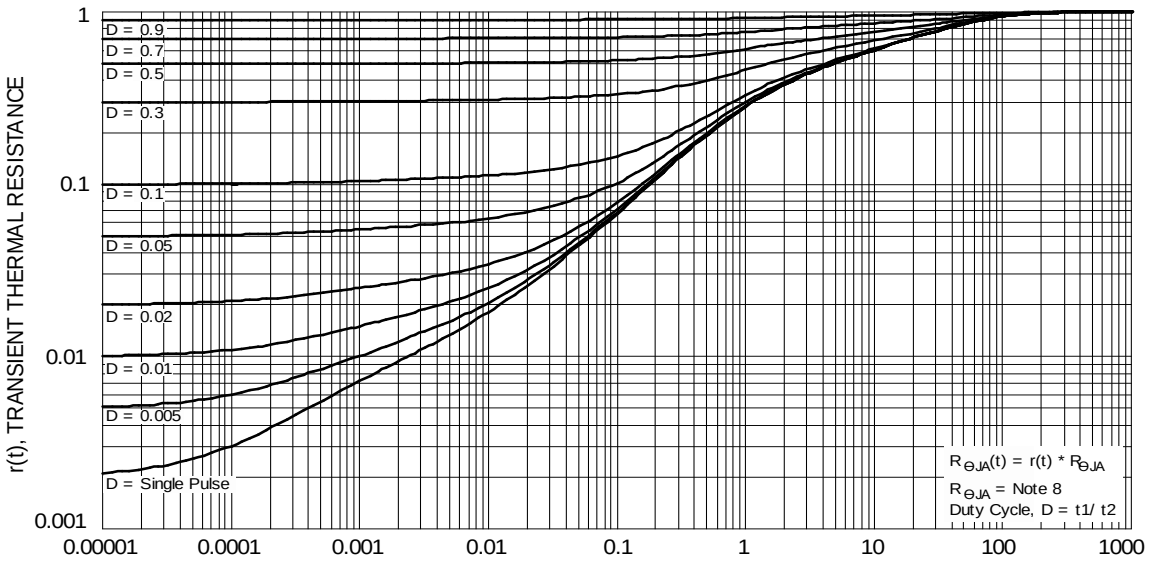
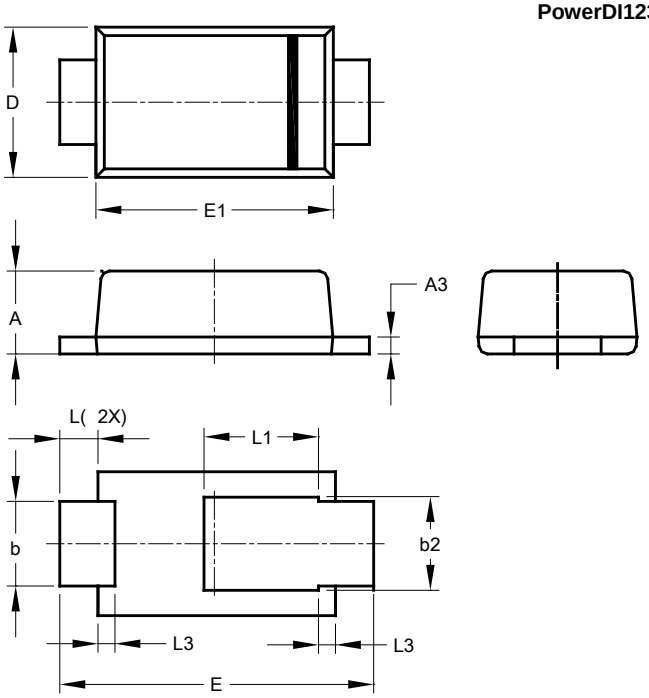


Figure 6 Transient Thermal Resistance

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

PowerDI123

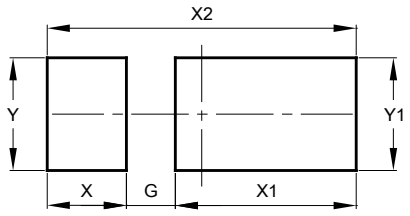


PowerDI123			
Dim	**Min**	**Max**	**Typ**
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

PowerDI123



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

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or

2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

www.diodes.com