MBRA210LT3G

Surface Mount Schottky Power Rectifier

SMA Power Surface Mount Package

This device employs the Schottky Barrier principle in a metal−to−silicon power rectifier. Features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency switching power supplies; free wheeling diodes and polarity protection diodes. Typical applications are AC−DC and DC−DC converters, reverse battery protection, and “Oring” of multiple supply voltages and any other application where performance and size are critical.

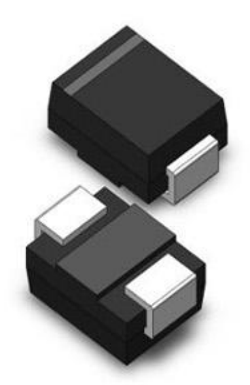
Features

- Ultra Low V_F
- 1st in the Market Place with a 10 V_R Schottky Rectifier
- Compact Package with J−Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Over−Voltage Protection
- Optimized for Low Forward Voltage
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Mechanical Characteristics:

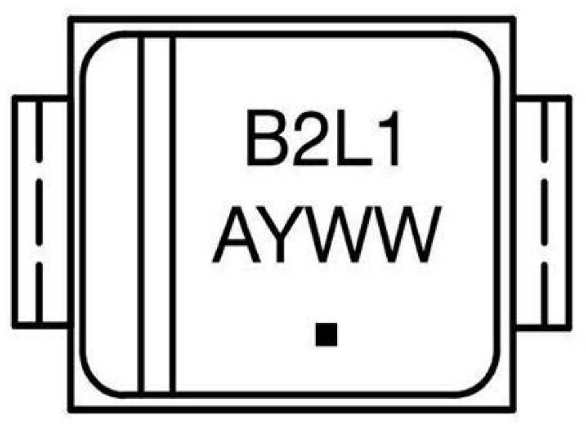
- Case: Molded Epoxy
- Weight: 70 mg (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Polarity: Polarity Band Indicates Cathode Lead
- ESD Ratings:
  - Machine Model = C
  - Human Body Model = 3A

SCHOTTKY BARRIER
RECTIFIER
2 AMPERES
10 VOLTS



SMA
CASE 403D

MARKING DIAGRAM



B2L1 = Specific Device Code
A = Assembly Location**
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

**The Assembly Location code (A) is front side optional. In cases where the Assembly Location is stamped in the package bottom (molding ejecter pin), the front side assembly code may be blank.

ORDERING INFORMATION

Device	Package	Shipping†
MBRA210LT3G	SMA (Pb−Free)	5,000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	10	V
Average Rectified Forward Current (At Rated V_R, T_L = 110°C)	I_O	2.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	160	A
Storage/Operating Case Temperature Operating Junction Temperature	T_{stg}, T_C T_J	−55 to +125	°C
Voltage Rate of Change (Rated V_R, T_J = 25°C)	dv/dt	10,000	V/μs

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Min Pad	1 Inch Pad	Unit
Thermal Resistance, Junction−to−Lead	$R_{\theta JL}$	22	15	°C/W
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	150	81	

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 1)	V_F	T_J = 25°C	T_J = 100°C	V
(I_F = 0.1 A)		0.260	0.15	
(I_F = 1.0 A)		0.325	0.23	
(I_F = 2.0 A)		0.350	0.26	
Maximum Instantaneous Reverse Current	I_R	T_J = 25°C	T_J = 100°C	mA
(V_R = 5.0 V)		0.25	40	
(V_R = 10 V)		0.70	60	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2%.

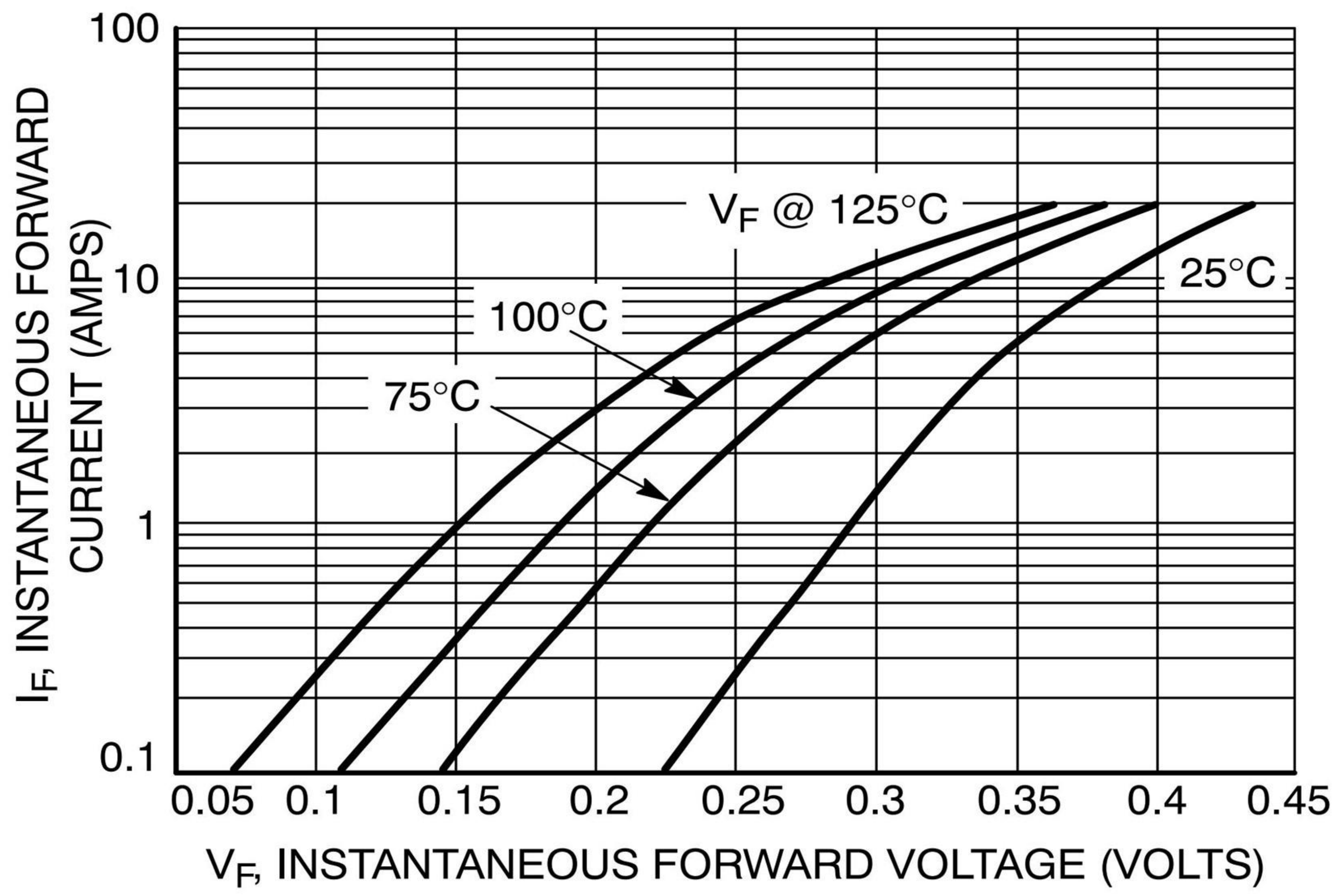


Figure 1. Typical Forward Voltage

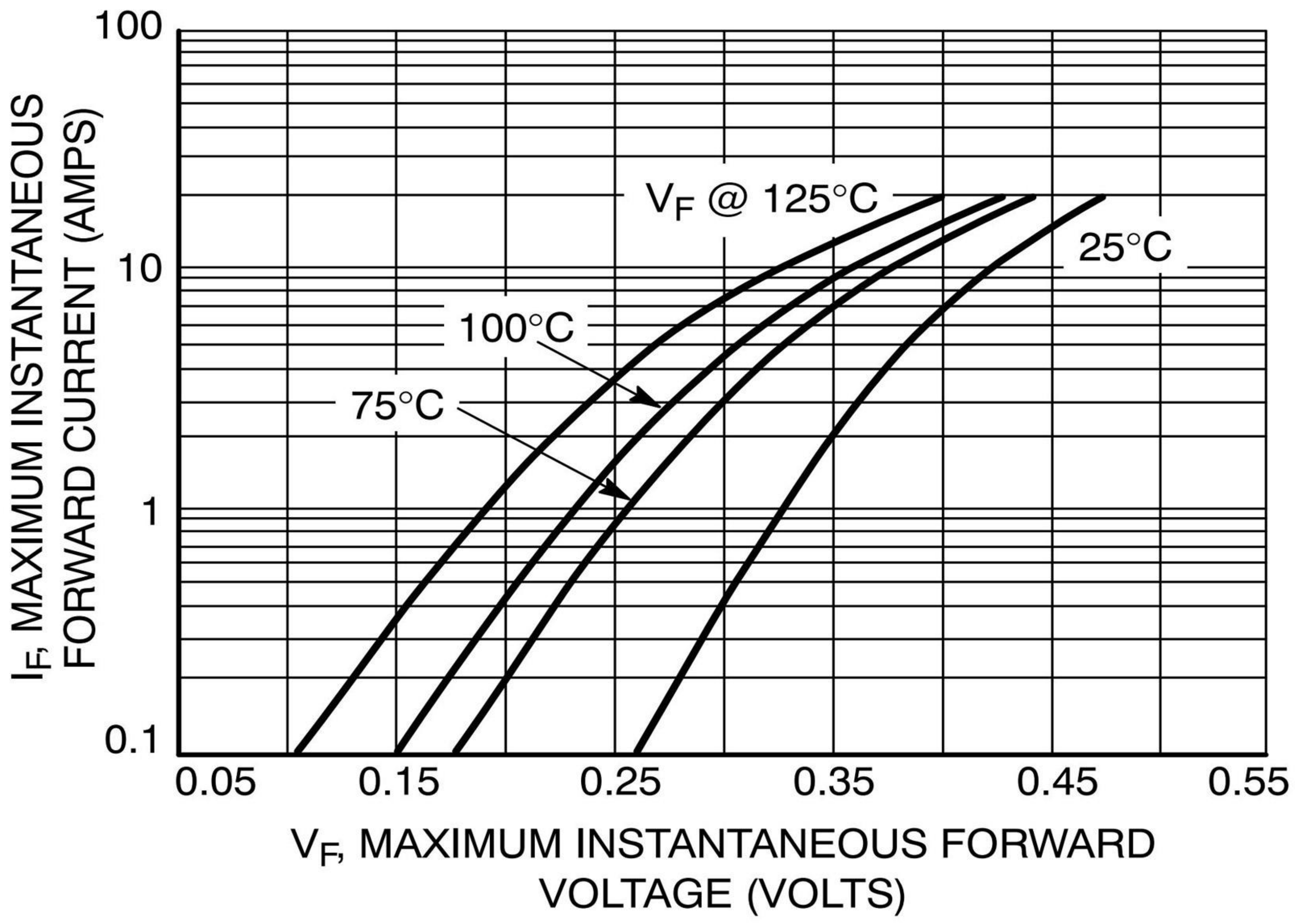


Figure 2. Maximum Forward Voltage

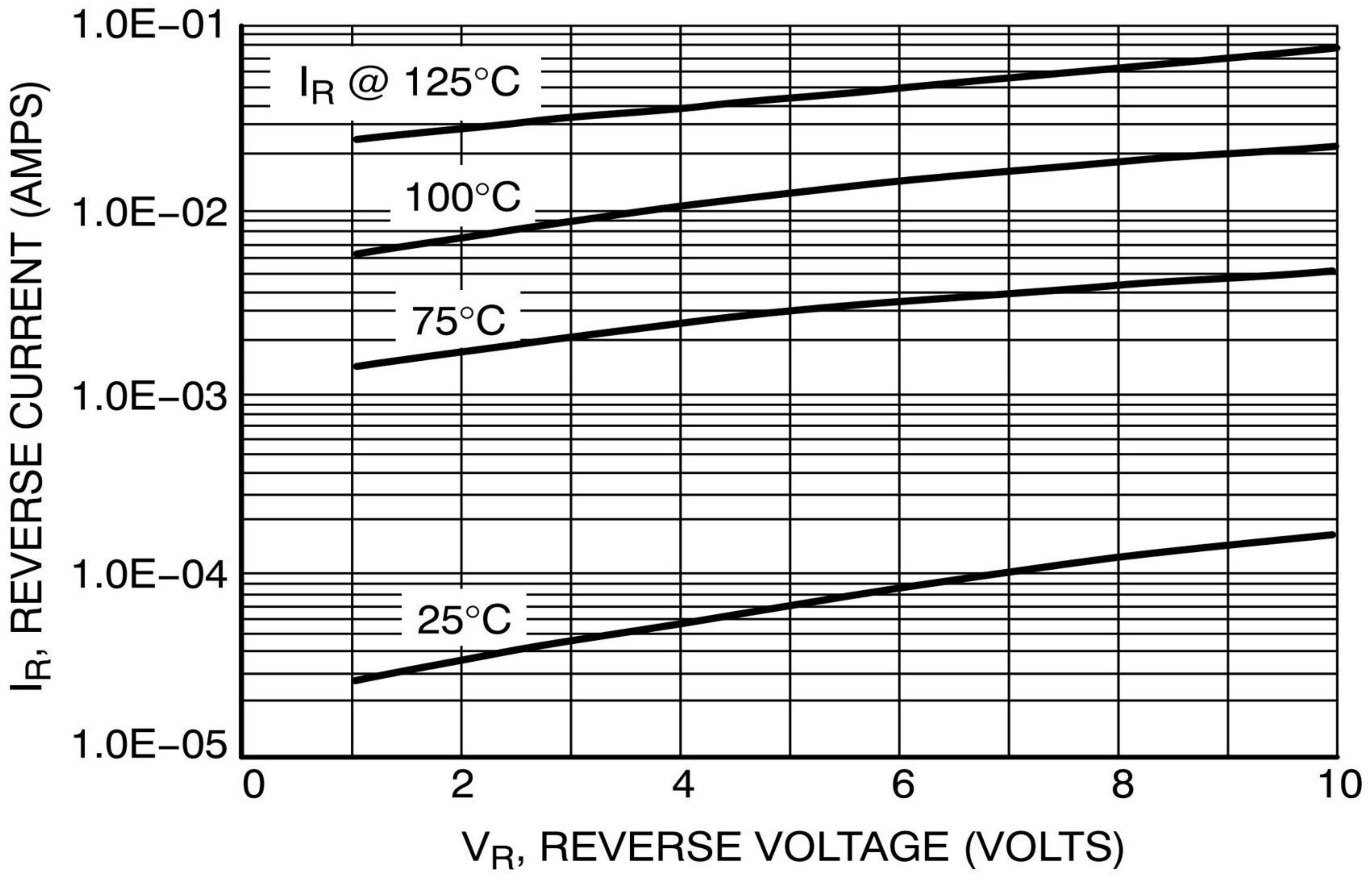


Figure 3. Typical Reverse Current

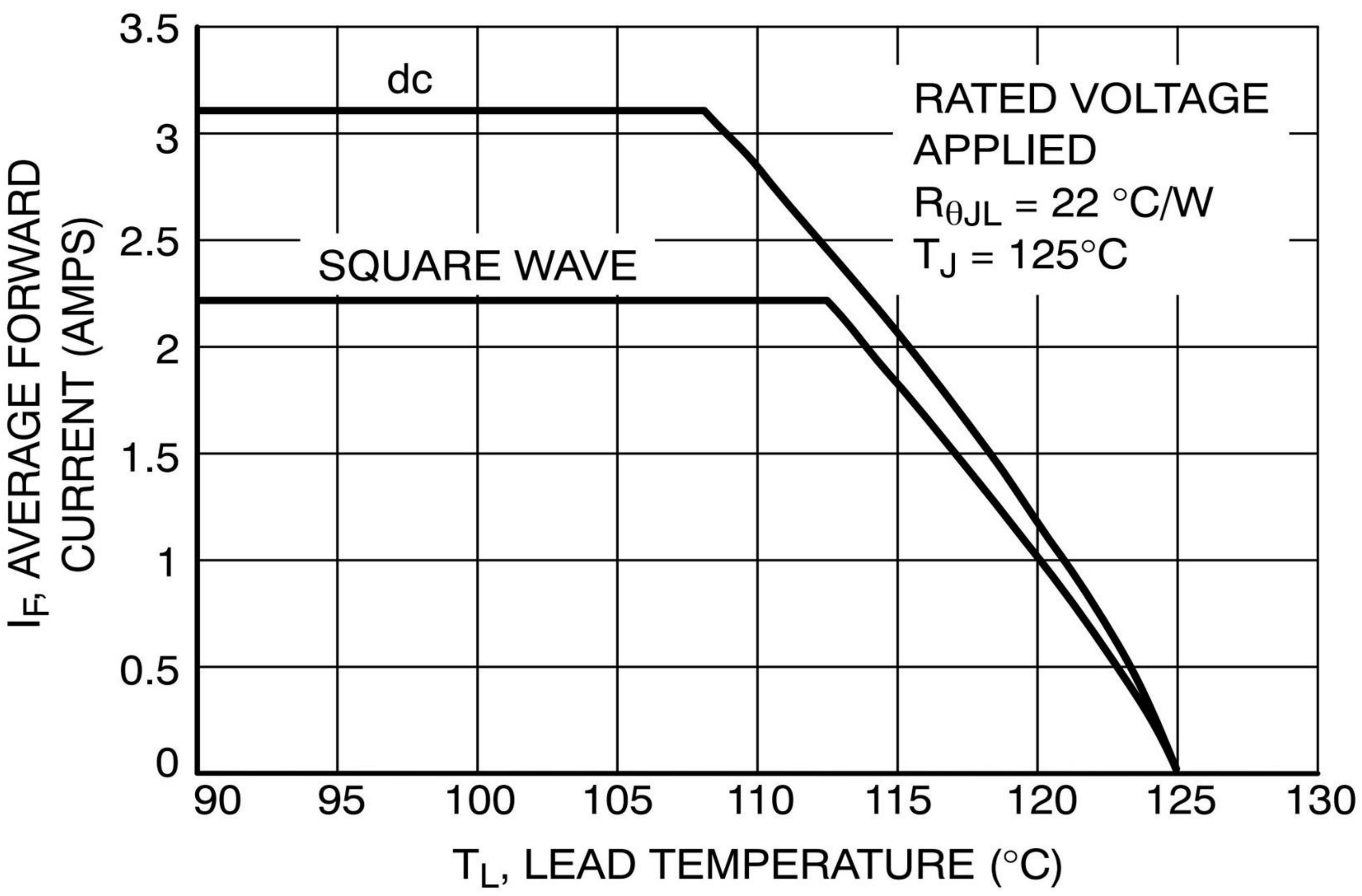


Figure 4. Current Derating − Junction to Lead

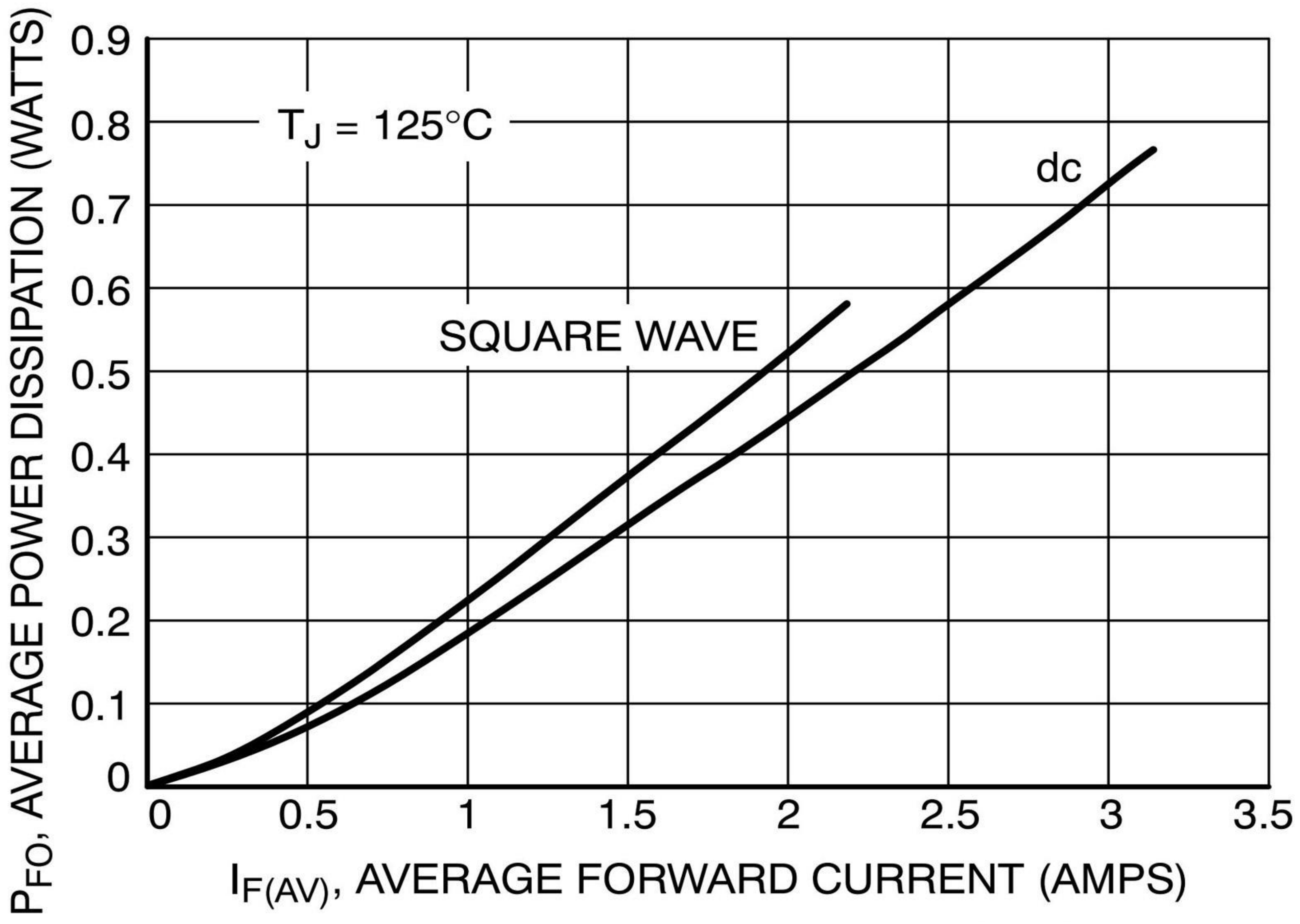


Figure 5. Forward Power Dissipation

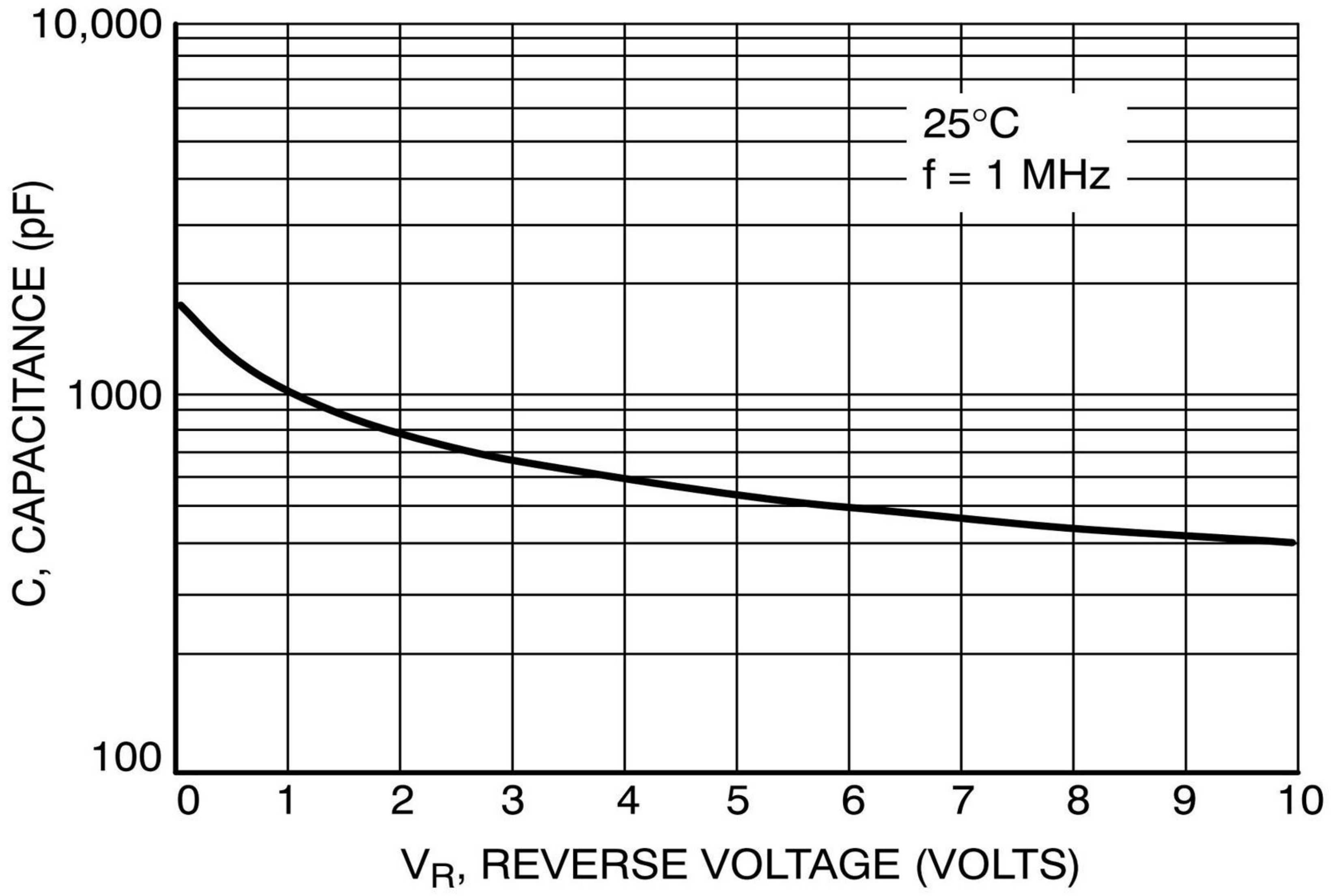


Figure 6. Typical Capacitance

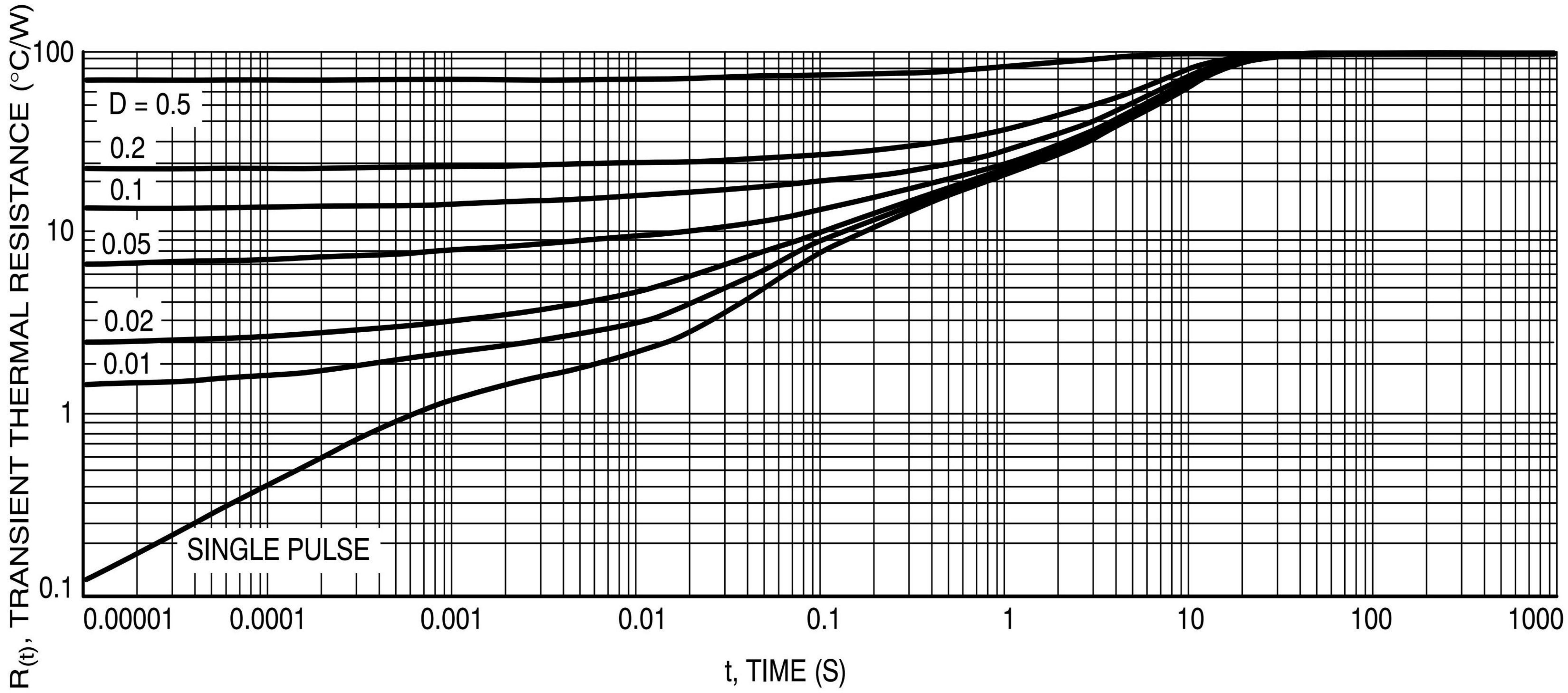


Figure 7. Thermal Response, Junction to Ambient (min pad)

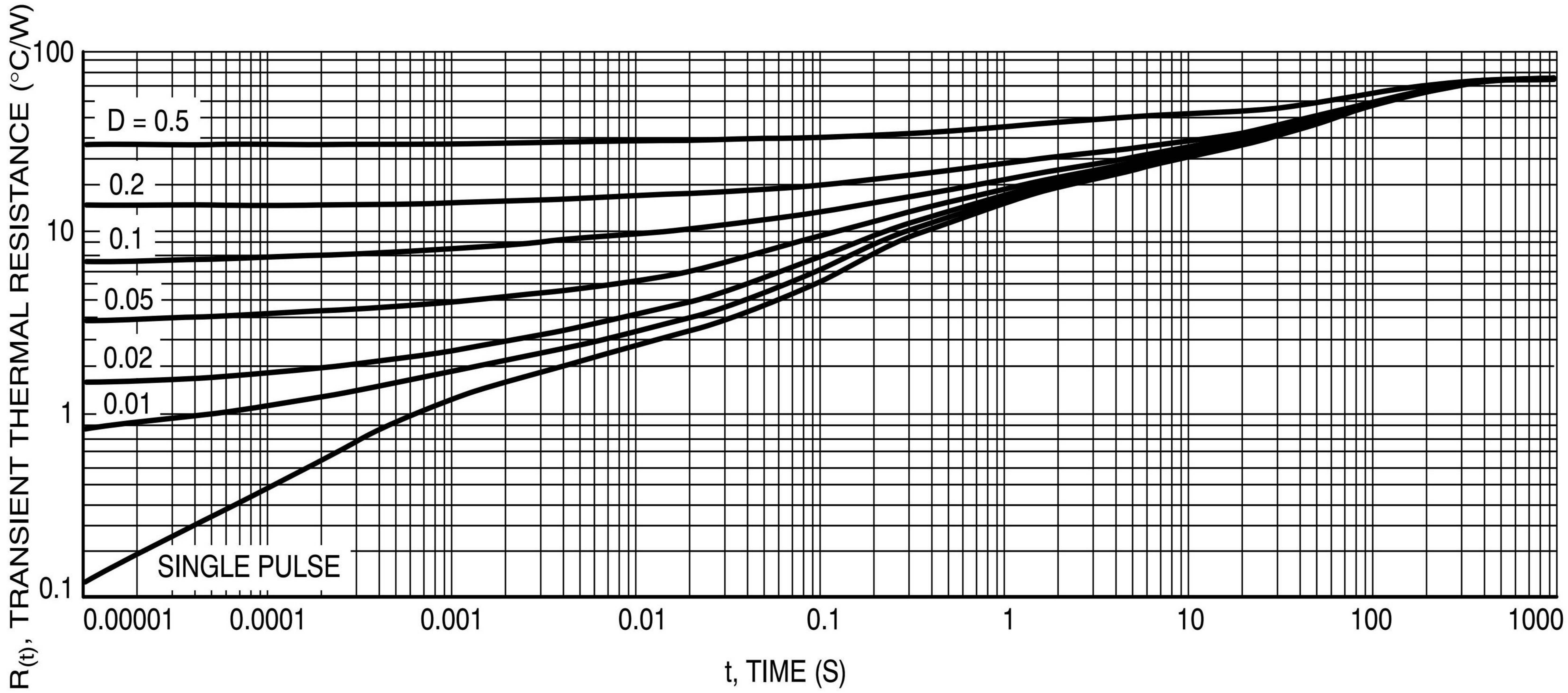
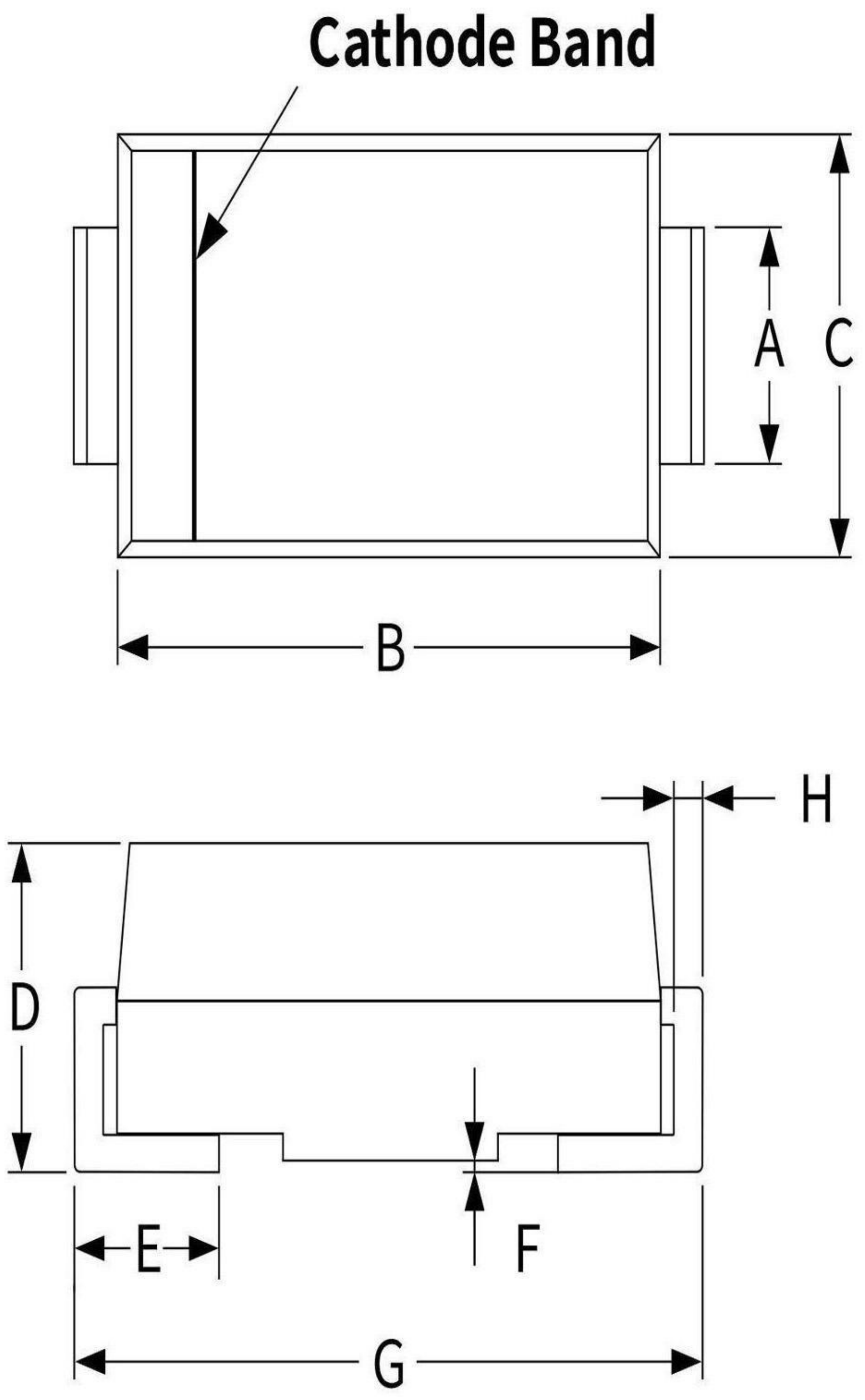


Figure 8. Thermal Response, Junction to Ambient (1 inch pad)

Ordering Information

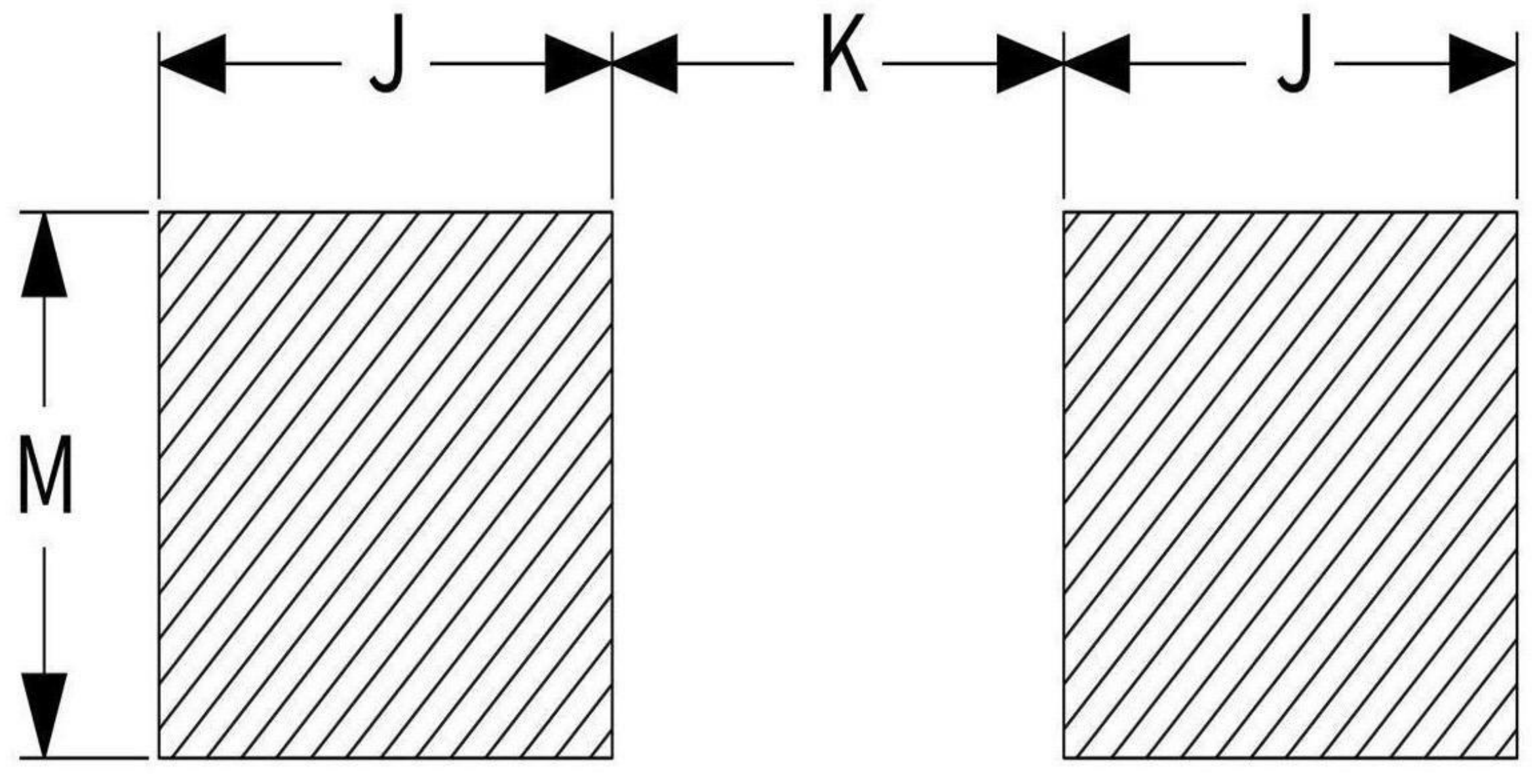
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SMA	R2	0.07	5000	10000	80000	13''

Package Outline Dimensions (SMA/DO-214AC)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.25	1.65	0.049	0.065
B	3.95	4.65	0.156	0.183
C	2.35	2.85	0.093	0.112
D	1.98	2.41	0.078	0.095
E	0.76	1.52	0.030	0.060
F	-	0.203	-	0.008
G	4.70	5.30	0.185	0.209
H	0.15	0.31	0.006	0.012

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
M	1.70	-	0.067	-
J	2.10	-	0.082	-
K	-	2.30	-	0.090