

# OM SENI

## MBRS3100T3G, MBRS3201T3G

Schottky Power Rectifier,

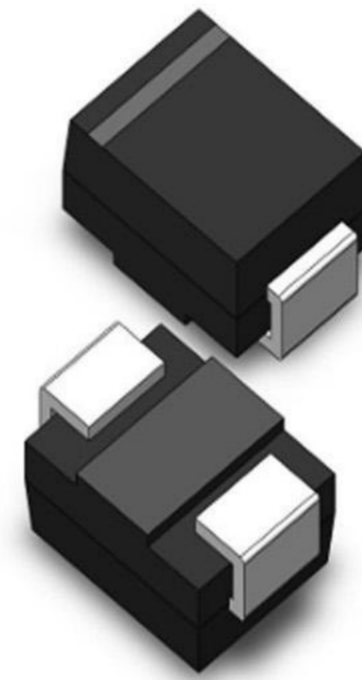
Surface Mount, Fast

Soft-Recovery

100–200V, 3.0A

SMC Power Surface Mount Package

## SCHOTTKY RECTIFIER 3 AMPS, 100–200 VOLTS



SMC 2-LEAD  
CASE 403AC

### Features

- Lower Forward Voltage than any Ultrafast Rectifier:  
 $V_F < 0.59 \text{ V}$  at  $150^\circ\text{C}$
- Fast Switching Speed: Reverse Recovery Time ( $t_{RR}$ )  $< 35 \text{ ns}$
- Soft Recovery Characteristics: Softness Factor ( $t_b/t_a$ )  $\geq 1$
- Highly Stable Over Temperature
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### Benefits

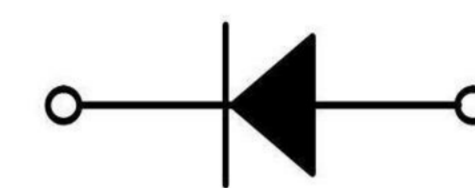
- Significantly Reduced EMI
- Eliminates the Need of Snubber Circuits
- Low Switching and Heat Losses
- Improved Thermal Management

### Applications

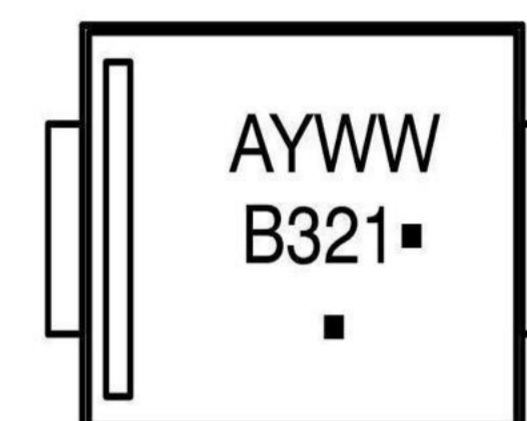
- Engine and Convenience Control Systems
- Motor Controls
- Battery Chargers and Switching Power Supplies

### Mechanical Characteristics

- Small Compact Surface Mount Package with J-Bend Leads
- Rectangular Package for Automated Handling
- Weight: 217 mg (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- ESD Ratings:
  - ◆ Machine Model = A
  - ◆ Human Body Model = 1C
- Lead and Mounting Surface Temperature for Soldering Purposes:  $260^\circ\text{C}$  Maximum for 10 Seconds
- Polarity: Polarity Band on Plastic Body Indicates Cathode Lead



### MARKING DIAGRAM



B321 = 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, the front side assembly code may be blank.

### ORDERING INFORMATION

Device	MARKING	Package	Shipping <sup>†</sup>
MBRS3100T3G	B310	SMC 2-LEAD (Pb-Free)	2500 / Tape & Reel
MBRS3201T3G	B321	SMC 2-LEAD (Pb-Free)	2500 / Tape & Reel

<sup>†</sup>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.

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## MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	V
Average Rectified Forward Current (Rated $V_R$ , $T_C = 70^\circ\text{C}$ )	$I_{F(AV)}$	3	A
Nonrepetitive Peak Surge Current (83 ms, half-sine)	$I_{FSM}$	100	A
Operating Junction Temperature	$T_J$	-55 to +150	$^\circ\text{C}$

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	Value	Unit
Thermal Resistance, Junction-to-Lead	$R_{\theta JL}$	12	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	60	$^\circ\text{C/W}$

## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage ( $I_F = 3\text{ A}$ , $T_J = 25^\circ\text{C}$ ) ( $I_F = 3\text{ A}$ , $T_J = 150^\circ\text{C}$ )	$V_F$	0.84 0.59	V
Maximum Instantaneous Reverse Current (Rated $V_R$ ) (Rated DC Voltage, $T_J = 25^\circ\text{C}$ ) (Rated DC Voltage, $T_J = 150^\circ\text{C}$ )	$I_R$	1.0 5.0	mA mA
Maximum Reverse Recovery Time ( $I_F = 1\text{ A}$ , $di/dt = 100\text{ A/us}$ , $V_R = 30\text{ V}$ )	$t_{rr}$	35	ns

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.

## TYPICAL ELECTRICAL CHARACTERISTICS

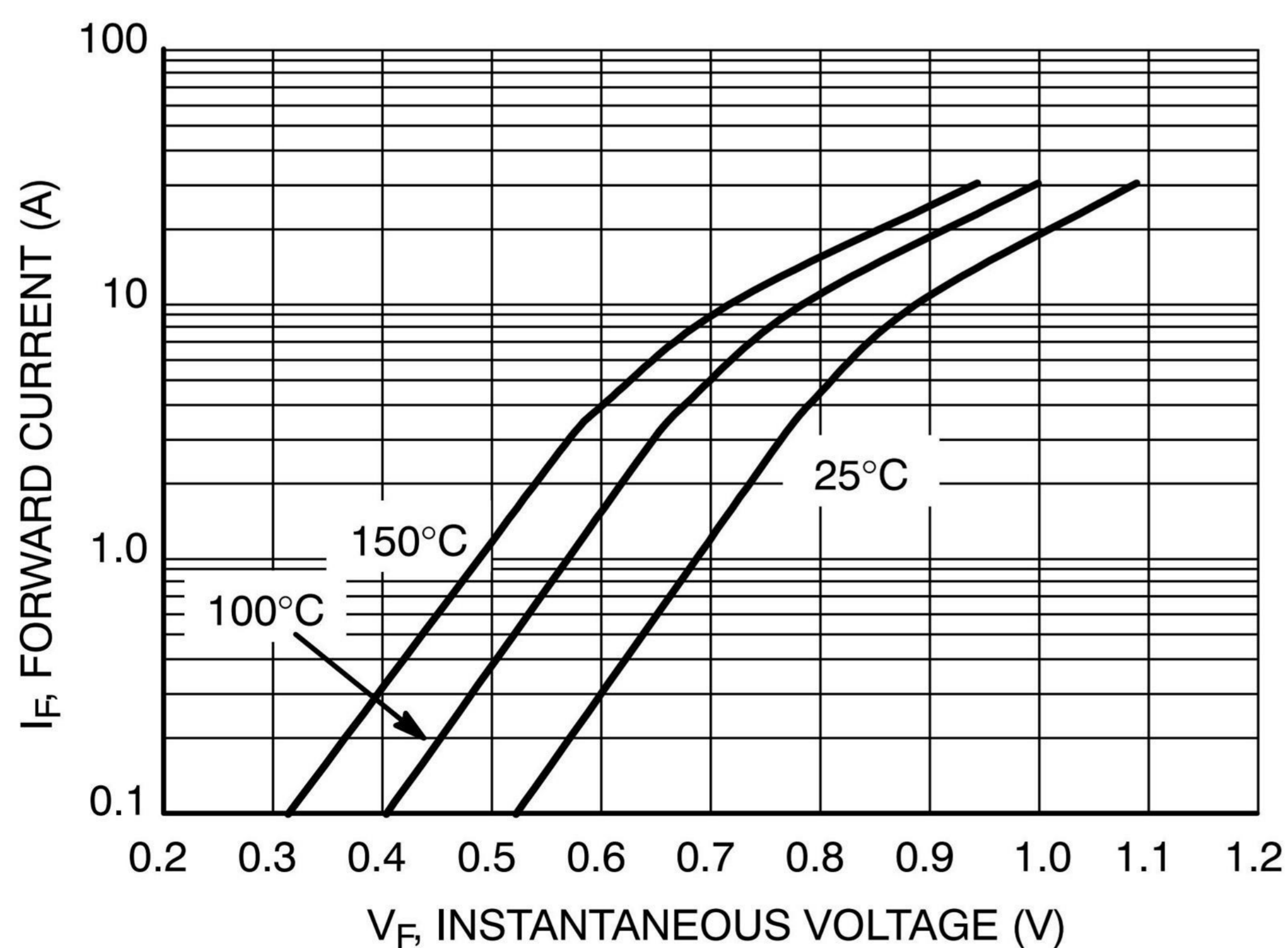


Figure 1. Typical Forward Voltage

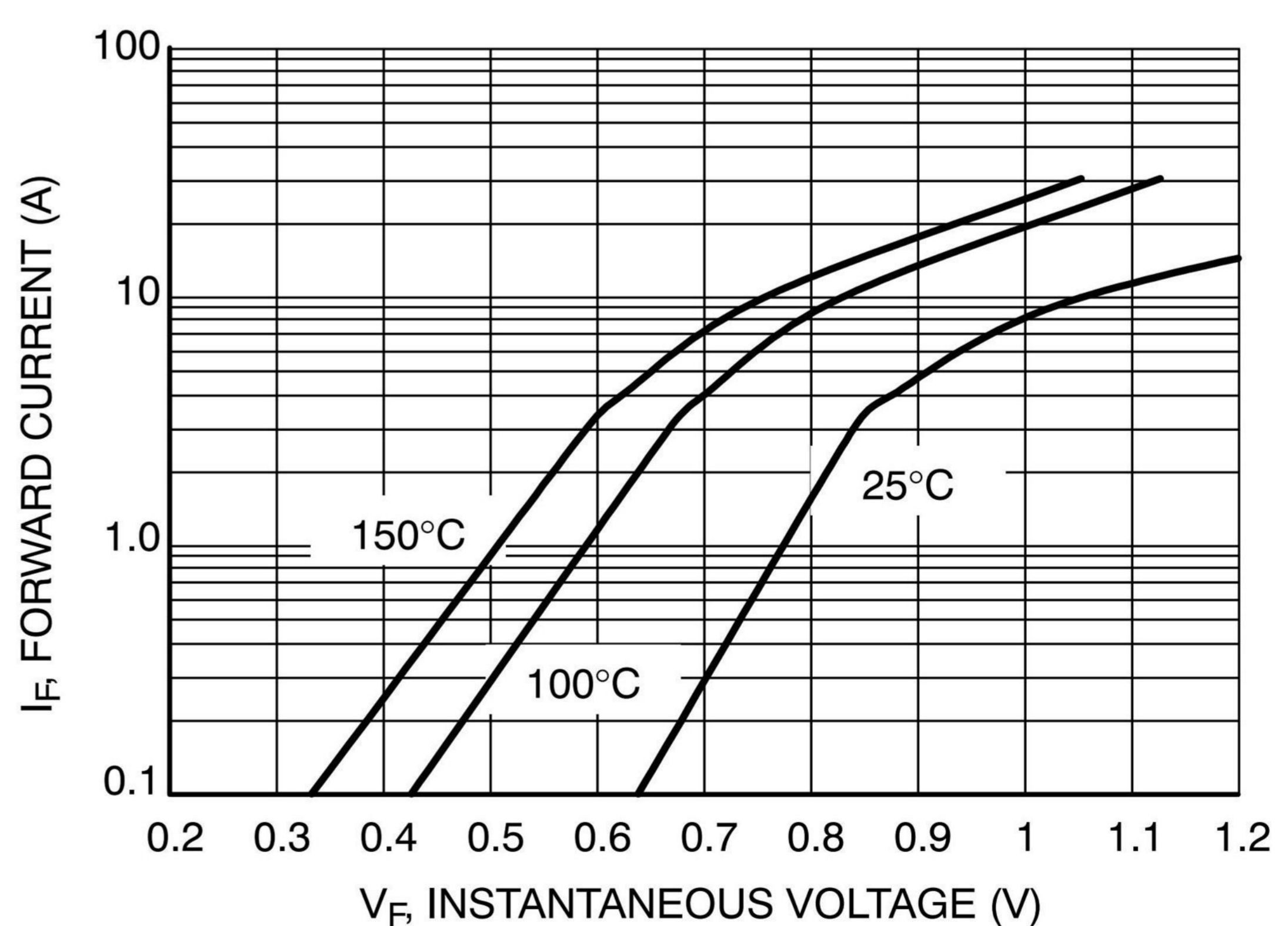


Figure 2. Maximum Forward Voltage

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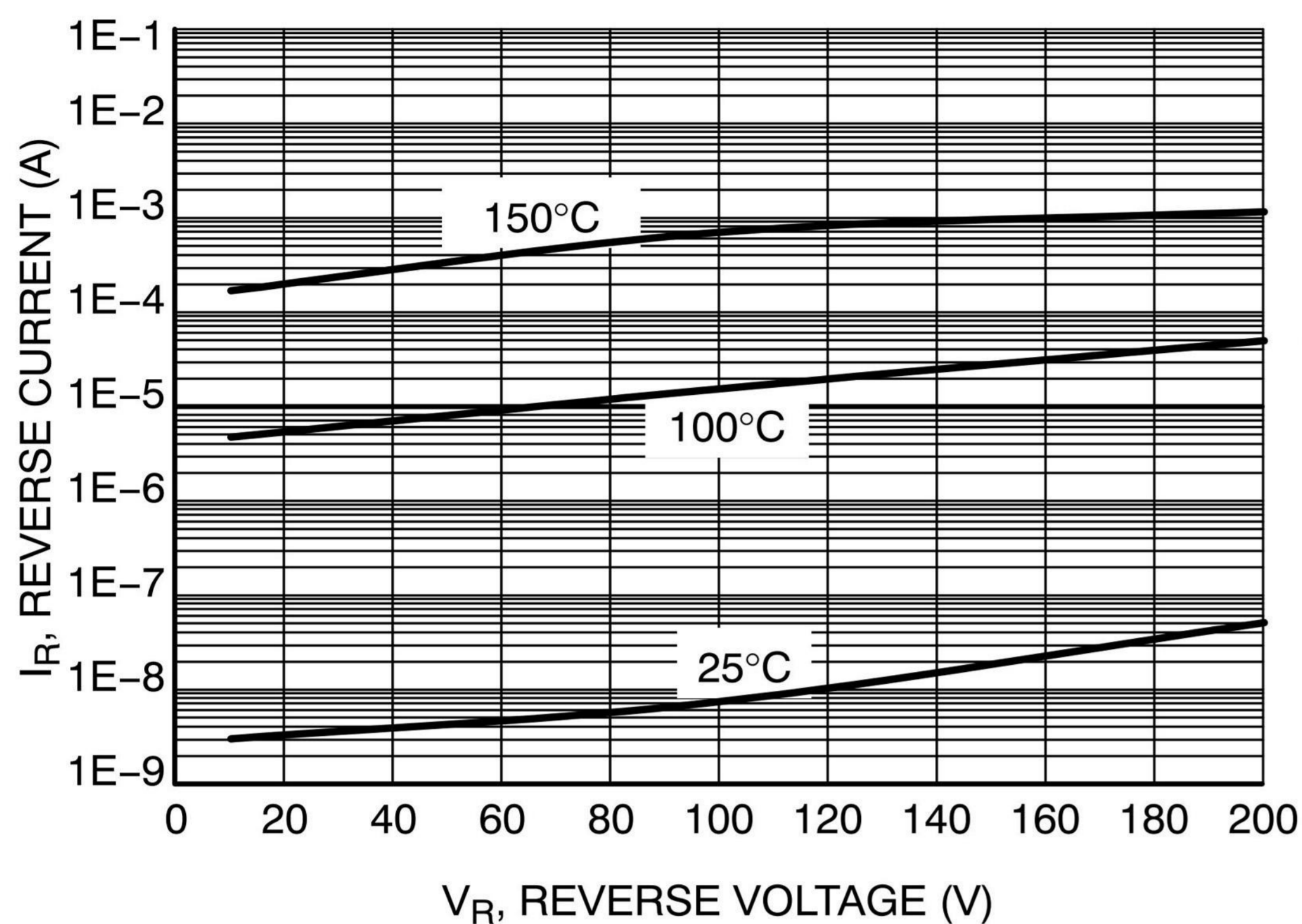


Figure 3. Typical Reverse Current

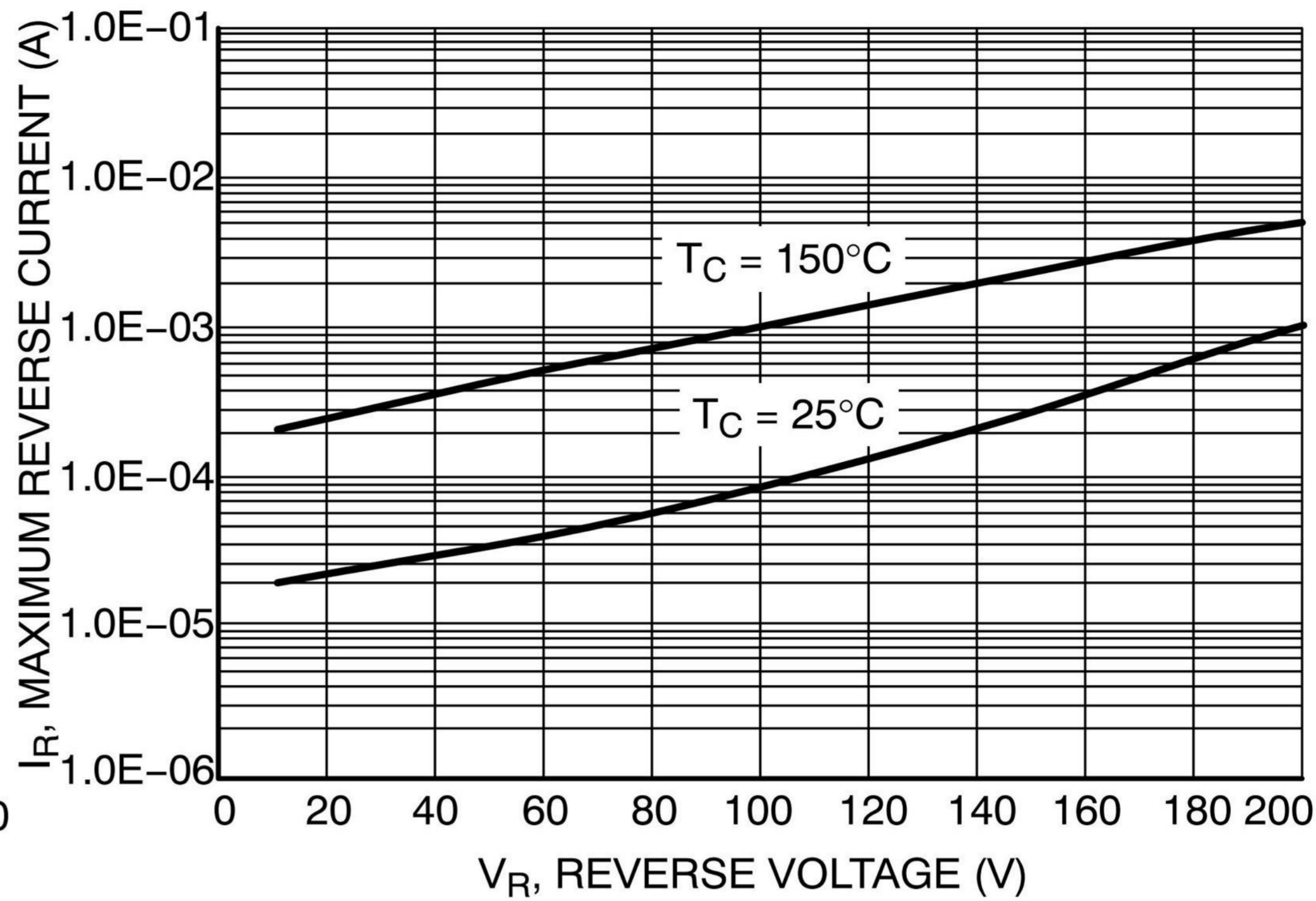


Figure 4. Maximum Reverse Current

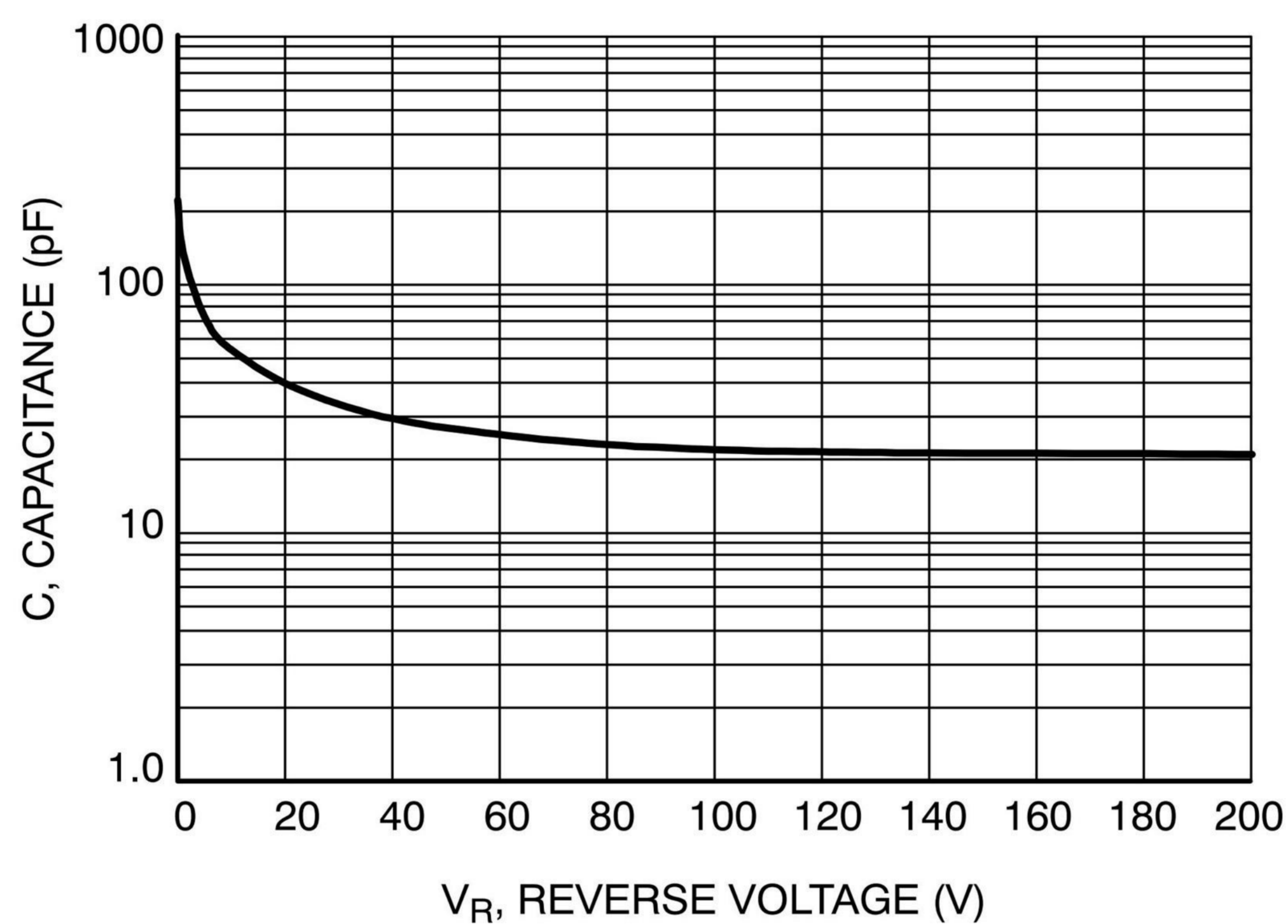


Figure 5. Typical Capacitance

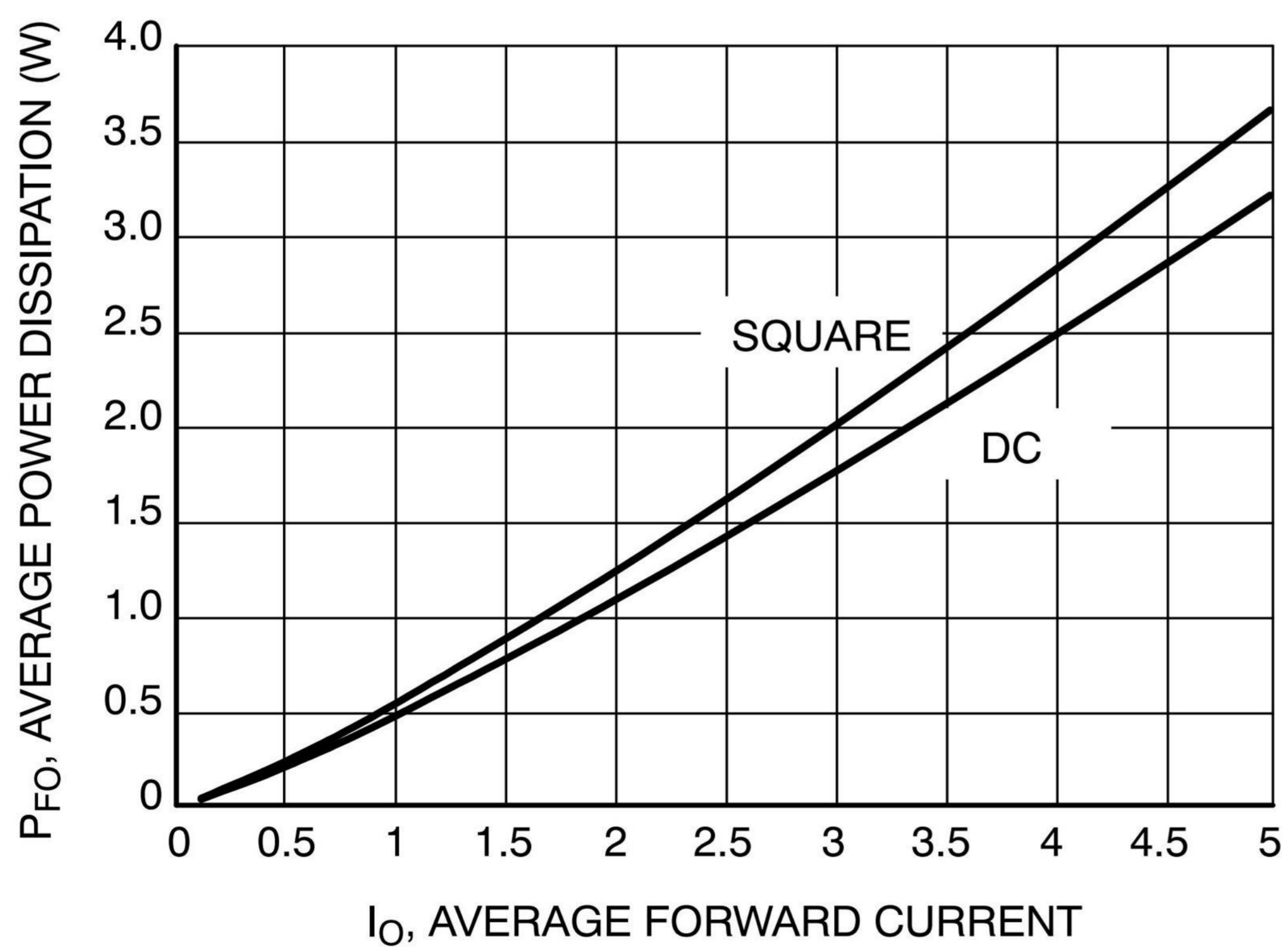


Figure 6. Power Dissipation

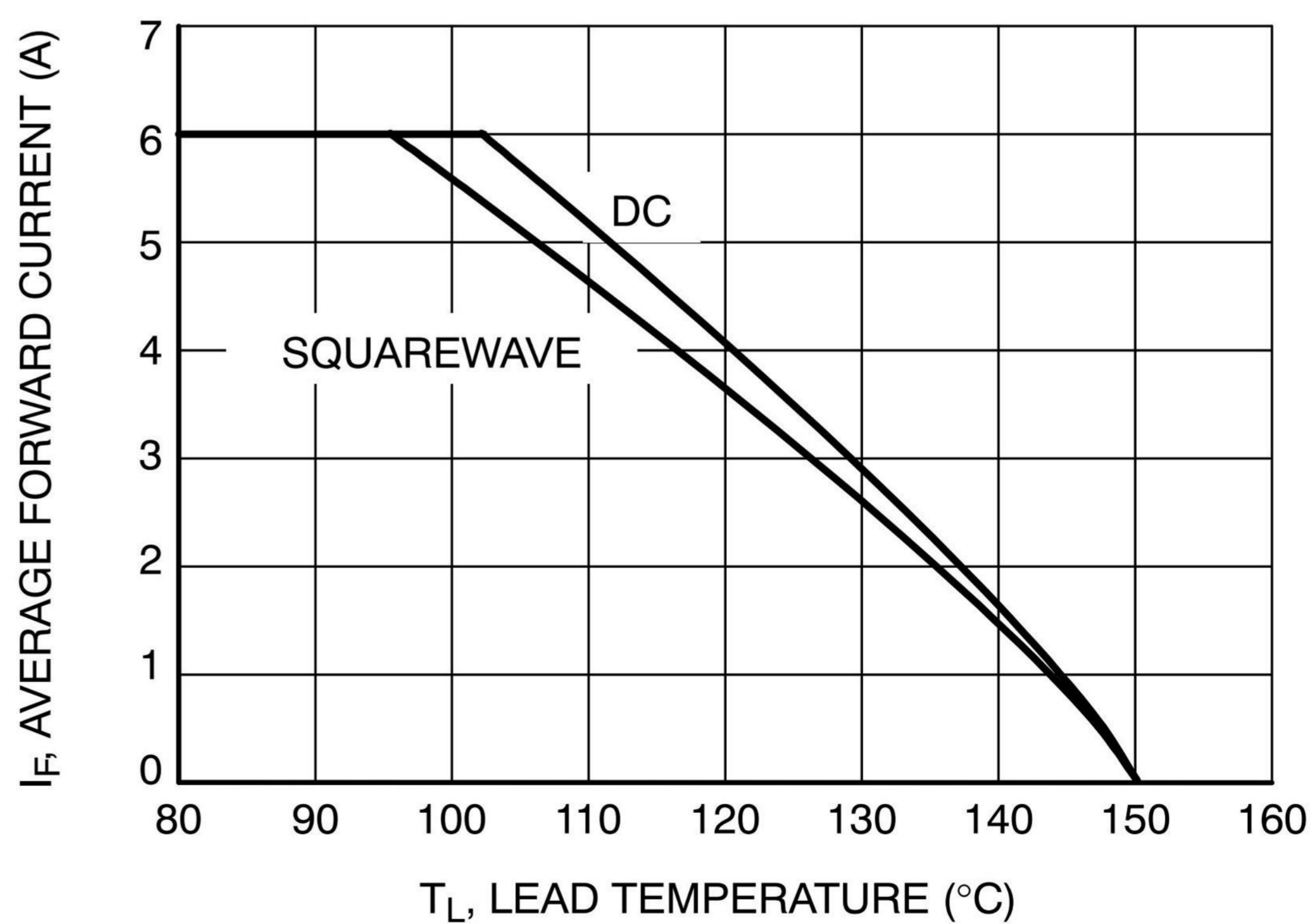


Figure 7. Derating Curve

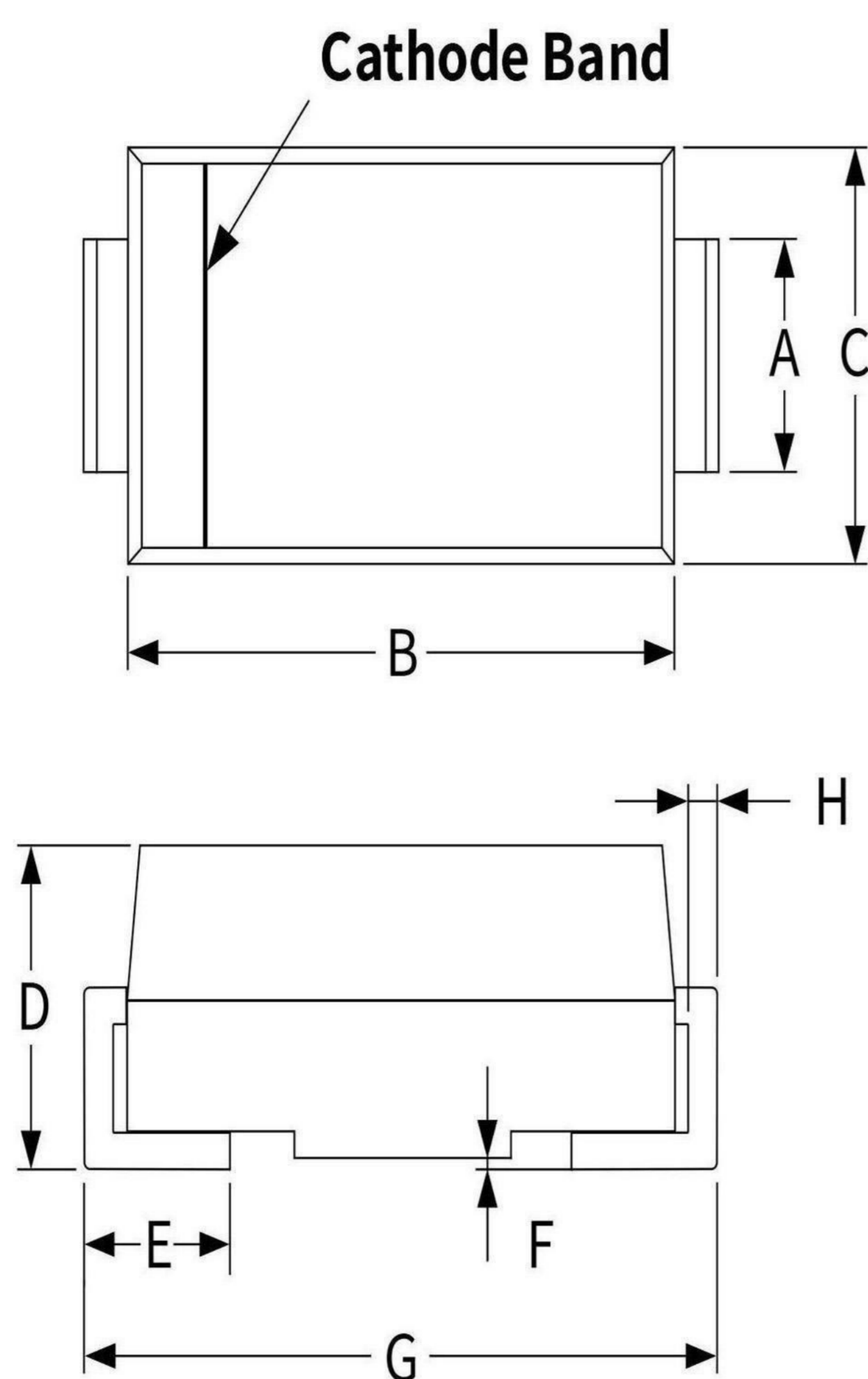
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## Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SMC	R3	0.098	2500	5000	25000	13

## Package Outline Dimensions (SMC/DO-214AB)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.85	3.27	0.112	0.129
B	6.60	7.11	0.261	0.281
C	5.59	6.22	0.221	0.246
D	1.99	2.61	0.078	0.103
E	0.76	1.52	0.030	0.060
F	-	0.20	-	0.008
G	7.75	8.13	0.306	0.321
H	0.15	0.31	0.006	0.012



## Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
M	3.82	-	0.151	-
J	3.03	-	0.120	-
K	-	3.84	-	0.152

