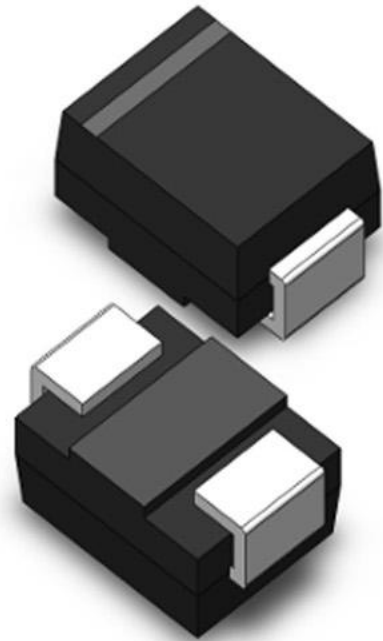


ULTRAFast RECTIFIERS  
2 AMPERES, 50-600 VOLTS



SMB  
CASE 403A

MURS205T3G, MURS210T3G,  
MURS220T3G, MURS230T3G,  
MURS240T3G, MURS260T3G

Surface Mount  
Ultrafast Power Rectifiers

Ideally suited for high voltage, high frequency rectification, or as free wheeling and protection diodes in surface mount applications where compact size and weight are critical to the system.

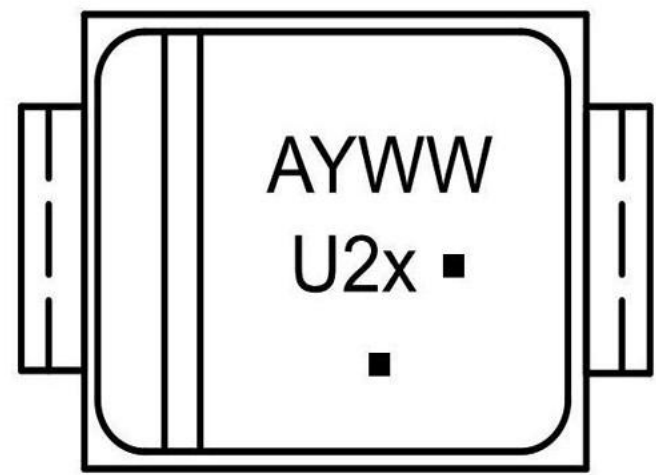
Features

- Small Compact Surface Mountable Package with J-Bend Leads
- Rectangular Package for Automated Handling
- High Temperature Glass Passivated Junction
- Low Forward Voltage Drop (0.95 Volts Max @ 2.0 A, T<sub>J</sub> = 150°C)
- These Devices are Pb-Free and are RoHS Compliant

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 95 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 Rating:
  - ♦ Human Body Model = 3A (> 4 kV)
  - ♦ Machine Model = C (> 400 V)

MARKING DIAGRAM



- A = Assembly Location
- Y = Year
- WW = Work Week
- U2x = Device Code
  - x = F for MURS230T3
  - = G for MURS240T3
- = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

| Device     | Package          | Shipping†              |
|------------|------------------|------------------------|
| MURS205T3G | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| MURS210T3G | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| MURS220T3G | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| MURS230T3G | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| MURS240T3G | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| MURS260T3G | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |

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



# OM SENI

## MAXIMUM RATINGS

| Rating                                                                                                                                     | Symbol                          | Value       | Unit               |
|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------|--------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage<br>MURS230T3G/NRVUS230T3G<br>MURS240T3G/NRVUS240T3G | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 300<br>400  | V                  |
| Average Rectified Forward Current<br>@ $T_L = 150^{\circ}\text{C}$<br>@ $T_L = 125^{\circ}\text{C}$                                        | $I_{F(AV)}$                     | 1.0<br>2.0  | A                  |
| Non-Repetitive Peak Surge Current<br>(Surge applied at rated load conditions halfwave, single phase, 60 Hz)                                | $I_{FSM}$                       | 35          | A                  |
| Operating Junction Temperature Range                                                                                                       | $T_J$                           | -65 to +175 | $^{\circ}\text{C}$ |

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

| Rating                                                              | Symbol          | Max | Unit                 |
|---------------------------------------------------------------------|-----------------|-----|----------------------|
| Thermal Resistance, Junction-to-Lead ( $T_L = 25^{\circ}\text{C}$ ) | $R_{\theta JL}$ | 13  | $^{\circ}\text{C/W}$ |

## ELECTRICAL CHARACTERISTICS

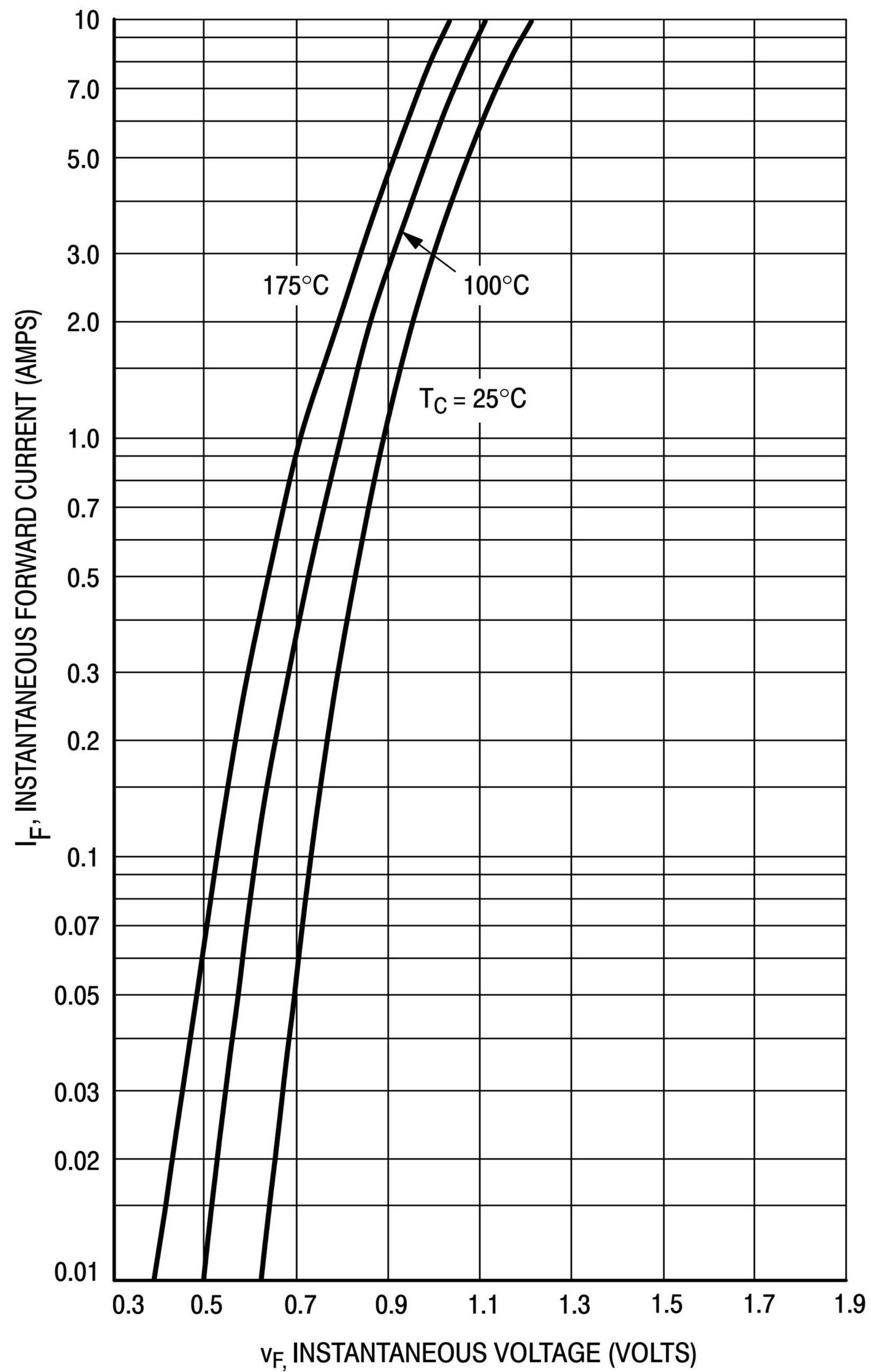
| Characteristic                                                                                                                                                              | Symbol   | Value        | Unit          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|---------------|
| Maximum Instantaneous Forward Voltage (Note 1)<br>( $i_F = 2.0\text{ A}$ , $T_J = 25^{\circ}\text{C}$ )<br>( $i_F = 2.0\text{ A}$ , $T_J = 150^{\circ}\text{C}$ )           | $V_F$    | 1.30<br>1.05 | V             |
| Maximum Instantaneous Reverse Current (Note 1)<br>(Rated DC Voltage, $T_J = 25^{\circ}\text{C}$ )<br>(Rated DC Voltage, $T_J = 150^{\circ}\text{C}$ )                       | $i_R$    | 5.0<br>150   | $\mu\text{A}$ |
| Maximum Reverse Recovery Time<br>( $i_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ )<br>( $i_F = 0.5\text{ A}$ , $i_R = 1.0\text{ A}$ , $I_R$ to $0.25\text{ A}$ ) | $t_{rr}$ | 65<br>50     | ns            |
| Maximum Forward Recovery Time<br>( $i_F = 1.0\text{ A}$ , $di/dt = 100\text{ A}/\mu\text{s}$ , Rec. to $1.0\text{ V}$ )                                                     | $t_{fr}$ | 50           | 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.

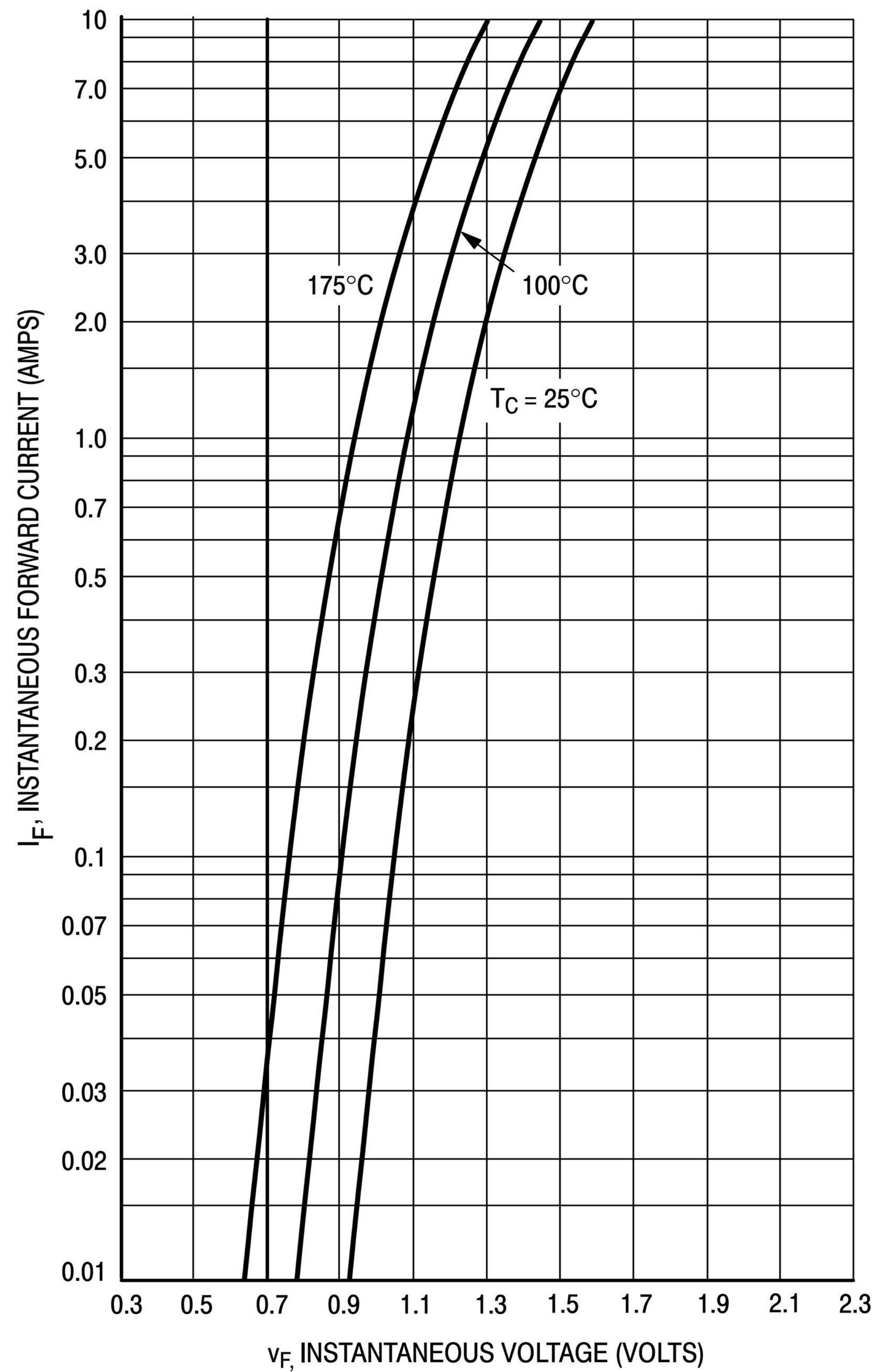
1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .



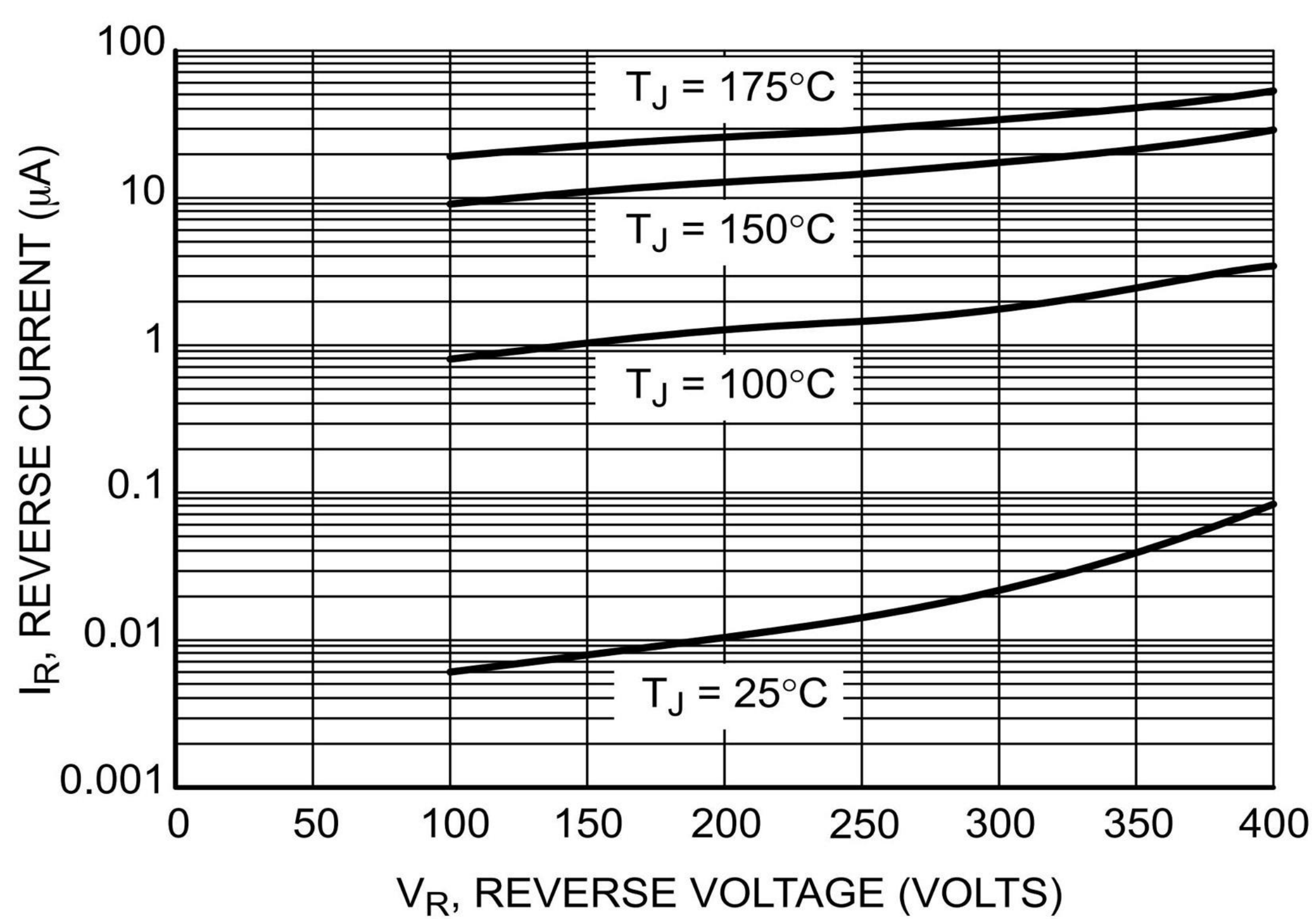
# OM SENI



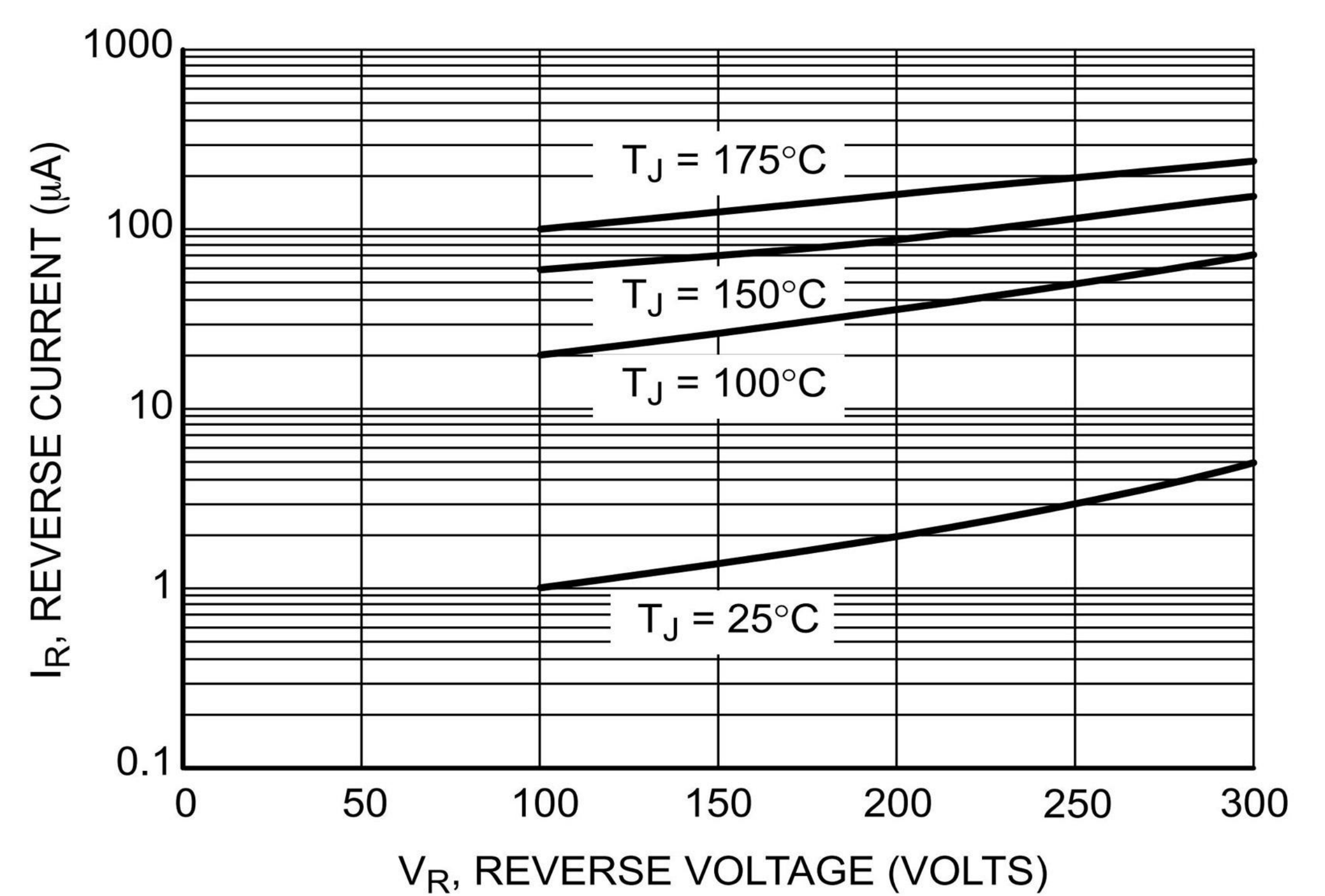
**Figure 1. Typical Forward Voltage**



**Figure 2. Maximum Forward Voltage**



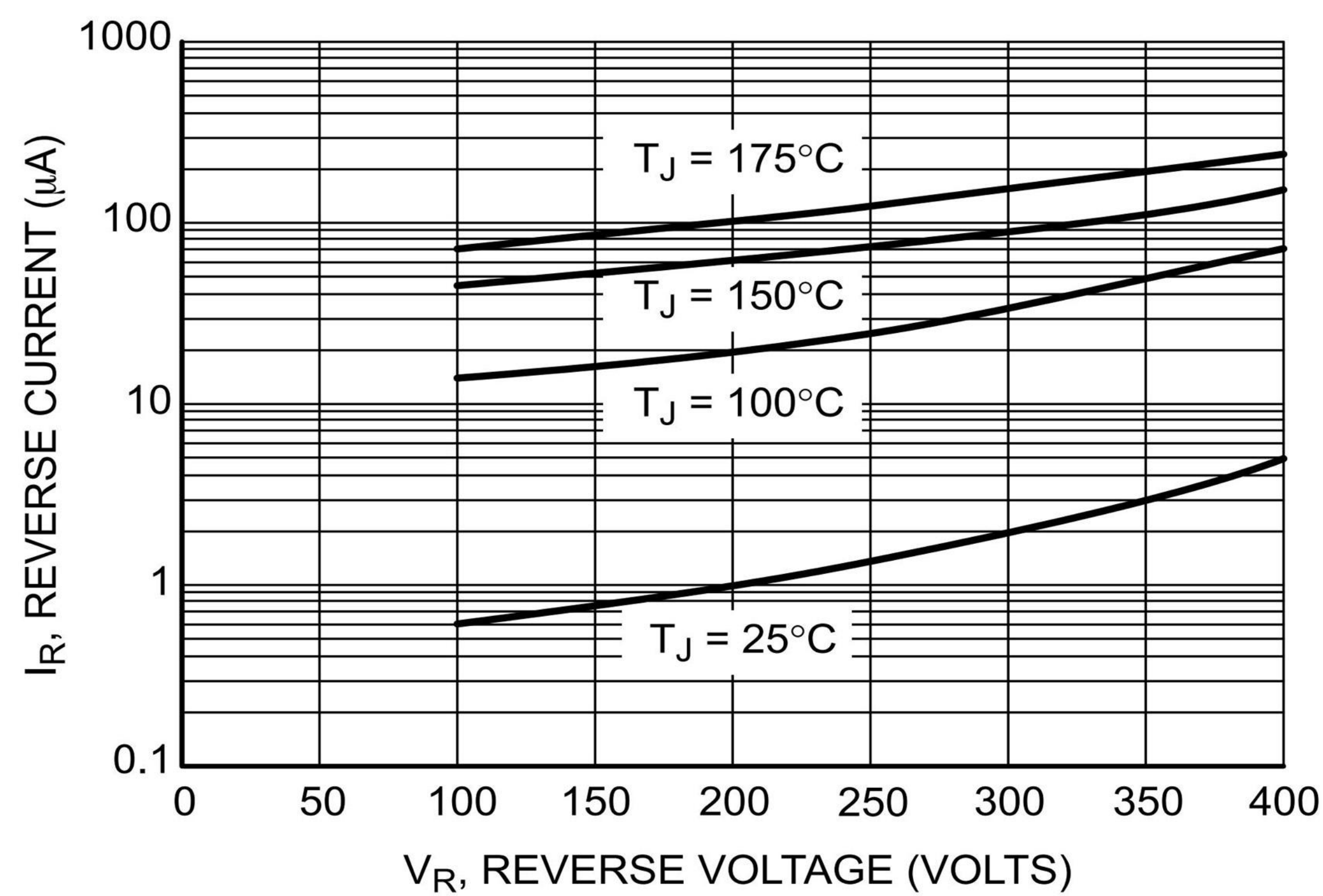
**Figure 3. Typical Reverse Current\***



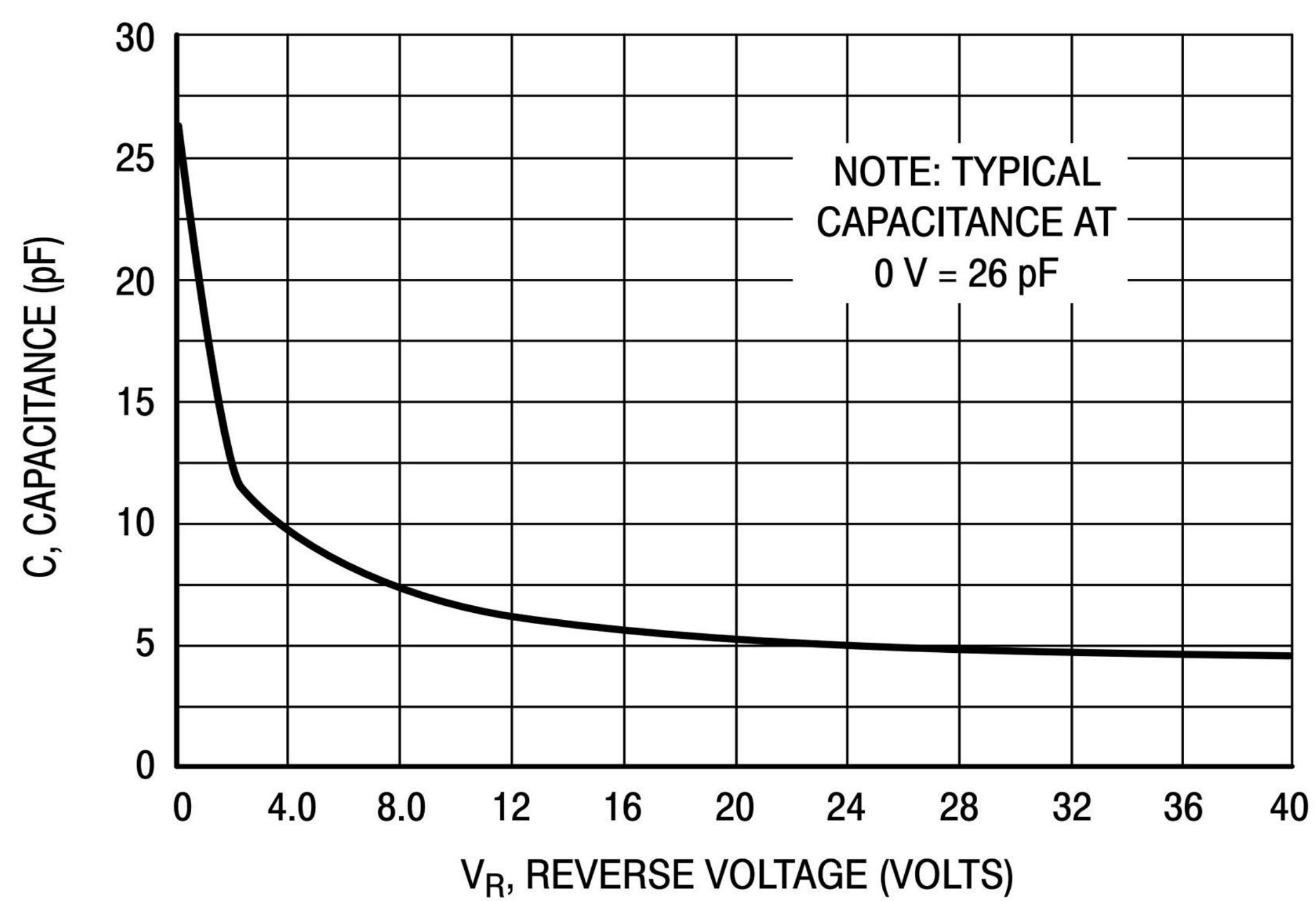
**Figure 4. Maximum Reverse Current for MURS230T3G, NRVUS230T3G**



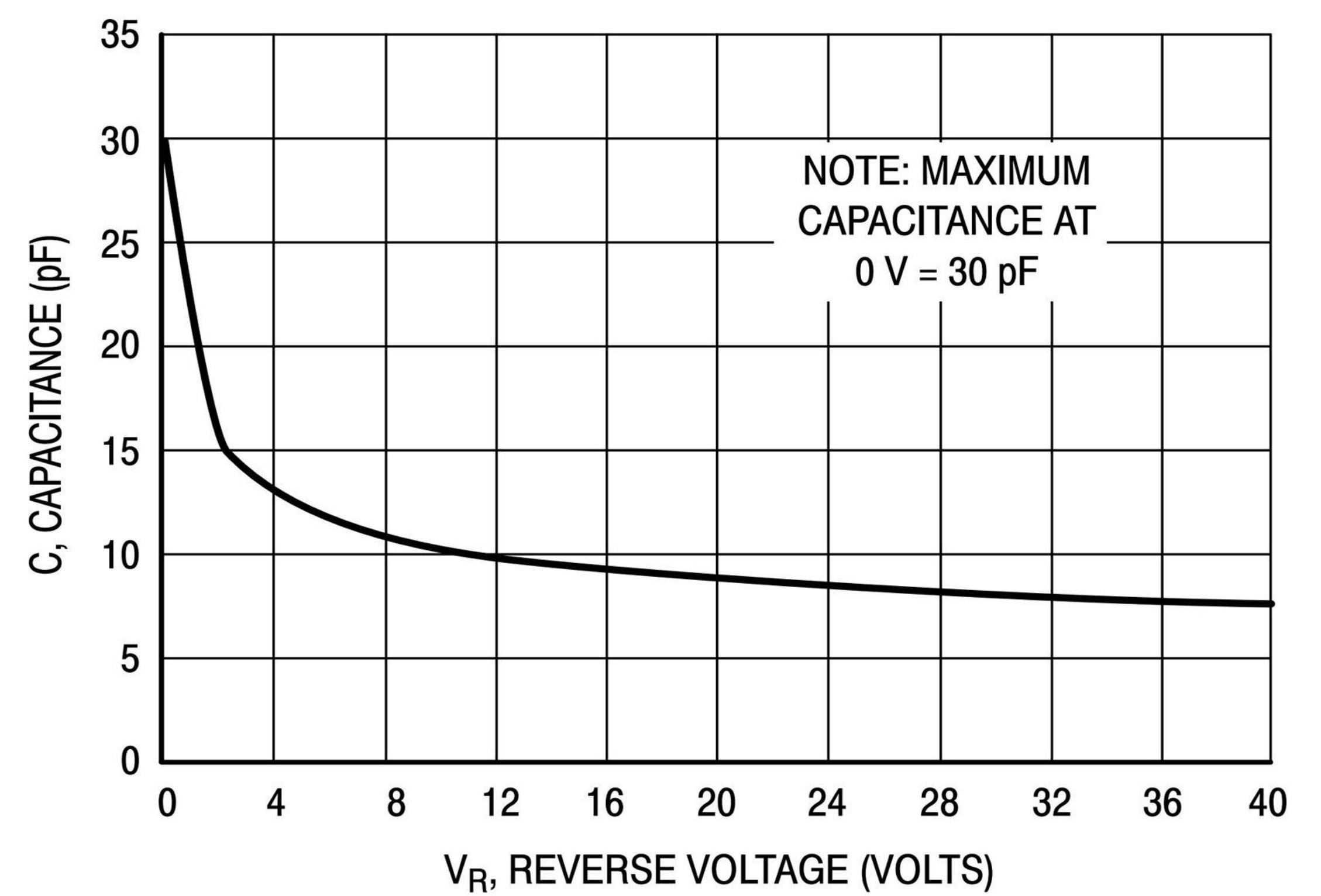
# OM SENI



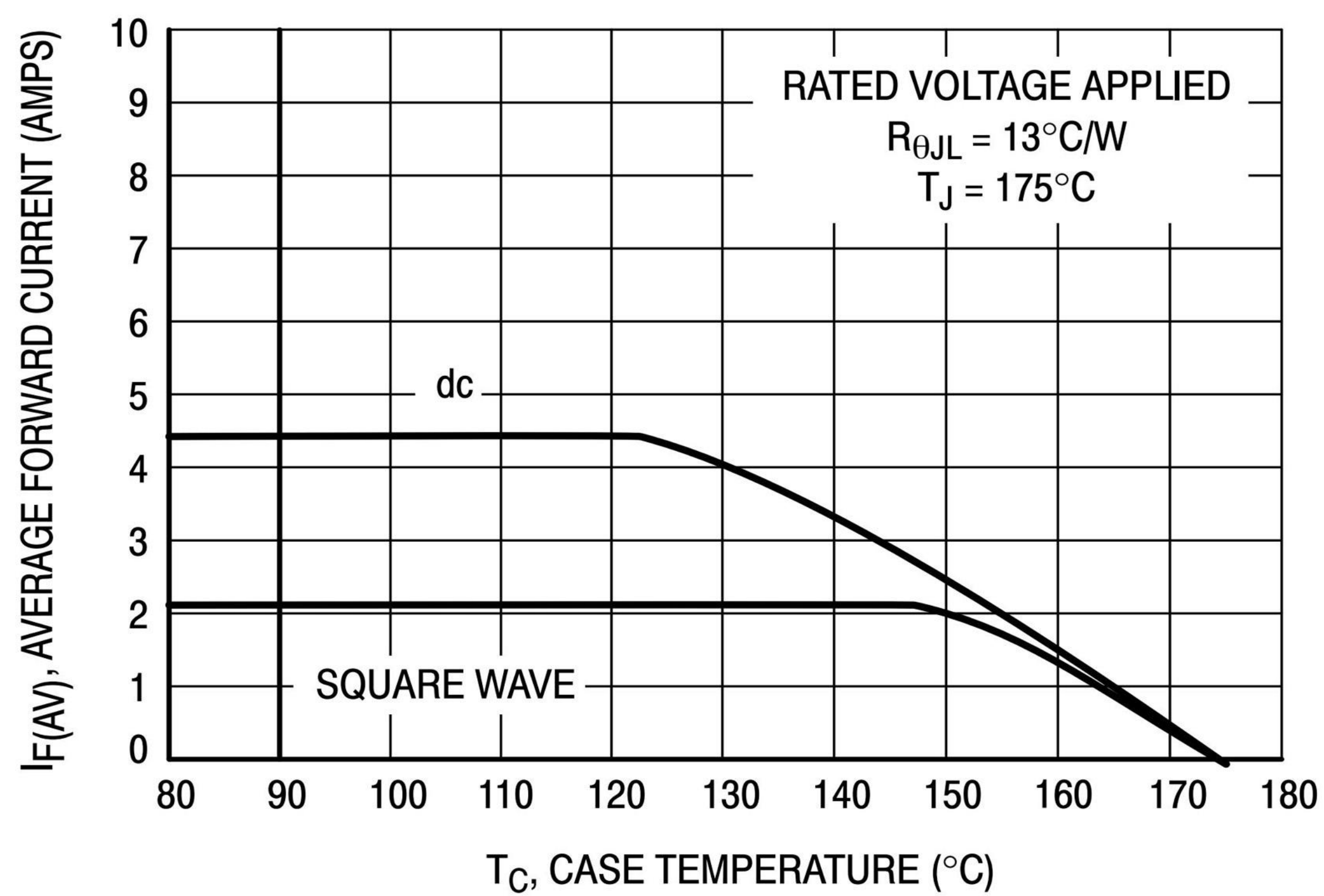
**Figure 5. Maximum Reverse Current for MURS240T3G, NRVUS240T3G**



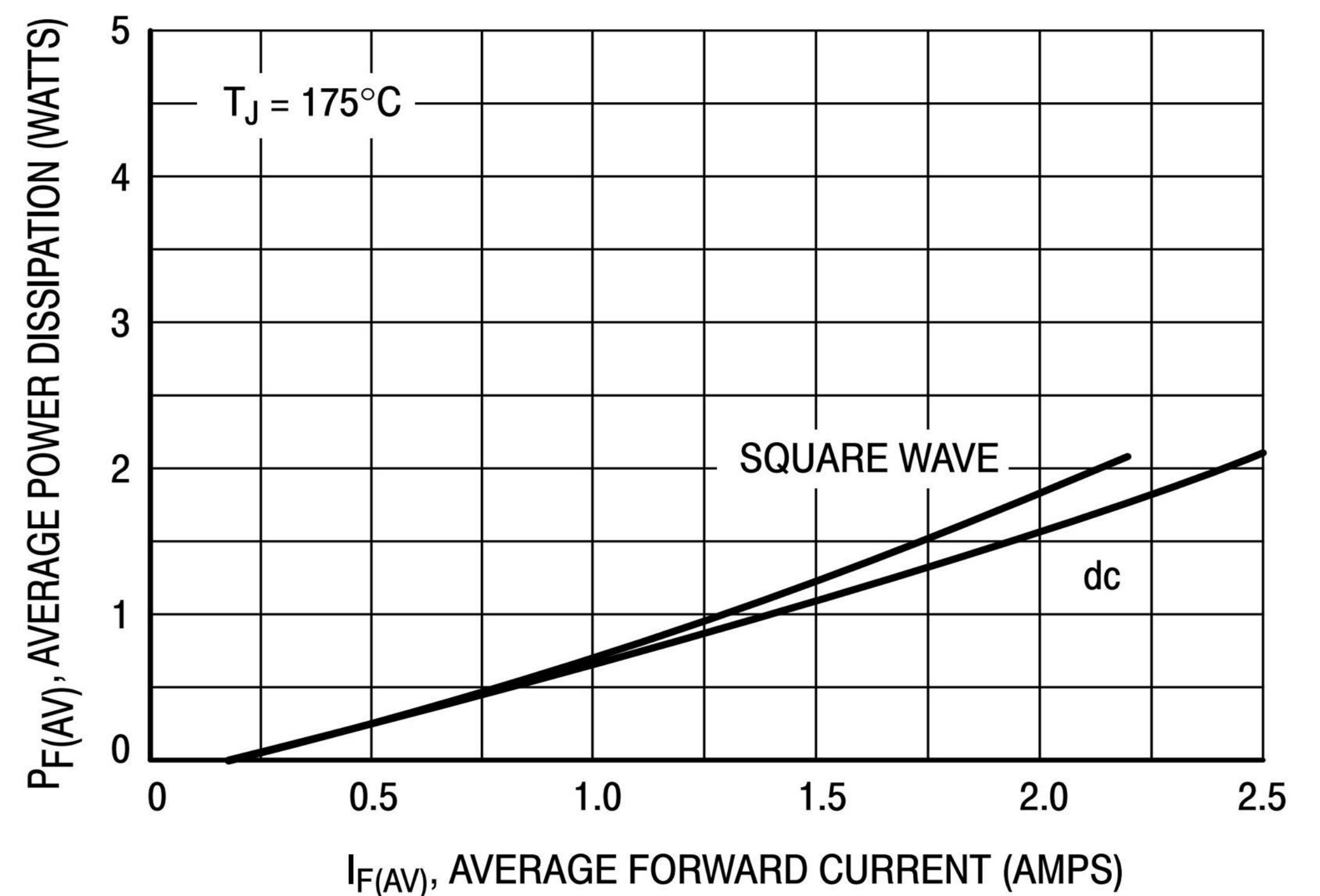
**Figure 6. Typical Capacitance**



**Figure 7. Maximum Capacitance**



**Figure 8. Current Derating, Case**



**Figure 9. Power Dissipation**



# OM SENI

## Ordering Information

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

## Package Outline Dimensions (SMB/DO-214AA)

| Symbol | Dimensions  |       |        |       |
|--------|-------------|-------|--------|-------|
|        | Millimeters |       | Inches |       |
|        | Min.        | Max.  | Min.   | Max.  |
| A      | 1.85        | 2.21  | 0.073  | 0.087 |
| B      | 4.25        | 4.85  | 0.167  | 0.191 |
| C      | 3.30        | 3.94  | 0.130  | 0.155 |
| D      | 2.15        | 2.65  | 0.085  | 0.104 |
| E      | 0.75        | 1.52  | 0.030  | 0.060 |
| F      | -           | 0.203 | -      | 0.008 |
| G      | 5.08        | 5.59  | 0.200  | 0.220 |
| H      | 0.15        | 0.31  | 0.006  | 0.012 |

**Cathode Band**

## Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| M      | 2.26        | -    | 0.089  | -     |
| J      | 2.10        | -    | 0.085  | -     |
| K      | -           | 2.74 | -      | 0.107 |