

# Advance Information

## Surface Mount Schottky Power Rectifier

### SMB Power Surface Mount Package

... employing 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.

- Compact Package with J-Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Over-Voltage Protection
- Low Forward Voltage Drop

#### Mechanical Characteristics:

- Case: Molded Epoxy
- Epoxy Meets UL94, VO at 1/8"
- Weight: 95 mg (approximately)
- Polarity: Notch in Plastic Body Indicates Cathode Lead
- Maximum Temperature of 260°C/10 Seconds for Soldering
- Available in 12 mm Tape, 2500 Units per 13" Reel, Add "T3" Suffix to Part Number
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Marking: 2BL4

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	40	Volts
Average Rectified Forward Current (At Rated $V_R$ , $T_C = 100^\circ\text{C}$ )	$I_O$	2.0	Amps
Peak Repetitive Forward Current (At Rated $V_R$ , Square Wave, 20 kHz, $T_C = 105^\circ\text{C}$ )	$I_{FRM}$	4.0	Amps
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	$I_{FSM}$	25	Amps
Storage / Operating Case Temperature	$T_{stg}, T_C$	- 55 to +150	$^\circ\text{C}$
Operating Junction Temperature	$T_J$	- 55 to +125	$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ , $T_J = 25^\circ\text{C}$ )	$dv/dt$	10,000	$\text{V}/\mu\text{s}$

#### THERMAL CHARACTERISTICS

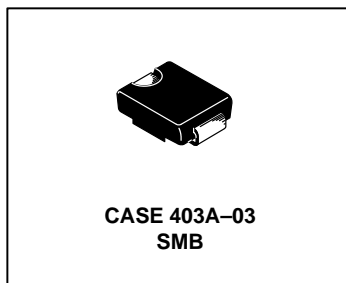
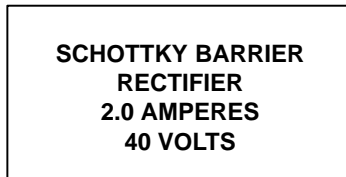
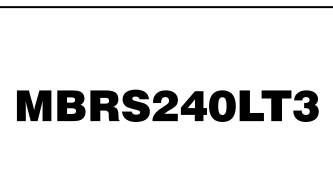
Thermal Resistance — Junction-to-Lead (2)	$R_{\theta JL}$	18	$^\circ\text{C}/\text{W}$
Thermal Resistance — Junction-to-Ambient (3)	$R_{\theta JA}$	78	

#### ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1), see Figure 2  ( $I_F = 2.0 \text{ A}$ ) ( $I_F = 4.0 \text{ A}$ )	$V_F$	$T_J = 25^\circ\text{C}$	$T_J = 125^\circ\text{C}$	Volts
		0.43 0.54	0.375 0.55	
Maximum Instantaneous Reverse Current, see Figure 4  ( $V_R = 40 \text{ V}$ ) ( $V_R = 20 \text{ V}$ )	$I_R$	$T_J = 25^\circ\text{C}$	$T_J = 100^\circ\text{C}$	mA
		2.0 0.50	60 40	

This document contains information on a new product. Specifications and information herein are subject to change without notice.

- (1) Pulse Test: Pulse Width  $\leq 250 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .  
 (2) Mounted with minimum recommended pad size, PC Board FR4.  
 (3) 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.



# MBRS240LT3

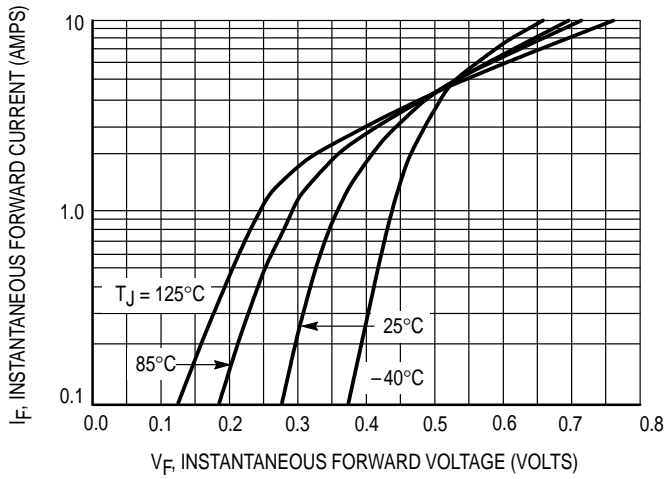


Figure 1. Typical Forward Voltage

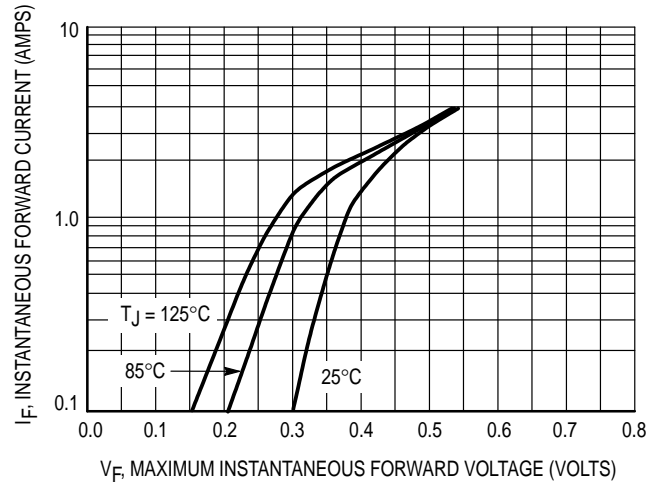


Figure 2. Maximum Forward Voltage

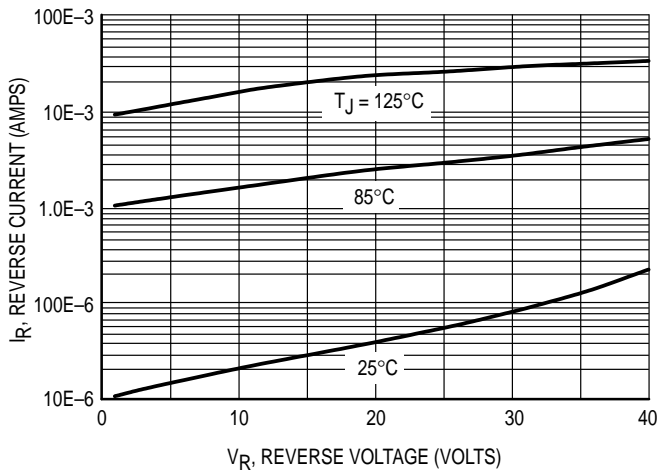


Figure 3. Typical Reverse Current

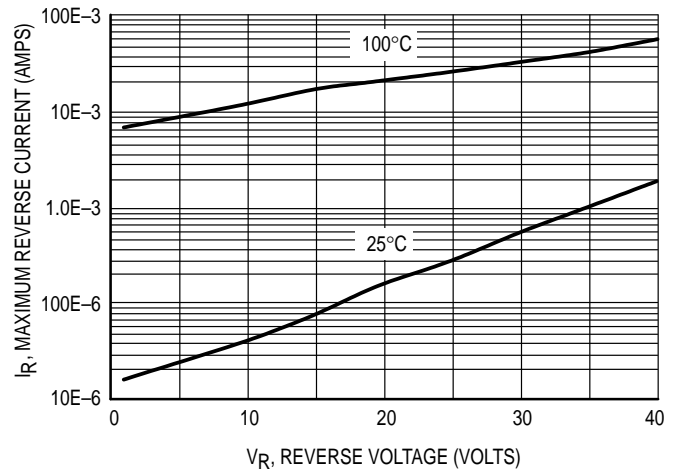


Figure 4. Maximum Reverse Current

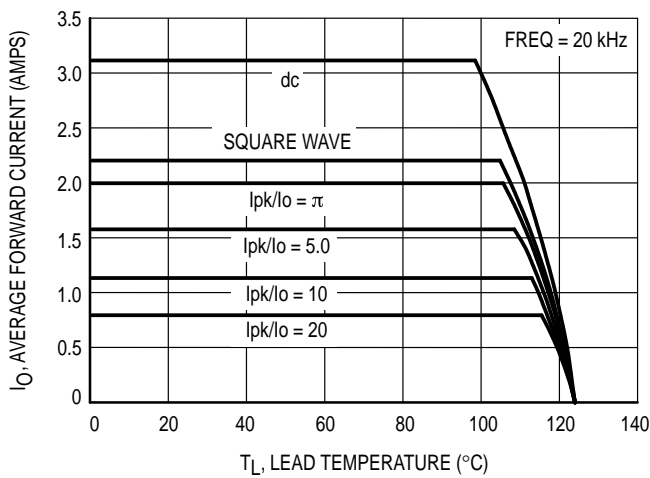


Figure 5. Current Derating

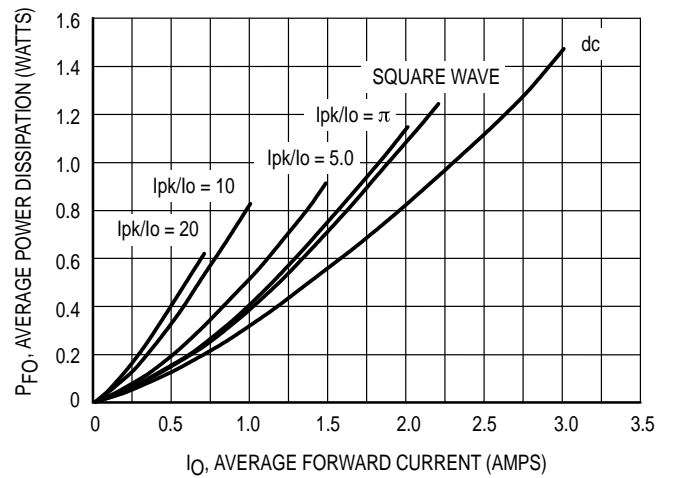
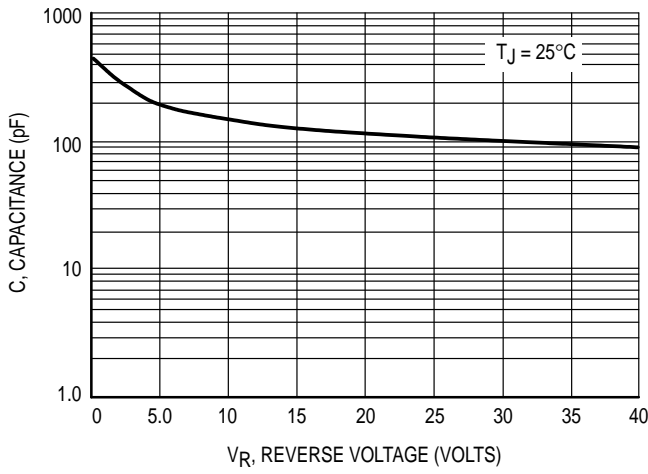
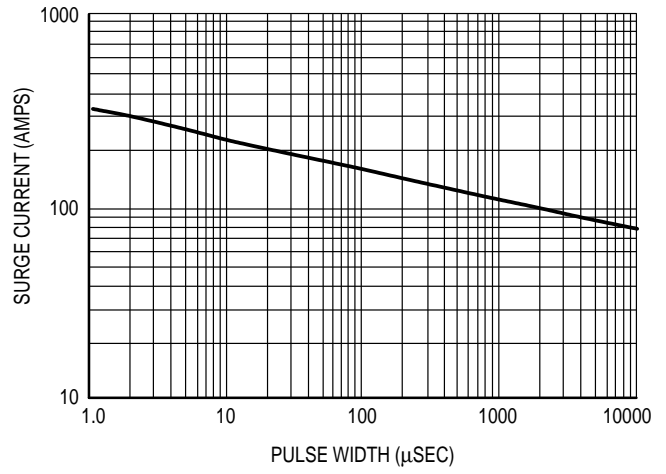


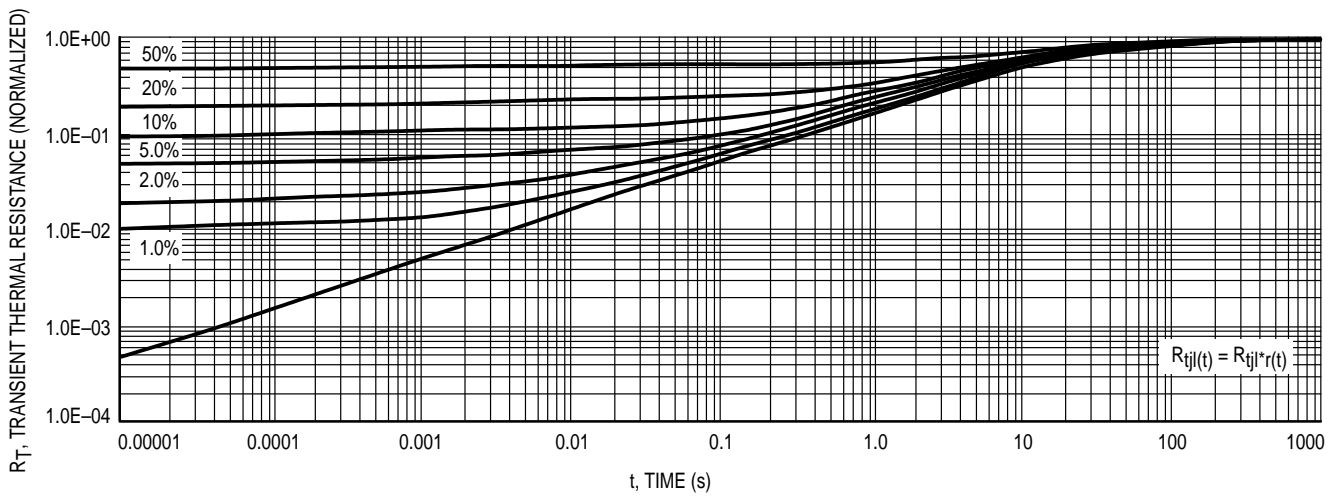
Figure 6. Forward Power Dissipation



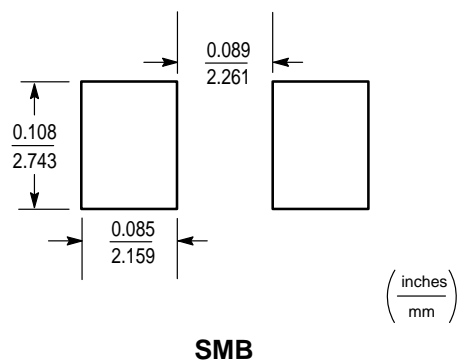
**Figure 7. Capacitance**



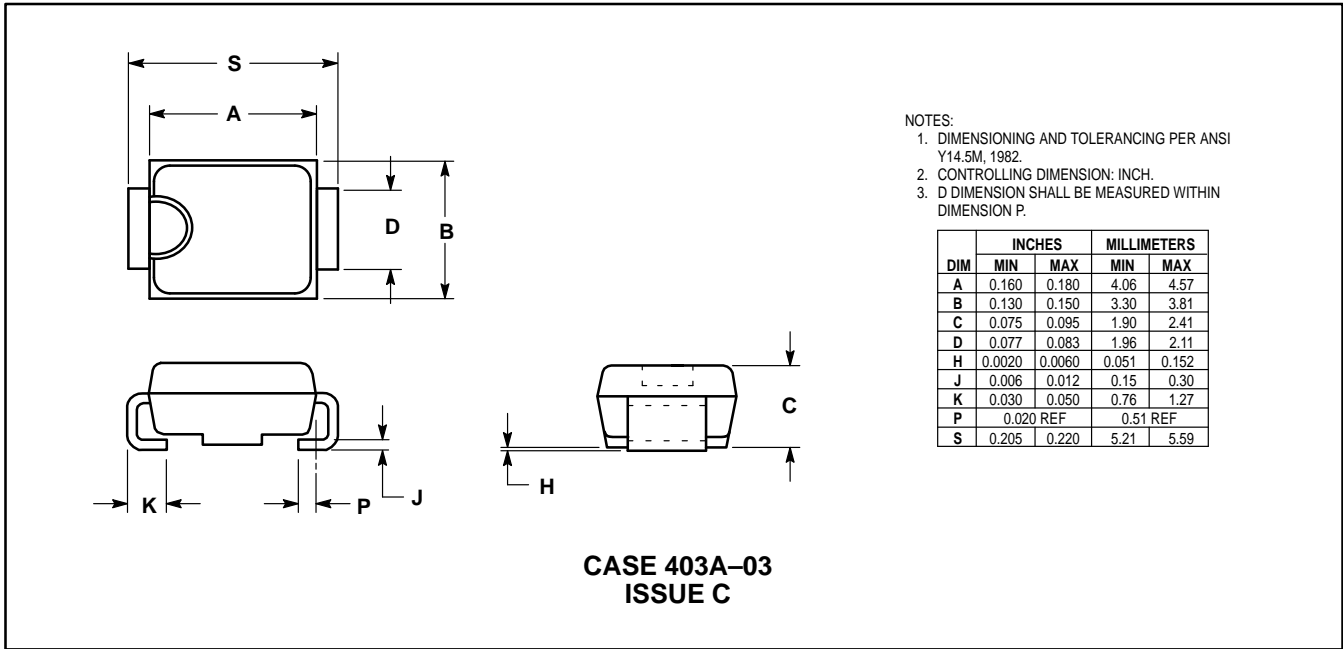
**Figure 8. Maximum Non-Repetitive Forward Surge Current**




**Figure 9. Thermal Response**



**PACKAGE DIMENSIONS**



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