

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

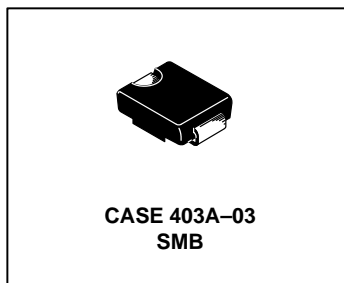
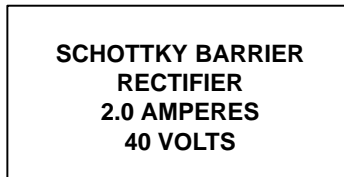
Thermal Resistance — Junction-to-Lead (2)	$R_{\theta JL}$	18	$^\circ\text{C}/\text{W}$
Thermal Resistance — Junction-to-Ambient (3)	$R_{\theta JA}$	78	

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

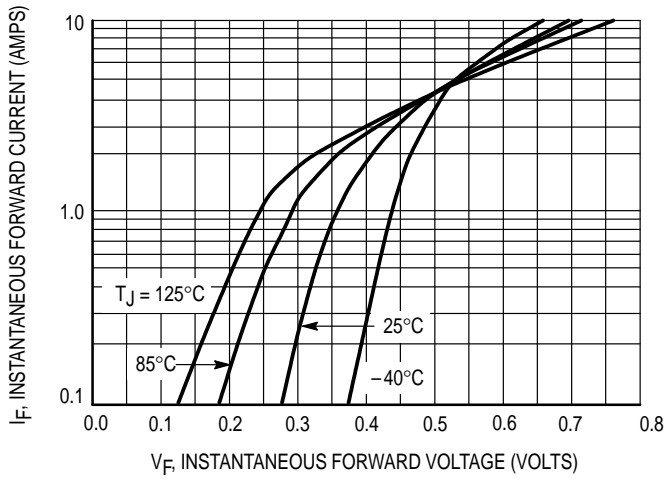


Figure 1. Typical Forward Voltage

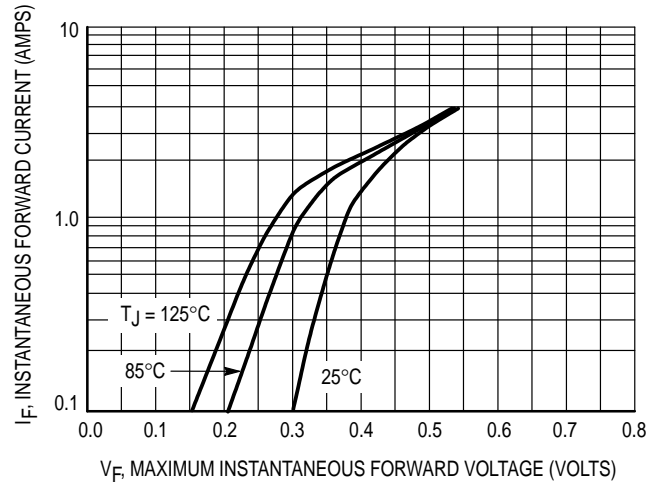


Figure 2. Maximum Forward Voltage

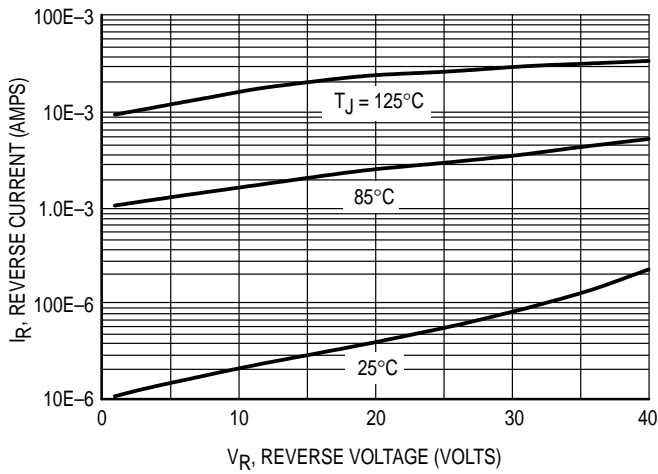


Figure 3. Typical Reverse Current

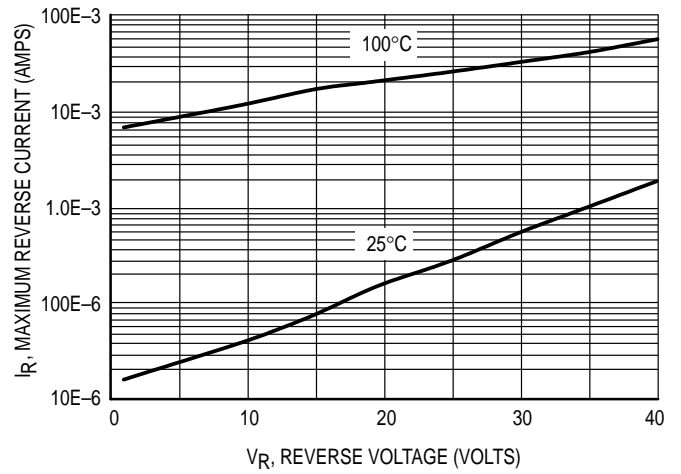


Figure 4. Maximum Reverse Current

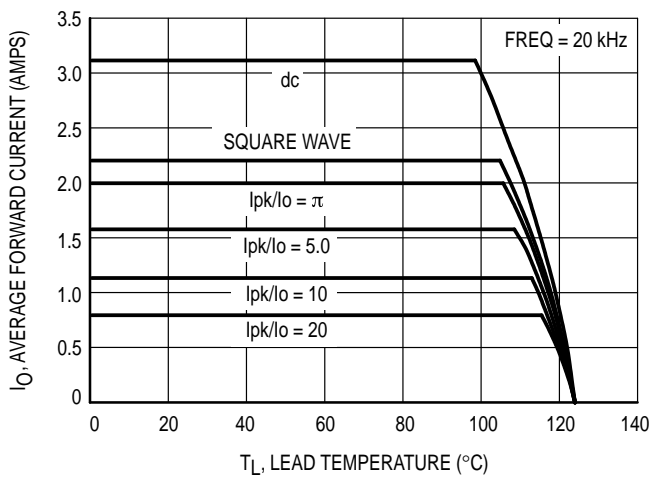


Figure 5. Current Derating

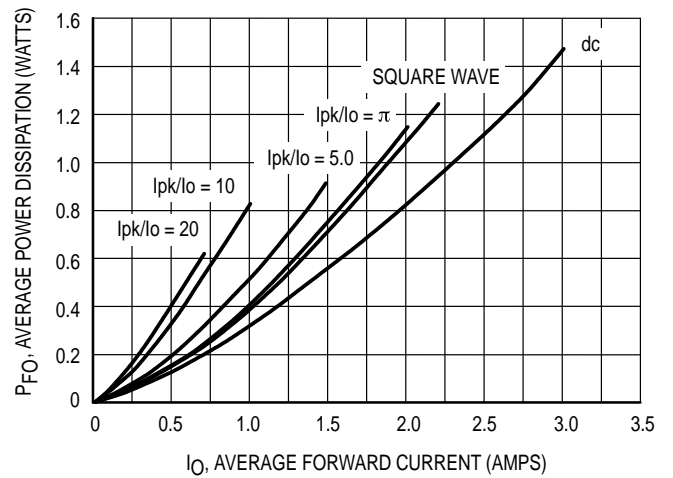


Figure 6. Forward Power Dissipation

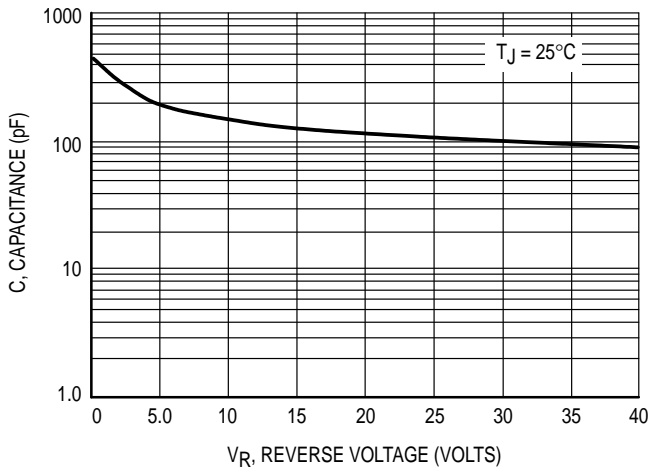


Figure 7. Capacitance

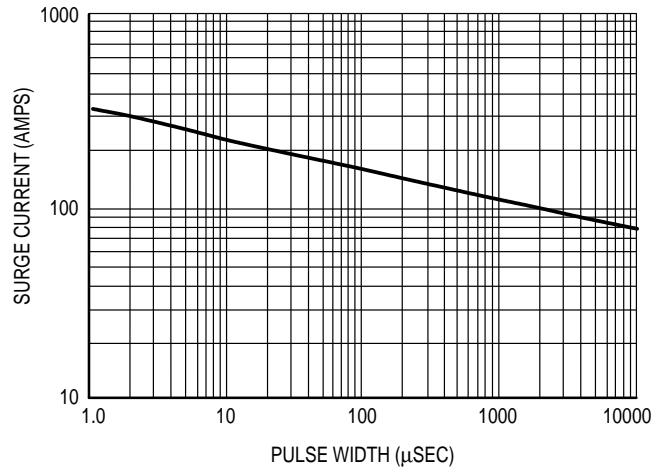


Figure 8. Maximum Non-Repetitive Forward Surge Current

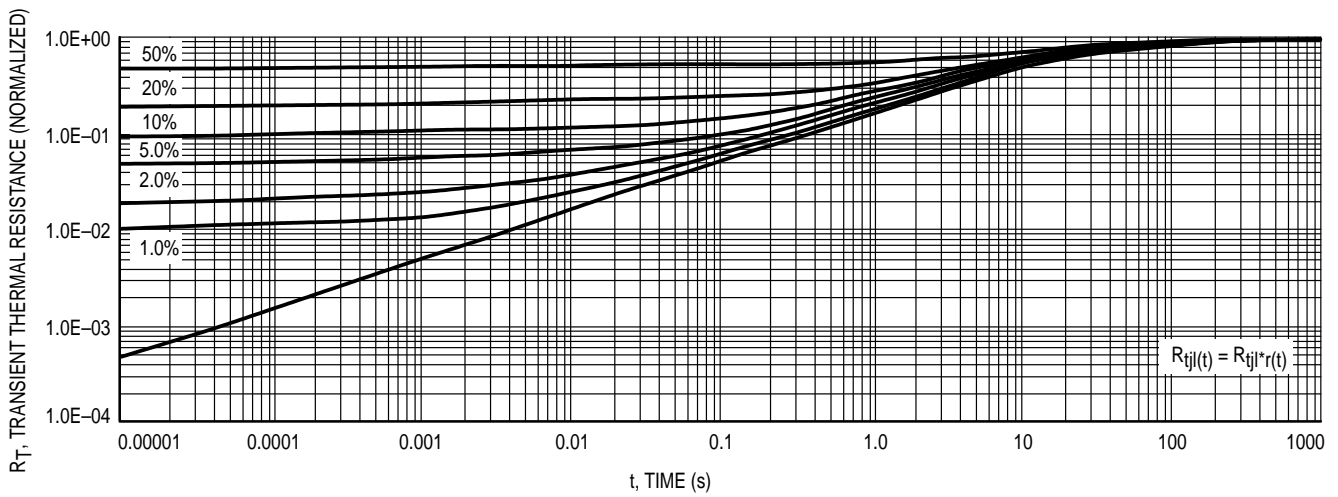
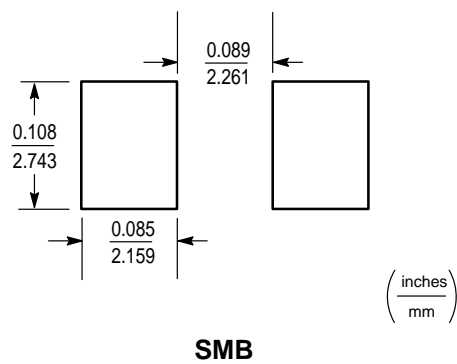
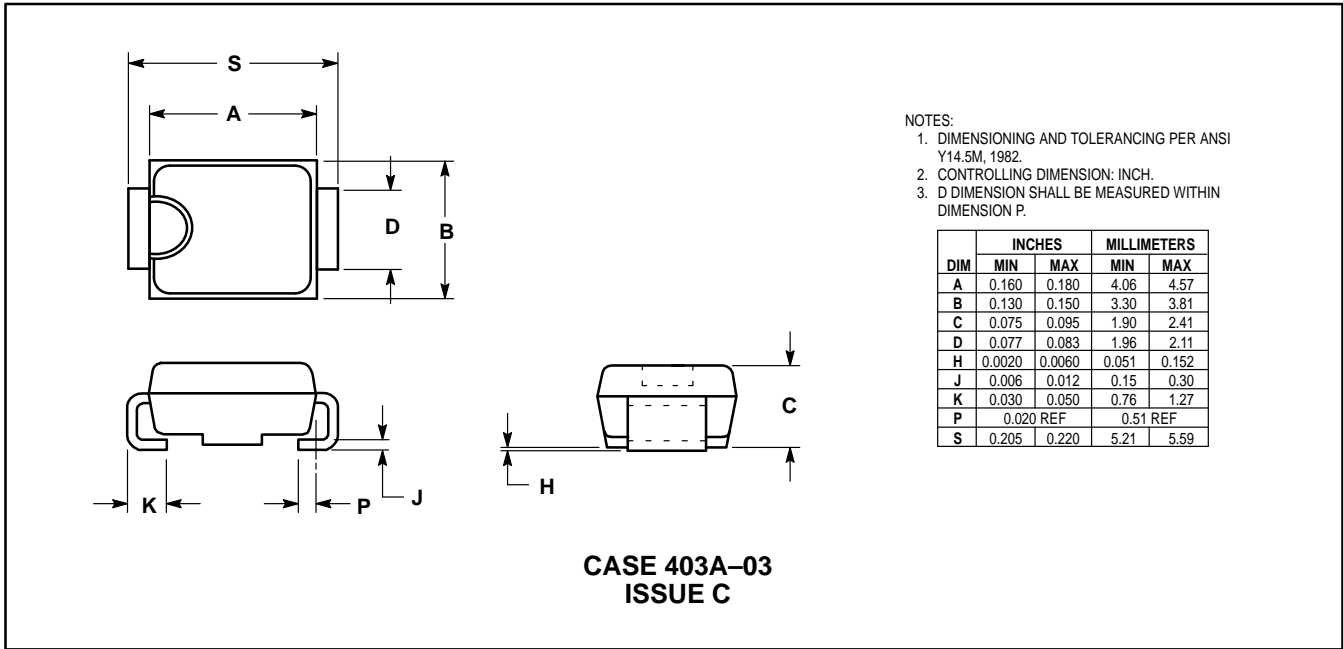



Figure 9. Thermal Response



PACKAGE DIMENSIONS



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