

Product Preview
Surface Mount
Schottky Power Rectifier
SMA Power Surface Mount Package

MBRA140T3

**SCHOTTKY BARRIER
RECTIFIER
1 AMPERES
40 VOLTS**



**CASE 403B-01
SMA**

... employing the Schottky Barrier principle in a large area metal-to-silicon power diode. State of the art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency rectification, or as free wheeling and polarity diodes in surface mount applications where compact size and weight are critical to the system.

- Small Compact Surface Mountable Package with J-Bent Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- Very Low Forward Voltage Drop
- Guardring for Stress Protection

Mechanical Characteristics:

- Case: Epoxy, Molded
- 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
- Shipped in 12 mm tape, 5000 units per 13 inch reel
- Polarity: Notch in Plastic Body Indicates Cathode Lead
- Marking: B4

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
Average Rectified Forward Current (At Rated V_R , $T_C = 95^\circ\text{C}$)	I_O	1.0	A
Peak Repetitive Forward Current (At Rated V_R , Square Wave, 20 kHz, $T_C = 100^\circ\text{C}$)	I_{FRM}	2.0	A
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	I_{FSM}	30	A
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	V/ μs

THERMAL CHARACTERISTICS

Thermal Resistance — Junction-to-Lead (2)	R_{tjl}	35	$^\circ\text{C}/\text{W}$
Thermal Resistance — Junction-to-Ambient (2)	R_{tja}	86	

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1), see Figure 2 for other Values ($I_F = 1.0 \text{ A}$) ($I_F = 2.0 \text{ A}$)	V_F	$T_J = 25^\circ\text{C}$	$T_J = 100^\circ\text{C}$	V
		0.55 0.71	0.505 0.74	
Maximum Instantaneous Reverse Current, see Figure 4 for other Values ($V_R = 40 \text{ V}$) ($V_R = 20 \text{ V}$)	I_R	$T_J = 25^\circ\text{C}$	$T_J = 100^\circ\text{C}$	mA
		0.5 0.1	10 2.0	

This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

(1) Pulse Test: Pulse Width $\leq 250 \mu\text{s}$, Duty Cycle $\leq 2\%$.

(2) Mounted on 2" square pc board with 1" square total pad size, PC Board FR4.

REV 2

MBRA140T3

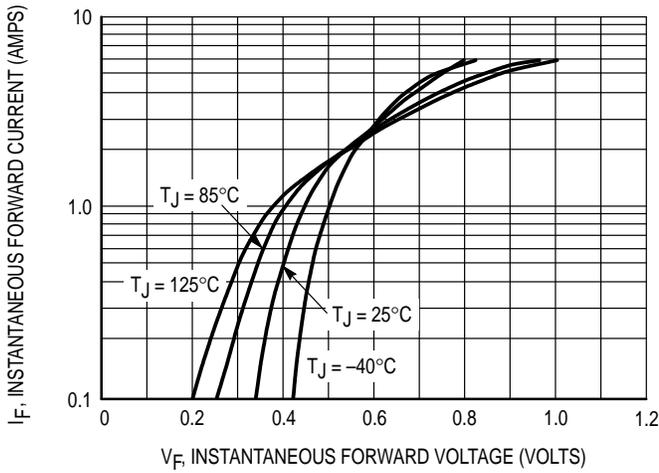


Figure 1. Typical Forward Voltage

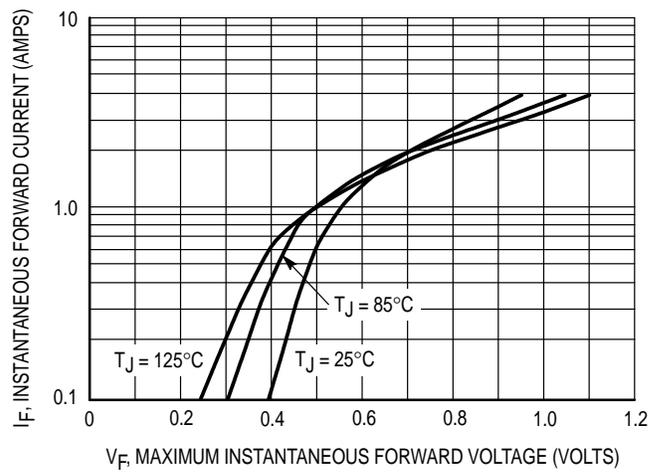


Figure 2. Maximum Forward Voltage

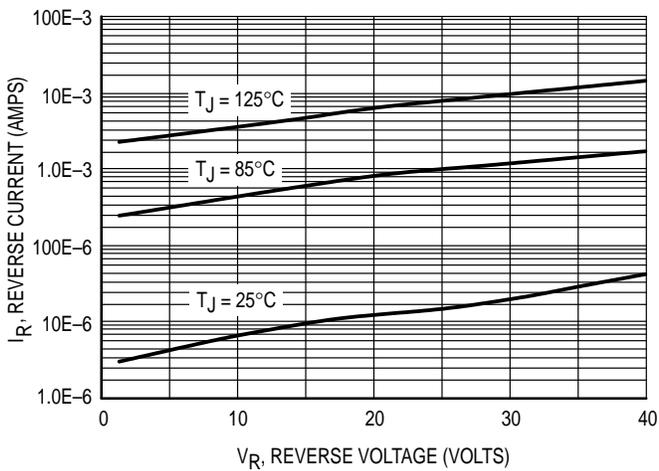


Figure 3. Typical Reverse Current

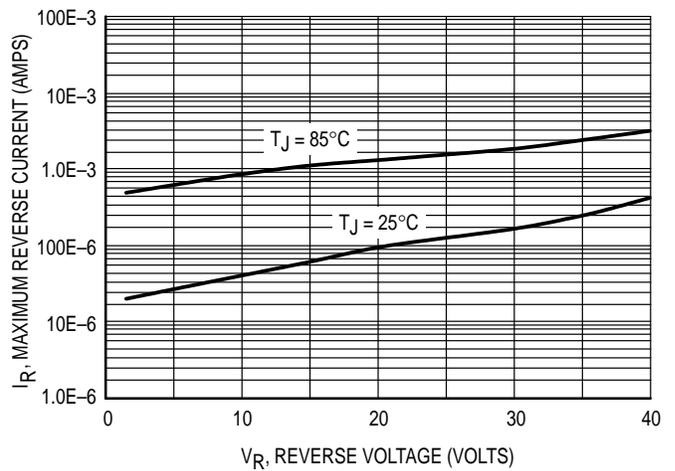


Figure 4. Maximum Reverse Current

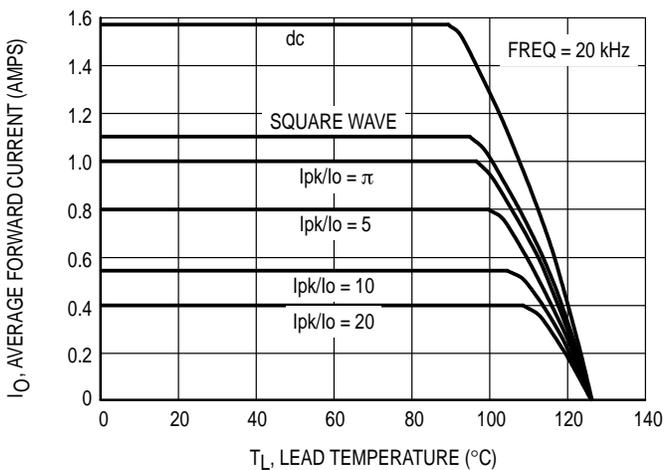


Figure 5. Current Derating

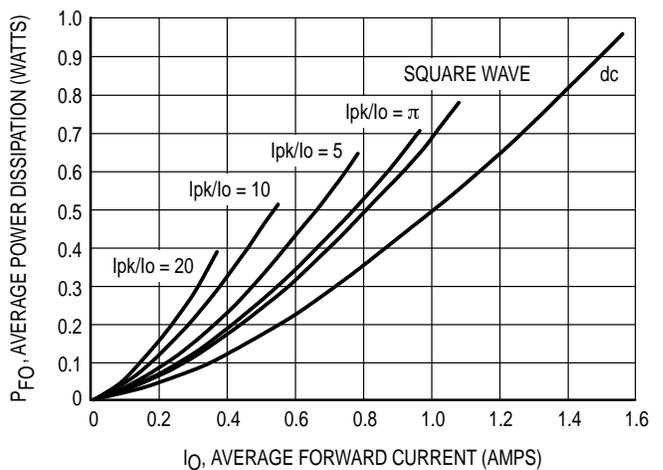


Figure 6. Forward Power Dissipation

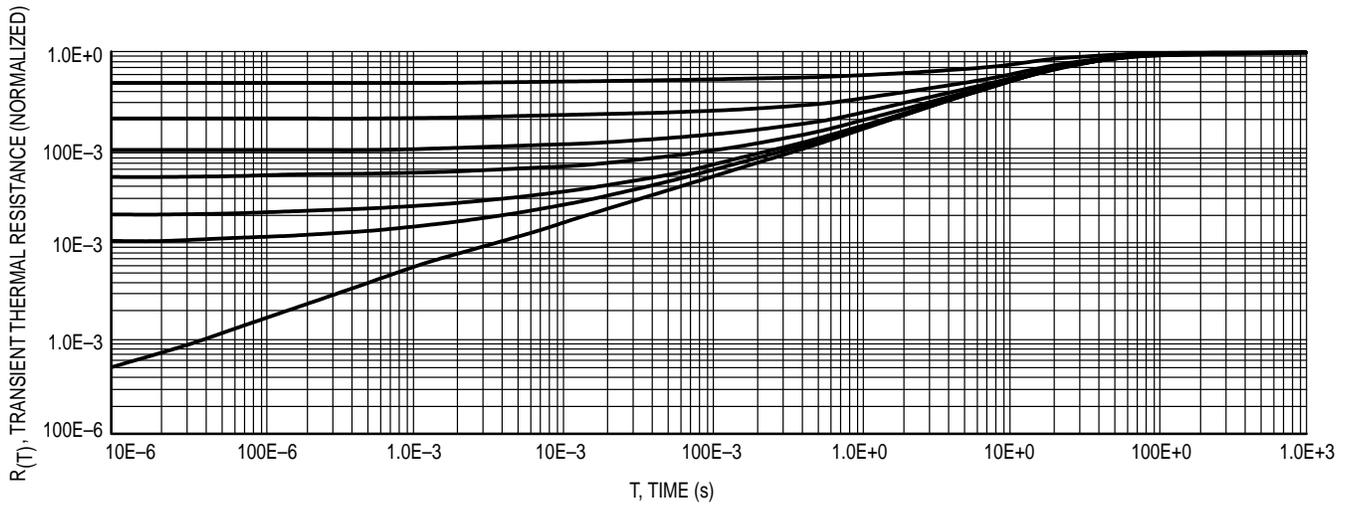


Figure 7. Thermal Response

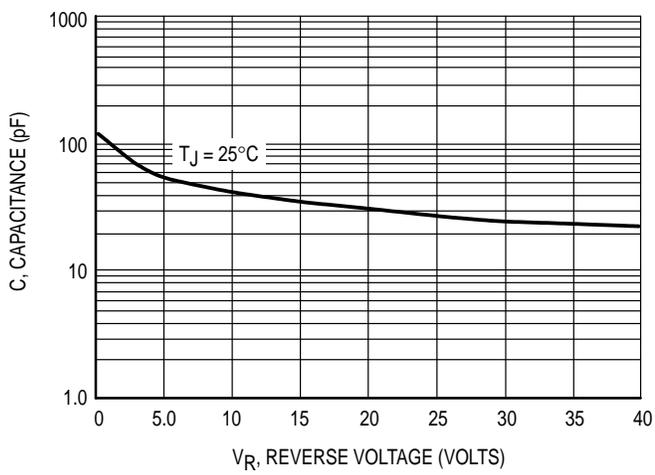
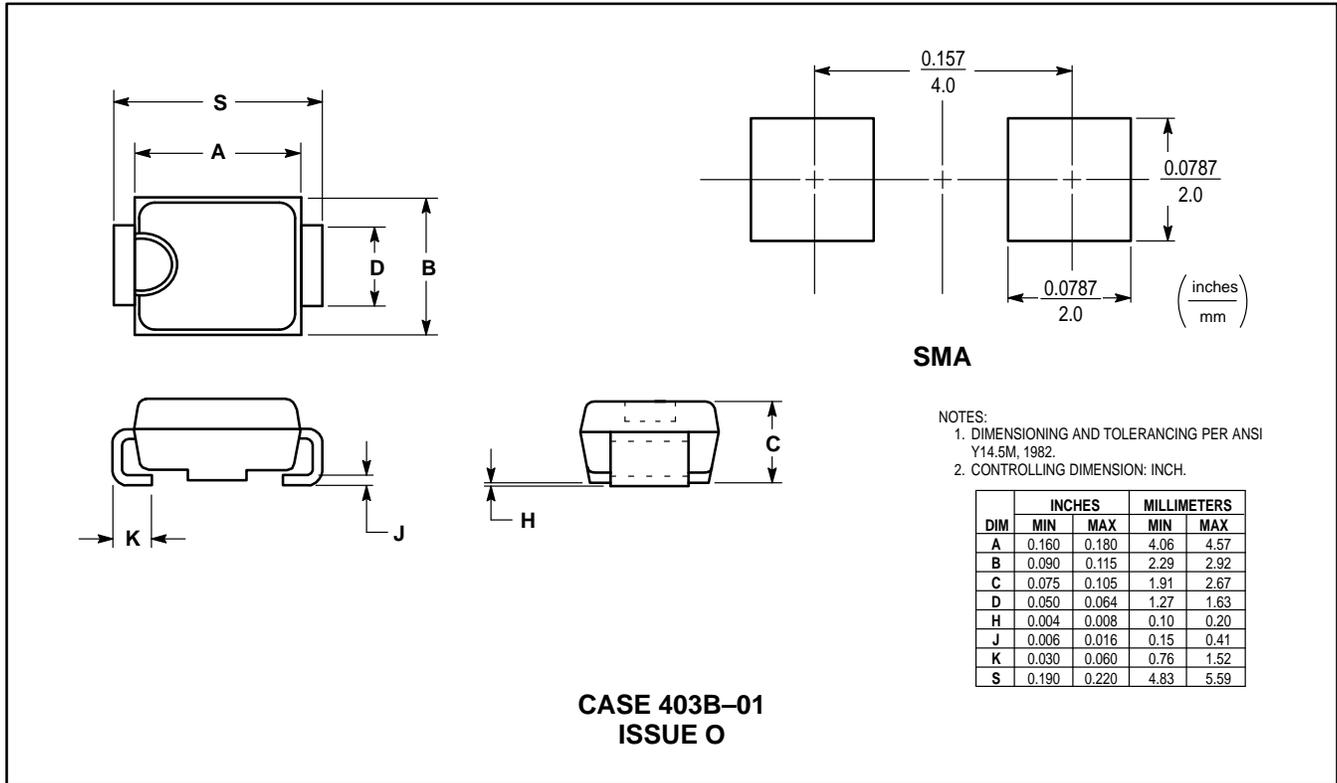


Figure 8. Capacitance

PACKAGE DIMENSIONS



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