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: B14

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°C)	I_O	1.0	A
Peak Repetitive Forward Current (At Rated V_R, Square Wave, 20 kHz, T_C = 100°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	°C
Operating Junction Temperature	T_J	–55 to +125	°C
Voltage Rate of Change (Rated V_R, T_J = 25°C)	dv/dt	10,000	V/µs

THERMAL CHARACTERISTICS

Thermal Resistance — Junction–to–Lead (2) Thermal Resistance — Junction–to–Ambient (2)	R_{tjl} R_{tja}	35 86	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1), see Figure 2 for other Values	V_F	T_J = 25°C	T_J = 100°C	V
(I_F = 1.0 A) (I_F = 2.0 A)		0.55 0.71	0.505 0.74	
Maximum Instantaneous Reverse Current, see Figure 4 for other Values	I_R	T_J = 25°C	T_J = 100°C	mA
(V_R = 40 V) (V_R = 20 V)		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 ≤ 250 µs, Duty Cycle ≤ 2%.

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

REV 2

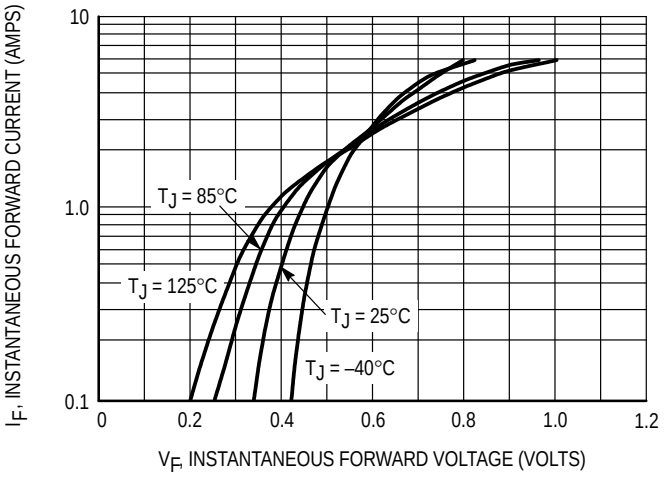


Figure 1. Typical Forward Voltage

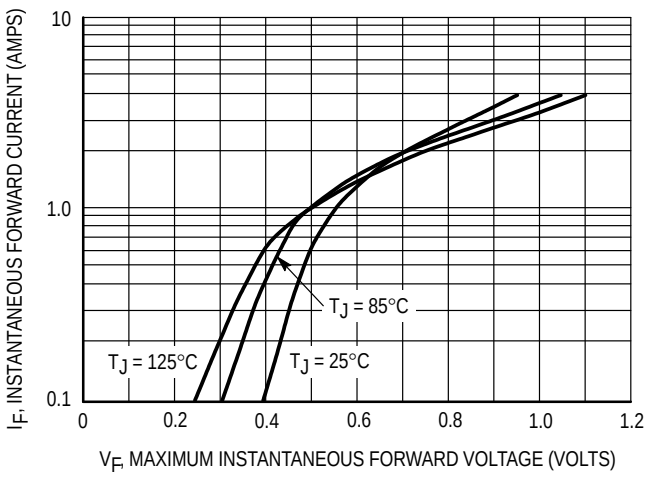


Figure 2. Maximum Forward Voltage

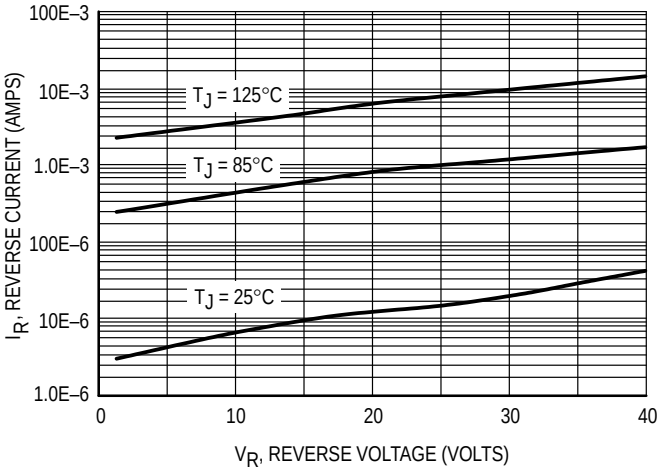


Figure 3. Typical Reverse Current

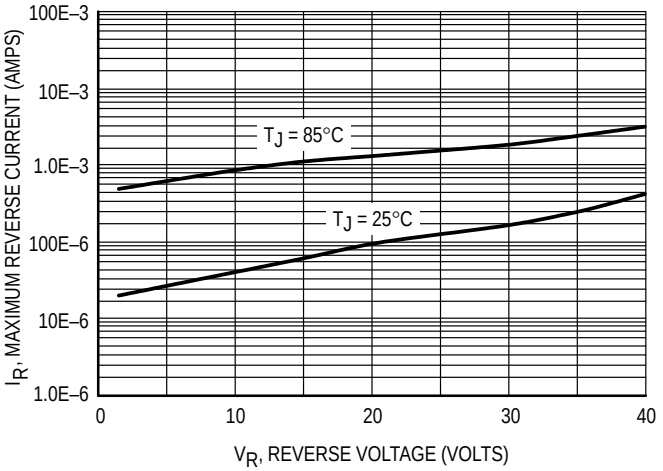


Figure 4. Maximum Reverse Current

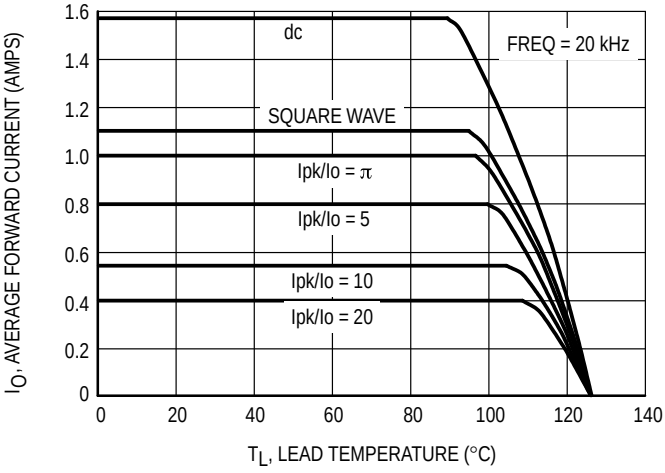


Figure 5. Current Derating

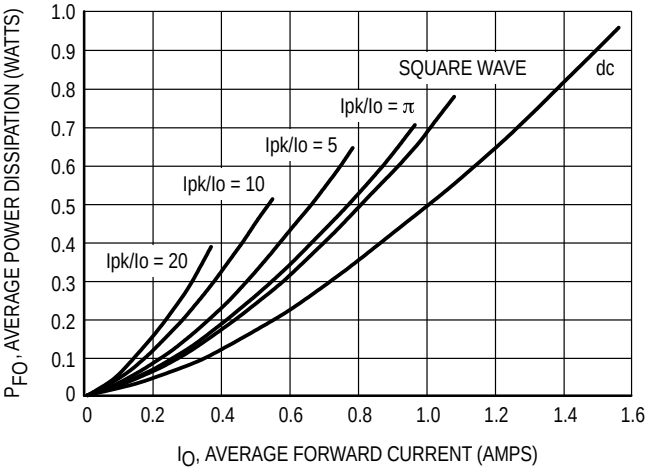


Figure 6. Forward Power Dissipation

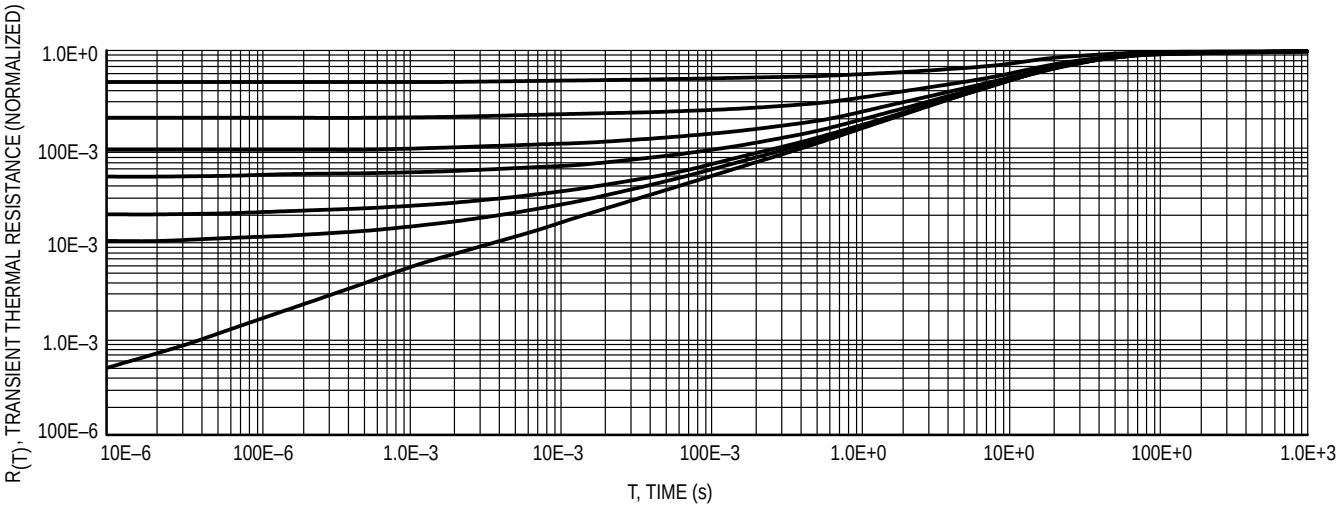


Figure 7. Thermal Response

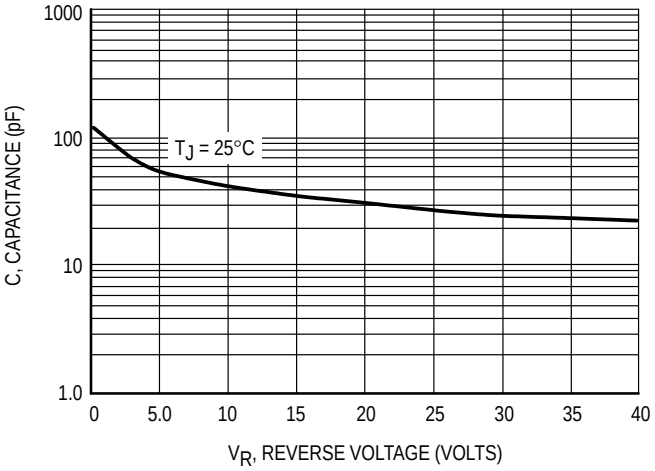
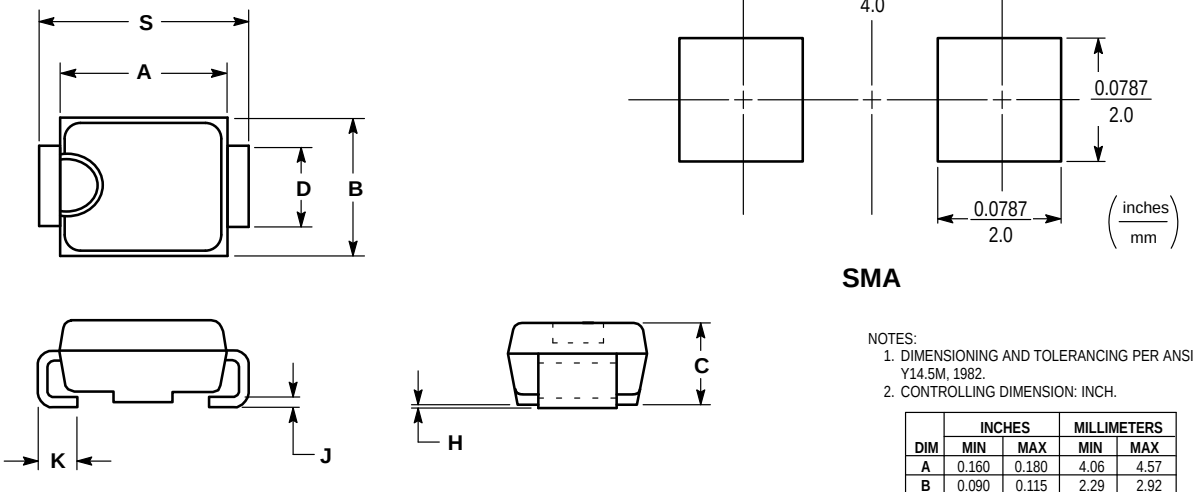


Figure 8. Capacitance

PACKAGE DIMENSIONS



SMA

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.160	0.180	4.06	4.57
B	0.090	0.115	2.29	2.92
C	0.075	0.105	1.91	2.67
D	0.050	0.064	1.27	1.63
H	0.004	0.008	0.10	0.20
J	0.006	0.016	0.15	0.41
K	0.030	0.060	0.76	1.52
S	0.190	0.220	4.83	5.59

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How to reach us:
USA / EUROPE / Locations Not Listed: Motorola Literature Distribution; P.O. Box 20912; Phoenix, Arizona 85036. 1–800–441–2447 or 602–303–5454

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE 602–244–6609
INTERNET: http://Design–NET.com

JAPAN: Nippon Motorola Ltd.; Tatsumi–SPD–JLDC, 6F Seibu–Butsuryu–Center, 3–14–2 Tatsumi Koto–Ku, Tokyo 135, Japan. 03–81–3521–8315

ASIA / PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park, 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298