MBRA140T3

Surface Mount Schottky Power Rectifier

SMA Power Surface Mount Package

. . . 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: Cathode Lead Indicated by Either Notch in Plastic Body or Polarity Band
- 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

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SCHOTTKY BARRIER RECTIFIER 1.0 AMPERES 40 VOLTS

SMA
CASE 403D
PLASTIC

MARKING DIAGRAM

B14 = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBRA140T3	SMA	5000/Tape & Reel

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance — Junction–to–Lead (Note 1.) Thermal Resistance — Junction–to–Ambient (Note 1.)	$R_{\theta JL}$ $R_{\theta JA}$	35 86	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2.)		V_F	**T_J = 25°C**	**T_J = 100°C**	Volts
	(I_F = 1.0 A)		0.55	0.505	
see Figure 2 for other Values	(I_F = 2.0 A)		0.71	0.74	
Maximum Instantaneous Reverse Current		I_R	**T_J = 25°C**	**T_J = 100°C**	mA
	(V_R = 40 V)		0.5	10	
see Figure 4 for other Values	(V_R = 20 V)		0.1	4.0	

1. Mounted on 2″ Square PC Board with 1″ Square Total Pad Size, PC Board FR4.
2. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2.0%.

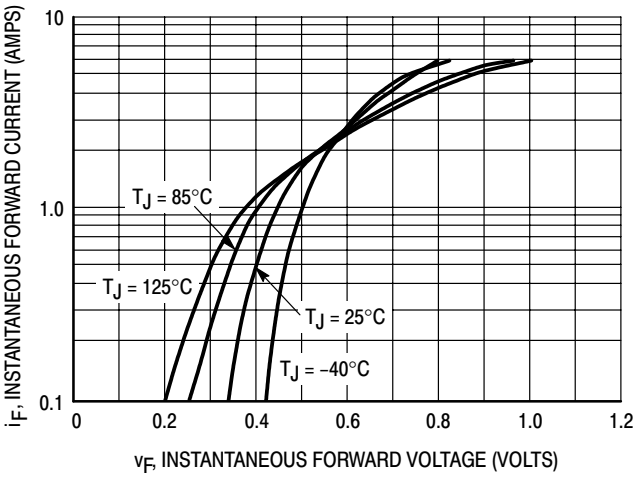


Figure 1. Typical Forward Voltage

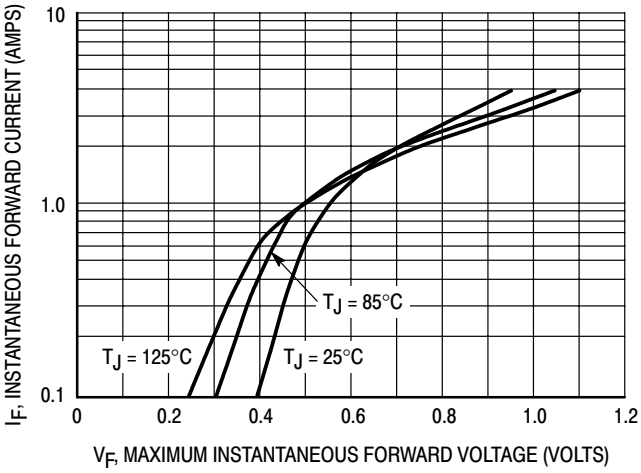


Figure 2. Maximum Forward Voltage

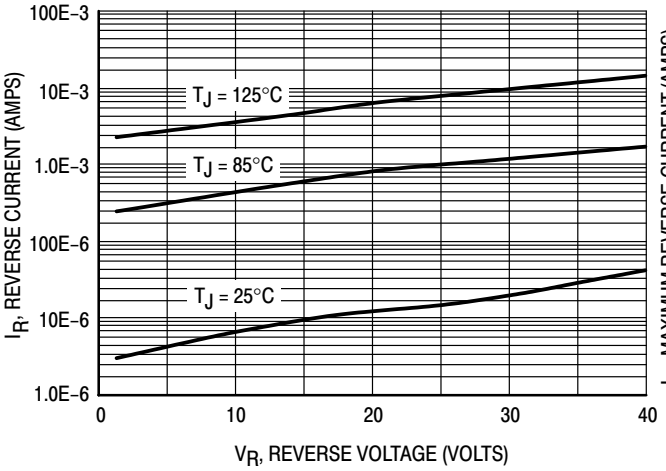


Figure 3. Typical Reverse Current

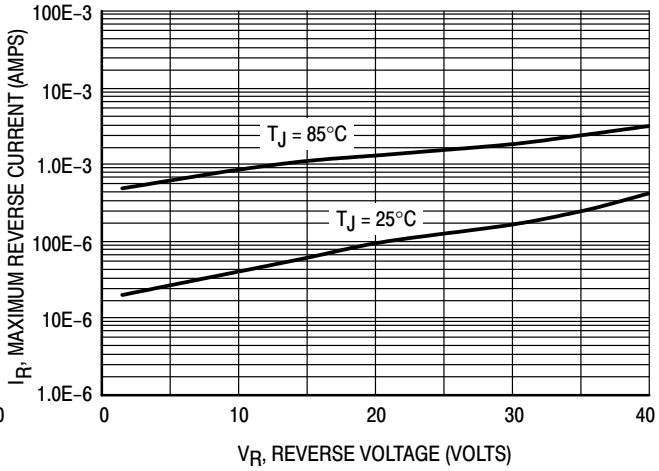


Figure 4. Maximum Reverse Current

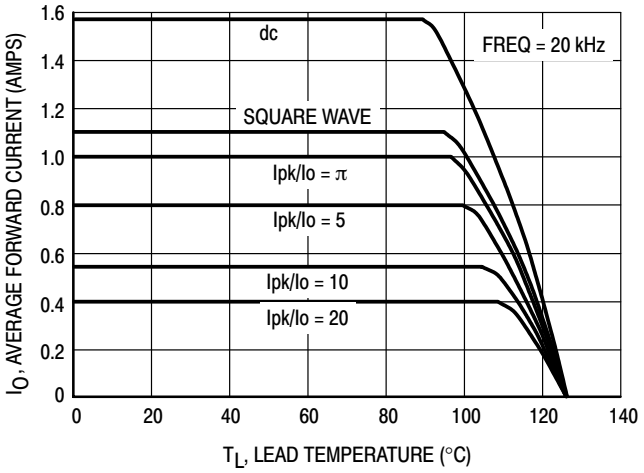


Figure 5. Current Derating

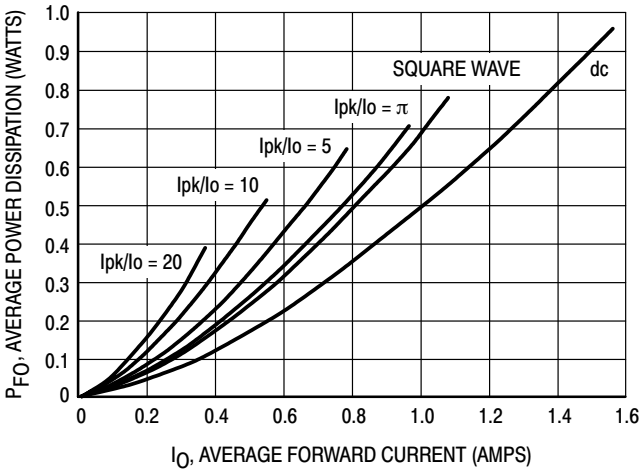


Figure 6. Forward Power Dissipation

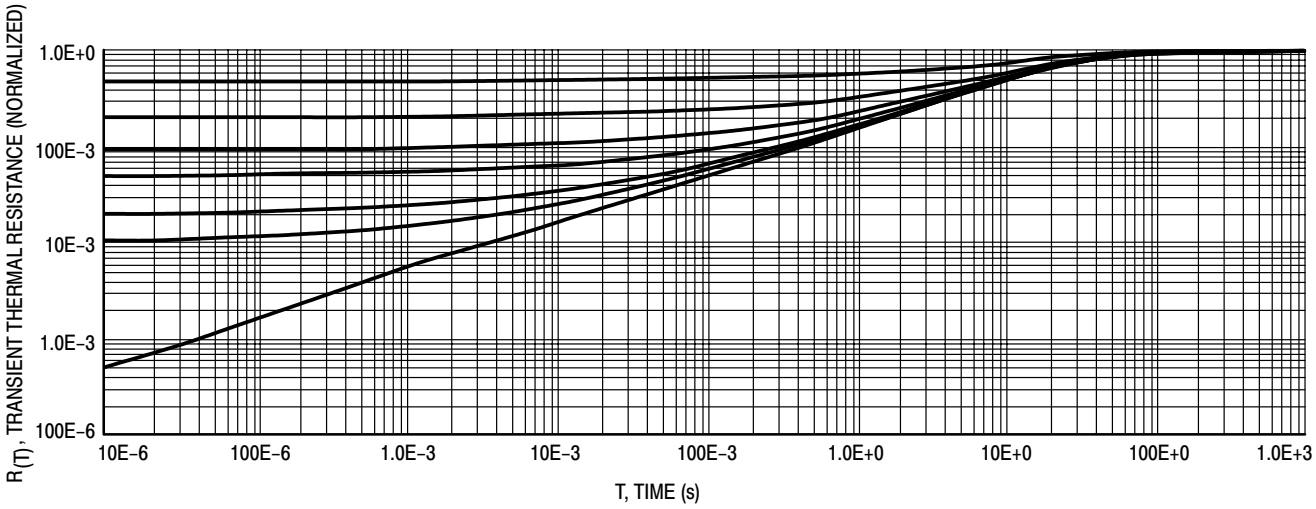


Figure 7. Thermal Response

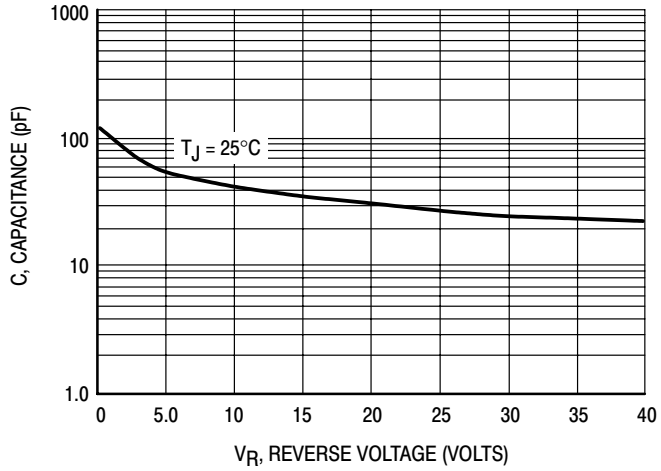
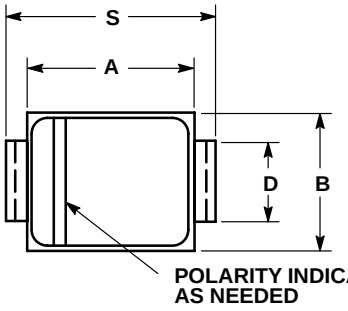


Figure 8. Capacitance

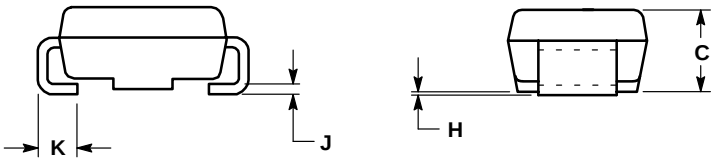
PACKAGE DIMENSIONS

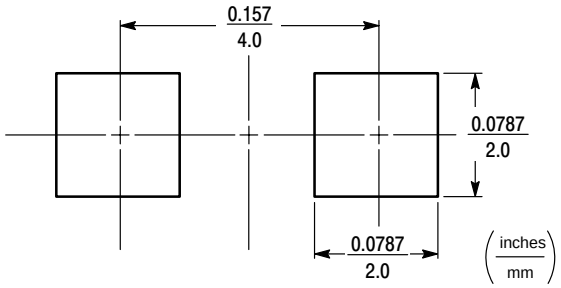
SMA
CASE 403D–02
ISSUE A



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 403D–01 OBSOLETE, NEW STANDARD IS 403D–02.

	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	0.095	1.91	2.41
D	0.050	0.064	1.27	1.63
H	0.002	0.006	0.05	0.15
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





SMA FOOTPRINT

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