MBRA210ET3

Surface Mount Schottky Power Rectifier

SMA Power Surface Mount Package

This device employs 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. Typical applications are AC/DC and DC−DC converters, reverse battery protection, and "Oring" of multiple supply voltages and any other application where performance and size are critical.

Features

- Low I_R, Extends Battery Life
- 1st in the Market Place with a 10 V_R Schottky Rectifier
- Compact Package with J−Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Over−Voltage Protection
- Optimized for Low Leakage Current
- Pb−Free Package is Available

Mechanical Characteristics

- Case: Molded Epoxy
- Epoxy Meets UL 94 V−0 @ 0.125 in
- 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
- Polarity: Polarity Band Indicates Cathode Lead
- ESD Ratings:
  Machine Model = C
  Human Body Model = 3B

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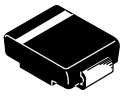
SCHOTTKY BARRIER RECTIFIER
2 AMPERES
10 VOLTS



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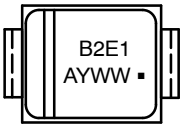

B2E1 = Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

ORDERING INFORMATION

Device	Package	Shipping†
MBRA210ET3	SMA	5000/Tape & Reel
MBRA210ET3G	SMA (Pb−Free)	5000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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August, 2008 − Rev. 6
Publication Order Number:
MBRA210ET3/D

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	10	V
Average Rectified Forward Current (At Rated V_R, T_C = 125°C)	I_O	2.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	100	A
Storage/Operating Case Temperature	T_{stg}, T_C	−65 to +150	°C
Operating Junction Temperature	T_J	−65 to +150	°C
Voltage Rate of Change (Rated V_R, T_J = 25°C)	dv/dt	10,000	V/μs

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Min Pad	1 Inch Pad	Unit
Thermal Resistance, Junction−to−Lead (Note 1) Thermal Resistance, Junction−to−Ambient (Note 1)	$R_{\theta JL}$ $R_{\theta JA}$	22 150	15 81	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2)	V_F	**T_J = 25°C**	**T_J = 100°C**	V
(I_F = 0.1 A) (I_F = 1.0 A) (I_F = 2.0 A)		0.405 0.480 0.500	0.275 0.355 0.385	
Maximum Instantaneous Reverse Current	I_R	**T_J = 25°C**	**T_J = 100°C**	μA
(V_R = 5.0 V) (V_R = 10 V)		15 50	200 500	

1. Mounted on a 3″ square FR4 PC Board with min. pads or 1″ square copper heat spreader.
2. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2%.

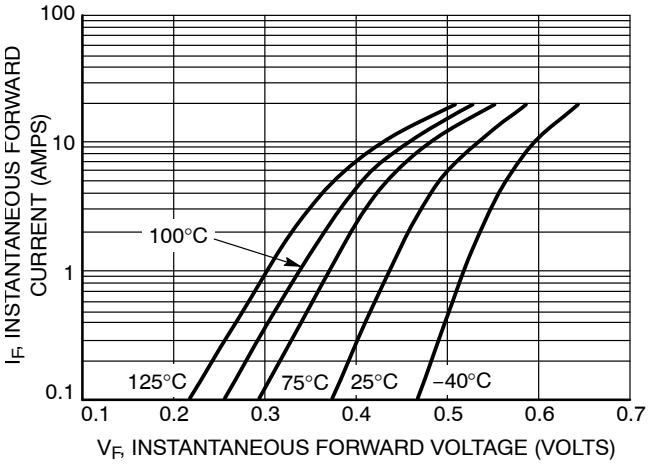

Figure 1. Typical Forward Voltage

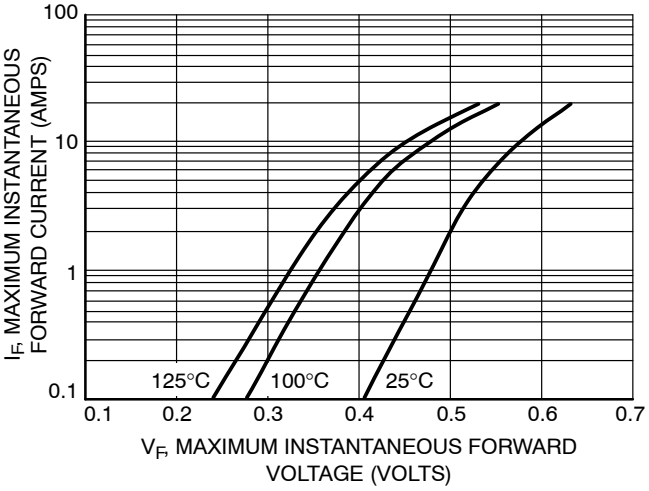

Figure 2. Maximum Forward Voltage

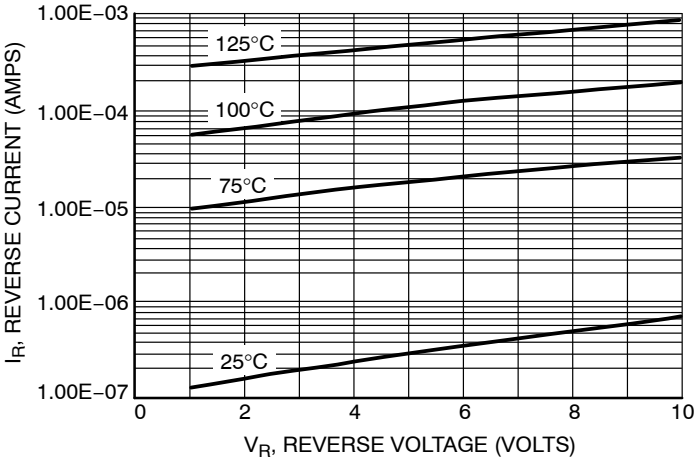

Figure 3. Typical Reverse Current

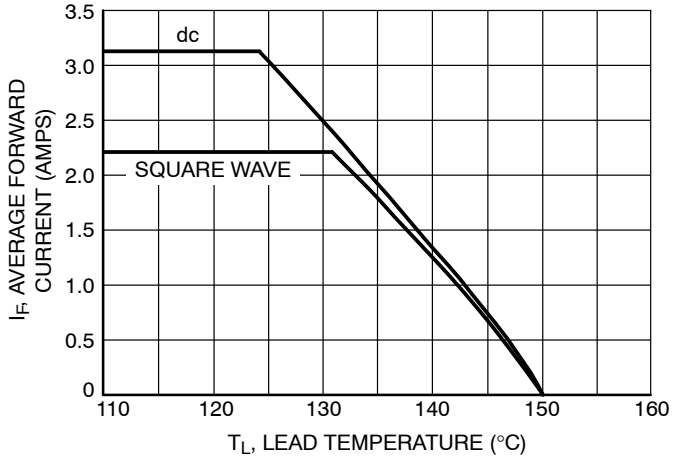

Figure 4. Current Derating – Junction to Lead

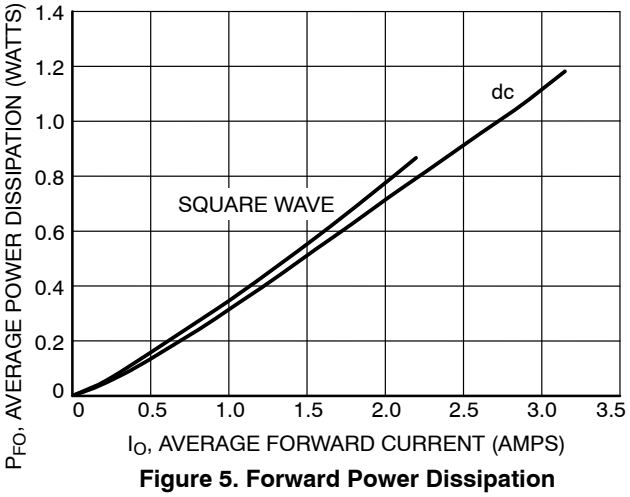

Figure 5. Forward Power Dissipation

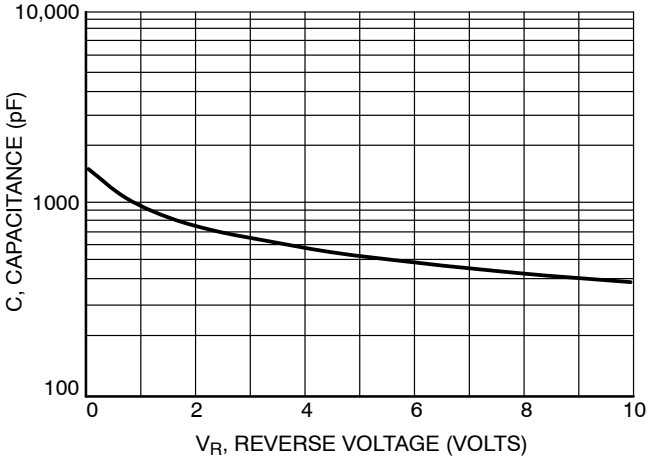

Figure 6. Typical Capacitance

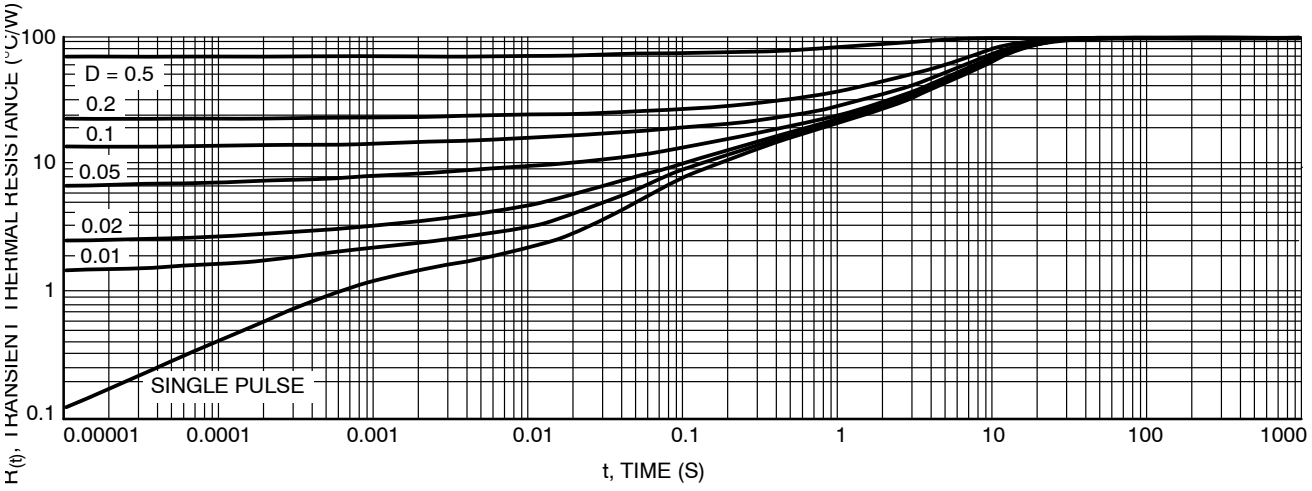

Figure 7. Thermal Response, Junction to Ambient (min pad)

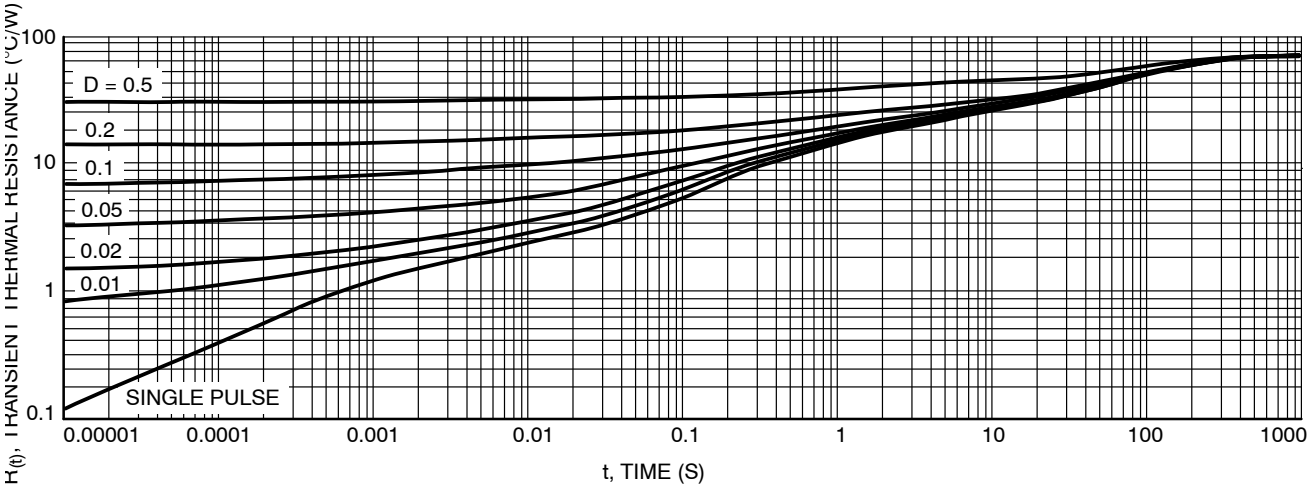

Figure 8. Thermal Response, Junction to Ambient (1 inch pad)

STYLE 1 STYLE 2

SCALE 1:1

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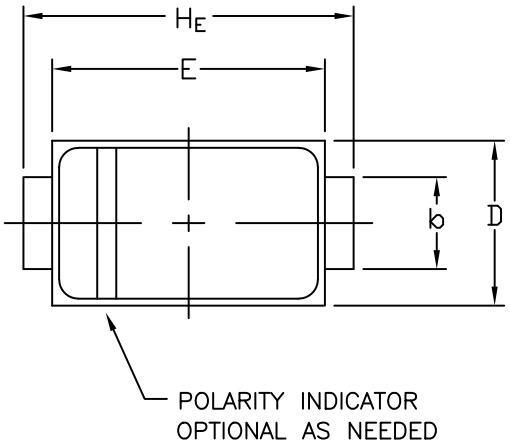
ISSUE J

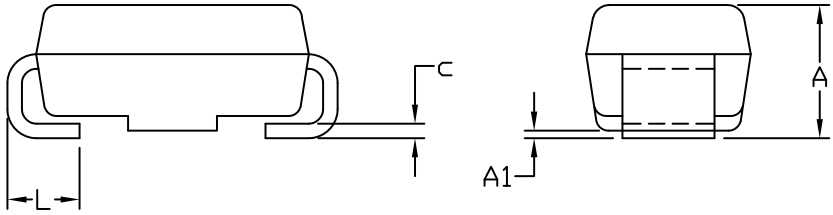
DATE 22 OCT 2021



NOTES:

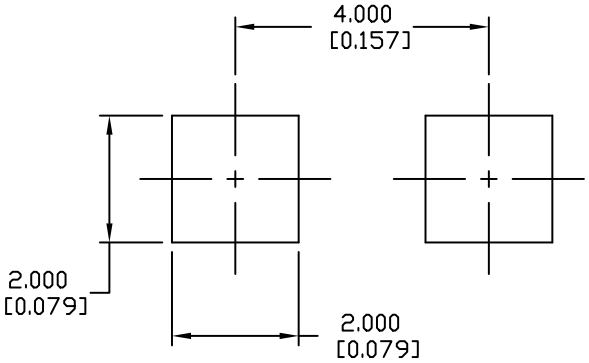
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCHES
3. DIMENSION b SHALL BE MEASURED WITHIN DIMENSION L.

DIM	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	1.97	2.10	2.20	0.078	0.083	0.087
A1	0.05	0.10	0.20	0.002	0.004	0.008
b	1.27	1.45	1.63	0.050	0.057	0.064
c	0.15	0.28	0.41	0.006	0.011	0.016
D	2.29	2.60	2.92	0.090	0.103	0.115
E	4.06	4.32	4.57	0.160	0.170	0.180
HE	4.83	5.21	5.59	0.190	0.205	0.220
L	0.76	1.14	1.52	0.030	0.045	0.060



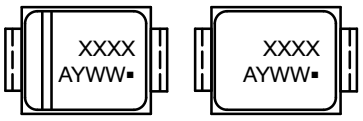
STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2:
NO POLARITY



RECOMMENDED
MOUNTING FOOTPRINT

GENERIC
MARKING DIAGRAM*



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XXXX = Specific Device Code
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*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

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STYLE 1 STYLE 2

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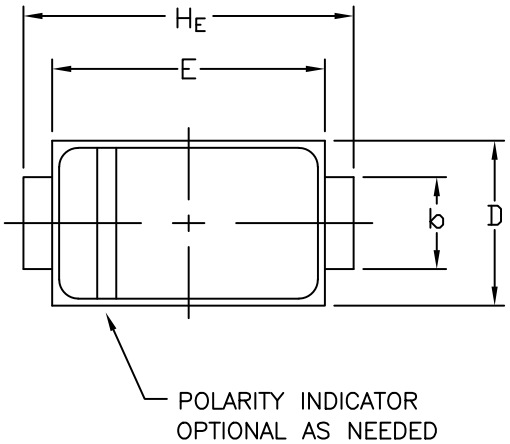

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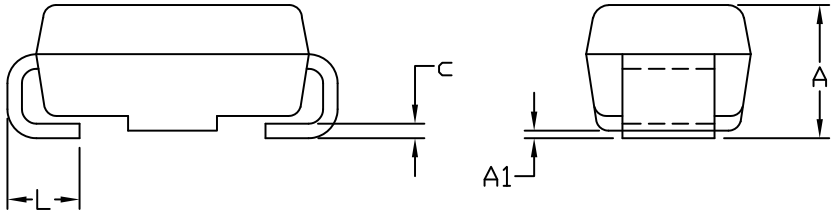

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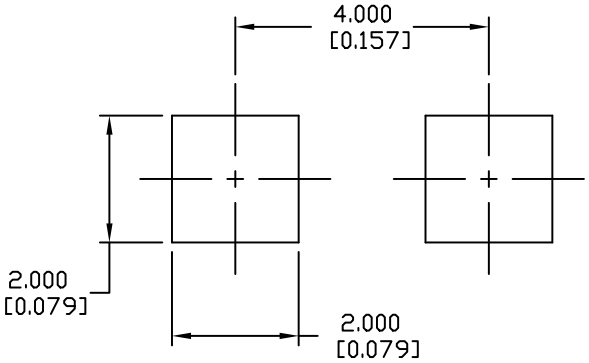

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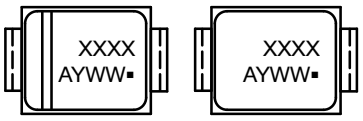

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