

MBRA210ET3

Surface Mount Schottky Power Rectifier

SMA 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. 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.

- 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

Mechanical Characteristics:

- Case: Molded Epoxy
- Epoxy Meets UL94, V_O at 1/8"
- 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
- Available in 12 mm Tape, 5000 Units per 13 inch Reel

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 , $T_C = 125^\circ\text{C}$)	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	$^\circ\text{C}$
Operating Junction Temperature	T_J	-65 to +150	$^\circ\text{C}$
Voltage Rate of Change (Rated V_R , $T_J = 25^\circ\text{C}$)	dv/dt	10,000	V/ μs



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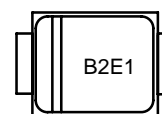
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SCHOTTKY BARRIER RECTIFIER 2 AMPERES 10 VOLTS



SMA
CASE 403D
PLASTIC

MARKING DIAGRAM



B2E1 = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBRA210ET3	SMA	5000/Tape & Reel

MBRA210ET3

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS

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

- Mounted on a 3" square FR4 PC Board with min. pads or 1" square copper heat spreader.
- Pulse Test: Pulse Width $\leq 250\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$.

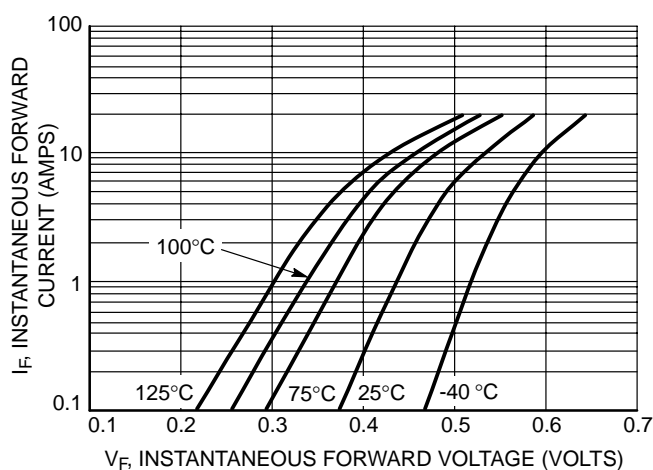


Figure 1. Typical Forward Voltage

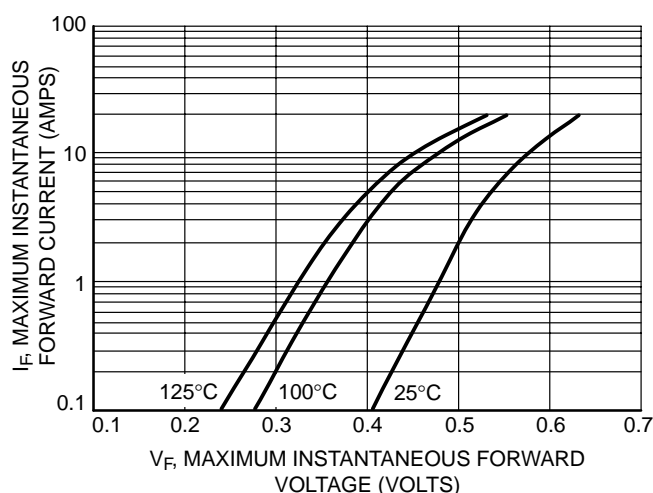


Figure 2. Maximum Forward Voltage

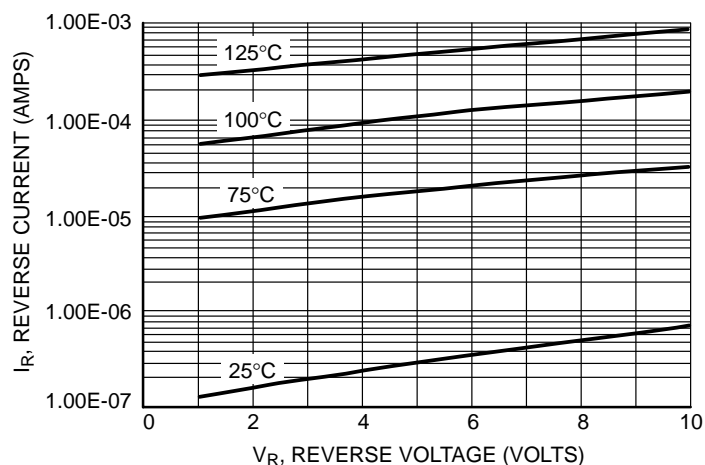


Figure 3. Typical Reverse Current

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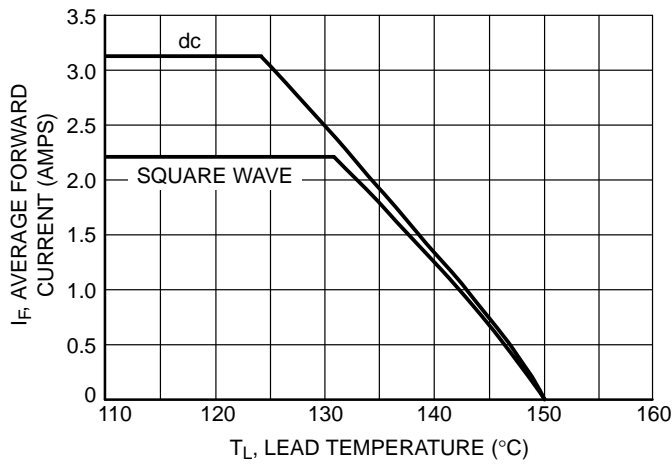


Figure 4. Current Derating - Junction to Lead

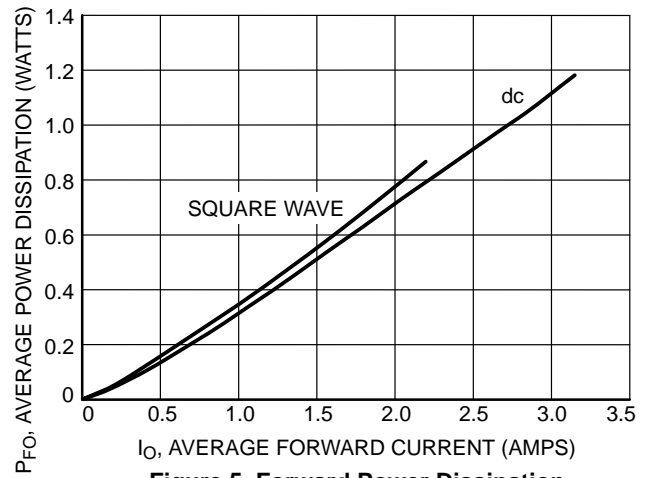


Figure 5. Forward Power Dissipation

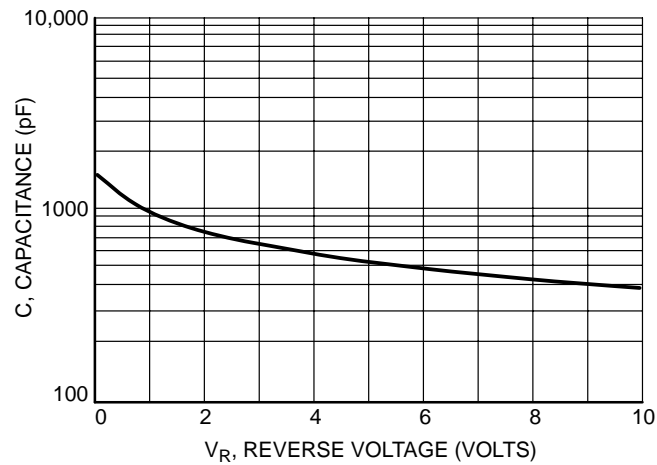


Figure 6. Typical Capacitance

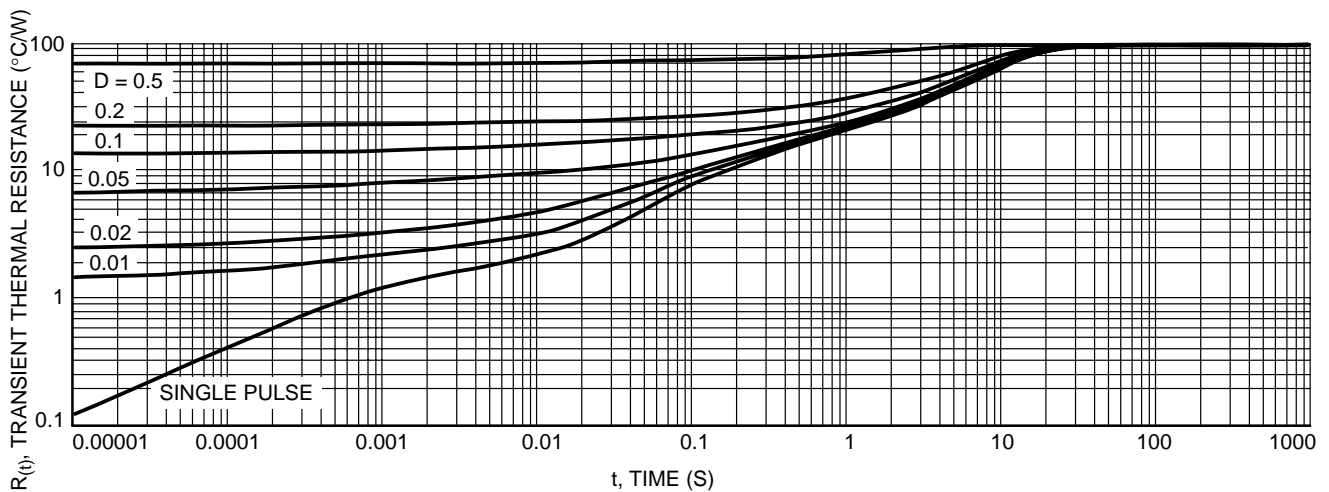


Figure 7. Thermal Response, Junction to Ambient (min pad)

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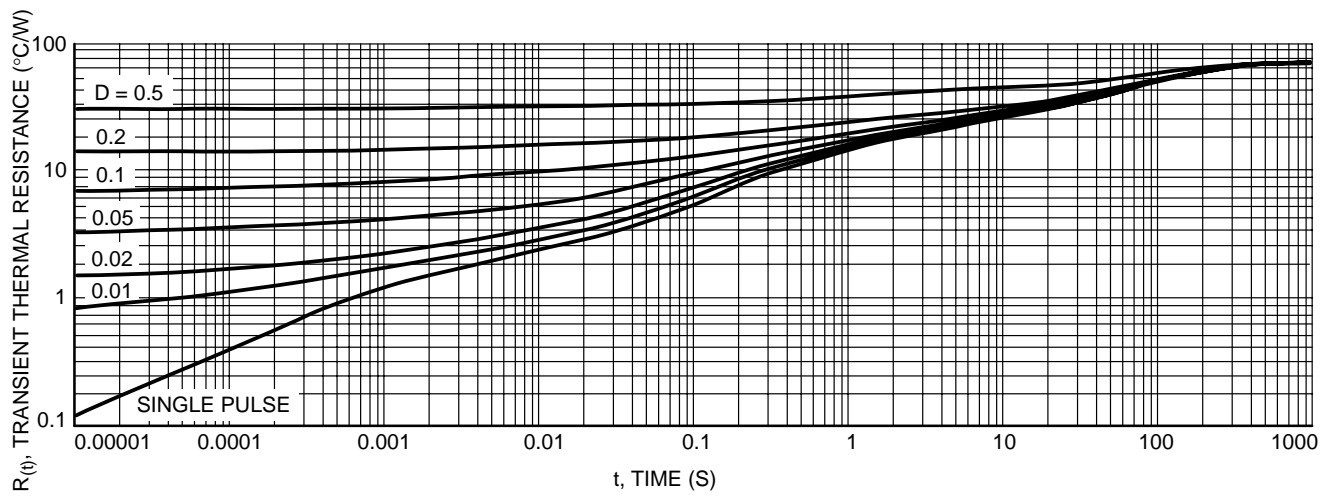
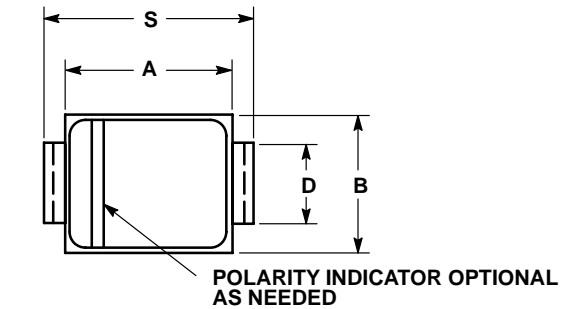


Figure 8. Thermal Response, Junction to Ambient (1 inch pad)

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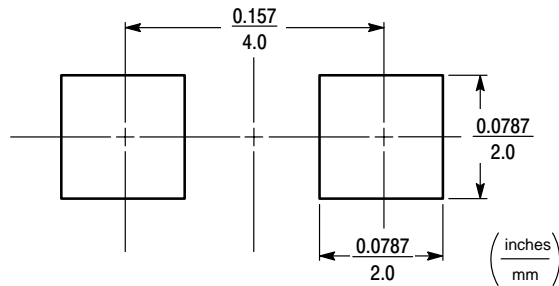
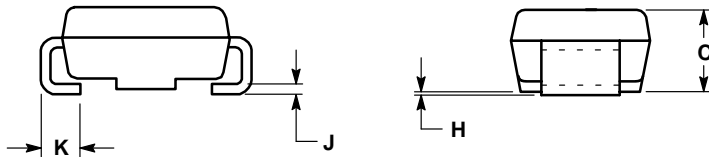
PACKAGE DIMENSIONS

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.

DIM	INCHES		MILLIMETERS	
	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

Notes

Notes

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