

# MBRA210LT3

## 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.

- Ultra Low  $V_F$
- 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 Forward Voltage

#### 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 = 3A
- Available in 12 mm Tape, 5000 Units per 13 inch Reel
- Marking: B2L1

#### 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 $V_R$ , $T_L = 110^\circ\text{C}$ )	$I_O$	2.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	160	A
Storage/Operating Case Temperature Operating Junction Temperature	$T_{stg}, T_C$ $T_J$	-55 to +125	°C
Voltage Rate of Change (Rated $V_R$ , $T_J = 25^\circ\text{C}$ )	$dv/dt$	10,000	V/ $\mu\text{s}$



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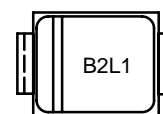
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**SCHOTTKY BARRIER  
RECTIFIER  
2 AMPERES  
10 VOLTS**



SMA  
CASE 403D  
PLASTIC

#### MARKING DIAGRAM



B2L1 = Device Code

#### ORDERING INFORMATION

Device	Package	Shipping
MBRA210LT3	SMA	5000/Tape & Reel

# MBRA210LT3

## THERMAL CHARACTERISTICS

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

## ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 1)  ( $I_F = 0.1 \text{ A}$ ) ( $I_F = 1.0 \text{ A}$ ) ( $I_F = 2.0 \text{ A}$ )	$V_F$	$T_J = 25^{\circ}\text{C}$	$T_J = 100^{\circ}\text{C}$	V
		0.260	0.15	
		0.325	0.23	
Maximum Instantaneous Reverse Current  ( $V_R = 5.0 \text{ V}$ ) ( $V_R = 10 \text{ V}$ )	$I_R$	$T_J = 25^{\circ}\text{C}$	$T_J = 100^{\circ}\text{C}$	mA
		0.25	40	
		0.70	60	

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

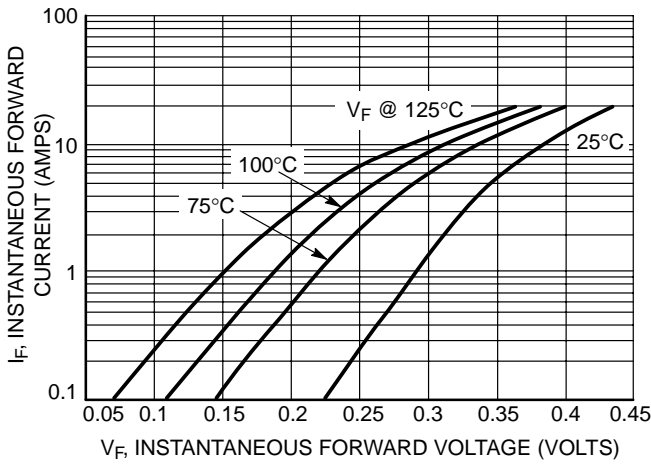


Figure 1. Typical Forward Voltage

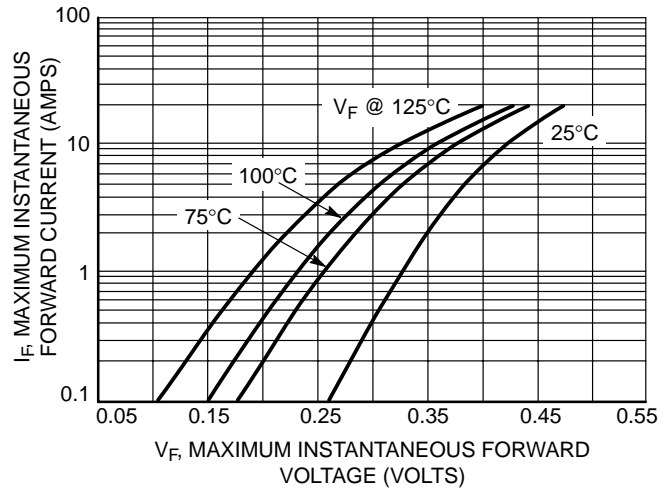


Figure 2. Maximum Forward Voltage

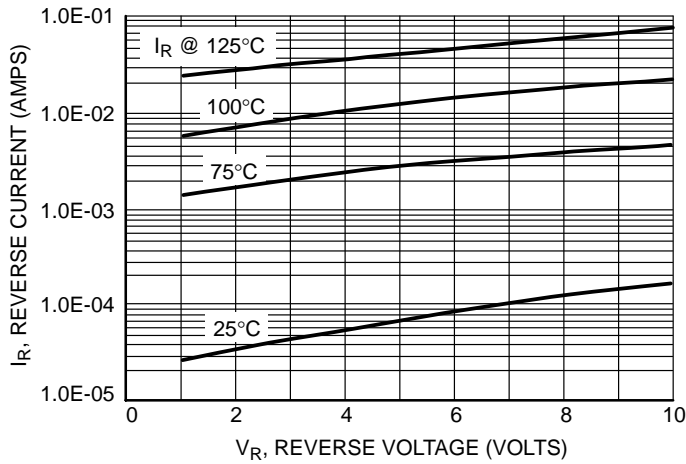


Figure 3. Typical Reverse Current

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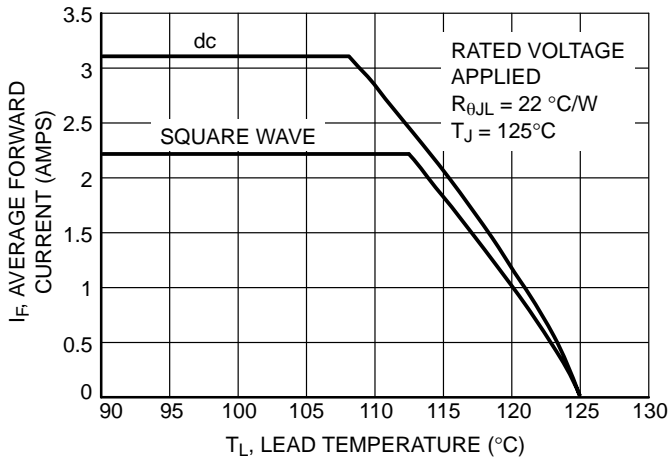


Figure 4. Current Derating - Junction to Lead

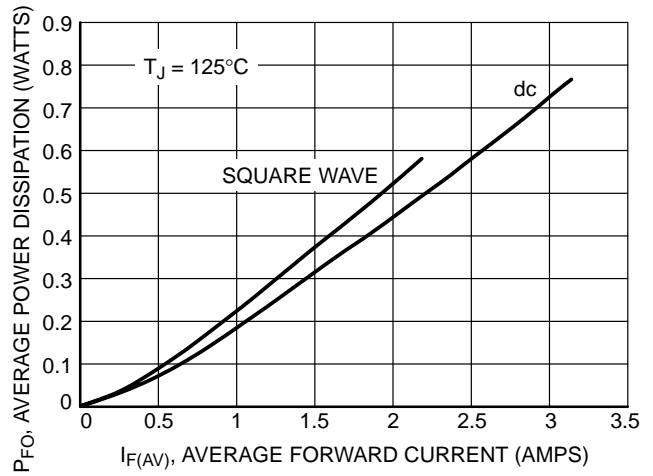


Figure 5. Forward Power Dissipation

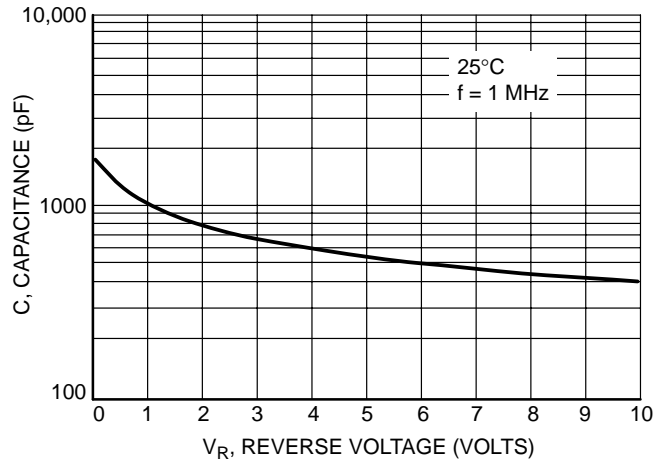


Figure 6. Typical Capacitance

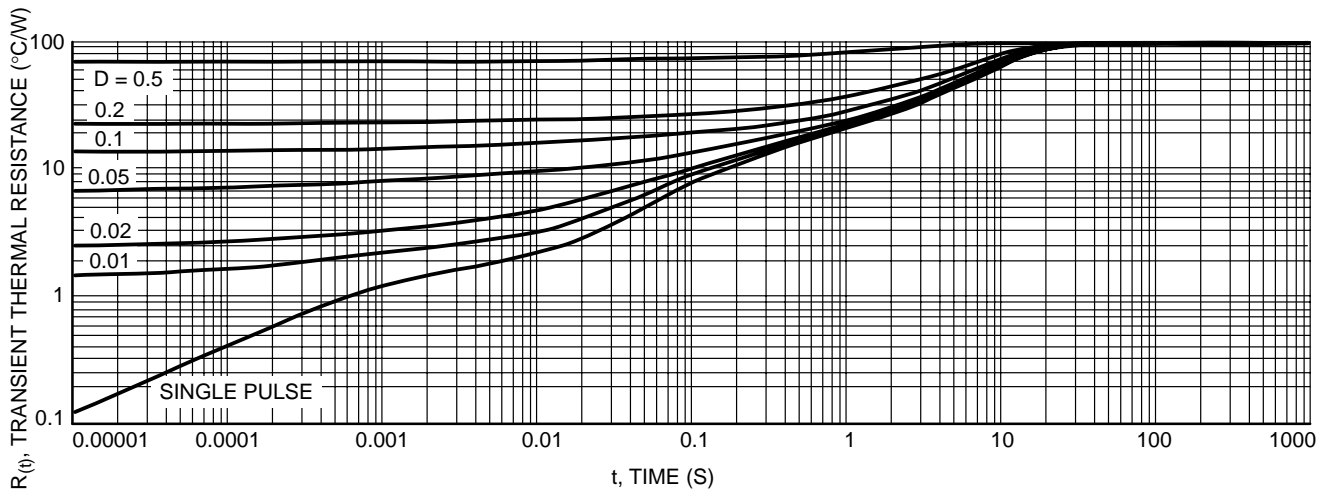


Figure 7. Thermal Response, Junction to Ambient (min pad)

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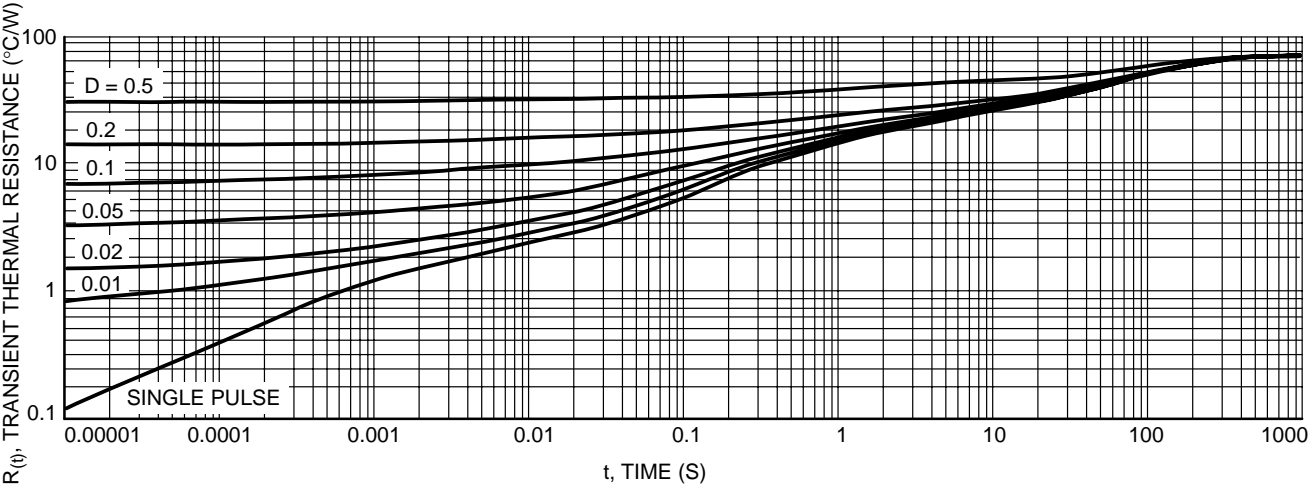
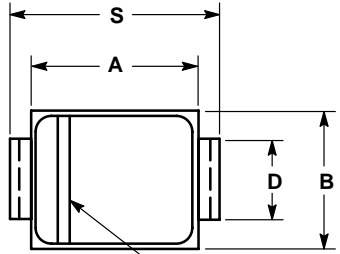


Figure 8. Thermal Response, Junction to Ambient (1 inch pad)

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## PACKAGE DIMENSIONS

**SMA**  
CASE 403D-02  
ISSUE A

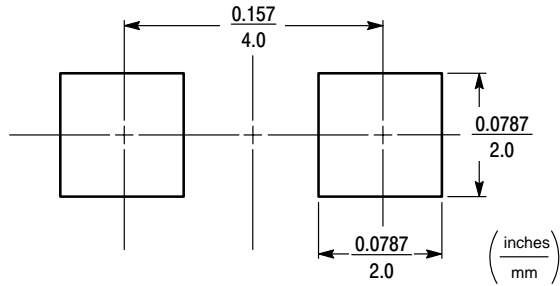
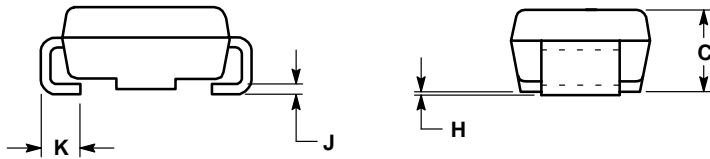


POLARITY INDICATOR OPTIONAL  
AS NEEDED

**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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