

MBRA130LT3

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.

- Compact Package with J-Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Over-Voltage Protection
- Low Forward Voltage Drop

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: Cathode Lead Indicated by Either Notch in Plastic Body or Polarity Band
- Available in 12 mm Tape, 5000 Units per 13 inch Reel, Add "T3" Suffix to Part Number
- Device Meets MSL1 Requirements
- ESD Ratings: Machine Model, C (>400 V)
Human Body Model, 3B (>8000 V)
- Marking: B1L3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	30	V
Average Rectified Forward Current (At Rated V_R , $T_C = 105^\circ\text{C}$)	I_O	1.0	A
Peak Repetitive Forward Current (At Rated V_R , Square Wave, 100 kHz, $T_C = 105^\circ\text{C}$)	I_{FRM}	2.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	25	A
Storage Temperature	T_{stg}	-55 to +150	°C
Operating Junction Temperature	T_J	-55 to +125	°C
Voltage Rate of Change (Rated V_R , $T_J = 25^\circ\text{C}$)	dv/dt	10,000	V/ μs



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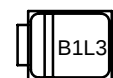
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SCHOTTKY BARRIER RECTIFIER 1.0 AMPERES 30 VOLTS



SMA
CASE 403D
PLASTIC

MARKING DIAGRAM



B1L3 = Device Code

ORDERING INFORMATION

Device	Package	Shipping [†]
MBRA130LT3	SMA	5000/Tape & Reel

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

MBRA130LT3

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2.) see Figure 2 ($I_F = 1.0 \text{ A}$) ($I_F = 2.0 \text{ A}$)	V_F	$T_J = 25^{\circ}\text{C}$	$T_J = 100^{\circ}\text{C}$	Volts
		0.41 0.47	0.35 0.43	
Maximum Instantaneous Reverse Current see Figure 4 ($V_R = 30 \text{ V}$) ($V_R = 15 \text{ V}$)	I_R	$T_J = 25^{\circ}\text{C}$	$T_J = 100^{\circ}\text{C}$	mA
		1.0 0.4	25 12	

1. Mounted on 2" Square PC Board with 1" Square Total Pad Size, PC Board FR4.
2. Pulse Test: Pulse Width $\leq 250 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

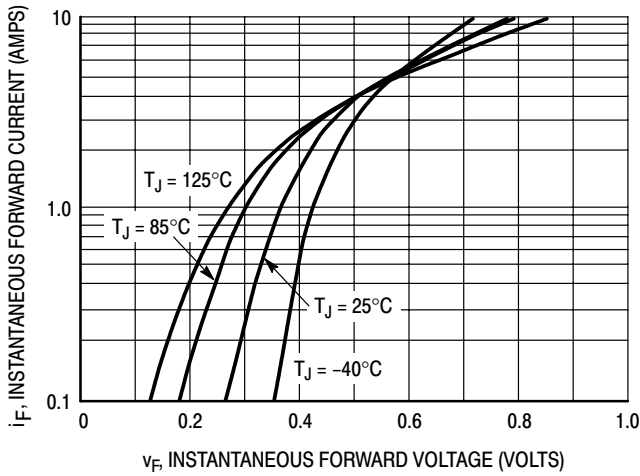


Figure 1. Typical Forward Voltage

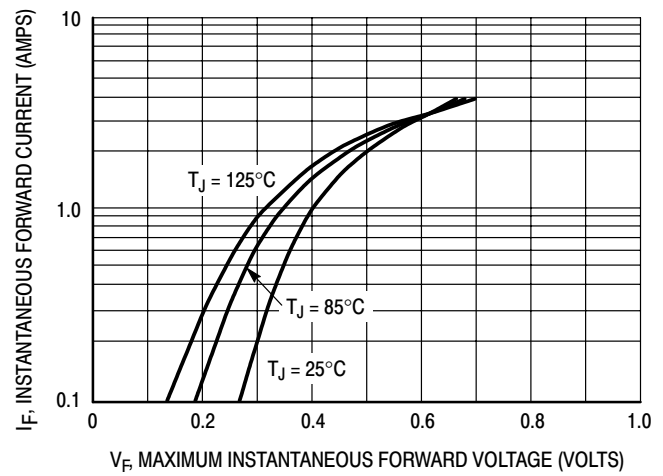


Figure 2. Maximum Forward Voltage

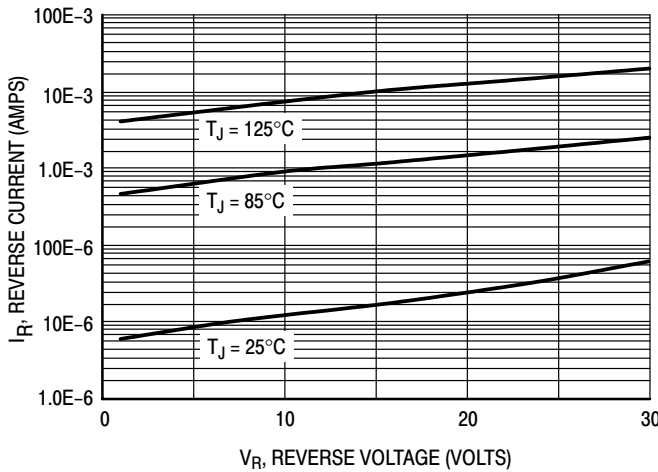


Figure 3. Typical Reverse Current

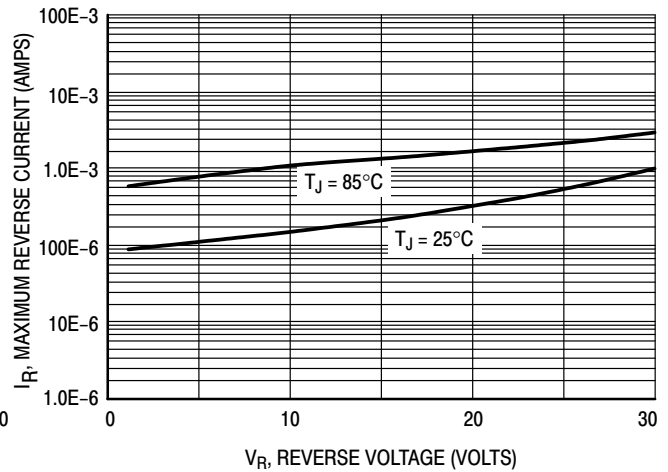


Figure 4. Maximum Reverse Current

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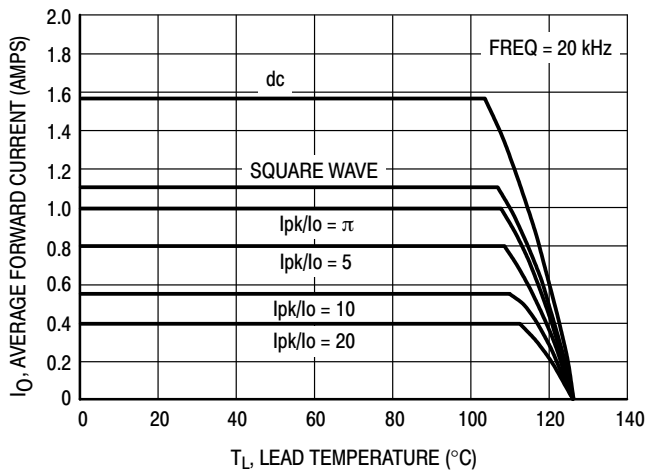


Figure 5. Current Derating

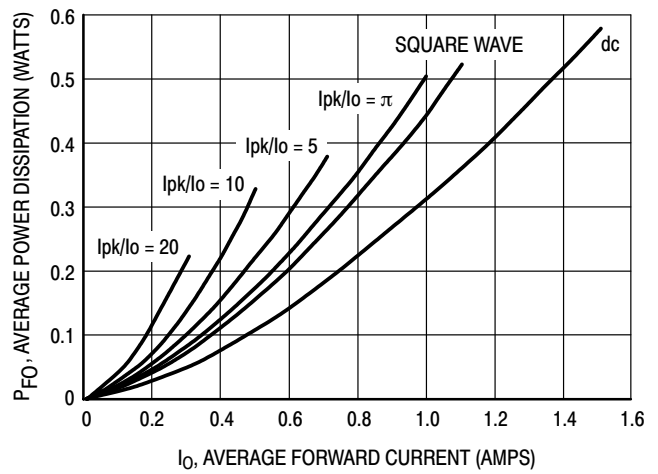


Figure 6. Forward Power Dissipation

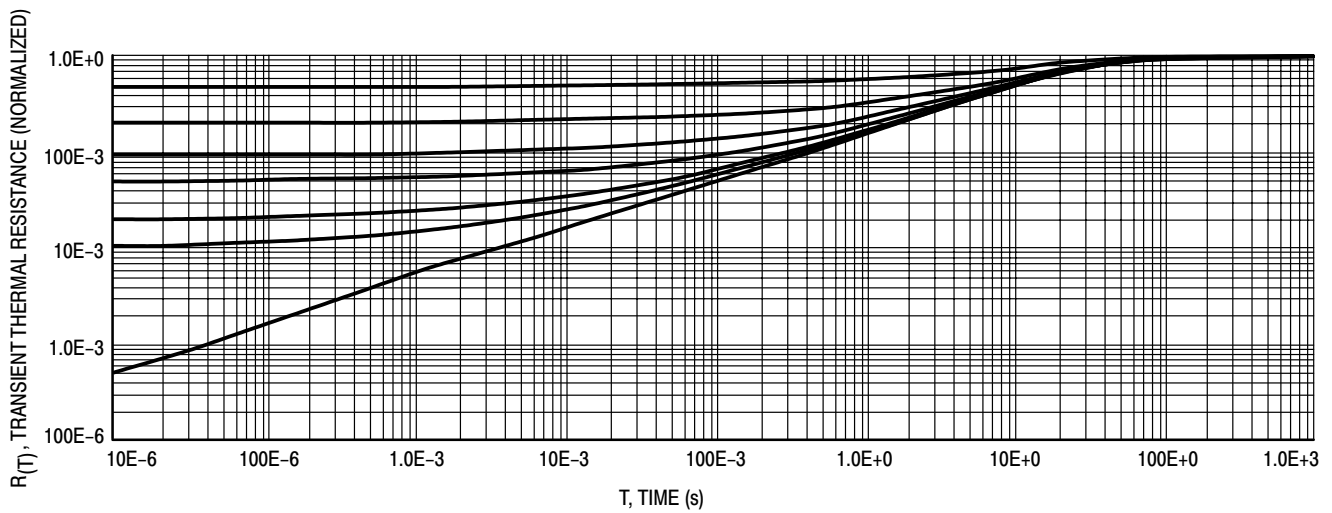


Figure 7. Thermal Response

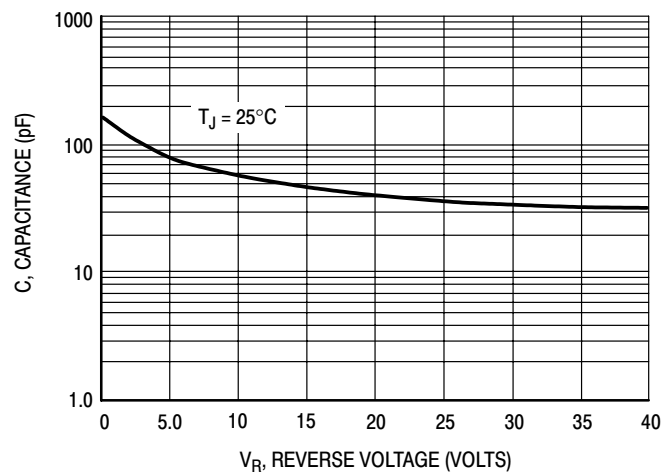
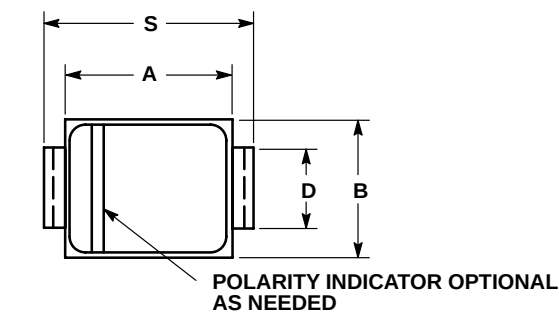


Figure 8. Capacitance

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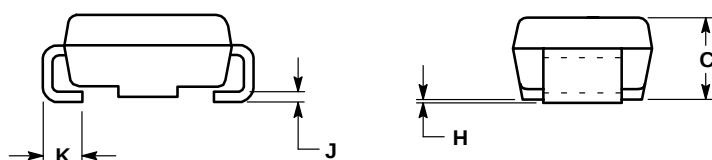
PACKAGE DIMENSIONS

SMA CASE 403D-02 ISSUE A

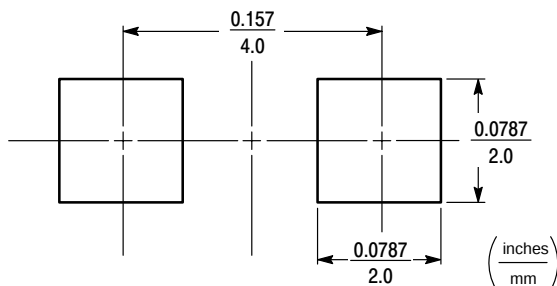


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. 403D-01 OBSOLETE, NEW STANDARD IS 403D-02.

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



SOLDERING FOOTPRINT*



SMA FOOTPRINT

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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