MBRA120LT3

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
- 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
- Available in 12 mm Tape, 5000 Units per 13 inch Reel
- ESD Protection: Human Body Model > 4000 V (Class 3)
  Machine Model > 400 V (Class C)
- Marking: B1L2

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	20	V
Average Rectified Forward Current (At Rated V_R, T_L = 110°C)	I_O	1.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	40	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°C)	dv/dt	10,000	V/μs

ON Semiconductor®

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SCHOTTKY BARRIER RECTIFIER 1 AMPERE 20 VOLTS

SMA
CASE 403D
PLASTIC

MARKING DIAGRAM

B1L2 = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBRA120LT3	SMA	5000/Tape & Reel

THERMAL CHARACTERISTICS

Characteristic	Symbol	5 mm x 5 mm (Note 2)	1 Inch x 1/2 inch (Note 3)	Unit
Thermal Resistance – Junction–to–Lead	Psi_{JL} (Note 4)	34	20	°C/W
Thermal Resistance – Junction–to–Ambient	$R_{\theta JA}$	138	77	

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 1), See Figure 2	V_F	**T_J = 25°C**	**T_J = 125°C**	V
(I_F = 0.1 A)		0.300	0.15	
(I_F = 1.0 A)		0.395	0.30	
(I_F = 2.0 A)		0.445	0.40	
Maximum Instantaneous Reverse Current, See Figure 4	I_R	**T_J = 25°C**	**T_J = 100°C**	mA
(V_R = 20 V)		0.2	6.0	
(V_R = 10 V)		0.1	4.0	

1. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2%.
2. Mounted on a Pad Size of 5 mm x 5 mm, PC Board FR4 (2 pads).
3. Mounted on a Pad Size of 1 inch x 1/2 inch, PC Board FR4 (2 pads).
4. In compliance with JEDEC 51, these values (historically represented by $R_{\theta JL}$) are now referenced as Psi_{JL}.

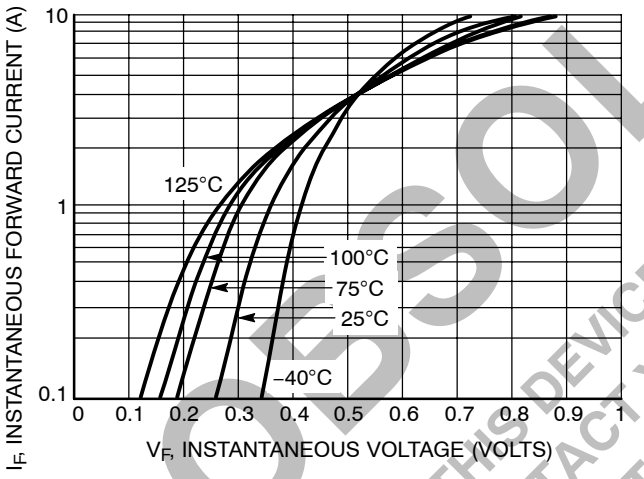


Figure 1. Typical Forward Voltage

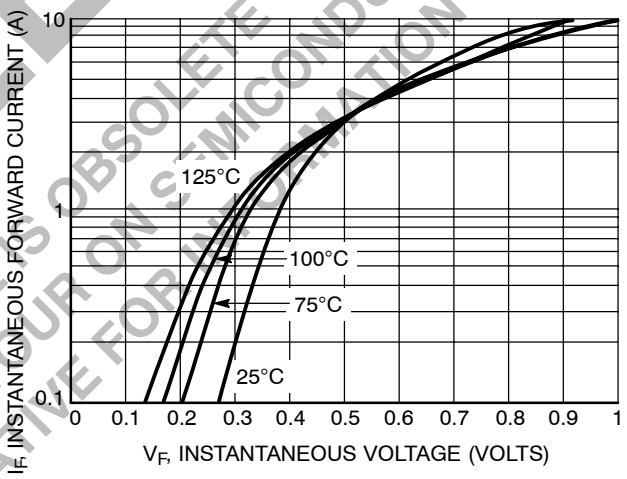


Figure 2. Maximum Forward Voltage

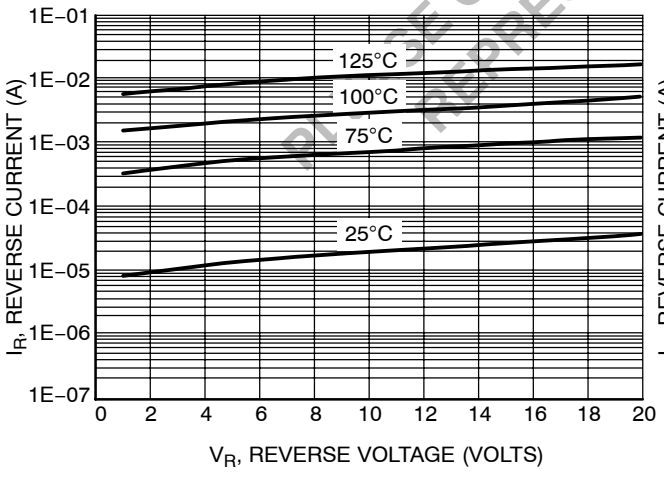


Figure 3. Typical Reverse Current

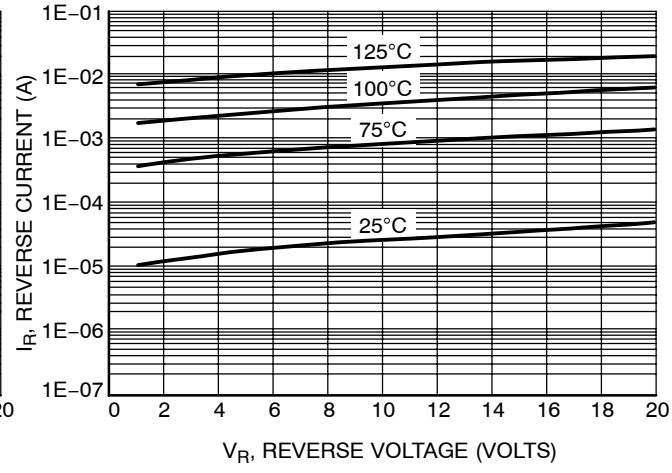


Figure 4. Maximum Reverse Current

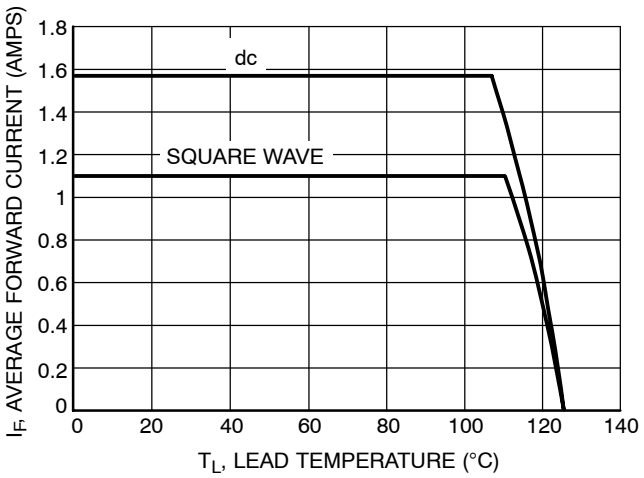


Figure 5. Current Derating – Lead

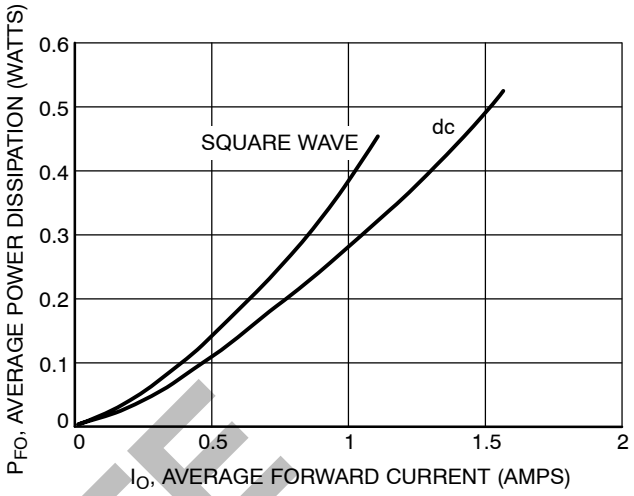


Figure 6. Forward Power Dissipation

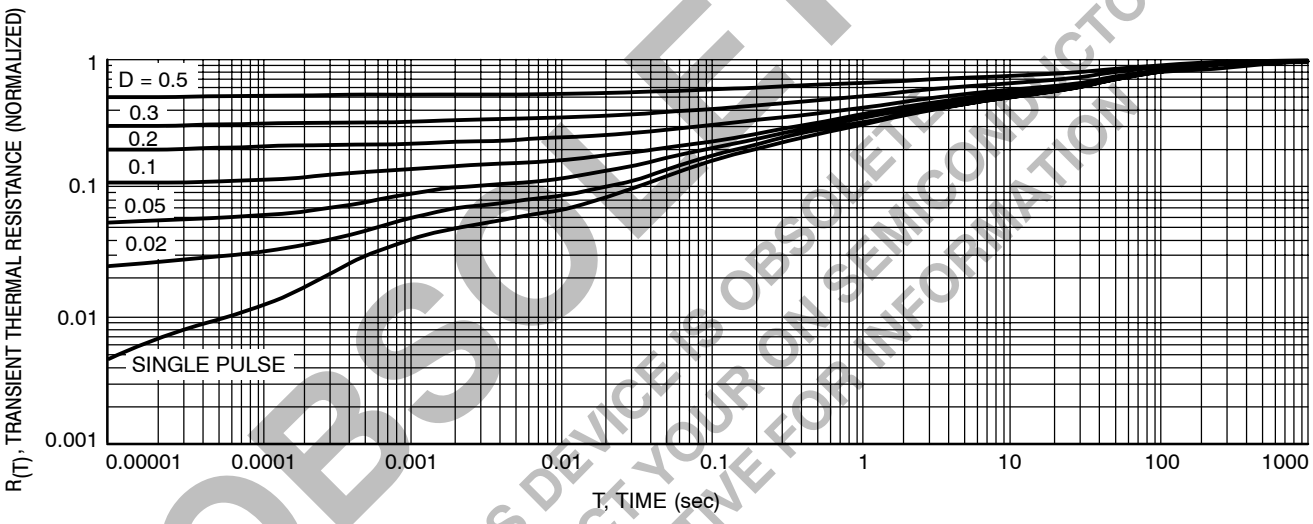


Figure 7. Thermal Resistance

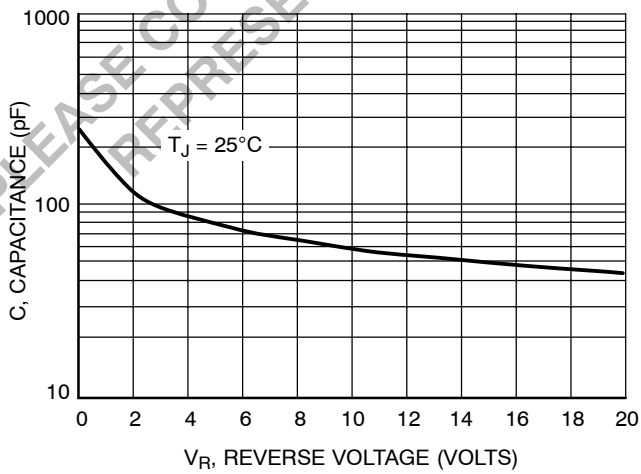
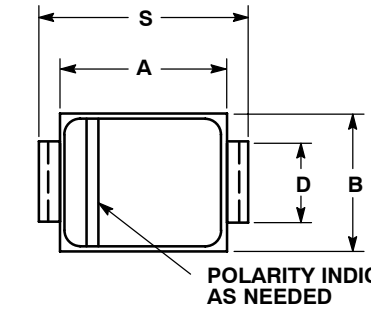


Figure 8. Typical Junction Capacitance

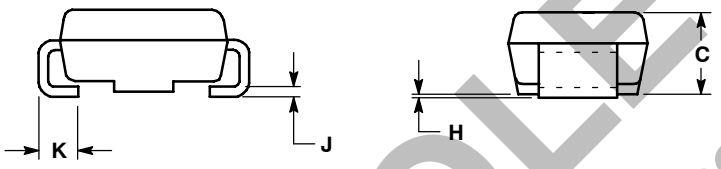
PACKAGE DIMENSIONS

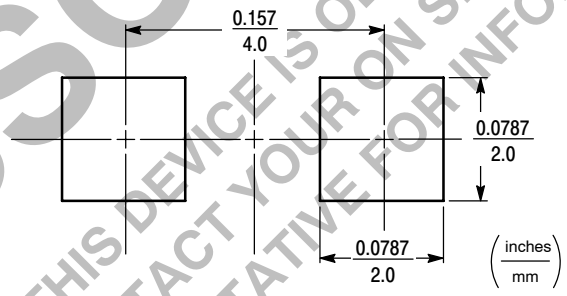
SMA
CASE 403D−02
ISSUE A



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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