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, VO 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	VRRM VRWM VR	20	V
Average Rectified Forward Current (At Rated V _R , T _L = 110°C)	Ю	1.0	Α
Non–Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	IFSM	40	A
Storage/Operating Case Temperature Operating Junction Temperature	T _{stg} , T _C	–55 to +125	°C
Voltage Rate of Change (Rated V _R , T _J = 25°C)	dv/dt	10,000	V/μs



http://onsemi.com

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	PsiJL (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	VF	T _J = 25°C	T _J = 125°C	V
(I _F = 0.1 A) (I _F = 1.0 A) (I _F = 2.0 A)		0.300 0.395 0.445	0.15 0.30 0.40	-
Maximum Instantaneous Reverse Current, See Figure 4	IR	T _J = 25°C	T _J = 100°C	mA
$(V_R = 20 \text{ V})$ $(V_R = 10 \text{ V})$		0.2 0.1	6.0 4.0	

- 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_{θ,JL}) are now referenced as Psi_{JL}.

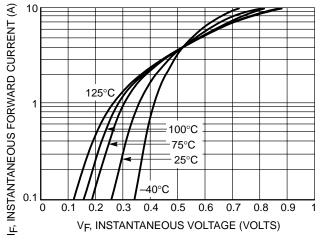


Figure 1. Typical Forward Voltage

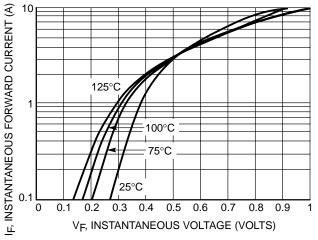


Figure 2. Maximum Forward Voltage

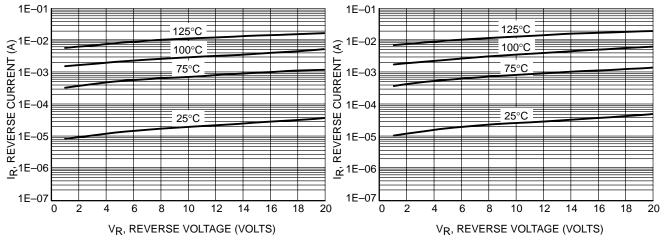


Figure 3. Typical Reverse Current

Figure 4. Maximum Reverse Current

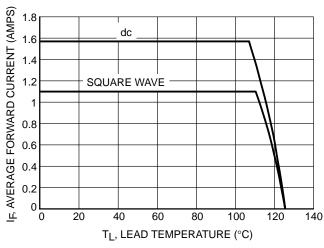


Figure 5. Current Derating - Lead

Figure 6. Forward Power Dissipation

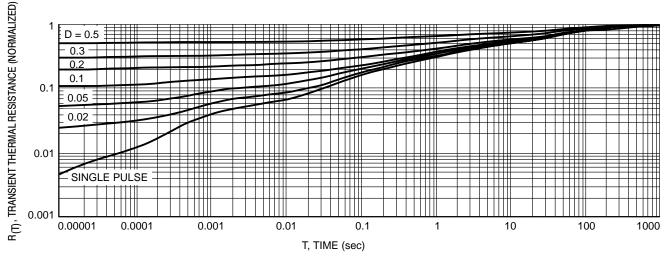


Figure 7. Thermal Resistance

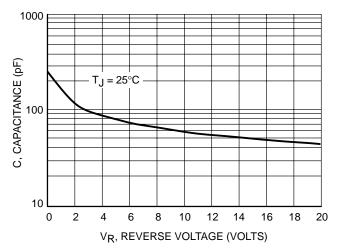
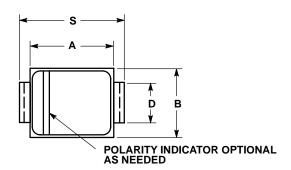


Figure 8. Typical Junction Capacitance

PACKAGE DIMENSIONS

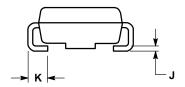
SMA CASE 403D-02 ISSUE A

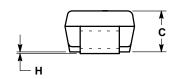


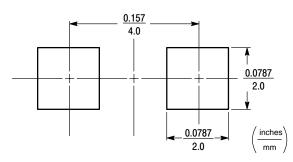
NOTES:

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

	INCHES		MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.160	0.180	4.06	4.57	
В	0.090	0.115	2.29	2.92	
С	0.075	0.095	1.91	2.41	
D	0.050	0.064	1.27	1.63	
Н	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	







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