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, 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: 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
- 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°C)	IO	1.0	A
Peak Repetitive Forward Current (At Rated V _R , Square Wave, 100 kHz, T _C = 105°C)	IFRM	2.0	A
Non–Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	IFSM	25	A
Storage/Operating Case Temperature	T _{stg} , T _C	-55 to +150	°C
Operating Junction Temperature	Тј	-55 to +125	°C
Voltage Rate of Change (Rated V _R , T _J = 25°C)	dv/dt	10,000	V/μs



ON Semiconductor®

http://onsemi.com

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	

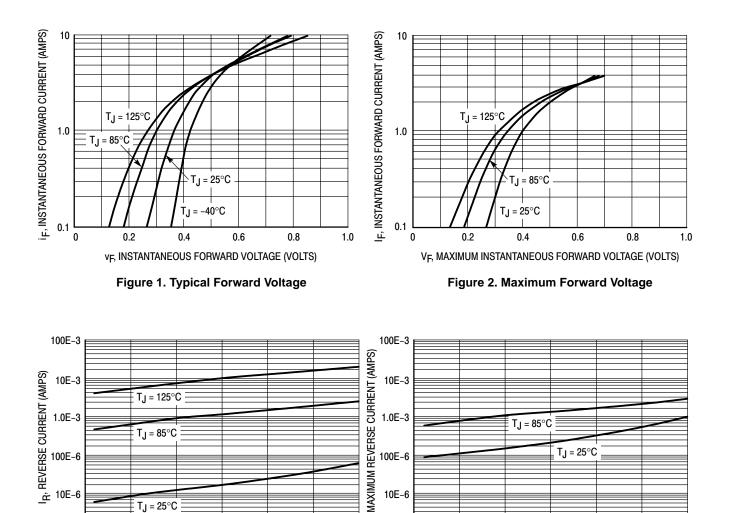
THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance — Junction-to-Lead (Note 1.)	R _{θJL}	35	°C/W
Thermal Resistance — Junction-to-Ambient (Note 1.)	R _{θJA}	86	

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2.)		VF	T _J = 25°C	T _J = 100°C	Volts
see Figure 2	(I _F = 1.0 A) (I _F = 2.0 A)		0.41 0.47	0.35 0.43	
Maximum Instantaneous Reverse Current	I _R	T _J = 25°C	T _J = 100°C	mA	
see Figure 4	(V _R = 30 V) (V _R = 15 V)		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 µs, Duty Cycle \leq 2.0%.



30 10 20 VR, REVERSE VOLTAGE (VOLTS)

1.0E-6

0

Figure 3. Typical Reverse Current

VR, REVERSE VOLTAGE (VOLTS) Figure 4. Maximum Reverse Current

20

30

10

1.0E-6

0

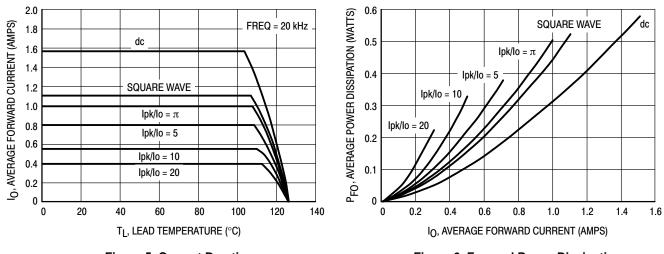
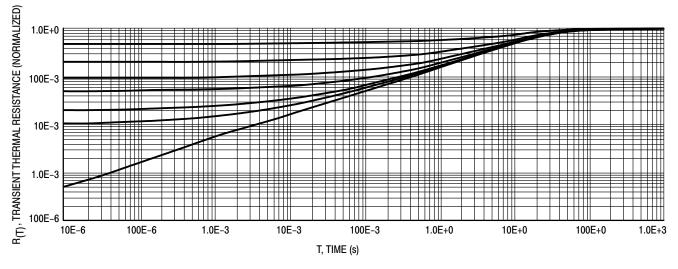




Figure 6. Forward Power Dissipation





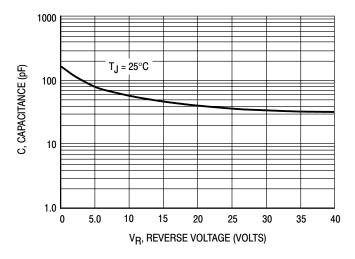
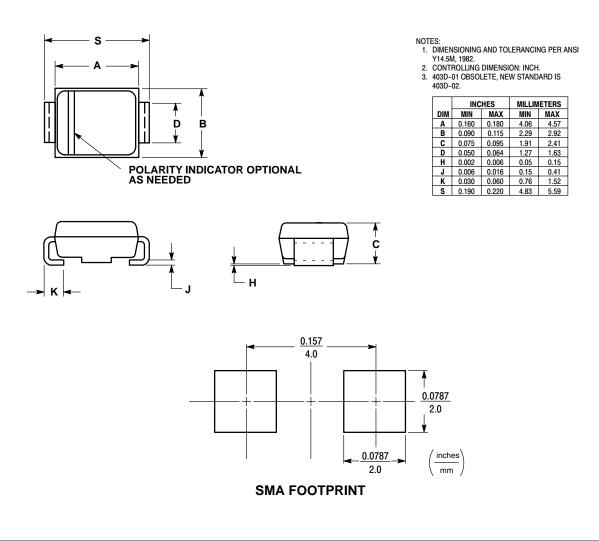


Figure 8. Capacitance

PACKAGE DIMENSIONS

SMA CASE 403D–02 ISSUE A



ON Semiconductor and **W** are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:

Literature Distribution Center for ON Semiconductor

P.O. Box 5163, Denver, Colorado 80217 USA

Phone: 303–675–2175 or 800–344–3860 Toll Free USA/Canada Fax: 303–675–2176 or 800–344–3867 Toll Free USA/Canada Email: ONlit@hibbertco.com

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

JAPAN: ON Semiconductor, Japan Customer Focus Center 4–32–1 Nishi–Gotanda, Shinagawa–ku, Tokyo, Japan 141–0031 Phone: 81–3–5740–2700 Email: r14525@onsemi.com

ON Semiconductor Website: http://onsemi.com

For additional information, please contact your local Sales Representative.