SS12, SS14

Surface Mount Schottky Power Rectifier

SMA Power Surface Mount Package

. . . employing the Schottky Barrier principle in a large area metal−to−silicon power diode. State of the art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency rectification, or as free wheeling and polarity diodes in surface mount applications where compact size and weight are critical to the system.

- Small Compact Surface Mountable Package with J−Bent Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Stress Protection

Mechanical Characteristics:

- Case: Epoxy, Molded
- Epoxy Meets UL 94, V−0 @ 0.125 in
- 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
- Shipped in 12 mm tape, 5000 units per 13 inch reel
- Polarity: Cathode Lead Indicated by Polarity Band
- Marking: SS12, SS14
- Device Meets MSL 1 Requirements
- ESD Ratings: Human Body Model, 3B (> 8000 V)
  Machine Model, B (> 200 V)

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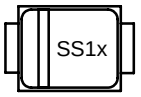
http://onsemi.com

SCHOTTKY BARRIER RECTIFIER 1.0 AMPERES 20, 40 VOLTS



SMA
CASE 403D
PLASTIC

MARKING DIAGRAM



SS1x = Device Code
x = 2 or 4

ORDERING INFORMATION

Device	Package	Shipping†
SS12T3	SMA	5000/Tape & Reel
SS14T3	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 Specifications Brochure, BRD8011/D.

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MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	 SS12 SS14	V_{RRM} V_{RWM} V_R	 20 40	V
Average Rectified Forward Current (At Rated V_R, T_C = 120°C)		I_O	1.0	A
Peak Repetitive Forward Current (At Rated V_R, Square Wave, 20 kHz, T_C = 120°C)		I_{FRM}	2.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)		I_{FSM}	60	A
Storage/Operating Case Temperature		T_{stg}, T_C	−55 to +150	°C
Operating Junction Temperature		T_J	−55 to +150	°C
Voltage Rate of Change (Rated V_R, T_J = 25°C)		dv/dt	10,000	V/μs

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance − Junction−to−Lead (Note 1) Thermal Resistance − Junction−to−Ambient (Note 1)	$R_{\theta JL}$ $R_{\theta JA}$	35 86	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) see Figure 2 for other Values	(I_F = 1.0 A)	V_F	**T_J = 25°C** 0.47		V
Maximum Instantaneous Reverse Current see Figure 4 for other Values	(V_R = 20 V) (V_R = 40 V)	I_R	**T_J = 25°C** 0.045 0.1	**T_J = 100°C** 2.0 5.0	mA

1. Mounted on 2″ Square PC Board with 1″ Square Total Pad Size, PC Board FR4.
2. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2.0%.

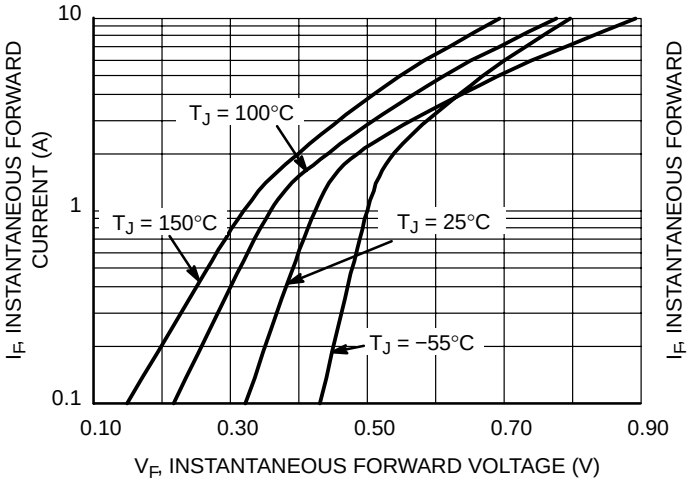


Figure 1. Typical Forward Voltage

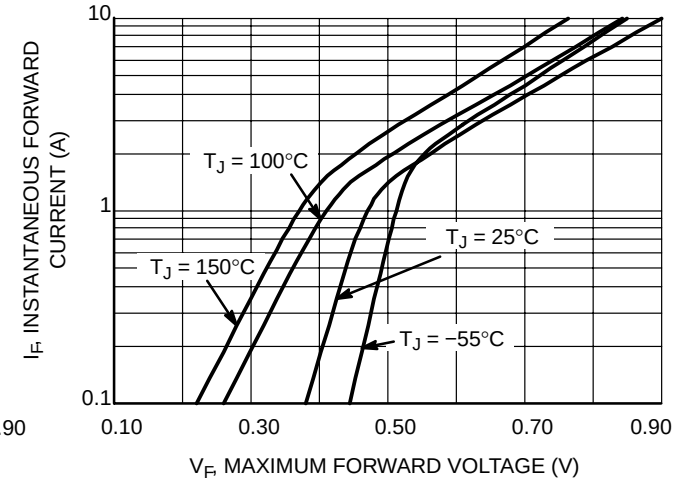


Figure 2. Maximum Forward Voltage

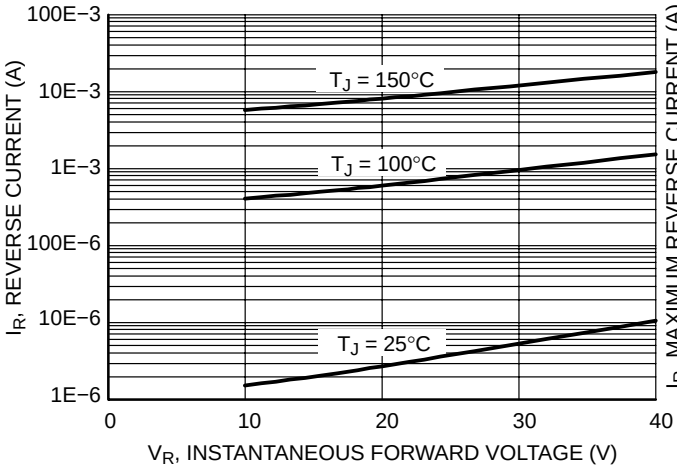


Figure 3. Typical Reverse Current

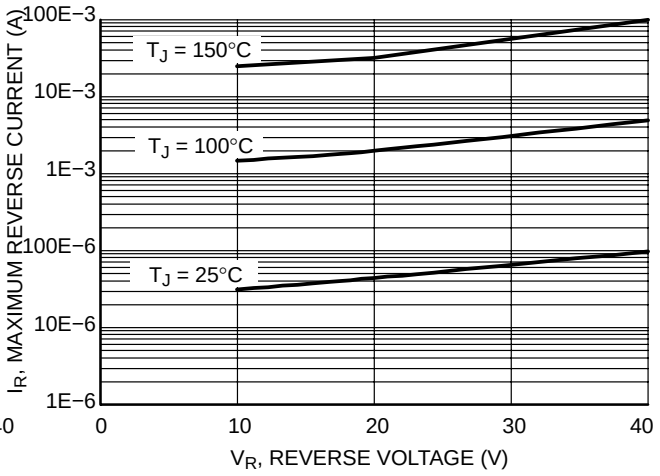


Figure 4. Maximum Reverse Current

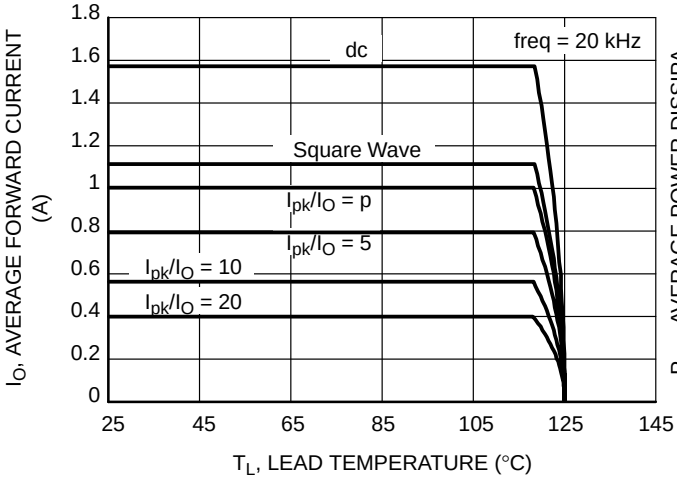


Figure 5. Current Derating

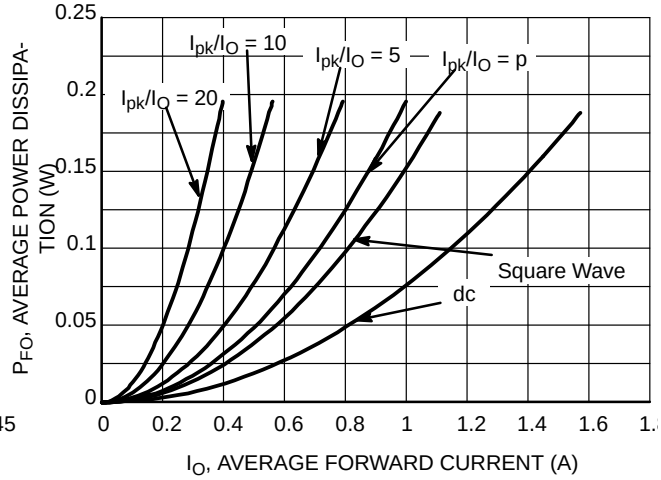


Figure 6. Forward Power Dissipation

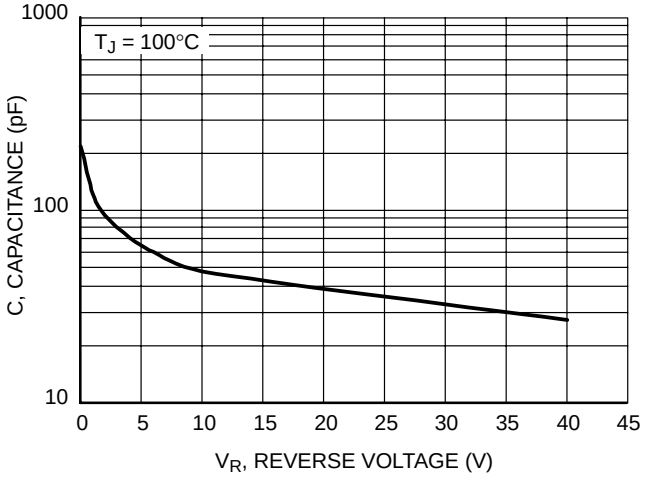


Figure 7. Capacitance

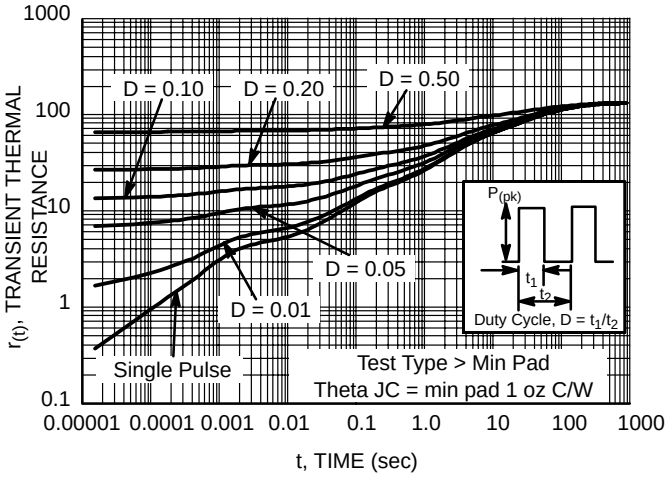
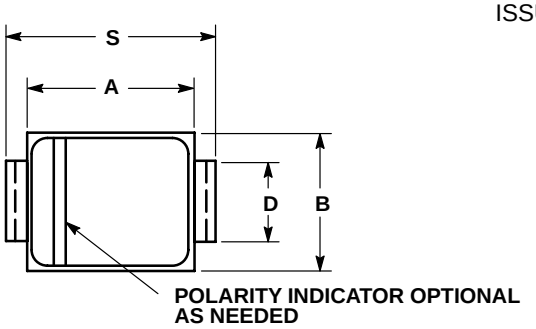


Figure 8. Thermal Response

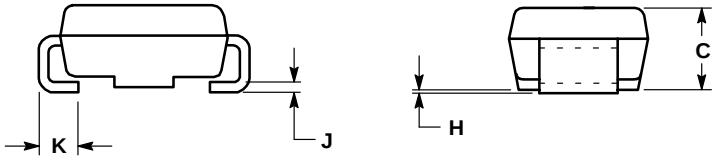
PACKAGE DIMENSIONS

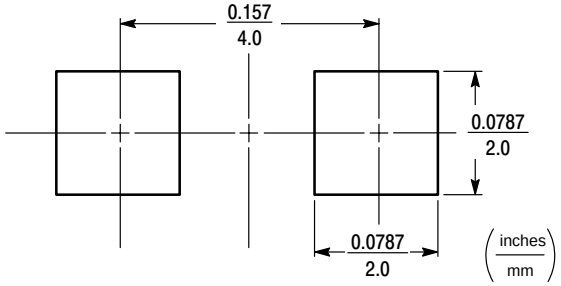
SMA
CASE 403D−02
ISSUE A



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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SS12/D