BZG03C15 Series

600 Watt Peak Power Zener Surge Rated Voltage Regulators

The SMA series is supplied in ON Semiconductor's exclusive, cost-effective, highly reliable SURMETIC™ package and is ideally suited for use in communication systems, automotive, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer applications. This new line of 1.5 watt Zener diodes offers the following advantages:

Specification Features

- Standard Zener Breakdown Voltage − 15 V to 150 V
- Peak Power 600 Watts @ 100 μs
- ESD Rating of Class 3 (> 16 KV) per Human Body Model
- Response Time is Typically < 1.0 ns
- Flat Handling Surface for Accurate Placement
- Package Design for Top Slide or Bottom Circuit Board Mounting
- Low Profile Package
- Pb−Free Packages are Available

Mechanical Characteristics

CASE: Void-free, transfer-molded plastic
FINISH: All external surfaces are corrosion resistant and leads are readily solderable
MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES: 260°C for 10 Seconds
POLARITY: Cathode indicated by molded polarity notch or polarity band
MOUNTING POSITION: Any

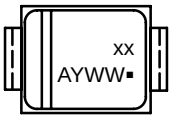
ON Semiconductor®

http://onsemi.com

PLASTIC SURFACE MOUNT ZENER VOLTAGE REGULATORS 600 WATTS PEAK POWER

SMA
CASE 403D
PLASTIC

MARKING DIAGRAM



xx = Specific Device Code (See Table on Page 2)
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

ORDERING INFORMATION

Device	Package	Shipping†
BZG03C15	SMA	5000/Tape & Reel
BZG03C15G	SMA (Pb−Free)	5000/Tape & Reel
BZG03C150	SMA	5000/Tape & Reel
BZG03C150G	SMA (Pb−Free)	5000/Tape & Reel

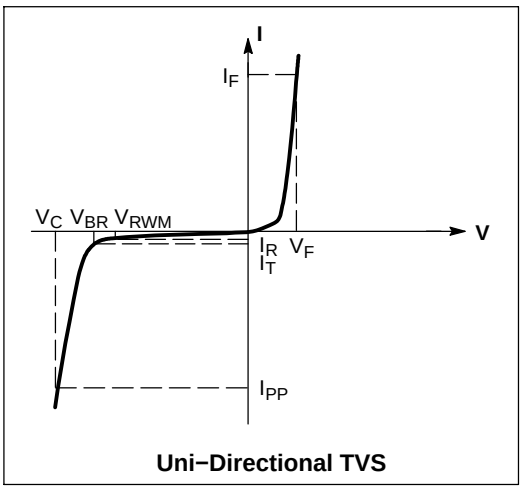
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Power Dissipation (Note 1) @ T_L = 25°C, t_P = 100 μs	P_{ZSM}	600	W
DC Power Dissipation @ T_L = 75°C Measured Zero Lead Length (Note 2) Derate Above 75°C Thermal Resistance, Junction−to−Lead	P_D $R_{\theta JL}$	1.5 20 50	W mW/°C °C/W
Forward Surge Current (Note 3) @ T_A = 25°C	I_{FSM}	40	A
Operating and Storage Temperature Range	T_J, T_{stg}	−65 to +150	°C

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.

1. 100 μs, non−repetitive square pulse
2. 1 in. square copper pad, FR−4 board
3. 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum



Uni−Directional TVS

SYMBOLS DEFINITIONS

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted, V_F = 1.2 V Max. @ I_F = 0.5 A for all types)

Device*	Device Marking	V_{RWM} (Note 4)	I_R @ V_{RWM}	Breakdown Voltage				Z_{zt} @ I_T	
				V_{BR} (V) (Note 5)			@ I_T	Typ	Max
		Volts	μA	Min	Nom	Max	mA	Ω	Ω
BZG03C15, G	G15	11	1	13.8	15.0	15.6	50	5.0	10.0
BZG03C150, G	G150	110	1	138	150	156	5	130	300

4. A transient suppressor is normally selected according to the working peak reverse voltage (V_{RWM}), which should be equal to or greater than the DC or continuous peak operating voltage level
5. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C

*The “G’’ suffix indicates Pb−Free package available.

RATING AND TYPICAL CHARACTERISTIC CURVES

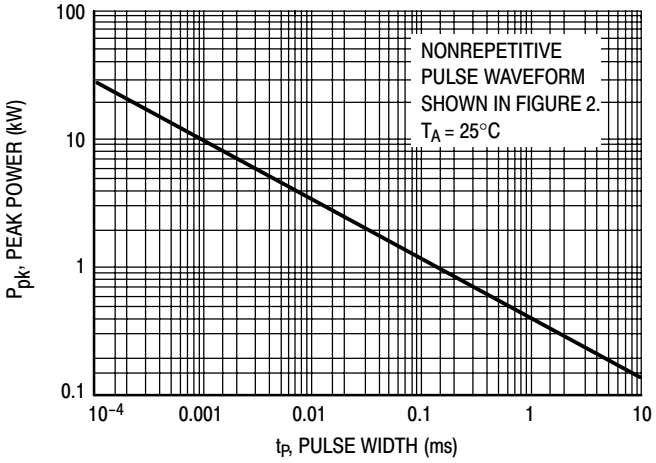


Figure 1. Pulse Rating Curve

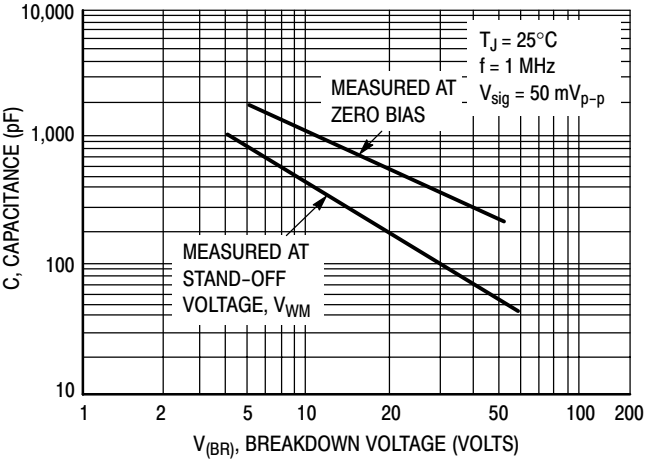


Figure 3. Typical Junction Capacitance

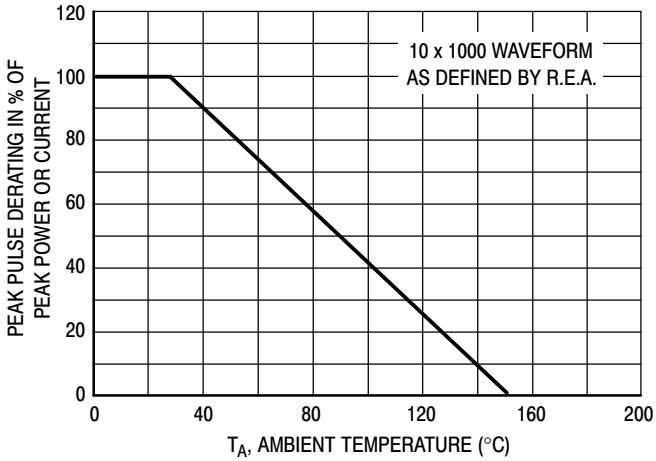


Figure 2. Pulse Derating Curve

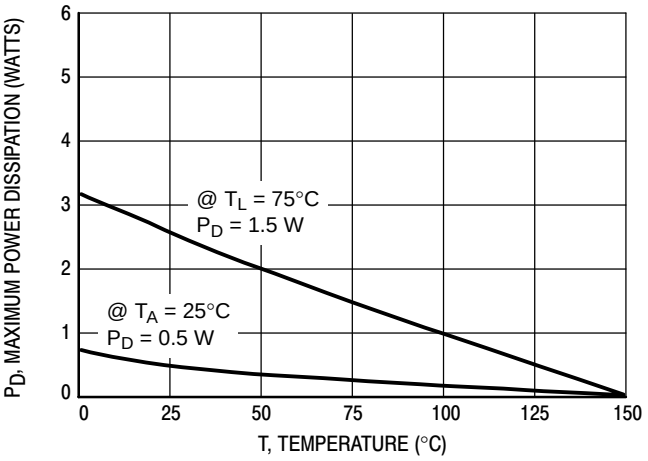
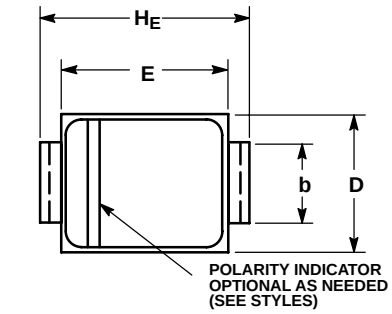
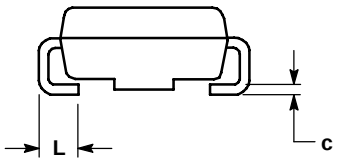


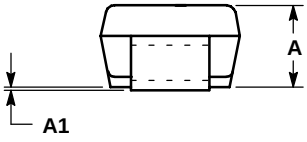
Figure 4. Steady State Power Derating

PACKAGE DIMENSIONS

SMA
CASE 403D−02
ISSUE C





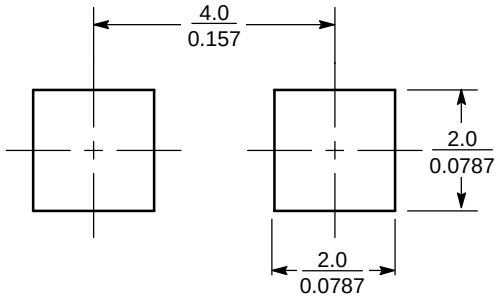


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 403D−01 OBSOLETE, NEW STANDARD IS 403D−02.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	1.91	2.16	2.41	0.075	0.085	0.095
A1	0.05	0.10	0.15	0.002	0.004	0.006
b	1.27	1.45	1.63	0.050	0.057	0.064
c	0.15	0.28	0.41	0.006	0.011	0.016
D	2.29	2.60	2.92	0.090	0.103	0.115
E	4.06	4.32	4.57	0.160	0.170	0.180
H_E	4.83	5.21	5.59	0.190	0.205	0.220
L	0.76	1.14	1.52	0.030	0.045	0.060

STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

SOLDERING FOOTPRINT*



SCALE 8:1 $\left(\frac{mm}{inches}\right)$

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

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Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

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