

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 μ s
- 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

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

MAXIMUM RATINGS

Please See the Table on the Following Page



ON Semiconductor®

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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)
LL = Assembly Location
Y = Year
WW = Work Week

ORDERING INFORMATION

Device *	Package	Shipping†
BZG03C15	SMA	5000/Tape & Reel
BZG03C150	SMA	5000/Tape & Reel

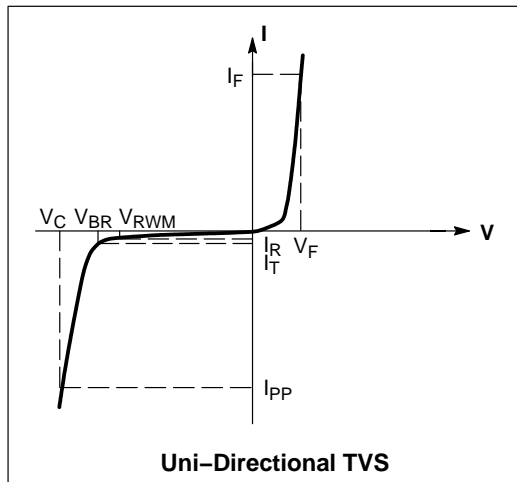
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

BZG03C15 Series

MAXIMUM RATINGS

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

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



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 ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 1.2\ \text{V}$ Max. @ $I_F = 0.5\ \text{A}$ 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	G15	11	1	13.8	15.0	15.6	50	5.0	10.0
BZG03C150	G150	110	1	138	150	156	5	130	300

- 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
- V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C

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RATING AND TYPICAL CHARACTERISTIC CURVES

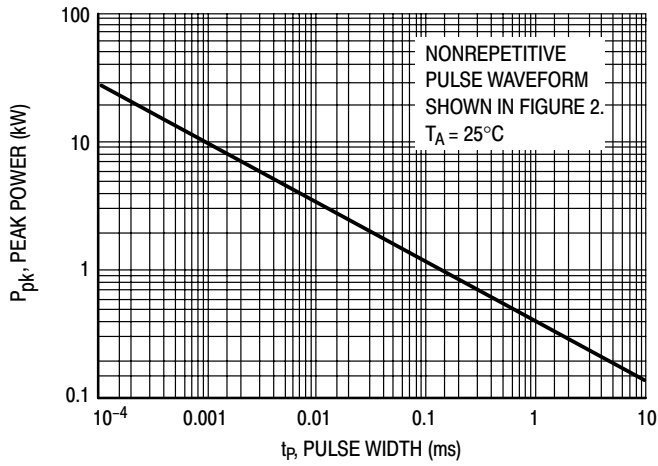


Figure 1. Pulse Rating Curve

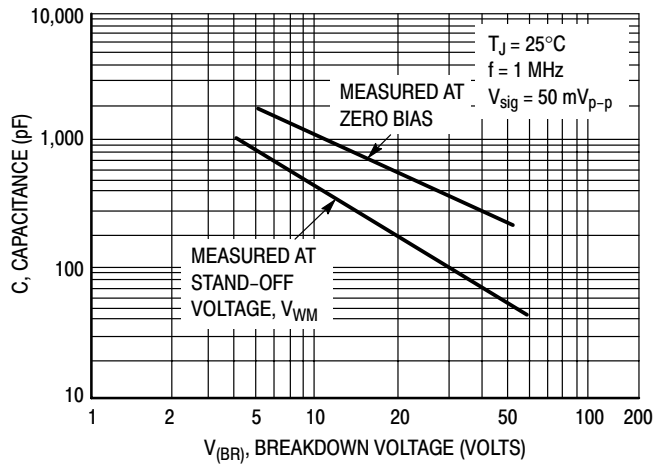


Figure 3. Typical Junction Capacitance

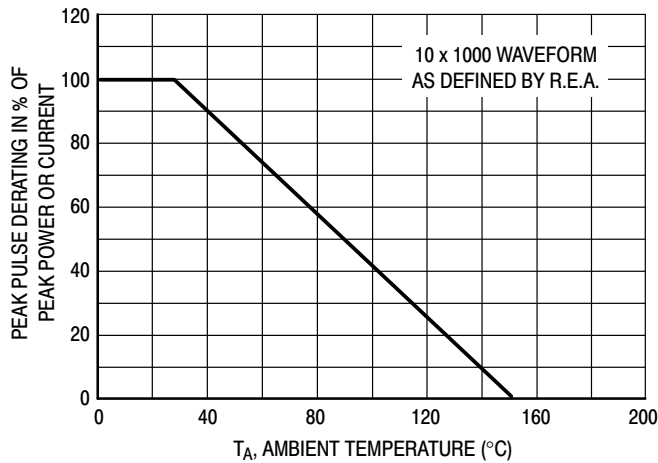


Figure 2. Pulse Derating Curve

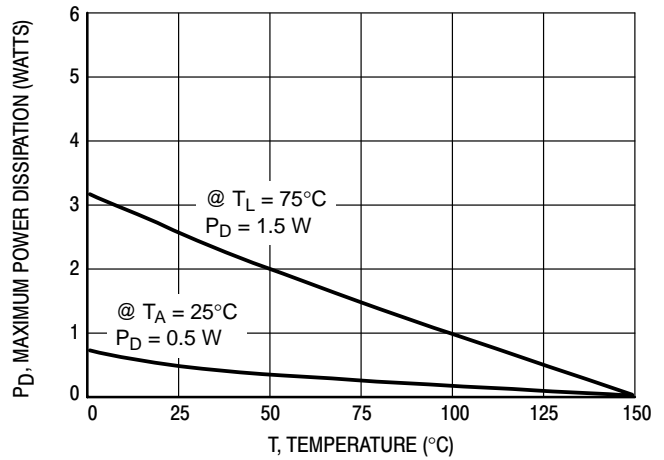
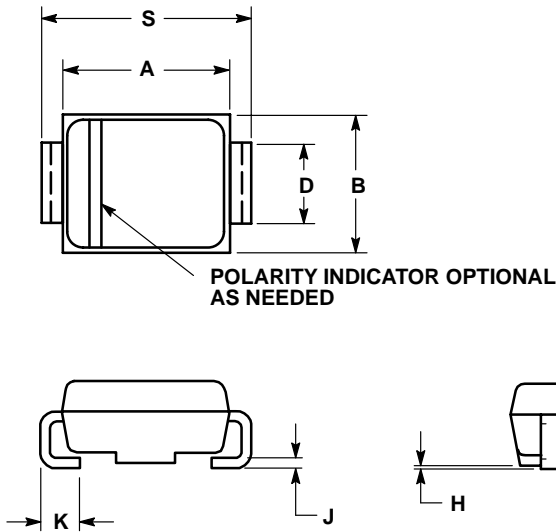


Figure 4. Steady State Power Derating

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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.

DIM	INCHES		MILLIMETERS	
	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

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