

# 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  $\mu$ 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

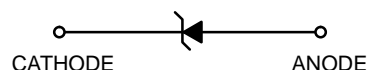
Please See the Table on the Following Page



**ON Semiconductor®**

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

### ORDERING INFORMATION

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

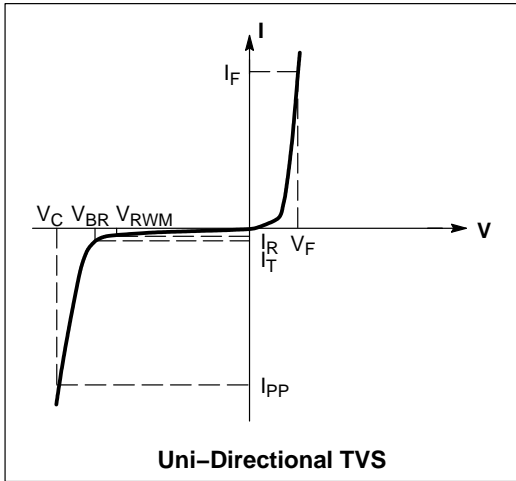
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

# 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 $75^\circ\text{C}$	$P_D$	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  $\mu\text{s}$ , non-repetitive square pulse
- 1" square copper pad, FR-4 board
- 1/2 sine wave (or equivalent square wave),  $PW = 8.3 \text{ ms}$ , 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) Volts	$I_R$ @ $V_{RWM}$ $\mu\text{A}$	Breakdown Voltage			$Z_{zt}$ @ $I_T$		
				$V_{BR}$ (V) (Note 5)			@ $I_T$ mA	Typ $\Omega$	Max $\Omega$
				Min	Nom	Max			
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  $25^\circ\text{C}$

# BZG03C15 Series

## RATING AND TYPICAL CHARACTERISTIC CURVES

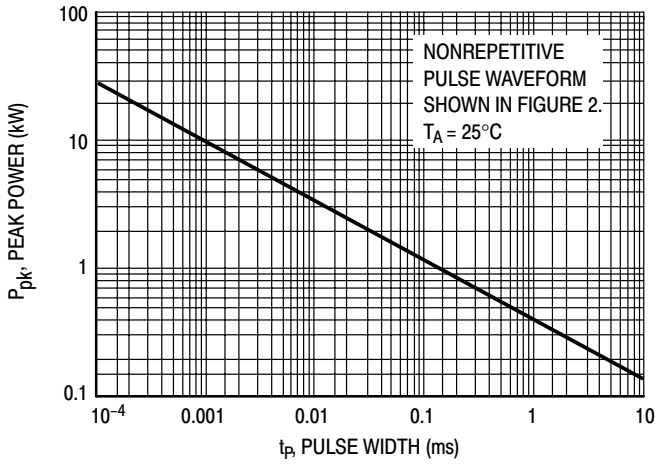


Figure 1. Pulse Rating Curve

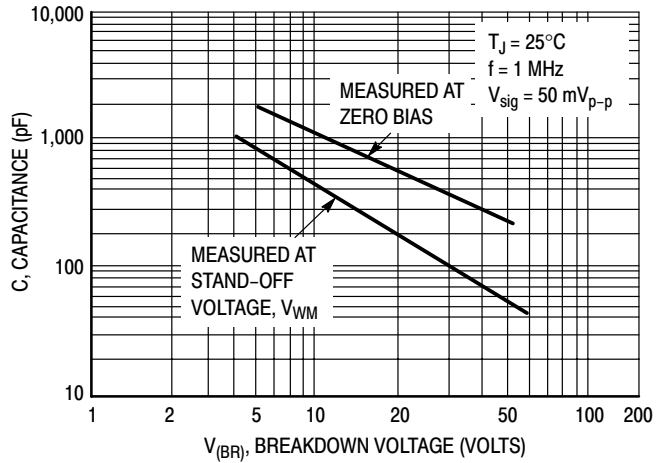


Figure 3. Typical Junction Capacitance

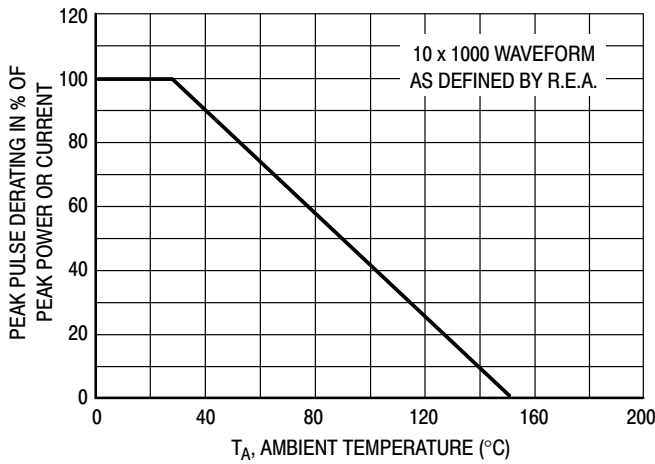


Figure 2. Pulse Derating Curve

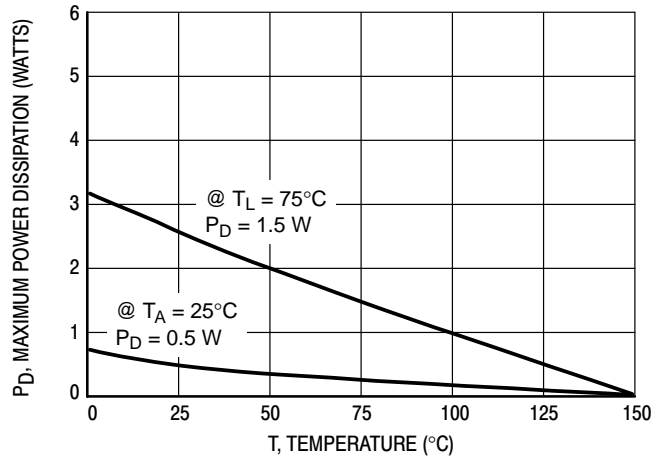
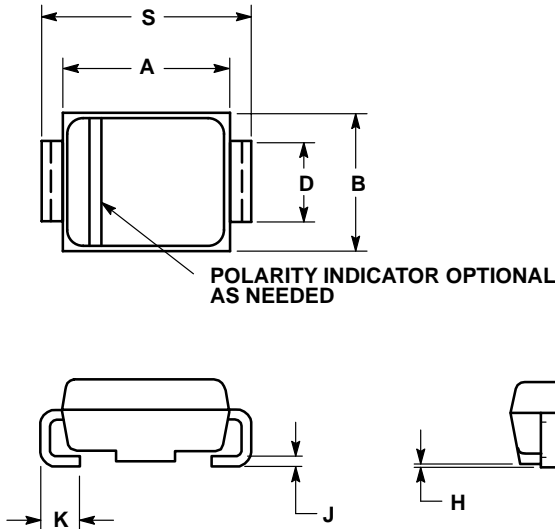


Figure 4. Steady State Power Derating

# BZG03C15 Series

## 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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