

1SMA5913B Series

1.5 Watt Plastic Surface Mount Zener Voltage Regulators

This complete new line of 1.5 Watt Zener Diodes offers the following advantages.

Specification Features

- Standard Zener Breakdown Voltage Range – 3.3 V to 240 V
- ESD Rating of Class 3 (>16 kV) per Human Body Model
- Flat Handling Surface for Accurate Placement
- Package Design for Top Slide or Bottom Circuit Board Mounting
- Low Profile Package
- Ideal Replacement for MELF Packages
- Pb-Free Packages are Available

Mechanical Characteristics:

CASE: Void-free, transfer-molded plastic

FINISH: All external surfaces are corrosion resistant with readily solderable leads

MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES: 260°C for 10 seconds

POLARITY: Cathode indicated by molded polarity notch or cathode band

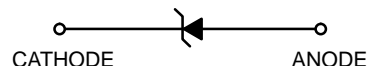
FLAMMABILITY RATING: UL 94 V-0 @ 0.125 in

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Power Dissipation @ $T_L = 75^\circ\text{C}$, Measured Zero Lead Length (Note 1.) Derate above 75°C	P_D	1.5 20	Watts mW/ $^\circ\text{C}$
Thermal Resistance – Junction-to-Lead	$R_{\theta JL}$	50	$^\circ\text{C/W}$
DC Power Dissipation @ $T_A = 25^\circ\text{C}$ (Note 2.) Derate above 25°C	P_D	0.5 4.0	Watts mW/ $^\circ\text{C}$
Thermal Resistance – Junction-to-Ambient	$R_{\theta JA}$	250	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

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. 1" square copper pad, FR-4 board
2. FR-4 Board, using ON Semiconductor minimum recommended footprint



SMA
CASE 403D
PLASTIC

MARKING DIAGRAM

8xxB
LLYWW

- 8xxB = Specific Device Code
(See Table Next Page)
LL = Assembly Location
Y = Year
WW = Work Week

ORDERING INFORMATION

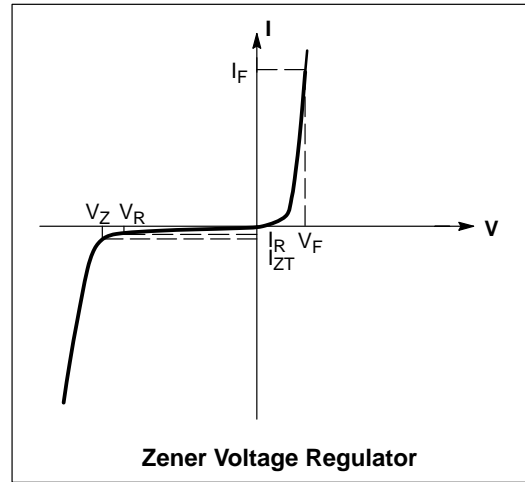
Device*	Package	Shipping†
1SMA59xxB	SMA	5000/Tape & Reel

LL16373cs01scn015/De129RGB r00.scn /De190.205 –62.929 reES4

1SMA5913B Series

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 1.5\text{ V Max.}$ @ $I_F = 200\text{ mA}$ for all types)

Symbol	Parameter
V_Z	Reverse Zener Voltage @ I_{ZT}
I_{ZT}	Reverse Current
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}
I_R	Reverse Leakage Current @ V_R
V_R	Reverse Voltage
I_F	Forward Current
V_F	Forward Voltage @ I_F
I_{ZM}	Maximum DC Zener Current



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 1.5\text{ V Max.}$ @ $I_F = 200\text{ mA}$ for all types)

Ω

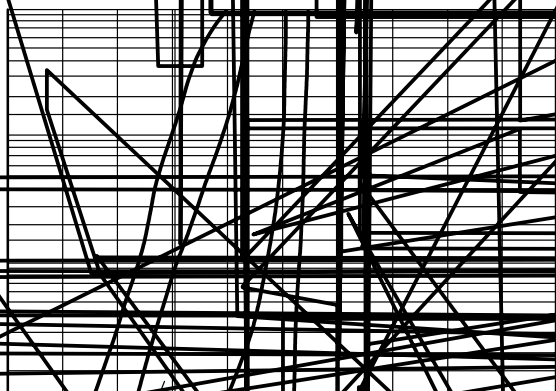
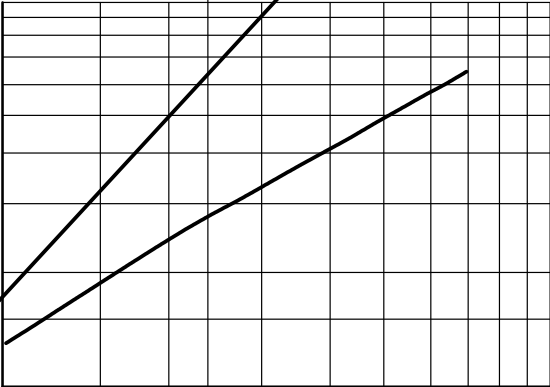
Ω

μ

- 1SMA5913B
- 1SMA5914B
- 1SMA5915B
- 1SMA5916B
- 1SMA5917B
- 1SMA5918B
- 1SMA5919B
- 1SMA5920B
- 1SMA5921B
- 1SMA5922B
- 1SMA5923B
- 1SMA5924B
- 1SMA5925B
- 1SMA5926B
- 1SMA5927B
- 1SMA5928B
- 1SMA5929B
- 1SMA5930B
- 1SMA5931B
- 1SMA5932B
- 1SMA5933B
- 1SMA5934B
- 1SMA5935B

Rating and Typical Characteristic Curves ($T_A = 25^\circ\text{C}$)

θ_{VJ} TEMPERATURE COEFFICIENT (mV/°C)



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Rating and Typical Characteristic Curves ($T_A = 25^\circ\text{C}$)

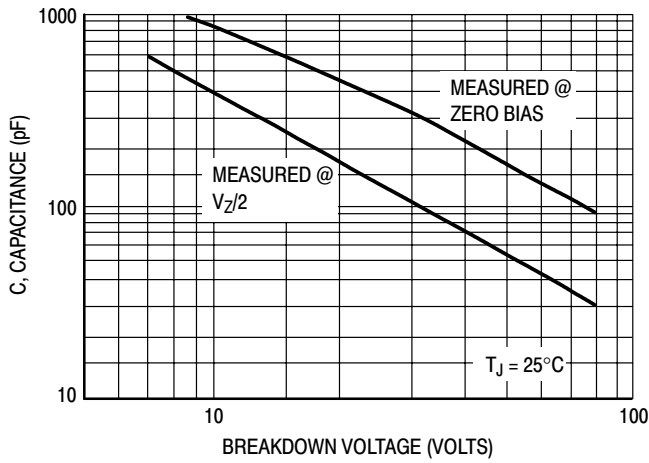


Figure 7. Capacitance Curve

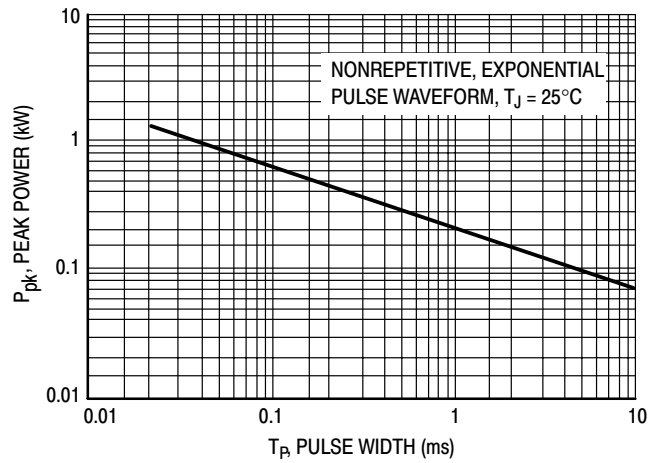


Figure 8. Typical Pulse Rating Curve

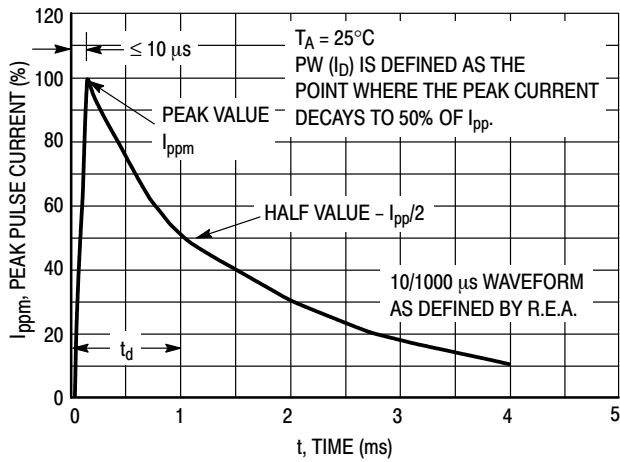


Figure 9. Pulse Waveform

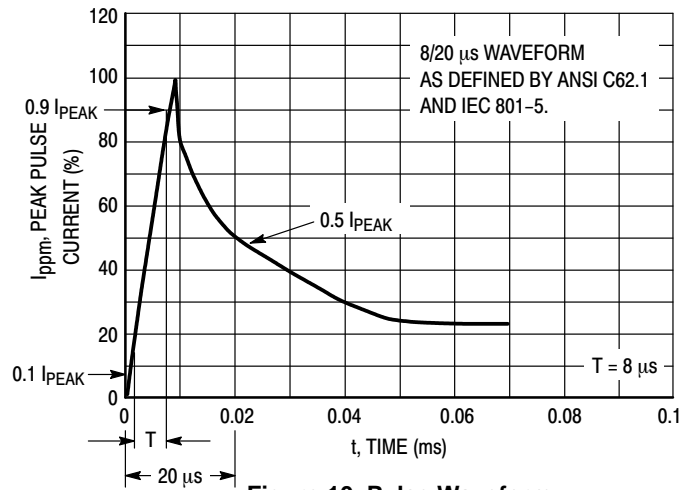
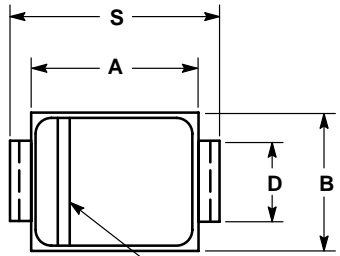


Figure 10. Pulse Waveform

1SMA5913B Series

OUTLINE DIMENSIONS

SMA
CASE 403D-02
ISSUE A

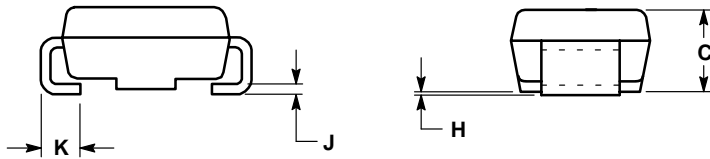


POLARITY INDICATOR OPTIONAL
AS NEEDED

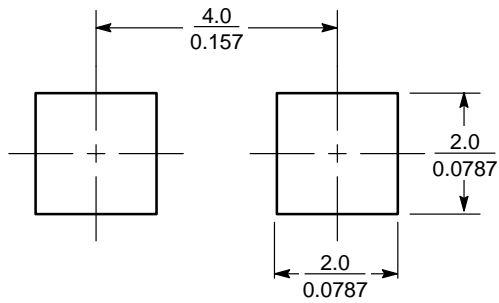
NOTES:

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




SOLDERING FOOTPRINT*



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

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

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