



# Surface Mount Power Voltage-Regulating Diodes



DO-214AC (SMA)

### FEATURES

- Low profile package
- Ideal for automated placement
- Low Zener impedance
- Low regulation factor
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS COMPLIANT

### TYPICAL APPLICATIONS

For general purpose regulation and protection applications.

PRIMARY CHARACTERISTICS	
$V_Z$	5.6 V to 68 V
$P_D$	1.5 W at $T_L = 75\text{ °C}$
$P_D$	0.5 W at $T_A = 25\text{ °C}$
$T_J \text{ max.}$	150 °C

### MECHANICAL DATA

Case: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ , unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Power dissipation at $T_L = 75\text{ °C}$ (Fig. 1) <sup>(1)</sup>	$P_D$	1.5	W
Power dissipation at $T_A = 25\text{ °C}$ (Fig. 1) <sup>(2)</sup>	$P_D$	0.5	
Maximum instantaneous forward voltage at 200 mA for all types <sup>(3)</sup>	$V_F$	1.5	V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 150	°C

**Notes:**

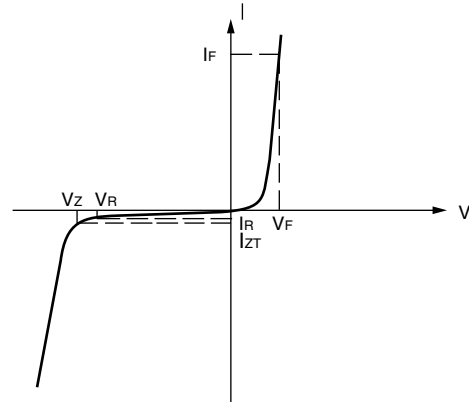
- (1) Mounted on P.C.B. with 5.0 x 5.0 mm copper pads attached to each terminal
- (2) Mounted on minimum recommended pad layout
- (3) Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

# SMAZ5919B thru SMAZ5945B



Vishay General Semiconductor

ELECTRICAL CHARACTERISTICS	
SYMBOL	PARAMETER
$V_Z$	Reverse Zener voltage at $I_{ZT}$
$I_{ZT}$	Reverse current
$Z_{ZT}$	Maximum Zener impedance at $I_{ZT}$
$I_{ZK}$	Reverse current
$Z_{ZK}$	Maximum Zener impedance at $I_{ZK}$
$I_R$	Reverse leakage current at $V_R$
$V_R$	Reverse voltage
$I_F$	Forward current
$V_F$	Forward voltage at $I_F$
$I_{ZM}$	Maximum DC Zener current



Zener Voltage Regulator

ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)											
PART NUMBER	DEVICE MARKING CODE	ZENER VOLTAGE $V_Z$ AT $I_{ZT}$ (V)			TEST CURRENT $I_{ZT}$ (mA)	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE LEAKAGE CURRENT $I_R$ AT $V_R$		MAXIMUM ZENER CURRENT $I_{ZM}$ (mA)
		MIN.	NOM.	MAX.		$Z_{ZT}$ AT $I_{ZT}$ ( $\Omega$ )	$Z_{ZK}$ AT $I_{ZK}$ ( $\Omega$ )	(mA)	( $\mu$ A)	(V)	
SMAZ5919B	19B	5.32	5.6	5.88	66.9	5	700	1	200	3	268
SMAZ5920B	20B	5.89	6.2	6.51	60.5	2	700	1	200	4	242
SMAZ5921B	21B	6.46	6.8	7.14	55.1	2.5	400	1	200	5.2	221
SMAZ5923B	23B	7.79	8.2	8.61	45.7	5.0	700	0.5	10	6.5	183
SMAZ5924B	24B	8.64	9.1	9.56	41.2	5.0	700	0.5	10	7.0	165
SMAZ5925B	25B	9.5	10	10.5	37.5	5.0	700	0.25	10	8.0	150
SMAZ5926B	26B	10.5	11	11.6	34.1	5.5	550	0.25	5	8.4	136
SMAZ5927B	27B	11.4	12	12.6	31.2	6.5	550	0.25	1	9.1	125
SMAZ5928B	28B	12.4	13	13.7	28.8	7.0	550	0.25	1	9.9	115
SMAZ5929B	29B	14.3	15	15.8	25.0	9.0	600	0.25	1	11.4	100
SMAZ5930B	30B	15.2	16	16.8	23.4	10.0	600	0.25	1	12.2	94
SMAZ5931B	31B	17.1	18	18.9	20.8	12.0	650	0.25	1	13.7	83
SMAZ5932B	32B	19.0	20	21.0	18.7	14.0	650	0.25	1	15.2	75
SMAZ5933B	33B	20.9	22	23.1	17.0	17.5	650	0.25	1	16.7	68
SMAZ5934B	34B	22.8	24	25.2	15.6	19.0	700	0.25	1	18.2	62
SMAZ5935B	35B	25.7	27	28.4	13.9	23.0	700	0.25	1	20.6	56
SMAZ5936B	36B	28.5	30	31.5	12.5	28.0	750	0.25	1	22.8	50
SMAZ5937B	37B	31.4	33	34.7	11.4	33.0	800	0.25	1	25.1	45
SMAZ5938B	38B	34.2	36	37.8	10.4	38.0	850	0.25	1	27.4	42
SMAZ5939B	39B	37.1	39	41.0	9.6	45.0	900	0.25	1	29.7	38
SMAZ5940B	40B	40.9	43	45.2	8.7	53.0	950	0.25	1	32.7	35
SMAZ5941B	41B	44.65	47	49.35	8.0	67	1000	0.25	1	35.8	32
SMAZ5942B	42B	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29
SMAZ5943B	43B	53.2	56	58.8	6.7	86	1300	0.25	1	42.6	27
SMAZ5944B	44B	58.9	62	65.1	6.0	100	1500	0.25	1	47.1	24
SMAZ5945B	45B	64.6	68	71.4	5.5	120	1700	0.25	1	51.7	22



THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT
Typical thermal resistance, junction to lead <sup>(1)</sup>	$R_{\theta JL}$	50	$^\circ\text{C/W}$
Typical thermal resistance, junction to ambient <sup>(2)</sup>	$R_{\theta JA}$	250	$^\circ\text{C/W}$

**Notes:**

- (1) Mounted on P.C.B. with 5.0 x 5.0 mm copper pads attached to each terminal
- (2) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SMAZ5925B-E3/61	0.064	61	1800	7" diameter plastic tape and reel
SMAZ5925B-E3/5A	0.064	5A	7500	13" diameter plastic tape and reel

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

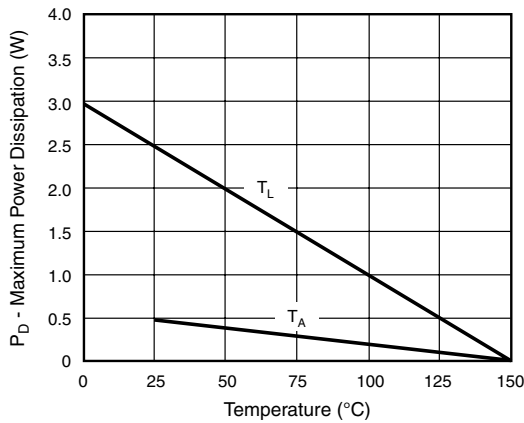


Figure 1. Steady State Power During

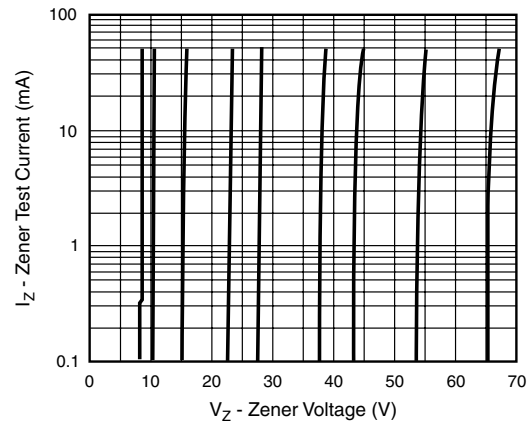


Figure 3. Typical Zener Voltage

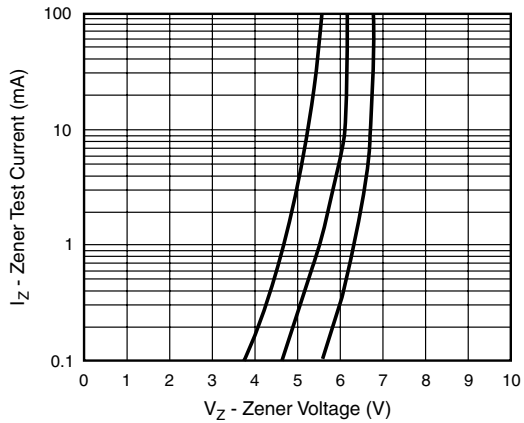


Figure 2. Typical Zener Voltage

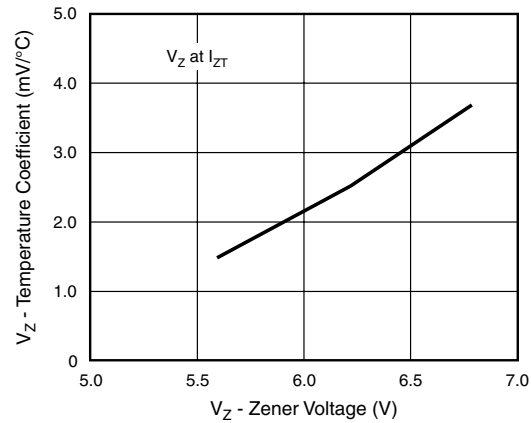


Figure 4. Typical Temperature Coefficients

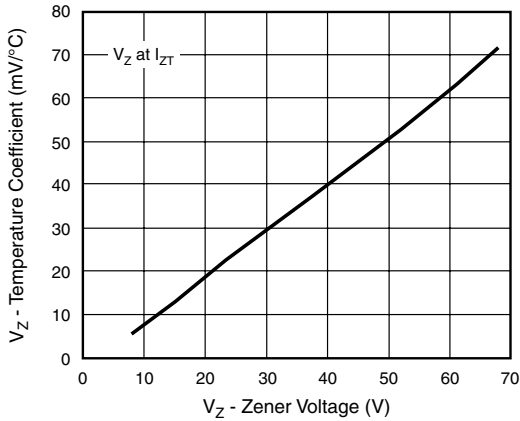


Figure 5. Typical Temperature Coefficients

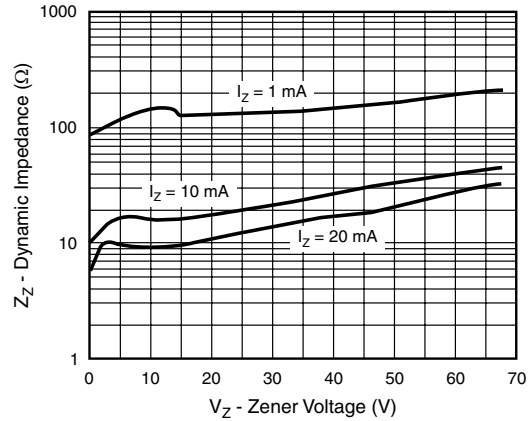


Figure 7. Typical Zener Impedance

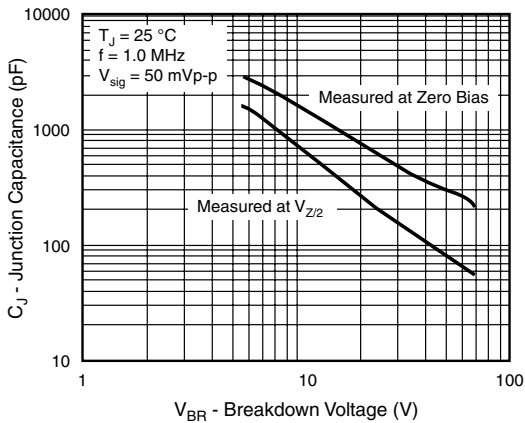
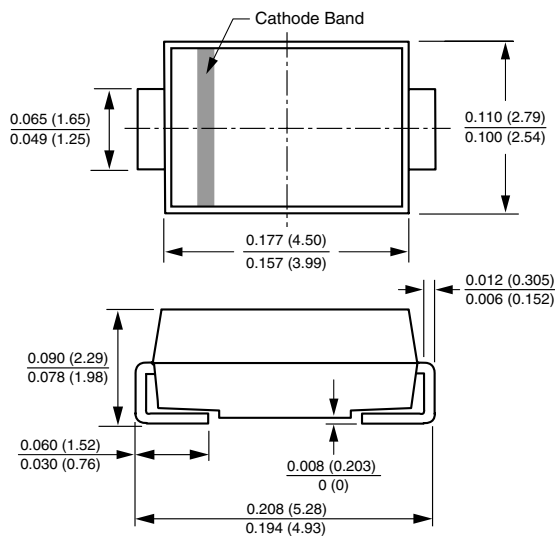


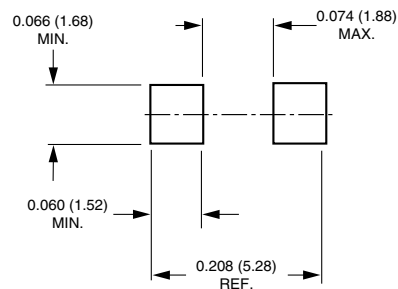
Figure 6. Typical Junction Capacitance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-214AC (SMA)**



**Mounting Pad Layout**





## Disclaimer

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