

SMBZ5919B thru SMBZ5945B

Vishay General Semiconductor

Surface Mount Power Voltage-Regulating Diodes



DO-214AA (SMBJ)

PRIMARY CHARACTERISTICS						
Vz	5.6 V to 85 V					
P _{tot} at T _L = 75 °C	3000 mW					
P_{tot} at $T_A = 25 \ ^{\circ}C$	550 mW					
T _J max.	150 °C					
V _Z specification	Pulse current					
Int. construction	Single					

TYPICAL APPLICATIONS

For general purpose regulation and protection applications.

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
- · Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

MECHANICAL DATA

Case: DO-214AA (SMBJ)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant and commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	VALUE	UNIT				
Maximum steady state power dissipation at $T_L = 75 \text{ °C}$ (fig. 1)	P _{tot}	3000	mW				
Maximum steady state power dissipation at $T_A = 25 \ ^{\circ}C$ (fig. 1) ⁽¹⁾	P _{tot}	550	mW				
Maximum instantaneous forward voltage at 200 mA for all types (2)	V _F	1.5	V				
Operating junction and storage temperature range	T _J , T _{STG}	- 65 to + 150	°C				

Notes

(1) Mounted on PCB with 5.0 mm x 5.0 mm copper pads attached to each terminal

⁽²⁾ Pulse test: 300 µs pulse width, 1 % duty cycle

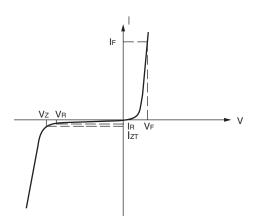




SMBZ5919B t	hru SMBZ5945B
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ELECTRICAL CHARACTERISTICS					
SYMBOL PARAMETER					
Vz	Reverse Zener voltage at I _{ZT}				
I _{ZT}	Reverse current				
Z _{ZT}	Maximum Zener impedance at I _{ZT}				
I _{ZK}	Reverse current				
Z _{ZK}	Maximum Zener impedance 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 °C unless otherwise noted)											
PART DEVICE	ZENER VOLTAGE RANGE		TEST CURRENT		MAXIMUM ZENER IMPEDANCE		REVERSE LEAKAGE CURRENT		MAXIMUM ZENER CURRENT I _{ZM} mA		
	V _Z AT I _{ZT} V		l _{ZT} l _{ZK} mA		Ω		I _R at V _R μΑ V				
OODL											
										MAX.	
-					-					267	
-	5.89	6.2	6.51	60.5	1.0	2.0		200	4.0	241	
21B	6.46	6.8	7.14	55.1	1.0	2.5	400	200	5.2	220	
24B	8.64	9.1	9.56	41.2	0.5	4.0	1000	25	7.0	164	
25B	9.5	10	10.5	37.5	0.25	4.5	1000	25	8.0	150	
26B	10.5	11	11.6	34.1	0.25	5.5	550	5	8.4	136	
27B	11.4	12	12.6	31.2	0.25	6.5	550	1	9.1	125	
28B	12.4	13	13.7	28.8	0.25	7.0	550	1	9.9	115	
29B	14.3	15	15.8	25.0	0.25	9.0	600	1	11.4	100	
30B	15.2	16	16.8	23.4	0.25	10.0	600	1	12.2	93	
31B	17.1	18	18.9	20.8	0.25	12.0	650	1	13.7	83	
32B	19.0	20	21.0	18.7	0.25	14.0	650	1	15.2	75	
33B	20.9	22	23.1	17.0	0.25	17.5	650	1	16.7	68	
34B	22.8	24	25.2	15.6	0.25	19.0	700	1	18.2	62	
35B	25.7	27	28.4	13.9	0.25	23.0	700	1	20.6	55	
36B	28.5	30	31.5	12.5	0.25	28.0	750	1	22.8	50	
37B	31.4	33	34.7	11.4	0.25	33.0	800	1	25.1	45	
38B	34.2	36	37.8	10.4	0.25	38.0	850	1	27.4	41	
39B	37.1	39	41.0	9.6	0.25	45.0	900	1	29.7	38	
40B	40.9	43	45.2	8.7	0.25	53.0	950	1	32.7	34	
41B	44.6	47	49.4	8.0	0.25	67.0	1000	1	35.8	31	
42B	48.4	51	53.6	7.3	0.25	70.0	1100	1	38.8	29	
43B	53.2	56	58.8	6.7	0.25	86.0	1300	1	42.6	26	
44B	58.9	62	65.1	6.0	0.25	100	1500	1	47.1	24	
45B	64.6	68	71.4	5.5	0.25	120	1700	1	51.7	22	
	DEVICE MARKING 19B 20B 21B 24B 25B 26B 27B 28B 29B 30B 31B 32B 33B 34B 35B 36B 37B 38B 39B 40B 41B 42B 43B	DEVICE MARKING CODE ZEN I I 19B 5.32 20B 5.89 21B 6.46 24B 8.64 25B 9.5 26B 10.5 27B 11.4 28B 12.4 29B 14.3 30B 15.2 31B 17.1 32B 19.0 33B 20.9 34B 22.8 35B 25.7 36B 25.7 36B 28.5 37B 31.4 38B 34.2 39B 37.1 40B 40.9 41B 44.6 42B 53.2	JEVICE MARKING CODE ZENERVICE RANGE IU V MIN. 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Revision: 25-May-12

2

Document Number: 88485

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SMBZ5919B thru SMBZ5945B

Vishay General Semiconductor

THERMAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted)							
PARAMETER	SYMBOL	LIMIT	UNIT				
Typical thermal resistance, junction to lead	$R_{\theta JL}$	25	°C/W				
Typical thermal resistance, junction to ambient ⁽¹⁾	$R_{ hetaJA}$	226	°C/W				

Note

⁽¹⁾ Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	BASE QUANTITY	DELIVERY MODE					
SMBZ5935B-E3/52	0.096	52	750	7" diameter plastic tape and reel				
SMBZ5935B-E3/5B	0.096	5B	3200	13" diameter plastic tape and reel				

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

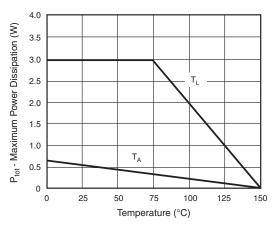


Fig. 1 - Steady State Power Durating

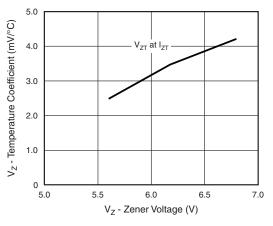


Fig. 2 - Typical Temperature Coefficients

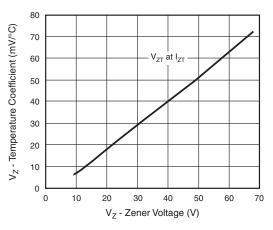


Fig. 3 - Typical Temperature Coefficients

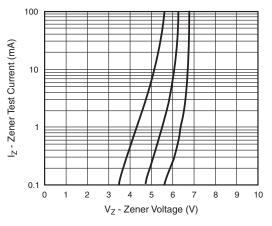


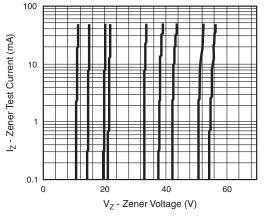
Fig. 4 - Typical Zener Voltage

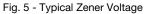
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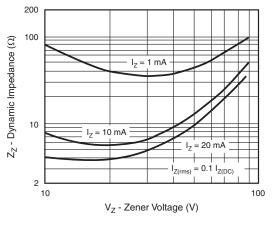
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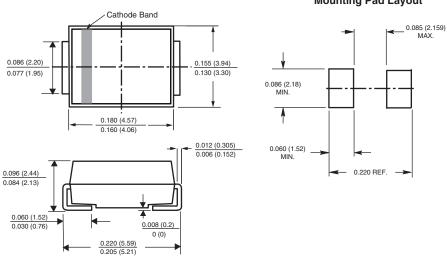








PACKAGE OUTLINE DIMENSIONS in inches (millimeters) DO-214AA (SMB-J-Bend)



SMBZ5919B thru SMBZ5945B

Vishay General Semiconductor

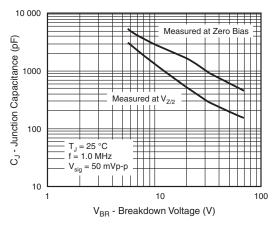


Fig. 7 - Typical Junction Capacitance

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Mounting Pad Layout



Vishay

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