

Surface Mount Power Voltage-Regulating Diodes



DO-214AA (SMBJ)



FEATURES

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

TYPICAL APPLICATIONS

For general purpose regulation and protection applications.

MECHANICAL DATA

Case: DO-214AA (SMBJ)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
E3 suffix for commercial grade

Polarity: Color band denotes cathode end

PRIMARY CHARACTERISTICS

V_Z	5.6 V to 68 V
P_D	3.0 W at $T_L = 75\text{ °C}$
P_D	550 mW at $T_A = 25\text{ °C}$
T_J max.	150 °C

MAXIMUM RATINGS ($T_A = 25\text{ °C}$, unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Maximum steady state power dissipation at $T_L = 75\text{ °C}$ (Fig. 1)	P_D	3.0	W
Maximum steady state power dissipation at $T_A = 25\text{ °C}$ (Fig. 1) ⁽¹⁾	P_D	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}	- 55 to + 150	°C

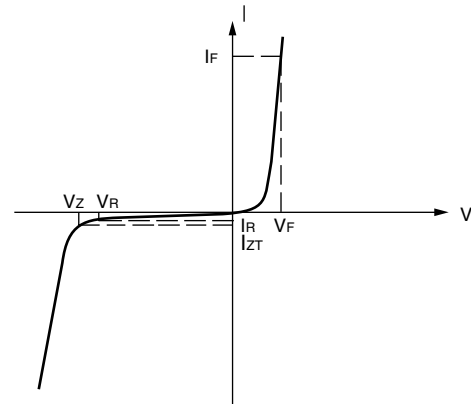
Notes:

(1) Mounted on minimum recommended pad layout

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



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 ($T_A = 25^\circ\text{C}$ 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}	Z_{ZK} AT I_{ZK}	I_R AT V_R	V_R		
						(Ω)	(Ω)			(mA)	
SMBZ5919B	19B	5.32	5.6	5.88	66.9	5	700	1	200	3	267
SMBZ5920B	20B	5.89	6.2	6.51	60.5	2	700	1	200	4	241
SMBZ5921B	21B	6.46	6.8	7.14	55.1	2.5	400	1	200	5.2	220
SMBZ5924B	24B	8.64	9.1	9.56	41.2	4.0	1000	0.5	25	7.0	164
SMBZ5925B	25B	9.5	10	10.5	37.5	4.5	1000	0.25	25	8.0	150
SMBZ5926B	26B	10.5	11	11.6	34.1	5.5	550	0.25	5	8.4	136
SMBZ5927B	27B	11.4	12	12.6	31.2	6.5	550	0.25	1	9.1	125
SMBZ5928B	28B	12.4	13	13.7	28.8	7.0	550	0.25	1	9.9	115
SMBZ5929B	29B	14.3	15	15.8	25.0	9.0	600	0.25	1	11.4	100
SMBZ5930B	30B	15.2	16	16.8	23.4	10.0	600	0.25	1	12.2	93
SMBZ5931B	31B	17.1	18	18.9	20.8	12.0	650	0.25	1	13.7	83
SMBZ5932B	32B	19.0	20	21.0	18.7	14.0	650	0.25	1	15.2	75
SMBZ5933B	33B	20.9	22	23.1	17.0	17.5	650	0.25	1	16.7	68
SMBZ5934B	34B	22.8	24	25.2	15.6	19.0	700	0.25	1	18.2	62
SMBZ5935B	35B	25.7	27	28.4	13.9	23.0	700	0.25	1	20.6	55
SMBZ5936B	36B	28.5	30	31.5	12.5	28.0	750	0.25	1	22.8	50
SMBZ5937B	37B	31.4	33	34.7	11.4	33.0	800	0.25	1	25.1	45
SMBZ5938B	38B	34.2	36	37.8	10.4	38.0	850	0.25	1	27.4	41
SMBZ5939B	39B	37.1	39	41.0	9.6	45.0	900	0.25	1	29.7	38
SMBZ5940B	40B	40.9	43	45.2	8.7	53.0	950	0.25	1	32.7	34
SMBZ5941B	41B	44.6	47	49.4	8.0	67	1000	0.25	1	35.8	31
SMBZ5942B	42B	48.4	51	53.6	7.3	70	1100	0.25	1	38.8	29
SMBZ5943B	43B	53.2	56	58.8	6.7	86	1300	0.25	1	42.6	26
SMBZ5944B	44B	58.9	62	65.1	6.0	100	1500	0.25	1	47.1	24
SMBZ5945B	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	$R_{\theta JL}$	25	$^\circ\text{C/W}$
Typical thermal resistance, junction to ambient ⁽¹⁾	$R_{\theta JA}$	226	$^\circ\text{C/W}$

Note:

(1) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	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

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

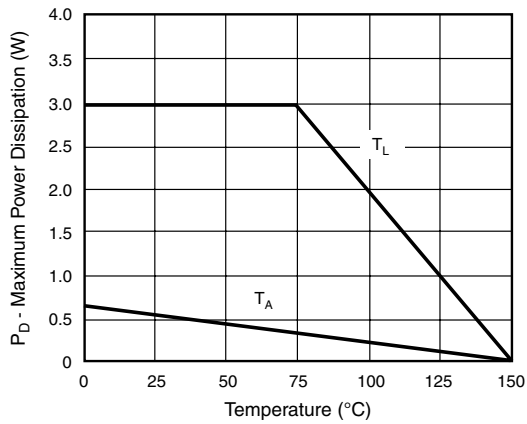


Figure 1. Steady State Power During

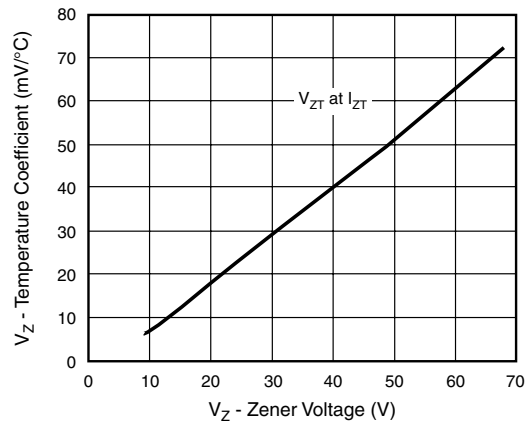


Figure 3. Typical Temperature Coefficients

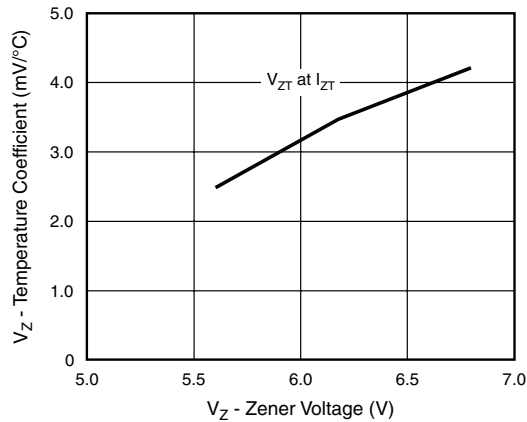


Figure 2. Typical Temperature Coefficients

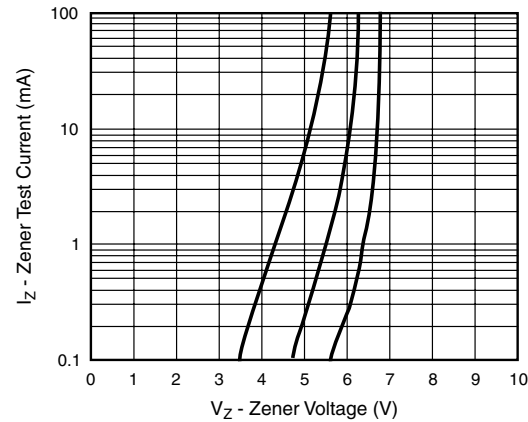


Figure 4. Typical Zener Voltage

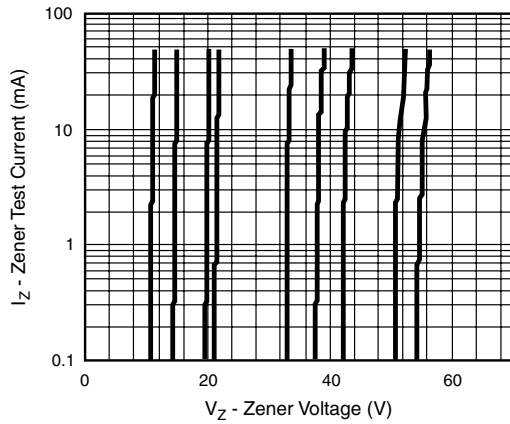


Figure 5. Typical Zener Voltage

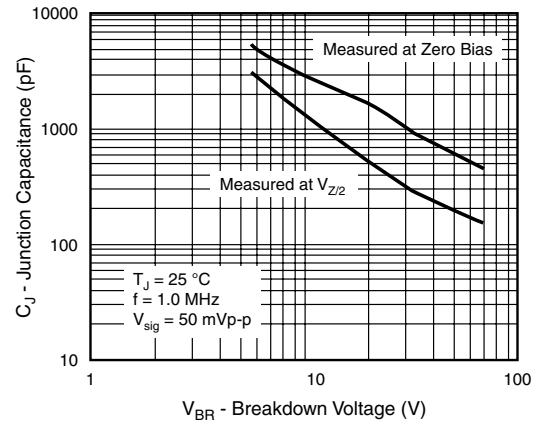


Figure 7. Typical Junction Capacitance

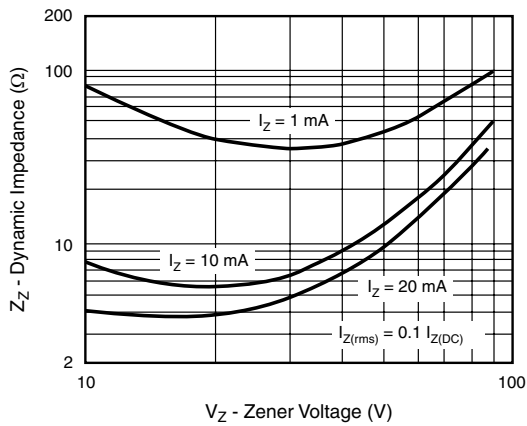
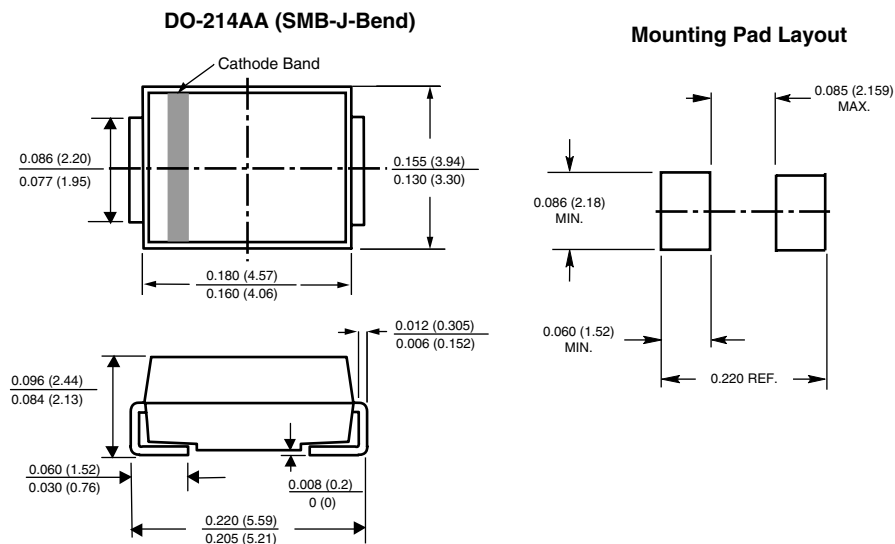


Figure 6. Typical Zener Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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