

Zener Diodes

SMBJ5913B - SMBJ5956B

Features

- Complete voltage range 3.3 to 200 V
- Withstands large surge stresses
- Available on tape and reel
- High surge current rating
- RoHS compliant with Halogen-free



Mechanical Data

- Case: SMB molded plastic
- Molding compound, UL flammability classification rating 94V-0
- Polarity: Color band denotes cathode end

Maximum Ratings (@T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Power dissipation at T _L =75°C	P _{tot}	3.0	W
Forward voltage @I _F =200mA	V _F	1.5	V
Typical thermal resistance	R _{θJL}	25	°C/W
	R _{θJA}	226	
Junction temperature	T _J	-50 ~ +150	°C
Storage temperature range	T _{STG}	-50 ~ +150	°C

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Electrical Characteristics (@T_A = 25°C unless otherwise specified)

Part Number	Device marking code	Zener voltage	Test current	Dynamic impedance	Knee current	Knee impedance	Reverse current	Reverse voltage	Max. DC current
		V _Z	I _{ZT}	Z _{ZT}	I _{ZK}	Z _{ZK}	I _{R(Max.)}	V _R	I _{ZM}
		V	m A	Ω	m A	Ω	μ A dc	V	m A
SMBJ5913B	913B	3.3	113.6	10.0	1.0	500	100	1.0	454
SMBJ5914B	914B	3.6	104.2	9.0	1.0	500	75	1.0	416
SMBJ5915B	915B	3.9	96.1	7.5	1.0	500	25	1.0	384
SMBJ5916B	916B	4.3	87.2	6.0	1.0	500	5.0	1.0	348
SMBJ5917B	917B	4.7	79.8	5.0	1.0	500	5.0	1.5	319
SMBJ5918B	918B	5.1	73.5	4.0	1.0	350	5.0	2.0	294
SMBJ5919B	919B	5.6	66.9	2.0	1.0	250	5.0	3.0	267
SMBJ5920B	920B	6.2	60.5	2.0	1.0	200	5.0	4.0	241
SMBJ5921B	921B	6.8	55.1	2.5	1.0	200	5.0	5.2	220
SMBJ5922B	922B	7.5	50.0	3.0	0.5	400	5.0	6.0	200
SMBJ5923B	923B	8.2	45.7	3.5	0.5	400	5.0	6.5	182
SMBJ5924B	924B	9.1	41.2	4.0	0.5	500	5.0	7.0	164
SMBJ5925B	925B	10	37.5	4.5	0.25	500	5.0	8.0	150
SMBJ5926B	926B	11	34.1	5.5	0.25	550	1.0	8.4	136
SMBJ5927B	927B	12	31.2	6.5	0.25	550	1.0	9.1	125
SMBJ5928B	928B	13	28.8	7.0	0.25	550	1.0	9.9	115
SMBJ5929B	929B	15	25.0	9.0	0.25	600	1.0	11.4	100
SMBJ5930B	930B	16	23.4	10	0.25	600	1.0	12.2	93
SMBJ5931B	931B	18	20.8	12	0.25	650	1.0	13.7	83
SMBJ5932B	932B	20	18.7	14	0.25	650	1.0	15.2	75
SMBJ5933B	933B	22	17.0	17.5	0.25	650	1.0	16.7	68
SMBJ5934B	934B	24	15.6	19	0.25	700	1.0	18.2	62
SMBJ5935B	935B	27	13.9	23	0.25	700	1.0	20.6	55
SMBJ5936B	936B	30	12.5	28	0.25	750	1.0	22.8	50
SMBJ5937B	937B	33	11.4	33	0.25	800	1.0	25.1	45

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		V_Z	I_{ZT}	Z_{ZT}	I_{ZK}	Z_{ZK}	$I_{R(Max.)}$	V_R	I_{ZM}
		V	mA	Ω	mA	Ω	μA dc	V	mA
SMBJ5938B	938B	36	10.4	38	0.25	850	1.0	27.4	41
SMBJ5939B	939B	39	9.6	45	0.25	900	1.0	29.7	38
SMBJ5940B	940B	43	8.7	53	0.25	950	1.0	32.7	34
SMBJ5941B	941B	47	8.0	67	0.25	1000	1.0	35.8	31
SMBJ5942B	942B	51	7.3	70	0.25	1100	1.0	38.8	29
SMBJ5943B	943B	56	6.7	86	0.25	1300	1.0	42.6	26
SMBJ5944B	944B	62	6.0	100	0.25	1500	1.0	47.1	24
SMBJ5945B	945B	68	5.5	120	0.25	1700	1.0	51.2	22
SMBJ5946B	946B	75	5.0	140	0.25	2000	1.0	56.0	20
SMBJ5947B	947B	82	4.6	160	0.25	2500	1.0	62.2	18
SMBJ5948B	948B	91	4.1	200	0.25	3000	1.0	69.2	16
SMBJ5949B	949B	100	3.7	250	0.25	3100	1.0	76.0	15
SMBJ5950B	950B	110	3.4	300	0.25	4000	1.0	83.6	13
SMBJ5951B	951B	120	3.1	380	0.25	4500	1.0	91.2	12
SMBJ5952B	952B	130	2.9	450	0.25	5000	1.0	98.8	11
SMBJ5953B	953B	150	2.5	600	0.25	6000	1.0	114.0	10
SMBJ5954B	954B	160	2.3	700	0.25	6500	1.0	121.6	9.0
SMBJ5955B	955B	180	2.1	900	0.25	7000	1.0	136.8	8.0
SMBJ5956B	956B	200	1.9	1200	0.25	8000	1.0	152.0	7.0

Notes:

*1: No suffix indicates a $\pm 20\%$ tolerance on nominal V_Z . Suffix A denotes a $\pm 10\%$ tolerance, B denotes a $\pm 5\%$ tolerance, C denotes a $\pm 2\%$ tolerance, and D denotes a $\pm 1\%$ tolerance.

*2: Zener voltage (V_Z) is measured at $T_L=30^\circ C$. Voltage measurement to be performed 90 seconds after application of dc current.

*3: The zener impedance is derived from the 60Hz ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK} .

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Ratings and Characteristic Curves (@ $T_A=25^\circ\text{C}$ unless otherwise noted)

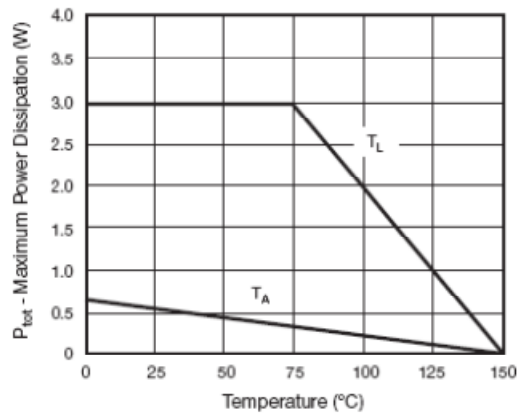


Fig. 1 - Steady State Power Durlating

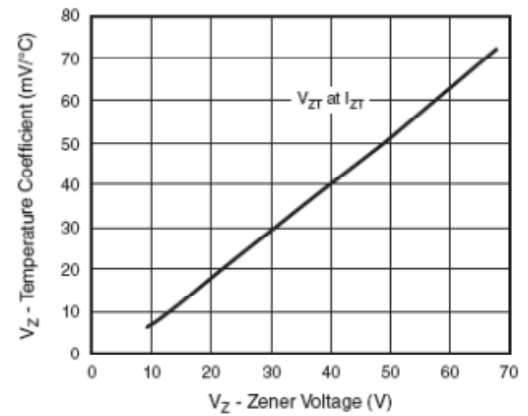


Fig. 3 - Typical Temperature Coefficients

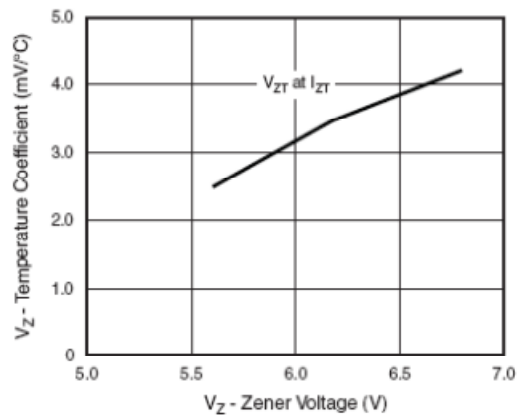


Fig. 2 - Typical Temperature Coefficients

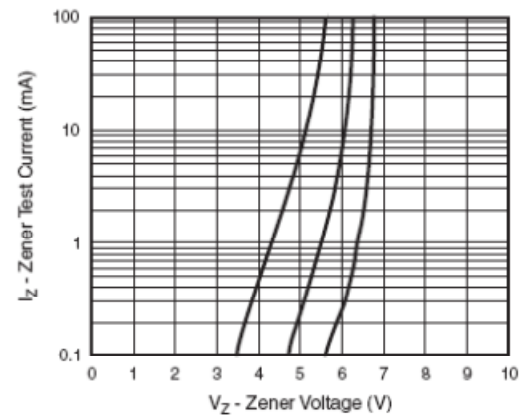
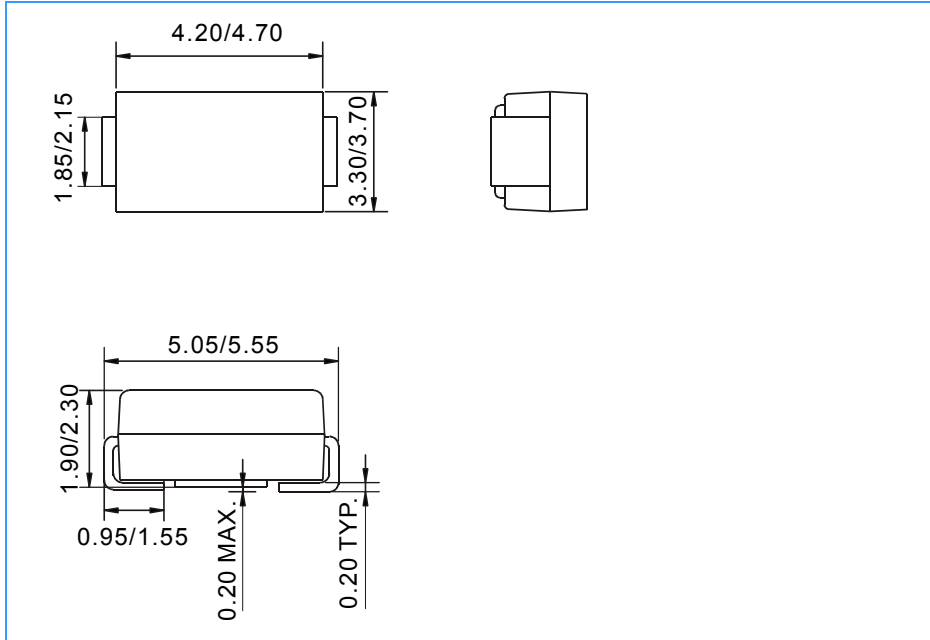


Fig. 4 - Typical Zener Voltage

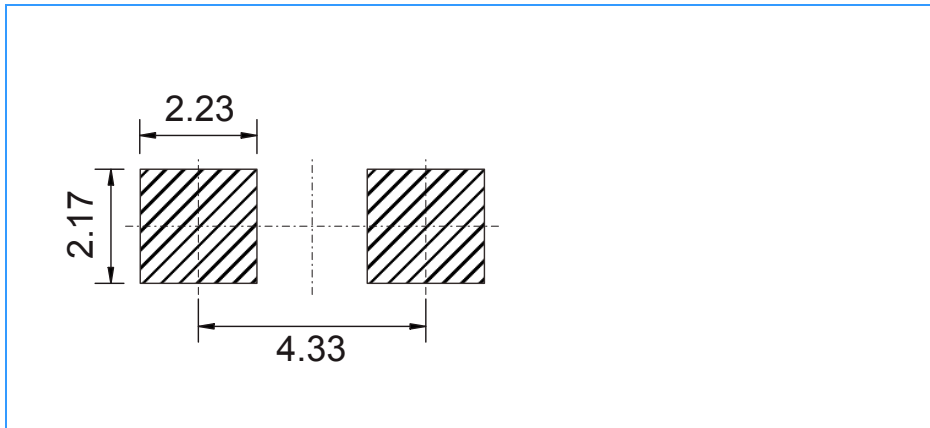
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Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



Ordering Information

Part Number	Package	Shipping Quantity
SMBJ5913B - SMBJ5956B	SMB	3000 / Tape & Reel