

Surface Mount Zener Voltage Regulators

FEATURES

- Total power dissipation: Max. 5 W.
- Wide zener reverse voltage range 3.3V to 200V.
- Small plastic package suitable for surface mounted design.

MECHANICAL DATA

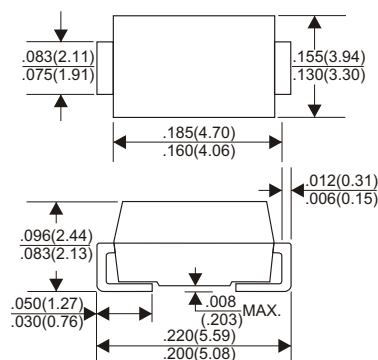
- Case: SMB
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.095g / 0.0034oz

VOLTAGE RANGE

3.3 to 200 Volts

5000mW

DO-214AA(SMB)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.
Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

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

PARAMETER	SYMBOL	VALUE	UNIT
Maximum steady state power dissipation at $T_L = 75^\circ\text{C}$	P_{tot}	5000	mW
Maximum instantaneous forward voltage at 200 mA for all types ⁽³⁾	V_F	1.2	V
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +150	°C
Typical thermal resistance, junction to lead	$R_{\theta\text{JL}}$ ⁽¹⁾	226	°C/W
Typical thermal resistance, junction to ambient	$R_{\theta\text{JA}}$ ⁽²⁾	65	°C/W

Notes

- ⁽¹⁾ Mounted on PCB with 5.0 mm x 5.0 mm copper pads attached to each terminal
- ⁽²⁾ Mounted on minimum recommended pad layout
- ⁽³⁾ Pulse test: 300 μs pulse width, 1 % duty cycle

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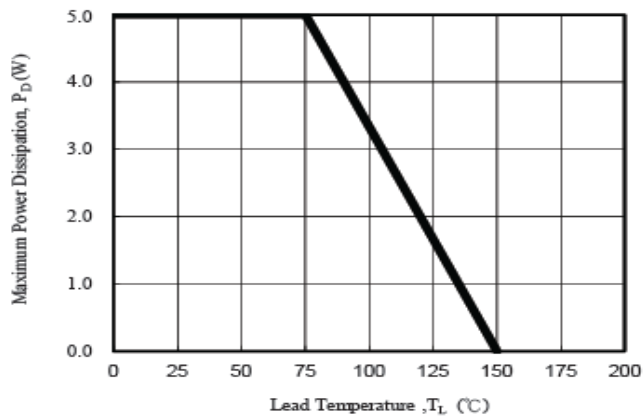


Fig. 1 - Power Temperature Derating Curve

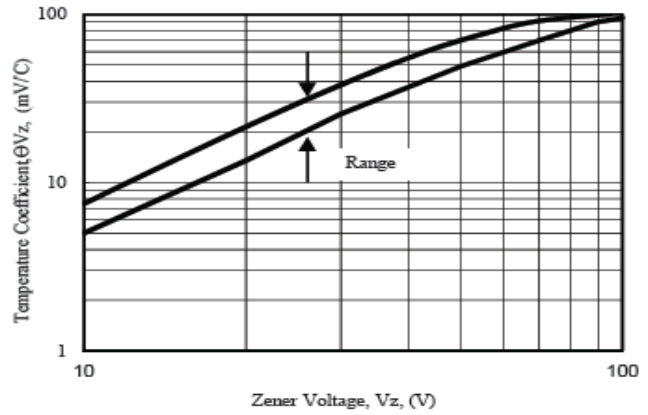


Fig. 2 - Temperature Coefficients v.s. Zener Voltage

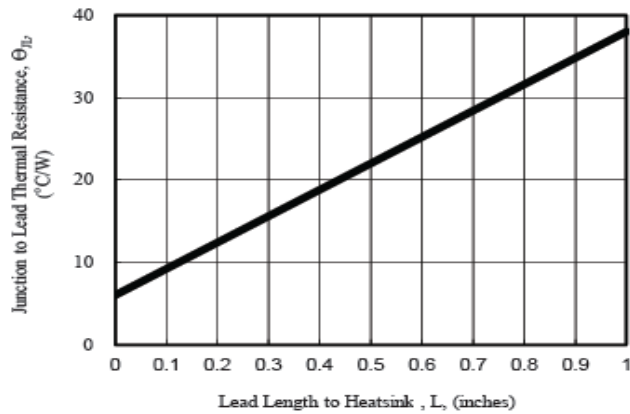


Fig. 3 - Typical Thermal Resistance v.s. Lead Length

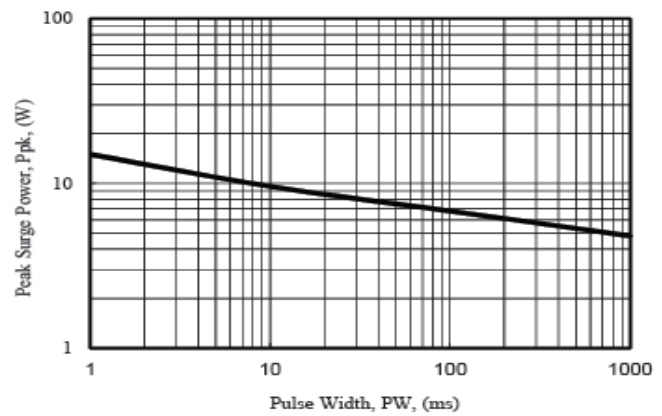


Fig. 4 - Maximum Surge Power

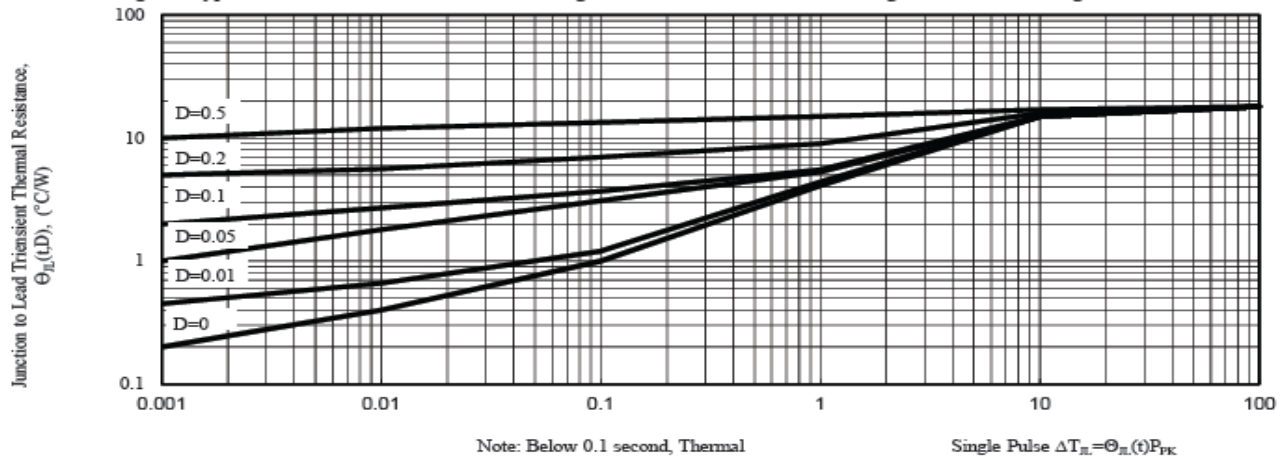


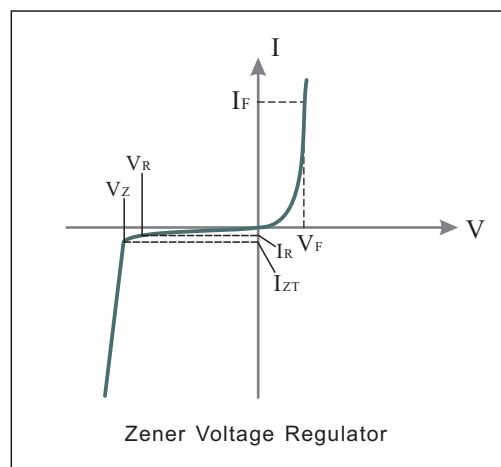
Fig. 5 - Typical Thermal Response L, Lead Length=3/8inch

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ELECTRICAL CHARACTERISTICS

($T_L = 30^\circ\text{C}$ unless otherwise noted,
 $V_F = 1.5\text{ V Max. @ } I_F = 200\text{ mA(DC)}$ 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



Notes On Page 3:

1. Tolerance and type number designation the type numbers listed indicate a tolerance of 5%
2. Zener voltage (V_Z) measurement
 Nominal Zener voltage is measured with the device junction in thermal equilibrium with ambient temperature 25°C
3. Zener impedance (Z_Z) derivation : Z_{ZT} and Z_{ZK} are measured by dividing the AC voltage drop across the device by the AC current applied.
 The specified limits are for $I_Z(\text{AC}) = 0.1 I_Z(\text{DC})$ with the AC frequency = 60 Hz

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Part Number	Device Marking Code	Nominal Zener Voltage @I _T			I _{ZT} (mA)	Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
		V _{Z AVE} (V)	V _{Z MIN} (V)	V _{Z MAX} (V)		Z _{ZT MAX} (Ω) @I _{ZT}	Z _{ZK MAX} (Ω) @I _{ZK}	I _{ZK} (mA)	I _R (μA) @V _R	V _R (V)	I _{ZM} (mA)
SMBJ5333B	333B	3.3	3.14	3.47	380	3.0	400	1.00	300	1.0	1437.0
SMBJ5334B	334B	3.6	3.42	3.78	350.0	2.5	500	1.00	150	1.0	1317.0
SMBJ5335B	335B	3.9	3.71	4.10	320.0	2.0	500	1.00	50	1.0	1216.0
SMBJ5336B	336B	4.3	4.09	4.52	290.0	2.0	500	1.00	10	1.0	1103.0
SMBJ5337B	337B	4.7	4.47	4.94	260.0	2.0	450	1.00	5	1.0	1009.0
SMBJ5338B	338B	5.1	4.85	5.36	240.0	1.5	400	1.00	1.0	1.0	930.0
SMBJ5339B	339B	5.6	5.32	5.88	220.0	1.0	400	1.00	1.0	2.0	846.0
SMBJ5340B	340B	6.0	5.70	6.30	200.0	1.0	300	1.00	1.0	3.0	790.0
SMBJ5341B	341B	6.2	5.89	6.51	200.0	1.0	200	1.00	1.0	3.0	765.0
SMBJ5342B	342B	6.8	6.46	7.14	175.0	1.0	200	1.00	10.0	5.2	700.0
SMBJ5343B	343B	7.5	7.13	7.88	175.0	1.5	200	1.00	10.0	5.7	630.0
SMBJ5344B	344B	8.2	7.79	8.61	150.0	1.5	200	1.00	10.0	6.2	580.0
SMBJ5345B	345B	8.7	8.27	9.14	150.0	2.0	200	1.00	10.0	6.6	545.0
SMBJ5346B	346B	9.1	8.65	9.56	150.0	2.0	150	1.00	7.5	6.9	520.0
SMBJ5347B	347B	10.0	9.50	10.50	125.0	2.0	125	1.00	5	7.6	475.0
SMBJ5348B	348B	11.0	10.45	11.55	125.0	2.5	125	1.00	5	8.4	430.0
SMBJ5349B	349B	12.0	11.40	12.60	100.0	2.5	125	1.00	2	9.1	395.0
SMBJ5350B	350B	13.0	12.35	13.65	100.0	2.5	100	1.00	1	9.9	365.0
SMBJ5351B	351B	14.0	13.30	14.70	100.0	2.5	75	1.00	1	10.6	340.0
SMBJ5352B	352B	15.0	14.25	15.75	75.0	2.5	75	1.00	1	11.5	315.0
SMBJ5353B	353B	16.0	15.20	16.80	75.0	2.5	75	1.00	1	12.2	295.0
SMBJ5354B	354B	17.0	16.15	17.85	70.0	2.5	75	1.00	0.5	12.9	280.0
SMBJ5355B	355B	18.0	17.10	18.90	65.0	2.5	75	1.00	0.5	13.7	265.0
SMBJ5356B	356B	19.0	18.05	19.95	65.0	3.0	75	1.00	0.5	14.4	250.0
SMBJ5357B	357B	20.0	19.00	21.00	65.0	3.0	75	1.00	0.5	15.2	237.0
SMBJ5358B	358B	22.0	20.90	23.10	50.0	3.5	75	1.00	0.5	16.7	216.0
SMBJ5359B	359B	24.0	22.80	25.20	50.0	3.5	100	1.00	0.5	18.2	198.0
SMBJ5360B	360B	25.0	23.75	26.25	50.0	4.0	110	1.00	0.5	19.0	190.0
SMBJ5361B	361B	27.0	25.65	28.35	50.0	5.0	120	1.00	0.5	20.6	176.0
SMBJ5362B	362B	28.0	26.60	29.40	50.0	6.0	130	1.00	0.5	21.2	170.0
SMBJ5363B	363B	30.0	28.50	31.50	40.0	8.0	140	1.00	0.5	22.8	158.0
SMBJ5364B	364B	33.0	31.35	34.65	40.0	10.0	150	1.00	0.5	25.1	144.0
SMBJ5365B	365B	36.0	34.20	37.80	30.0	11.0	160	1.00	0.5	27.4	132.0
SMBJ5366B	366B	39.0	37.05	40.95	30.0	14.0	170	1.00	0.5	29.7	122.0
SMBJ5367B	367B	43.0	40.85	45.15	30.0	20.0	190	1.00	0.5	32.7	110.0
SMBJ5368B	368B	47.0	44.65	49.35	25.0	25.0	210	1.00	0.5	35.8	100.0
SMBJ5369B	369B	51.0	48.45	53.55	25.0	27.0	230	1.00	0.5	38.8	93.0
SMBJ5370B	370B	56.0	53.20	58.80	20.0	35.0	280	1.00	0.5	42.6	86.0
SMBJ5371B	371B	60.0	57.00	63.00	20.0	40.0	350	1.00	0.5	42.5	79.0
SMBJ5372B	372B	62.0	58.90	65.10	20.0	42.0	400	1.00	0.5	47.1	76.0
SMBJ5373B	373B	68.0	64.60	71.40	20.0	44.0	500	1.00	0.5	51.7	70.0
SMBJ5374B	374B	75.0	71.25	78.75	20.0	45.0	620	1.00	0.5	56.0	63.0
SMBJ5375B	375B	82.0	77.90	86.10	15.0	65.0	720	1.00	0.5	62.2	58.0
SMBJ5376B	376B	87.0	82.65	91.35	15.0	75.0	760	1.00	0.5	66.0	54.5
SMBJ5377B	377B	91.0	86.45	95.55	15.0	75.0	760	1.00	0.5	69.2	52.5
SMBJ5378B	378B	100.0	95.00	105.00	12.0	90.0	800	1.00	0.5	76.0	47.5
SMBJ5379B	379B	110.0	104.50	115.50	12.0	125.0	1000	1.00	0.5	83.6	43.0
SMBJ5380B	380B	120.0	114.00	126.00	10.0	170.0	1150	1.00	0.5	91.2	39.5
SMBJ5381B	381B	130.0	123.50	136.50	10.0	190.0	1250	1.00	0.5	98.8	36.6
SMBJ5382B	382B	140.0	133.00	147.00	8.0	230.0	1500	1.00	0.5	106.0	34.0
SMBJ5383B	383B	150.0	142.50	157.50	8.0	330.0	1500	1.00	0.5	114.0	31.6
SMBJ5384B	384B	160.0	152.00	168.00	8.0	350.0	1650	1.00	0.5	122.0	29.4
SMBJ5385B	385B	170.0	161.50	178.50	8.0	380.0	1750	1.00	0.5	129.0	28.0
SMBJ5386B	386B	180.0	171.00	189.00	5.0	430.0	1750	1.00	0.5	137.0	26.4
SMBJ5387B	387B	190.0	180.50	199.50	5.0	450.0	1850	1.00	0.5	144.0	25.0
SMBJ5388B	388B	200.0	190.00	210.00	5.0	480.0	1850	1.00	0.5	152.0	23.6

Remark:

The device numbers listed have a standard tolerance on the nominal zener voltage of $\pm 5\%$.