

1SMB5333B-1SMB5388B



Surface Mount Silicon Zener Diodes

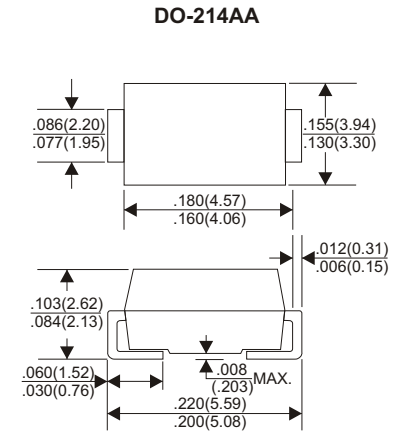
Features

- ✧ Complete Voltage Range 3.3 to 200 Volts
- ✧ High peak reverse power dissipation
- ✧ High reliability
- ✧ Low leakage current
- ✧ **Pb / RoHS Free**

Mechanical Data

- ✧ Case : SMB (DO-214AA) Molded plastic
- ✧ Epoxy : UL94V-O rate flame retardant
- ✧ Lead : Lead formed for Surface mount
- ✧ Polarity : Color band denotes cathode end
- ✧ Mounting position : Any
- ✧ Weight : 0.093 gram

V_Z : 3.3 - 200 Volts
P_D : 5 Watts



Dimensions in inches and (millimeters)

MAXIMUM RATINGS

Rating at 25°C ambient temperature unless otherwise specified

Rating	Symbol	Value	Unit
Power Dissipation at $T_L = 25^\circ\text{C}$	P_D	5	W
Maximum Forward Voltage at $I_F = 1.0\text{ A}$	V_F	1.2	V
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	90	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 1)	$R_{\theta JL}$	25	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	- 65 to + 150	$^\circ\text{C}$

Note :

- (1) When mounted on FR4 PC board (1 oz Cu) with recommended footprint.

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ELECTRICAL CHARACTERISTICS (Rating at 25 °C ambient temperature unless otherwise specified)

TYPE	Regulator Voltage		Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum Zener Current	Maximum Surge Current	Maximum Voltage
	$V_Z @ I_{ZT}$	I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	I_{ZK}	$I_R @ V_R$		I_{ZM}	I_{ZSM}	Regulator
	(V)	(mA)	(Ω)	(Ω)	(mA)	(μ A)	(V)	(mA)	(A)	ΔV_Z
1SMB5333B	3.3	380	3.0	400	1.0	300	1.0	1440	20.0	0.85
1SMB5334B	3.6	350	2.5	500	1.0	150	1.0	1320	18.7	0.80
1SMB5335B	3.9	320	2.0	500	1.0	50	1.0	1220	17.6	0.54
1SMB5336B	4.3	290	2.0	500	1.0	10	1.0	1100	16.4	0.49
1SMB5337B	4.7	260	2.0	450	1.0	5.0	1.0	1010	15.3	0.44
1SMB5338B	5.1	240	1.5	400	1.0	1.0	1.0	930	14.4	0.39
1SMB5339B	5.6	220	1.0	400	1.0	1.0	2.0	856	13.4	0.25
1SMB5340B	6.0	200	1.0	300	1.0	1.0	3.0	790	12.7	0.19
1SMB5341B	6.2	200	1.0	200	1.0	1.0	3.0	765	12.4	0.10
1SMB5342B	6.8	175	1.0	200	1.0	10	5.2	700	11.5	0.15
1SMB5343B	7.5	175	1.5	200	1.0	10	5.7	630	10.7	0.15
1SMB5344B	8.2	150	1.5	200	1.0	10	6.2	580	10.0	0.20
1SMB5345B	8.7	150	2.0	200	1.0	10	6.6	545	9.5	0.20
1SMB5346B	9.1	150	2.0	150	1.0	7.5	6.9	520	9.2	0.22
1SMB5347B	10	125	2.0	125	1.0	5.0	7.6	475	8.6	0.22
1SMB5348B	11	125	2.5	125	1.0	5.0	8.4	430	8.0	0.25
1SMB5349B	12	100	2.5	125	1.0	2.0	9.1	395	7.5	0.25
1SMB5350B	13	100	2.5	100	1.0	1.0	9.9	365	7.0	0.25
1SMB5351B	14	100	2.5	75	1.0	1.0	10.6	340	6.7	0.25
1SMB5352B	15	75	2.5	75	1.0	1.0	11.5	315	6.3	0.25
1SMB5353B	16	75	2.5	75	1.0	1.0	12.2	295	6.0	0.30
1SMB5354B	17	70	2.5	75	1.0	0.5	12.9	280	5.8	0.35
1SMB5355B	18	65	2.5	75	1.0	0.5	13.7	265	5.5	0.40
1SMB5356B	19	65	3.0	75	1.0	0.5	14.4	250	5.3	0.40
1SMB5357B	20	65	3.0	75	1.0	0.5	15.2	237	5.1	0.40
1SMB5358B	22	50	3.5	75	1.0	0.5	16.7	216	4.7	0.45
1SMB5359B	24	50	3.5	100	1.0	0.5	18.2	198	4.4	0.55
1SMB5360B	25	50	4.0	110	1.0	0.5	19.0	190	4.3	0.55
1SMB5361B	27	50	5.0	120	1.0	0.5	20.6	176	4.1	0.60
1SMB5362B	28	50	6.0	130	1.0	0.5	21.2	170	3.9	0.60
1SMB5363B	30	40	8.0	140	1.0	0.5	22.8	158	3.7	0.60
1SMB5364B	33	40	10	150	1.0	0.5	25.1	144	3.5	0.60
1SMB5365B	36	30	11	160	1.0	0.5	27.4	132	3.3	0.65
1SMB5366B	39	30	14	170	1.0	0.5	29.7	122	3.1	0.65
1SMB5367B	43	30	20	190	1.0	0.5	32.7	110	2.8	0.70
1SMB5368B	47	25	25	210	1.0	0.5	35.8	100	2.7	0.80
1SMB5369B	51	25	27	230	1.0	0.5	38.8	93.0	2.5	0.90
1SMB5370B	56	20	35	280	1.0	0.5	42.6	86.0	2.3	1.00
1SMB5371B	60	20	40	350	1.0	0.5	45.5	79.0	2.2	1.20
1SMB5372B	62	20	42	400	1.0	0.5	47.1	76.0	2.1	1.35
1SMB5373B	68	20	44	500	1.0	0.5	51.7	70.0	2.0	1.50
1SMB5374B	75	20	45	620	1.0	0.5	56.0	63.0	1.9	1.60
1SMB5375B	82	15	65	720	1.0	0.5	62.2	58.0	1.8	1.80
1SMB5376B	87	15	75	760	1.0	0.5	66.0	54.5	1.7	2.00
1SMB5377B	91	15	75	760	1.0	0.5	69.2	52.5	1.6	2.20
1SMB5378B	100	12	90	800	1.0	0.5	76.0	47.5	1.5	2.30
1SMB5379B	110	12	125	1000	1.0	0.5	83.6	43.0	1.4	2.50
1SMB5380B	120	10	170	1150	1.0	0.5	91.2	39.5	1.3	2.50
1SMB5381B	130	10	190	1250	1.0	0.5	98.8	36.6	1.2	2.50
1SMB5382B	140	8.0	230	1500	1.0	0.5	106	34.0	1.2	2.50
1SMB5383B	150	8.0	330	1500	1.0	0.5	114	31.6	1.1	3.00
1SMB5384B	160	8.0	350	1650	1.0	0.5	122	29.4	1.1	3.00
1SMB5385B	170	8.0	380	1750	1.0	0.5	129	28.0	1.0	3.00
1SMB5386B	180	5.0	430	1750	1.0	0.5	137	26.4	1.0	4.00
1SMB5387B	190	5.0	450	1850	1.0	0.5	144	25.0	0.9	5.00
1SMB5388B	200	5.0	480	1850	1.0	0.5	152	23.6	0.9	5.00

Notes : (1) Suffix " B " indicates $\pm 5\%$ tolerance, suffix " A " indicates $\pm 10\%$ tolerance.

(2) The surge current (I_{ZSM}) is specified as the maximum peak of a non- recurrent half-sin wave of 8.3 ms duration.

(3) Voltage regulation (V_Z) is the difference between the voltage measured at 10% and 50% of I_{ZM}

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RATING AND CHARACTERISTIC CURVES (SMBJ5333B - SMBJ5388B)

Fig. 1 POWER DERATING CURVE

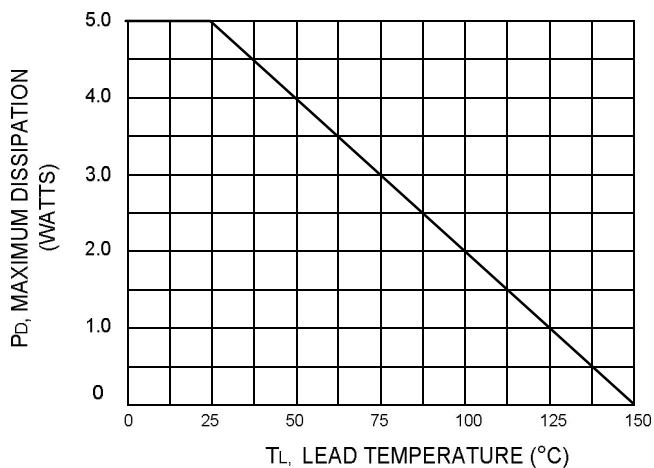


Fig.2 Maximum Non-Repetitive Surg Current versus Nominal Zener Voltage

