

**SMBJ5333B
THRU
SMBJ5388B**

**5 Watt
Surface Mount
Silicon
Zener Diodes**

Features

- Low profile package for surface mounting (flat handling surface for accurate placement)
- Zener Voltage 3.3V to 200V
- High Surge Current Capability
- For available tolerances – see note 1
- Available on Tape and Reel (see EIA std RS-481)

Mechanical Data

- Standard JEDEC outlines as shown
- Terminals gull-wing or c-bend (modified J-bend) tin-lead plated and solderable per MIL-STD-750, method 2026
- Polarity is indicated by cathode band
- Maximum temperature for soldering: 260°C for 10 seconds.

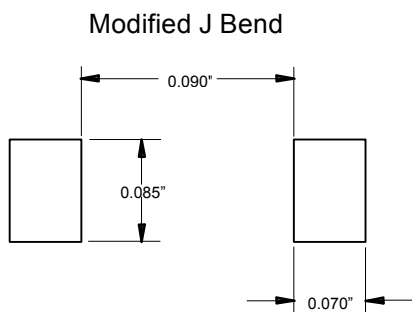
Maximum Ratings @ 25°C Unless Otherwise Specified

Forward Voltage at 1.0A Current	V_F	1.2 Volts
Steady State Power Dissipation	$P_{(AV)}$	5 Watts See note 2
Operating and Storage Temperatures	T_J, T_{STG}	-55°C to +150°C
Thermal Resistance	$R_{\theta JL}$	25°C/W

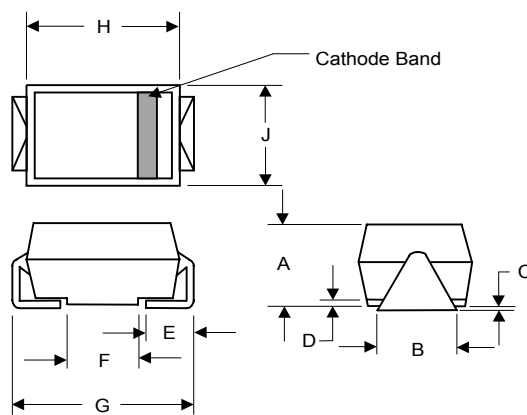
Notes

1. Mounted on copper pads as shown below.
2. Lead temperature at 25°C = T_L at mounting plane. Derate linearly above 25°C to zero power at 150°C

PAD LAYOUT



**DO-214AA
(SMBJ) (Round Lead)**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.078	.116	1.98	2.95	
B	.075	.089	1.90	2.25	
C	.002	.008	.05	.20	
D	----	.02	----	.51	
E	.035	.055	.90	1.40	
F	.065	.091	1.65	2.32	
G	.205	.224	5.21	5.69	
H	.160	.180	4.06	4.57	
J	.130	.155	3.30	3.94	



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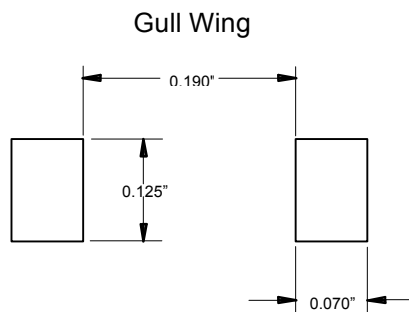
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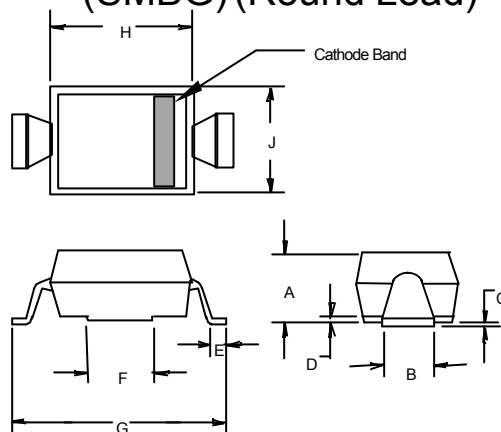
Notes

1. Mounted on copper pads as shown below.
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PAD LAYOUT



DO-215AA (SMBG) (Round Lead)



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.075	.116	1.90	2.95	
B	.078	.087	1.98	2.21	
C	.002	.008	.05	.20	
D	—	.02	—	.51	
E	.015	.03	.38	.76	
F	.065	.084	1.65	2.13	
G	.245	.276	6.22	7.00	
H	.160	.180	4.06	4.57	
J	.130	.151	3.30	3.83	

SMB(G or J)5333B thru SMB(G or J)5388B



Electrical Characteristics

Microsemi Part Number		Regulator Voltage (V _Z)	Test Current (I _{ZT})	Maximum Dynamic Impedance (Z _Z) (A&B Suffix)	Maximum Reverse Current (I _R) @ V _R	I _R Test Voltage (V _R) (Non-Suffix & A Suffix)	I _R Test Voltage (V _R) (B,C,D Suffix)	Maximum Regulator Current (I _{ZM}) (B,C,D Suffix)	Maximum Dynamic Knee Impedance Z _{zk} @ 1.0 mA (A,B,C,D Suffix)	Maximum Surge Current (I _{ZSM})	Maximum Voltage Regulation (ΔV _Z) (A,B,C,D Suffix)
Gull-Wing Lead	C-Bend (Mod – J)	V	mAdc	OHMS	μA	V	V	mA	OHMS	AMPS	VOLTS
SMBG5333B	SMBJ5333B	3.3	380	3.0	300	1.0	1.0	1440	400	20	0.85
SMBG5334B	SMBJ5334B	3.6	350	2.5	150	1.0	1.0	1320	500	18.7	0.80
SMBG5335B	SMBJ5335B	3.9	320	2.0	50	1.0	1.0	1220	500	17.6	0.54
SMBG5336B	SMBJ5336B	4.3	290	2.0	10	1.0	1.0	1100	500	16.4	0.49
SMBG5337B	SMBJ5337B	4.7	260	2.0	5.0	1.0	1.0	1010	450	15.3	0.44
SMBG5338B	SMBJ5338B	5.1	240	1.5	1.0	1.0	1.0	930	400	14.4	0.39
SMBG5339B	SMBJ5339B	5.6	220	1.0	1.0	2.0	2.0	865	400	13.4	0.25
SMBG5340B	SMBJ5340B	6.0	200	1.0	1.0	3.0	3.0	790	300	12.7	0.19
SMBG5341B	SMBJ5341B	6.2	200	1.0	1.0	3.0	3.0	765	200	12.4	0.10
SMBG5342B	SMBJ5342B	6.8	175	1.0	10	4.9	5.2	700	200	11.5	0.15
SMBG5343B	SMBJ5343B	7.5	175	1.5	10	6.4	5.7	630	200	10.7	0.15
SMBG5344B	SMBJ5344B	8.2	150	1.5	10	6.9	6.2	580	200	10	0.20
SMBG5345B	SMBJ5345B	8.7	150	2.0	10	6.25	6.6	545	200	9.5	0.20
SMBG5346B	SMBJ5346B	9.1	150	2.0	7.5	6.6	6.9	520	150	9.2	0.22
SMBG5347B	SMBJ5347B	10	125	2.0	5.0	7.2	7.6	475	125	8.6	0.22
SMBG5348B	SMBJ5348B	11	125	2.5	5.0	8.0	8.4	430	125	8.0	0.25
SMBG5349B	SMBJ5349B	12	100	2.5	2.0	8.6	9.1	395	125	7.5	0.25
SMBG5350B	SMBJ5350B	13	100	2.5	1.0	9.4	9.9	265	100	7.0	0.25
SMBG5351B	SMBJ5351B	14	100	2.5	1.0	10.1	10.6	340	75	6.7	0.25
SMBG5352B	SMBJ5352B	15	75	2.5	1.0	10.8	11.5	315	75	6.3	0.25
SMBG5353B	SMBJ5353B	16	75	2.5	1.0	11.5	12.2	295	75	6.0	0.30
SMBG5354B	SMBJ5354B	17	70	2.5	0.5	12.2	12.3	280	75	5.8	0.35
SMBG5355B	SMBJ5355B	18	65	2.5	0.5	13	13.7	264	75	5.5	0.40
SMBG5356B	SMBJ5356B	19	65	3.0	0.5	13.7	14.4	250	75	5.3	0.40
SMBG5357B	SMBJ5357B	20	65	3.0	0.5	14.4	15.2	237	75	5.1	0.40
SMBG5358B	SMBJ5358B	22	50	3.5	0.5	15.8	16.7	216	75	4.7	0.45
SMBG5359B	SMBJ5359B	24	50	3.5	0.5	17.3	18.2	198	100	4.4	0.55
SMBG5360B	SMBJ5360B	25	50	4.0	0.5	18	19	190	110	4.3	0.55
SMBG5361B	SMBJ5361B	27	50	5.0	0.5	19.4	20.6	176	120	4.1	0.60
SMBG5362B	SMBJ5362B	28	50	6.0	0.5	20.1	21.2	170	130	3.9	0.60
SMBG5363B	SMBJ5363B	30	40	8.0	0.5	21.6	22.8	158	140	3.7	0.60
SMBG5364B	SMBJ5364B	33	40	10	0.5	23.8	25.1	144	150	3.5	0.63
SMBG5365B	SMBJ5365B	36	30	11	0.5	25.9	27.4	132	160	3.3	0.65
SMBG5366B	SMBJ5366B	39	30	14	0.5	28.1	29.7	122	170	3.1	0.65
SMBG5367B	SMBJ5367B	43	30	20	0.5	31	32.7	110	190	2.8	0.70
SMBG5368B	SMBJ5368B	47	25	25	0.5	33.8	35.8	100	210	2.7	0.80
SMBG5369B	SMBJ5369B	51	25	27	0.5	36.7	38.8	93	230	2.5	0.90
SMBG5370B	SMBJ5370B	56	20	35	0.5	40.3	42.5	86	280	2.3	1.00
SMBG5371B	SMBJ5371B	60	20	40	0.5	43	45.5	79	350	2.2	1.20
SMBG5372B	SMBJ5372B	62	20	42	0.5	44.6	47.1	76	400	2.1	1.35
SMBG5373B	SMBJ5373B	68	20	44	0.5	49	51.7	70	500	2.0	1.50
SMBG5374B	SMBJ5374B	75	20	45	0.5	54	56	63	620	1.9	1.60
SMBG5375B	SMBJ5375B	82	15	65	0.5	59	62.2	58	720	1.8	1.80
SMBG5376B	SMBJ5376B	87	15	75	0.5	63	66	54.5	760	1.7	2.00
SMBG5377B	SMBJ5377B	91	15	75	0.5	65.5	69.2	52.5	760	1.6	2.20
SMBG5378B	SMBJ5378B	100	12	90	0.5	72	76	47.5	800	1.5	2.30
SMBG5379B	SMBJ5379B	110	12	125	0.5	79.2	83.6	43	1000	1.4	2.50
SMBG5380B	SMBJ5380B	120	10	170	0.5	86.4	91.2	39.5	1150	1.3	2.50
SMBG5381B	SMBJ5381B	130	10	190	0.5	93.6	93.8	36.6	1250	1.2	2.50
SMBG5382B	SMBJ5382B	140	8.0	230	0.5	101	106	34	1500	1.2	2.50
SMBG5383B	SMBJ5383B	150	8.0	330	0.5	108	114	31.5	1500	1.1	3.00
SMBG5384B	SMBJ5384B	160	8.0	350	0.5	115	122	29.4	1660	1.1	3.00
SMBG5385B	SMBJ5385B	170	8.0	380	0.5	122	129	28	1750	1.0	3.00
SMBG5386B	SMBJ5386B	180	5.0	430	0.5	130	137	26.4	1750	1.0	4.00
SMBG5387B	SMBJ5387B	190	5.0	450	0.5	137	144	25	1850	0.9	5.00
SMBG5388B	SMBJ5388B	200	5.0	480	0.5	144	152	23.6	1850	0.9	5.00

SMB(G or J)5333B thru SMB(G or J)5388B



Note 1 Devices listed have a $\pm 5\%$ tolerance on nominal V_Z . The suffix A denotes a $\pm 20\%$ tolerance, suffix C denotes $\pm 2\%$, and suffix D denotes $\pm 1\%$.

Note 2 Nominal Zener Voltage (V_Z) is read with the device in standard test clips with 3/8 to 1/2 inch spacing between clip and case of the diode. Before reading, the diode is allowed to stabilize for a period of 40 $\pm$ 10 milliseconds at 25°C (+8, -2°C).

Note 3 The Zener impedance (Z_{ZT} or Z_{ZK}) is derived from the 60 Hz ac voltage, which results when an ac current having a rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK} respectively. Dynamic impedance variations with other current values are described in Micronote 202.

Note 4 The Maximum Reverse (leakage) Current is specified for devices with $\pm 20\%$ and $\pm 10\%$ voltage tolerances on nominal V_Z in another column.

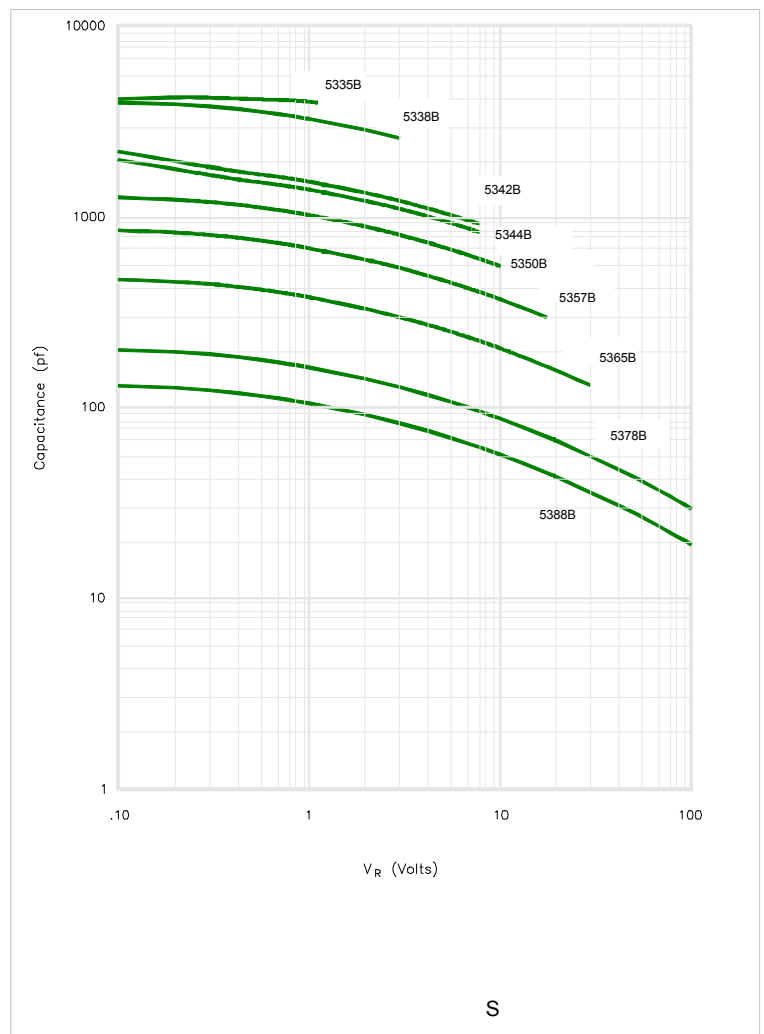
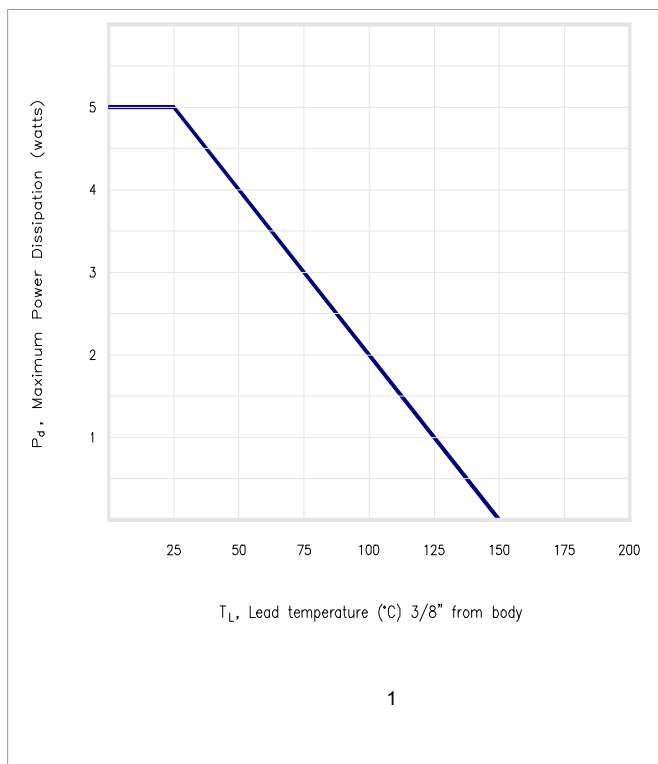
Note 5 The Maximum Zener Current (I_{ZM}) shown is for $\pm 5\%$ tolerance devices. I_{ZM} for $\pm 10\%$ and $\pm 20\%$ devices can be calculated using the formula:

$$I_{ZM} = \frac{P}{V_{ZM}}$$

Where " V_{ZM} " is V_Z at the high end of the voltage tolerance specified and " P " is the rated power of the device.

Note 6 The Surge Current (I_{ZM}) is specified as the maximum peak of a nonrecurring sine wave of 8.3 milliseconds duration.

Note 7 Voltage Regulation (ΔV_Z) is the difference between the voltage measured at 10% and 50% I_{ZM} .



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