

SMB5338 THRU SMB5388

5 W Surface Mount Silicon Zener Diodes

Features

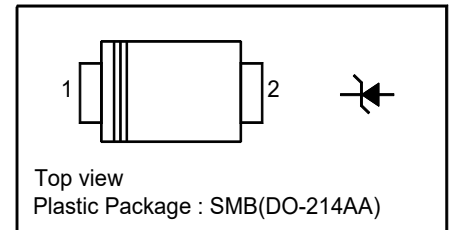
- Low inductance
- Low reverse leakage
- High peak reverse power dissipation
- For use in stabilizing and clipping with high power rating

Mechanical Data

- **Case:** SMB (DO-214AA) molded plastic
- **Epoxy:** UL 94V-0 rate flame retardant
- **Terminals:** Solder plated solderable per MIL-STD-750 method 2025
- **Polarity:** color band denotes cathode end
- **Mounting position:** Any

PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



Maximum Ratings and Electrical Characteristics

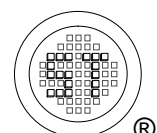
Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Symbol	Value	Unit
Power Dissipation $T_L = 75^\circ\text{C}$	P_{tot}	5	W
Operating Temperature Range	T_j	- 50 to + 150	°C
Storage Temperature Range	T_{stg}	- 50 to + 175	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Typical Thermal Resistance Junction to Lead ¹⁾	$R_{\theta\text{JL}}$	15	°C/W

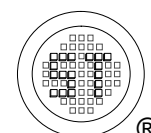
¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.



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Characteristics at $T_a = 25^\circ\text{C}$ ($V_F = 1.2\text{ V Max. at } I_F = 200\text{ mA}$)

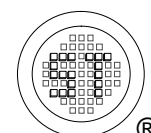
Type	Marking Code	Zener Voltage Range ¹⁾				Zener Impedance			Reverse Current		Maximum DC Zener Current I_{ZM} (mA)
		V_{Znom}	V_{ZT}		at I_{ZT}	Z_{ZT} at I_{ZT}	Z_{ZK}	at I_{ZK}	I_R	at V_R	
		(V)	Min.(V)	Max.(V)	(mA)	Max.(Ω)	Max.(Ω)	(mA)	Max.(μA)	(V)	
SMB5338	38	5.1	4.08	6.12	240	1.5	400	1	1	1	930
SMB5338A	38A	5.1	4.59	5.61	240	1.5	400	1	1	1	930
SMB5338B	38B	5.1	4.85	5.36	240	1.5	400	1	1	1	930
SMB5339	39	5.6	4.48	6.72	220	1	400	1	1	2	865
SMB5339A	39A	5.6	5.04	6.16	220	1	400	1	1	2	865
SMB5339B	39B	5.6	5.32	5.88	220	1	400	1	1	2	865
SMB5340	40	6	4.80	7.20	200	1	300	1	1	3	790
SMB5340A	40A	6	5.40	6.60	200	1	300	1	1	3	790
SMB5340B	40B	6	5.70	6.30	200	1	300	1	1	3	790
SMB5341	41	6.2	4.96	7.44	200	1	200	1	1	3	765
SMB5341A	41A	6.2	5.58	6.82	200	1	200	1	1	3	765
SMB5341B	41B	6.2	5.89	6.51	200	1	200	1	1	3	765
SMB5342	42	6.8	5.44	8.16	175	1	200	1	10	4.9	700
SMB5342A	42A	6.8	6.12	7.48	175	1	200	1	10	4.9	700
SMB5342B	42B	6.8	6.46	7.14	175	1	200	1	10	4.9	700
SMB5343	43	7.5	6.00	9.00	175	1.5	200	1	10	5.4	630
SMB5343A	43A	7.5	6.75	8.25	175	1.5	200	1	10	5.4	630
SMB5343B	43B	7.5	7.13	7.88	175	1.5	200	1	10	5.4	630
SMB5344	44	8.2	6.56	9.84	150	1.5	200	1	10	5.9	580
SMB5344A	44A	8.2	7.38	9.02	150	1.5	200	1	10	5.9	580
SMB5344B	44B	8.2	7.79	8.61	150	1.5	200	1	10	5.9	580
SMB5345	45	8.7	6.96	10.44	150	2	200	1	10	6.3	545
SMB5345A	45A	8.7	7.83	9.57	150	2	200	1	10	6.3	545
SMB5345B	45B	8.7	8.27	9.14	150	2	200	1	10	6.3	545
SMB5346	46	9.1	7.28	10.92	150	2	150	1	7.5	6.6	520
SMB5346A	46A	9.1	8.19	10.01	150	2	150	1	7.5	6.6	520
SMB5346B	46B	9.1	8.65	9.56	150	2	150	1	7.5	6.6	520
SMB5347	47	10	8.00	12.00	125	2	125	1	5	7.2	475
SMB5347A	47A	10	9.00	11.00	125	2	125	1	5	7.2	475
SMB5347B	47B	10	9.50	10.50	125	2	125	1	5	7.2	475
SMB5348	48	11	8.80	13.20	125	2.5	125	1	5	8	430
SMB5348A	48A	11	9.90	12.10	125	2.5	125	1	5	8	430
SMB5348B	48B	11	10.45	11.55	125	2.5	125	1	5	8	430
SMB5349	49	12	9.60	14.40	100	2.5	125	1	2	8.6	395
SMB5349A	49A	12	10.80	13.20	100	2.5	125	1	2	8.6	395
SMB5349B	49B	12	11.40	12.60	100	2.5	125	1	2	8.6	395
SMB5350	50	13	10.40	15.60	100	2.5	100	1	1	9.4	365
SMB5350A	50A	13	11.70	14.30	100	2.5	100	1	1	9.4	365
SMB5350B	50B	13	12.35	13.65	100	2.5	100	1	1	9.4	365
SMB5351	51	14	11.20	16.80	100	2.5	75	1	1	10.1	340
SMB5351A	51A	14	12.60	15.40	100	2.5	75	1	1	10.1	340
SMB5351B	51B	14	13.30	14.70	100	2.5	75	1	1	10.1	340



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Characteristics at $T_a = 25^\circ\text{C}$ ($V_F = 1.2\text{ V Max. at } I_F = 200\text{ mA}$)

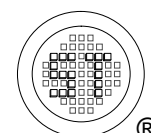
Type	Marking Code	Zener Voltage Range ¹⁾				Zener Impedance			Reverse Current		Maximum DC Zener Current I_{ZM} (mA)
		V_{Znom}	V_{ZT}		at I_{ZT}	Z_{ZT} at I_{ZT}	Z_{ZK}	at I_{ZK}	I_R	at V_R	
		(V)	Min.(V)	Max.(V)	(mA)	Max.(Ω)	Max.(Ω)	(mA)	Max.(μA)	(V)	
SMB5352	52	15	12.00	18.00	75	2.5	75	1	1	10.8	315
SMB5352A	52A	15	13.50	16.50	75	2.5	75	1	1	10.8	315
SMB5352B	52B	15	14.25	15.75	75	2.5	75	1	1	10.8	315
SMB5353	53	16	12.80	19.20	75	2.5	75	1	1	11.5	295
SMB5353A	53A	16	14.40	17.60	75	2.5	75	1	1	11.5	295
SMB5353B	53B	16	15.20	16.80	75	2.5	75	1	1	11.5	295
SMB5354	54	17	13.60	20.40	70	2.5	75	1	0.5	12.2	280
SMB5354A	54A	17	15.30	18.70	70	2.5	75	1	0.5	12.2	280
SMB5354B	54B	17	16.15	17.85	70	2.5	75	1	0.5	12.2	280
SMB5355	55	18	14.40	21.60	65	2.5	75	1	0.5	13	265
SMB5355A	55A	18	16.20	19.80	65	2.5	75	1	0.5	13	265
SMB5355B	55B	18	17.10	18.90	65	2.5	75	1	0.5	13	265
SMB5356	56	19	15.20	22.80	65	3	75	1	0.5	13.7	250
SMB5356A	56A	19	17.10	20.90	65	3	75	1	0.5	13.7	250
SMB5356B	56B	19	18.05	19.95	65	3	75	1	0.5	13.7	250
SMB5357	57	20	16.00	24.00	65	3	75	1	0.5	14.4	237
SMB5357A	57A	20	18.00	22.00	65	3	75	1	0.5	14.4	237
SMB5357B	57B	20	19.00	21.00	65	3	75	1	0.5	14.4	237
SMB5358	58	22	17.60	26.40	50	3.5	75	1	0.5	15.8	216
SMB5358A	58A	22	19.80	24.20	50	3.5	75	1	0.5	15.8	216
SMB5358B	58B	22	20.90	23.10	50	3.5	75	1	0.5	15.8	216
SMB5359	59	24	19.20	28.80	50	3.5	100	1	0.5	17.3	198
SMB5359A	59A	24	21.60	26.40	50	3.5	100	1	0.5	17.3	198
SMB5359B	59B	24	22.80	25.20	50	3.5	100	1	0.5	17.3	198
SMB5360	60	25	20.00	30.00	50	4	110	1	0.5	18	190
SMB5360A	60A	25	22.50	27.50	50	4	110	1	0.5	18	190
SMB5360B	60B	25	23.75	26.25	50	4	110	1	0.5	18	190
SMB5361	61	27	21.60	32.40	50	5	120	1	0.5	19.4	176
SMB5361A	61A	27	24.30	29.70	50	5	120	1	0.5	19.4	176
SMB5361B	61B	27	25.65	28.35	50	5	120	1	0.5	19.4	176
SMB5362	62	28	22.40	33.60	50	6	130	1	0.5	20.1	170
SMB5362A	62A	28	25.20	30.80	50	6	130	1	0.5	20.1	170
SMB5362B	62B	28	26.60	29.40	50	6	130	1	0.5	20.1	170
SMB5363	63	30	24.00	36.00	40	8	140	1	0.5	21.6	158
SMB5363A	63A	30	27.00	33.00	40	8	140	1	0.5	21.6	158
SMB5363B	63B	30	28.50	31.50	40	8	140	1	0.5	21.6	158
SMB5364	64	33	26.40	39.60	40	10	150	1	0.5	23.8	144
SMB5364A	64A	33	29.70	36.30	40	10	150	1	0.5	23.8	144
SMB5364B	64B	33	31.35	34.65	40	10	150	1	0.5	23.8	144
SMB5365	65	36	28.80	43.20	30	11	160	1	0.5	25.9	132
SMB5365A	65A	36	32.40	39.60	30	11	160	1	0.5	25.9	132
SMB5365B	65B	36	34.20	37.80	30	11	160	1	0.5	25.9	132
SMB5366	66	39	31.20	46.80	30	14	170	1	0.5	28.1	122
SMB5366A	66A	39	35.10	42.90	30	14	170	1	0.5	28.1	122
SMB5366B	66B	39	37.05	40.95	30	14	170	1	0.5	28.1	122



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Type	Marking Code	Zener Voltage Range ¹⁾				Zener Impedance			Reverse Current		Maximum DC Zener Current I_{ZM} (mA)
		V_{Znom}	V_{ZT}		at I_{ZT}	Z_{ZT} at I_{ZT}	Z_{ZK}	at I_{ZK}	I_R	at V_R	
			(V)	Min.(V)							
SMB5367	67	43	34.40	51.60	30	20	190	1	0.5	31	110
SMB5367A	67A	43	38.70	47.30	30	20	190	1	0.5	31	110
SMB5367B	67B	43	40.85	45.15	30	20	190	1	0.5	31	110
SMB5368	68	47	37.60	56.40	25	25	210	1	0.5	33.8	100
SMB5368A	68A	47	42.30	51.70	25	25	210	1	0.5	33.8	100
SMB5368B	68B	47	44.65	49.35	25	25	210	1	0.5	33.8	100
SMB5369	69	51	40.80	61.20	25	27	230	1	0.5	36.7	93
SMB5369A	69A	51	45.90	56.10	25	27	230	1	0.5	36.7	93
SMB5369B	69B	51	48.45	53.55	25	27	230	1	0.5	36.7	93
SMB5370	70	56	44.80	67.20	20	35	280	1	0.5	40.3	86
SMB5370A	70A	56	50.40	61.60	20	35	280	1	0.5	40.3	86
SMB5370B	70B	56	53.20	58.80	20	35	280	1	0.5	40.3	86
SMB5371	71	60	48.00	72.00	20	40	350	1	0.5	43	79
SMB5371A	71A	60	54.00	66.00	20	40	350	1	0.5	43	79
SMB5371B	71B	60	57.00	63.00	20	40	350	1	0.5	43	79
SMB5372	72	62	49.60	74.40	20	42	400	1	0.5	44.6	76
SMB5372A	72A	62	55.80	68.20	20	42	400	1	0.5	44.6	76
SMB5372B	72B	62	58.90	65.10	20	42	400	1	0.5	44.6	76
SMB5373	73	68	54.40	81.60	20	44	500	1	0.5	49	70
SMB5373A	73A	68	61.20	74.80	20	44	500	1	0.5	49	70
SMB5373B	73B	68	64.60	71.40	20	44	500	1	0.5	49	70
SMB5374	74	75	60.00	90.00	20	45	620	1	0.5	54	63
SMB5374A	74A	75	67.50	82.50	20	45	620	1	0.5	54	63
SMB5374B	74B	75	71.25	78.75	20	45	620	1	0.5	54	63
SMB5375	75	82	65.60	98.40	15	65	720	1	0.5	59	58
SMB5375A	75A	82	73.80	90.20	15	65	720	1	0.5	59	58
SMB5375B	75B	82	77.90	86.10	15	65	720	1	0.5	59	58
SMB5376	76	87	69.60	104.40	15	75	760	1	0.5	63	54.5
SMB5376A	76A	87	78.30	95.70	15	75	760	1	0.5	63	54.5
SMB5376B	76B	87	82.65	91.35	15	75	760	1	0.5	63	54.5
SMB5377	77	91	72.80	109.20	15	75	760	1	0.5	65.5	52.5
SMB5377A	77A	91	81.90	100.10	15	75	760	1	0.5	65.5	52.5
SMB5377B	77B	91	86.45	95.55	15	75	760	1	0.5	65.5	52.5
SMB5378	78	100	80.00	120.00	12	90	800	1	0.5	72	47.5
SMB5378A	78A	100	90.00	110.00	12	90	800	1	0.5	72	47.5
SMB5378B	78B	100	95.00	105.00	12	90	800	1	0.5	72	47.5
SMB5379	79	110	88.00	132.00	12	125	1000	1	0.5	79.2	43
SMB5379A	79A	110	99.00	121.00	12	125	1000	1	0.5	79.2	43
SMB5379B	79B	110	104.50	115.50	12	125	1000	1	0.5	79.2	43
SMB5380	80	120	96.00	144.00	10	170	1150	1	0.5	86.4	39.5
SMB5380A	80A	120	108.00	132.00	10	170	1150	1	0.5	86.4	39.5
SMB5380B	80B	120	114.00	126.00	10	170	1150	1	0.5	86.4	39.5

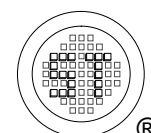


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Type	Marking Code	Zener Voltage Range ¹⁾				Zener Impedance			Reverse Current		Maximum DC Zener Current I_{ZM} (mA)
		V_{Znom}	V_{ZT}		at I_{ZT}	Z_{ZT} at I_{ZT}	Z_{ZK}	at I_{ZK}	I_R	at V_R	
		(V)	Min.(V)	Max.(V)	(mA)	Max.(Ω)	Max.(Ω)	(mA)	Max.(μA)	(V)	
SMB5381	81	130	104.00	156.00	10	190	1250	1	0.5	93.2	36.6
SMB5381A	81A	130	117.00	143.00	10	190	1250	1	0.5	93.2	36.6
SMB5381B	81B	130	123.50	136.50	10	190	1250	1	0.5	93.2	36.6
SMB5382	82	140	112.00	168.00	8	230	1500	1	0.5	101	34
SMB5382A	82A	140	126.00	154.00	8	230	1500	1	0.5	101	34
SMB5382B	82B	140	133.00	147.00	8	230	1500	1	0.5	101	34
SMB5383	83	150	120.00	180.00	8	330	1500	1	0.5	108	31.6
SMB5383A	83A	150	135.00	165.00	8	330	1500	1	0.5	108	31.6
SMB5383B	83B	150	142.50	157.50	8	330	1500	1	0.5	108	31.6
SMB5384	84	160	128.00	192.00	8	350	1650	1	0.5	115	29.4
SMB5384A	84A	160	144.00	176.00	8	350	1650	1	0.5	115	29.4
SMB5384B	84B	160	152.00	168.00	8	350	1650	1	0.5	115	29.4
SMB5385	85	170	136.00	204.00	8	380	1750	1	0.5	122	28
SMB5385A	85A	170	153.00	187.00	8	380	1750	1	0.5	122	28
SMB5385B	85B	170	161.50	178.50	8	380	1750	1	0.5	122	28
SMB5386	86	180	144.00	216.00	5	430	1750	1	0.5	130	26.4
SMB5386A	86A	180	162.00	198.00	5	430	1750	1	0.5	130	26.4
SMB5386B	86B	180	171.00	189.00	5	430	1750	1	0.5	130	26.4
SMB5387	87	190	152.00	228.00	5	450	1850	1	0.5	137	25
SMB5387A	87A	190	171.00	209.00	5	450	1850	1	0.5	137	25
SMB5387B	87B	190	180.50	199.50	5	450	1850	1	0.5	137	25
SMB5388	88	200	160.00	240.00	5	480	1850	1	0.5	144	23.6
SMB5388A	88A	200	180.00	220.00	5	480	1850	1	0.5	144	23.6
SMB5388B	88B	200	190.00	210.00	5	480	1850	1	0.5	144	23.6

¹⁾ Standard tolerance on nominal Zener voltage is $\pm 20\%$, Suffix "A" indicates $\pm 10\%$ tolerance, Suffix "B" indicates $\pm 5\%$ tolerance.



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Electrical Characteristics Curves

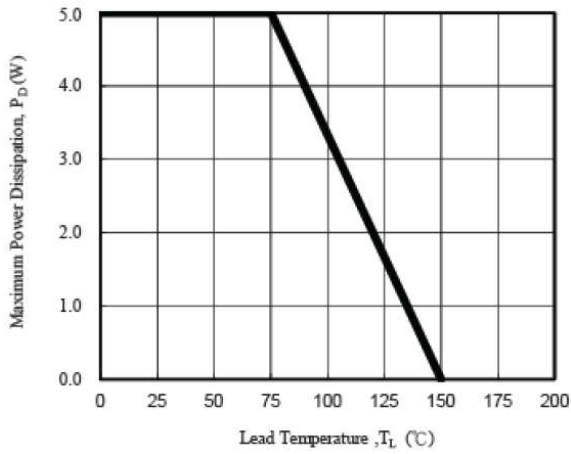


Fig. 1 - Power Temperature Derating Curve

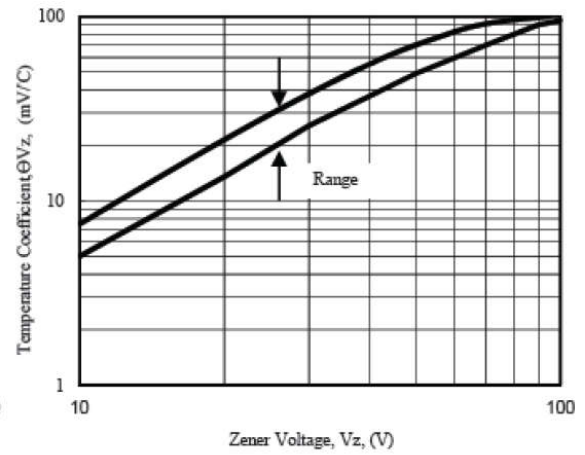


Fig. 2 - Temperature Coefficients v.s. Zener Voltage

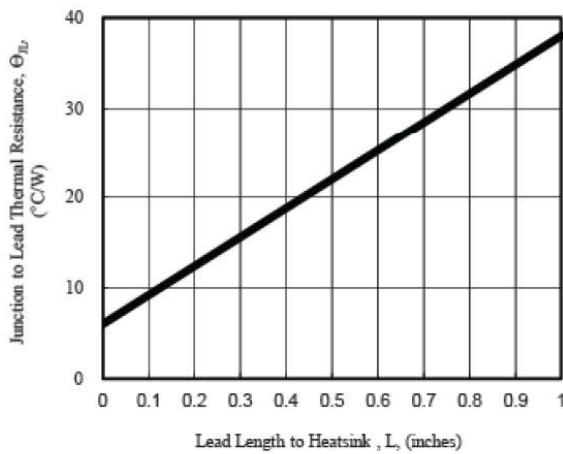


Fig. 3 - Typical Thermal Resistance v.s. Lead Length

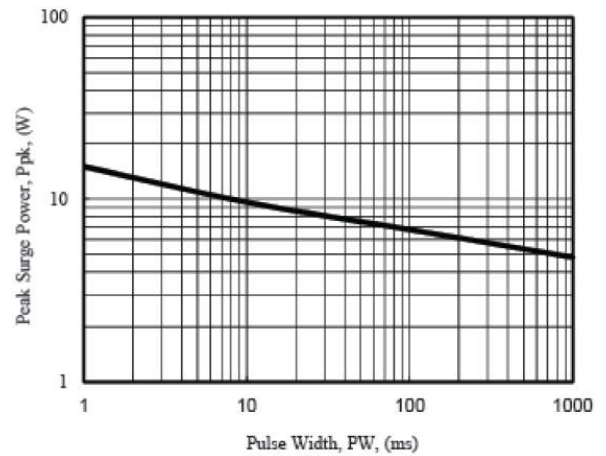


Fig. 4 - Maximum Surge Power

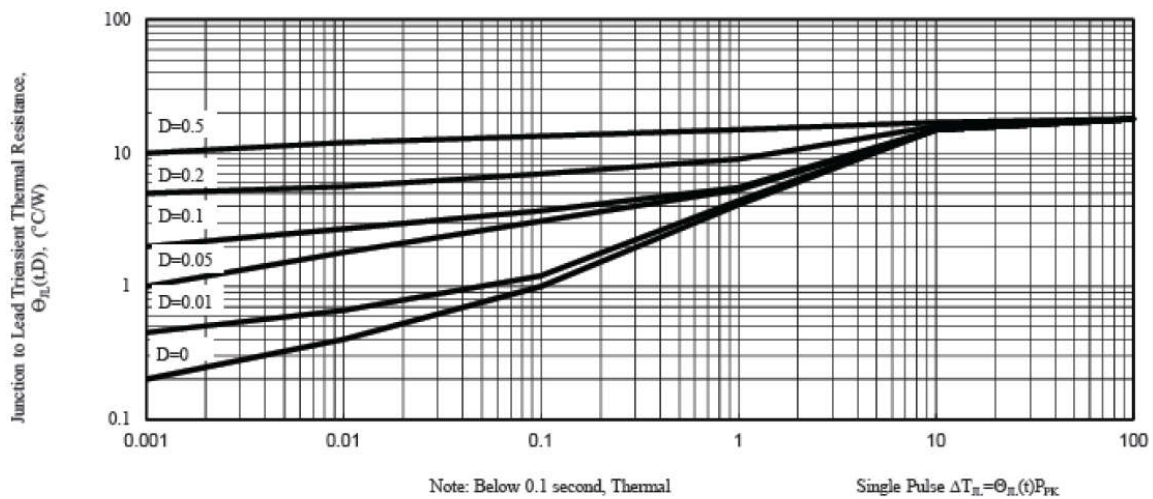
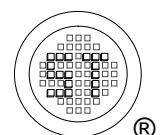


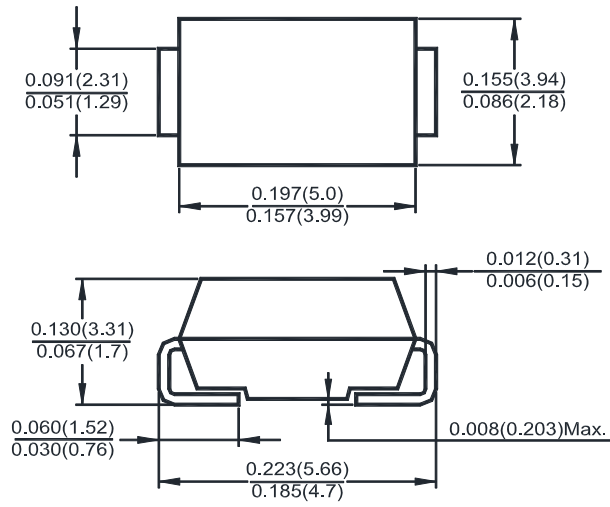
Fig. 5 - Typical Thermal Response L, Lead Length=3/8inch



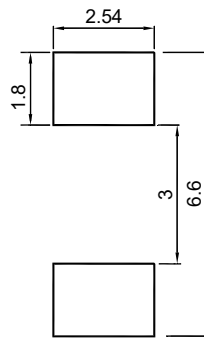
SMB5338 THRU SMB5388

Package Outline Dimensions in inches (millimeters)

SMB(DO-214AA)



Recommended Soldering Footprint



Marking information

" *** " = Part No.
 " III " = Cathode line
 Font type: Arial

