

SMB SURFACE MOUNT SILICON ZENER DIODES

Features

- Low Zener Impedance
- Power Dissipation of 5000mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Applications

Zener diode is generally used as reference voltage sources in regulated power supplies or as protective diode in overvoltage protection circuits.

Mechanical Data

- Case: DO-214AA(SMB)
- Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

Function Diagram

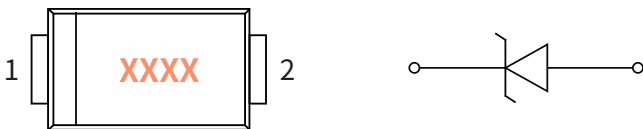
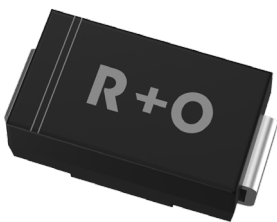
Zener Diode

3.3 to 200 Volts

Power Dissipation

5.0 Watts

DO-214AA(SMB)



Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Power Dissipation at Tc=75°C	P _D	mW	5000
Forward Voltage @ I _F =200mA	V _F	V	1.2
Storage Temperature	T _{stg}	°C	-55 ~+150
Junction Temperature	T _j	°C	-55 ~+150
Typical Thermal Resistance	R _{θJA}	°C /W	90

Electrical Parameter

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

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SURFACE MOUNT ZENER DIODES

● Electrical Characteristics (Ta=25°C Unless otherwise noted)

Type Number	Type Code	Regulator Voltage	Test Current	Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current	Maximum Surge Current	Maximum Voltage Regulation
		$V_Z @ I_{ZT}$	I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	I_{ZK}	$I_R @ V_R$		I_{ZM}	I_{ZSM}	
		(V)	(mA)	(Ω)		(mA)	(μA)	(V)	(mA)	(A)	
SMBJ5333B	333B	3.3	380	3.0	400	1.0	300	1.0	1440	20.0	0.85
SMBJ5334B	334B	3.6	350	2.5	500	1.0	150	1.0	1320	18.7	0.80
SMBJ5335B	335B	3.9	320	2.0	500	1.0	50	1.0	1220	17.6	0.54
SMBJ5336B	336B	4.3	290	2.0	500	1.0	10	1.0	1100	16.4	0.49
SMBJ5337B	337B	4.7	260	2.0	450	1.0	5.0	1.0	1010	15.3	0.44
SMBJ5338B	338B	5.1	240	1.5	400	1.0	1.0	1.0	930	14.4	0.39
SMBJ5339B	339B	5.6	220	1.0	400	1.0	1.0	2.0	856	13.4	0.25
SMBJ5340B	340B	6.0	200	1.0	300	1.0	1.0	3.0	790	12.7	0.19
SMBJ5341B	341B	6.2	200	1.0	200	1.0	1.0	3.0	765	12.4	0.10
SMBJ5342B	342B	6.8	175	1.0	200	1.0	10	5.2	700	11.5	0.15
SMBJ5343B	343B	7.5	175	1.5	200	1.0	10	5.7	630	10.7	0.15
SMBJ5344B	344B	8.2	150	1.5	200	1.0	10	6.2	580	10.0	0.20
SMBJ5345B	345B	8.7	150	2.0	200	1.0	10	6.6	545	9.5	0.20
SMBJ5346B	346B	9.1	150	2.0	150	1.0	7.5	6.9	520	9.2	0.22
SMBJ5347B	347B	10	125	2.0	125	1.0	5.0	7.6	475	8.6	0.22
SMBJ5348B	348B	11	125	2.5	125	1.0	5.0	8.4	430	8.0	0.25
SMBJ5349B	349B	12	100	2.5	125	1.0	2.0	9.1	395	7.5	0.25
SMBJ5350B	350B	13	100	2.5	100	1.0	1.0	9.9	365	7.0	0.25
SMBJ5351B	351B	14	100	2.5	75	1.0	1.0	10.6	340	6.7	0.25
SMBJ5352B	352B	15	75	2.5	75	1.0	1.0	11.5	315	6.3	0.25
SMBJ5353B	353B	16	75	2.5	75	1.0	1.0	12.2	295	6.0	0.30
SMBJ5354B	354B	17	70	2.5	75	1.0	0.5	12.9	280	5.8	0.35
SMBJ5355B	355B	18	65	2.5	75	1.0	0.5	13.7	265	5.5	0.40
SMBJ5356B	356B	19	65	3.0	75	1.0	0.5	14.4	250	5.3	0.40
SMBJ5357B	357B	20	65	3.0	75	1.0	0.5	15.2	237	5.1	0.40
SMBJ5358B	358B	22	50	3.5	75	1.0	0.5	16.7	216	4.7	0.45
SMBJ5359B	359B	24	50	3.5	100	1.0	0.5	18.2	198	4.4	0.55
SMBJ5360B	360B	25	50	4.0	110	1.0	0.5	19.0	190	4.3	0.55
SMBJ5361B	361B	27	50	5.0	120	1.0	0.5	20.6	176	4.1	0.60
SMBJ5362B	362B	28	50	6.0	130	1.0	0.5	21.2	170	3.9	0.60
SMBJ5363B	363B	30	40	8.0	140	1.0	0.5	22.8	158	3.7	0.60
SMBJ5364B	364B	33	40	10	150	1.0	0.5	25.1	144	3.5	0.60
SMBJ5365B	365B	36	30	11	160	1.0	0.5	27.4	132	3.3	0.65
SMBJ5366B	366B	39	30	14	170	1.0	0.5	29.7	122	3.1	0.65
SMBJ5367B	367B	43	30	20	190	1.0	0.5	32.7	110	2.8	0.70
SMBJ5368B	368B	47	25	25	210	1.0	0.5	35.8	100	2.7	0.80

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● Electrical Characteristics (Ta=25°C Unless otherwise noted)

Type Number	Type Code	Regulator Voltage	Test Current	Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current	Maximum Surge Current	Maximum Voltage Regulation
		$V_Z @ I_{ZT}$	I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	I_{ZK}	$I_R @ V_R$		I_{ZM}	I_{ZSM}	
		(V)	(mA)	(Ω)		(mA)	(μA)	(V)	(mA)	(A)	
SMBJ5369B	369B	51	25	27	230	1.0	0.5	38.8	93.0	2.5	0.90
SMBJ5370B	370B	56	20	35	280	1.0	0.5	42.6	86.0	2.3	1.00
SMBJ5371B	371B	60	20	40	350	1.0	0.5	45.5	79.0	2.2	1.20
SMBJ5372B	372B	62	20	42	400	1.0	0.5	47.1	76.0	2.1	1.35
SMBJ5373B	373B	68	20	44	500	1.0	0.5	51.7	70.0	2.0	1.50
SMBJ5374B	374B	75	20	45	620	1.0	0.5	56.0	63.0	1.9	1.60
SMBJ5375B	375B	82	15	65	720	1.0	0.5	62.2	58.0	1.8	1.80
SMBJ5376B	376B	87	15	75	760	1.0	0.5	66.0	54.5	1.7	2.00
SMBJ5377B	377B	91	15	75	760	1.0	0.5	69.2	52.5	1.6	2.20
SMBJ5378B	378B	100	12	90	800	1.0	0.5	76.0	47.5	1.5	2.30
SMBJ5379B	379B	110	12	125	1000	1.0	0.5	83.6	43.0	1.4	2.50
SMBJ5380B	380B	120	10	170	1150	1.0	0.5	91.2	39.5	1.3	2.50
SMBJ5381B	381B	130	10	190	1250	1.0	0.5	98.8	36.6	1.2	2.50
SMBJ5382B	382B	140	8.0	230	1500	1.0	0.5	106	34.0	1.2	2.50
SMBJ5383B	383B	150	8.0	330	1500	1.0	0.5	114	31.6	1.1	3.00
SMBJ5384B	384B	160	8.0	350	1650	1.0	0.5	122	29.4	1.1	3.00
SMBJ5385B	385B	170	8.0	380	1750	1.0	0.5	129	28.0	1.0	3.00
SMBJ5386B	386B	180	5.0	430	1750	1.0	0.5	137	26.4	1.0	4.00
SMBJ5387B	387B	190	5.0	450	1850	1.0	0.5	144	25.0	0.9	5.00
SMBJ5388B	388B	200	5.0	480	1850	1.0	0.5	152	23.6	0.9	5.00

Note :

(1)The type number listed have a standard tolerance on the nominal zener voltage of $\pm 5\%$

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

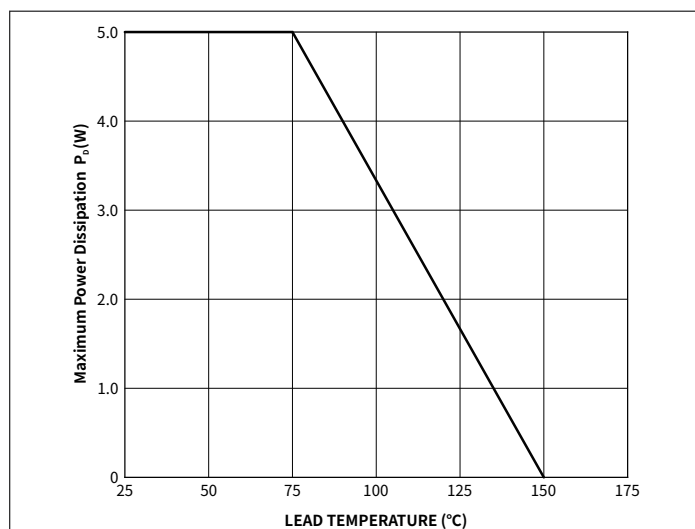


Fig. 1 Power Temperature Derating Curve

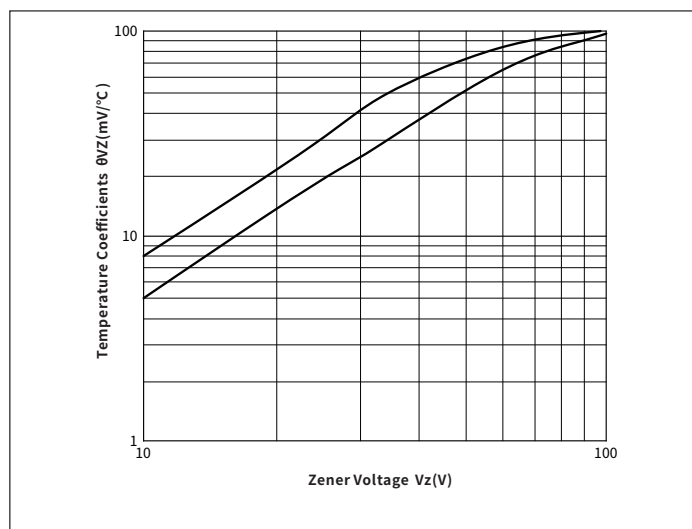


Fig.2 Temperature Coefficients v.s. Zener Voltage

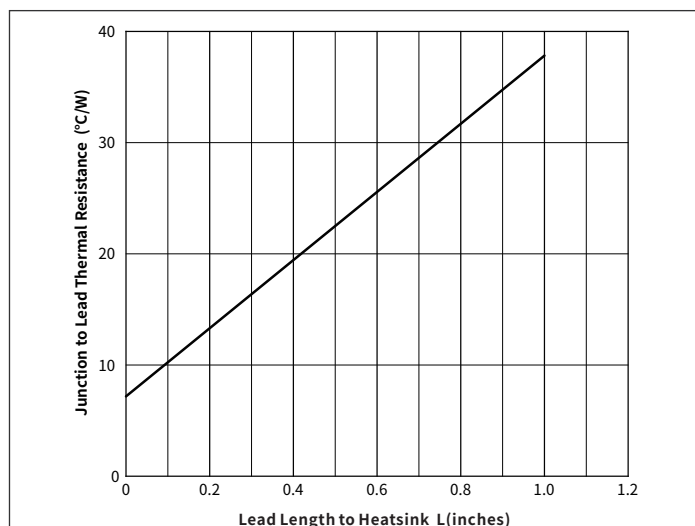


Fig.3 Typical Thermal Resistance v.s. Lead Length

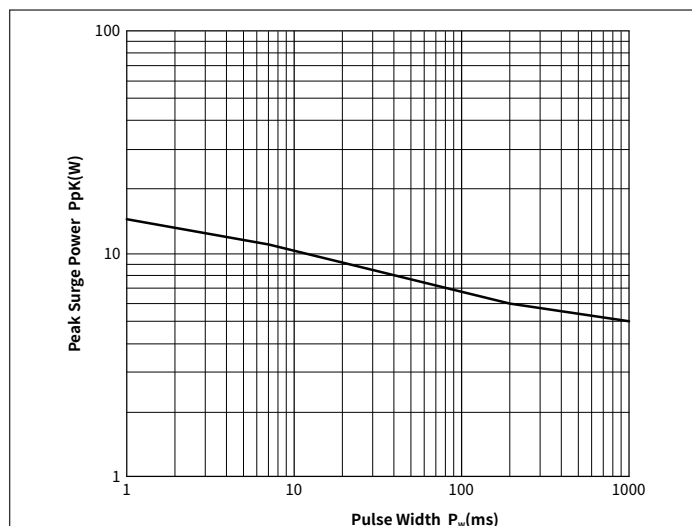


Fig.4 Maximum Surge Power

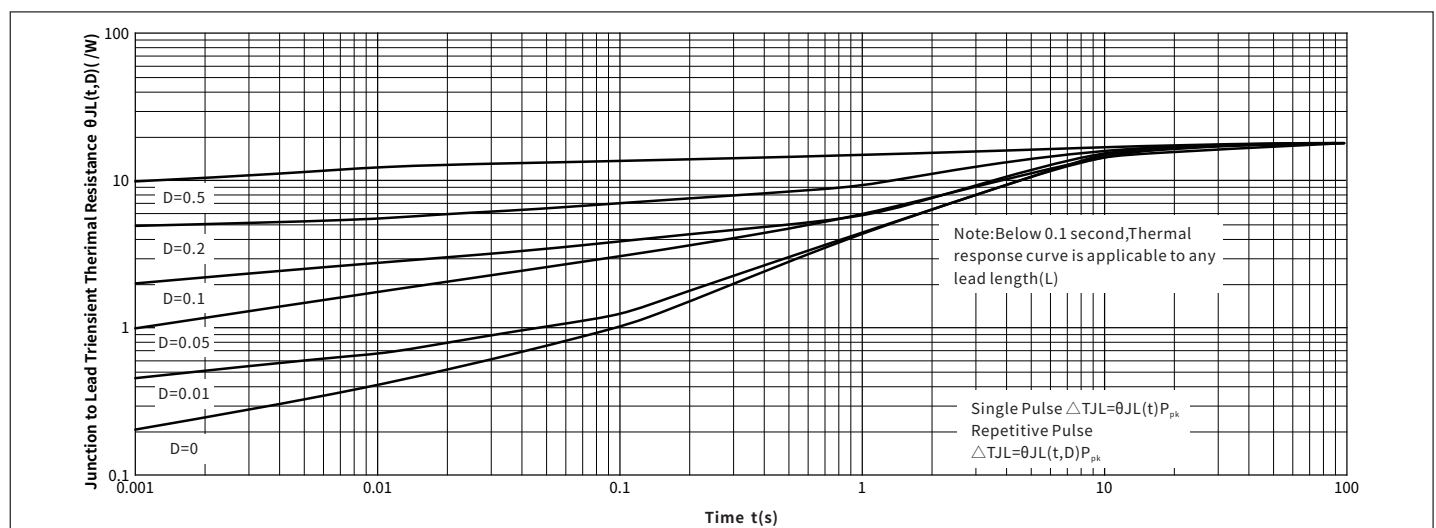


Fig.5 Typical Thermal Response L, Lead Length=3/8inch

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● Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SMB	R3	0.098	3000	6000	48000	13"

● Package Outline Dimensions (SMB/DO-214AA)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.85	2.21	0.073	0.087
B	4.25	4.85	0.167	0.191
C	3.30	3.94	0.130	0.155
D	2.15	2.65	0.085	0.104
E	0.75	1.52	0.030	0.060
F	-	0.203	-	0.008
G	5.08	5.59	0.200	0.220
H	0.15	0.31	0.006	0.012

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
M	2.26	-	0.089	-
J	2.10	-	0.085	-
K	-	2.74	-	0.107