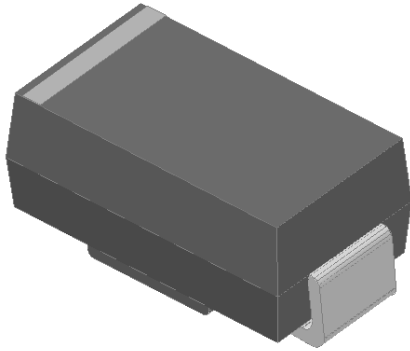


Surface Mount Zener Diodes



Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

Mechanical Data

- **Package:** DO-214AA (SMB)
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

■Maximum Ratings (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MAX
DC power dissipation at TL = 75 °C	P _D	W	5
Maximum instantaneous forward voltage@ I _F =500mA	V _F	V	1.5
Maximum junction temperature	T _j	°C	-55 to +150
Storage temperature range	T _{stg}	°C	-55 to +150

■Thermal Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	R _{θJ-L} ⁽¹⁾	°C/W	junction to lead	20
	R _{θJ-A} ⁽¹⁾	°C/W	junction to ambient	80

Note

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

■Electrical Characteristics (T_a=25°C Unless otherwise specified)

Part Number	Nominal Zener voltage			Test current	Maximum dynamic impedance resistance			Maximum reverse leakage current		Maximum DC Zener Current
	Min V _Z ⁽¹⁾ at I _{ZT}	Typ. V _Z ⁽¹⁾ at I _{ZT}	Max V _Z ⁽¹⁾ at I _{ZT}	I _{ZT}	Z _{ZT} at I _{ZT}	Z _{ZK} at I _{ZK}	I _{ZK}	I _R	Test voltage V _R	I _{ZM}
	V	V	V	mA	Ω	Ω	mA	μA	V	mA
SMB5Z6.8A	6.46	6.8	7.14	175	1	200	1	10	5.2	700
SMB5Z7.5A	7.13	7.5	7.88	175	1.5	200	1	10	5.7	630
SMB5Z8.2A	7.79	8.2	8.61	150	1.5	200	1	10	6.2	580
SMB5Z8.7A	8.27	8.7	9.14	150	2	200	1	10	6.6	545
SMB5Z9.1A	8.65	9.1	9.56	150	2	150	1	7.5	6.9	520



SMB5ZXXA SERIES

Part Number	Nominal Zener voltage			Test current	Maximum dynamic impedance resistance			Maximum reverse leakage current		Maximum DC Zener Current
	Min $V_Z^{(1)}$ at I_{ZT}	Typ. $V_Z^{(1)}$ at I_{ZT}	Max $V_Z^{(1)}$ at I_{ZT}		I_{ZT}	Z_{ZT} at I_{ZT}	Z_{ZK} at I_{ZK}	I_{ZK}	I_R	
	V	V	V	mA	Ω	Ω	mA	μA	V	mA
SMB5Z10A	9.50	10.0	10.50	125	2	125	1	5	7.6	475
SMB5Z11A	10.45	11.0	11.55	125	2.5	125	1	5	8.4	430
SMB5Z12A	11.40	12.0	12.60	100	2.5	125	1	2	9.1	395
SMB5Z13A	12.35	13.0	13.65	100	2.5	100	1	1	9.9	365
SMB5Z14A	13.30	14.0	14.70	100	2.5	75	1	1	10.6	340
SMB5Z15A	14.25	15.0	15.75	75	2.5	75	1	1	11.5	315
SMB5Z16A	15.20	16.0	16.80	75	2.5	75	1	1	12.2	295
SMB5Z17A	16.15	17.0	17.85	70	2.5	75	1	0.5	12.9	280
SMB5Z18A	17.10	18.0	18.90	65	2.5	75	1	0.5	13.7	264
SMB5Z19A	18.05	19.0	19.95	65	3	75	1	0.5	14.4	250
SMB5Z20A	19.00	20.0	21.00	65	3	75	1	0.5	15.2	237
SMB5Z22A	20.90	22.0	23.10	50	3.5	75	1	0.5	16.7	216
SMB5Z24A	22.80	24.0	25.20	50	3.5	100	1	0.5	18.2	198
SMB5Z25A	23.75	25.0	26.25	50	4	110	1	0.5	19.0	190
SMB5Z27A	25.65	27.0	28.35	50	5	120	1	0.5	20.6	176
SMB5Z28A	26.60	28.0	29.4	50	6	130	1	0.5	21.2	170
SMB5Z30A	28.50	30.0	31.50	40	8	140	1	0.5	22.8	158
SMB5Z33A	31.35	33.0	34.65	40	10	150	1	0.5	25.1	144
SMB5Z36A	34.20	36.0	37.80	30	11	160	1	0.5	27.4	132
SMB5Z39A	37.05	39.0	40.95	30	14	170	1	0.5	29.7	122
SMB5Z43A	40.85	43.0	45.15	30	20	190	1	0.5	32.7	110
SMB5Z47A	44.65	47.0	49.35	25	25	210	1	0.5	35.8	100
SMB5Z51A	48.45	51.0	53.55	25	27	230	1	0.5	38.8	93
SMB5Z56A	53.20	56.0	58.80	20	35	280	1	0.5	42.6	86
SMB5Z60A	57.00	60.0	63.00	20	40	350	1	0.5	45.5	79
SMB5Z62A	58.90	62.0	65.10	20	42	400	1	0.5	47.1	76
SMB5Z68A	64.60	68.0	71.40	20	44	500	1	0.5	51.7	70
SMB5Z75A	71.25	75.0	78.75	20	45	620	1	0.5	56.0	63
SMB5Z82A	77.90	82.0	86.10	15	65	720	1	0.5	62.2	58
SMB5Z87A	82.65	87.0	91.35	15	75	760	1	0.5	66.0	54.5
SMB5Z91A	86.45	91.0	95.55	15	75	760	1	0.5	69.2	52.5
SMB5Z100A	95.00	100.0	105.00	12	90	800	1	0.5	76.0	47.5
SMB5Z110A	104.50	110.0	115.50	12	125	1000	1	0.5	83.6	43
SMB5Z120A	114.00	120.0	126.00	10	170	1150	1	0.5	91.2	39.5
SMB5Z130A	123.50	130.0	136.50	10	190	1250	1	0.5	98.8	36.6
SMB5Z140A	133.00	140.0	147.00	8.0	230	1500	1	0.5	106.0	34



SMB5ZXXA SERIES

Part Number	Nominal Zener voltage			Test current	Maximum dynamic impedance			Maximum reverse leakage current		Maximum DC Zener Current
	Min $V_Z^{(1)}$ at I_{ZT}	Typ. $V_Z^{(1)}$ at I_{ZT}	Max $V_Z^{(1)}$ at I_{ZT}	I_{ZT}	Z_{ZT} at I_{ZT}	Z_{ZK} at I_{ZK}	I_{ZK}	I_R	Test voltage V_R	I_{ZM}
	V	V	V	mA	Ω	Ω	mA	μA	V	mA
SMB5Z150A	142.50	150.0	157.50	8.0	330	1500	1	0.5	114.0	31.6
SMB5Z160A	152.00	160.0	168.00	8.0	350	1650	1	0.5	122.0	29.4
SMB5Z170A	161.50	170.0	178.50	8.0	380	1750	1	0.5	129.0	28
SMB5Z180A	171.00	180.0	189.00	5.0	430	1750	1	0.5	137.0	26.4
SMB5Z190A	180.50	190.0	199.50A	5.0	450	1850	1	0.5	144.0	25
SMB5Z200A	190.00	200.0	210.00	5.0	480	1850	1	0.5	152.0	23.6

Notes:

- (1) Nominal Zener voltage Range: 95% Typ. V_Z (1) at I_{ZT} --- 105% Typ. V_Z (1) at I_{ZT}
- (2) Surge current is a non-repetitive, 8.3ms pulse width square wave or equivalent sine-wave superimposed on I_{ZT} per JEDEC method

■ Characteristics (Typical)

Fig. 1 - Power Derating Curve

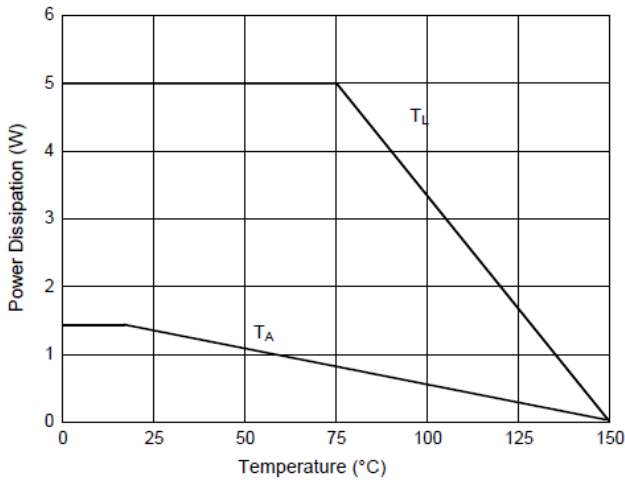


Fig. 2 - Typical Zener Breakdown Characteristics

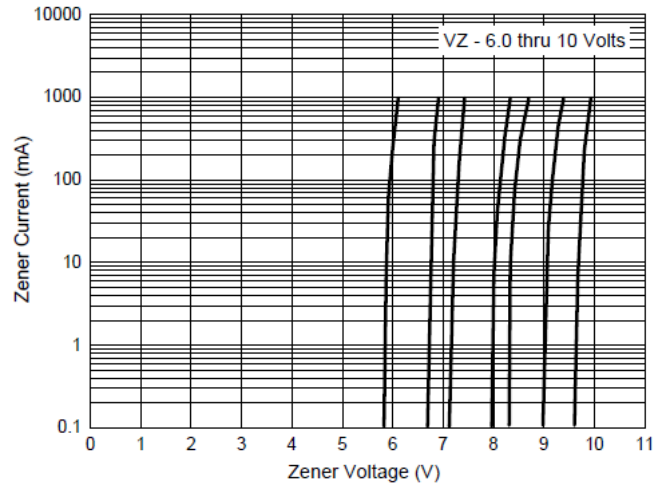


Fig. 3 - Typical Zener Breakdown Characteristics

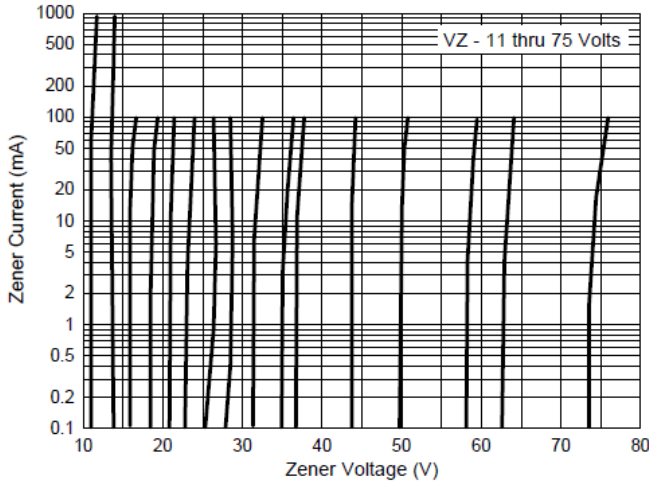
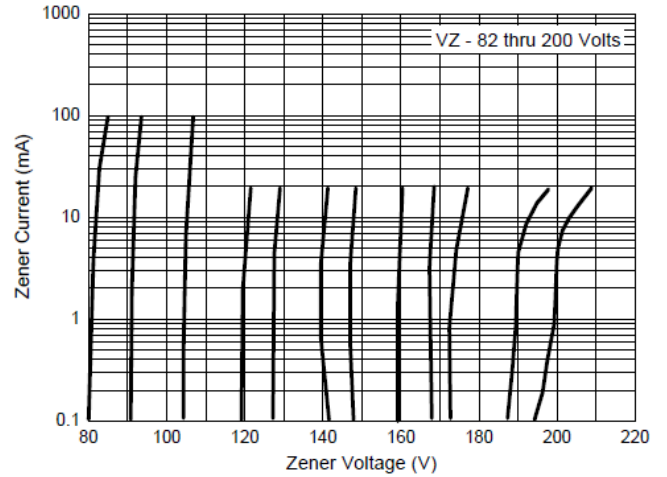


Fig. 4 - Typical Zener Breakdown Characteristics



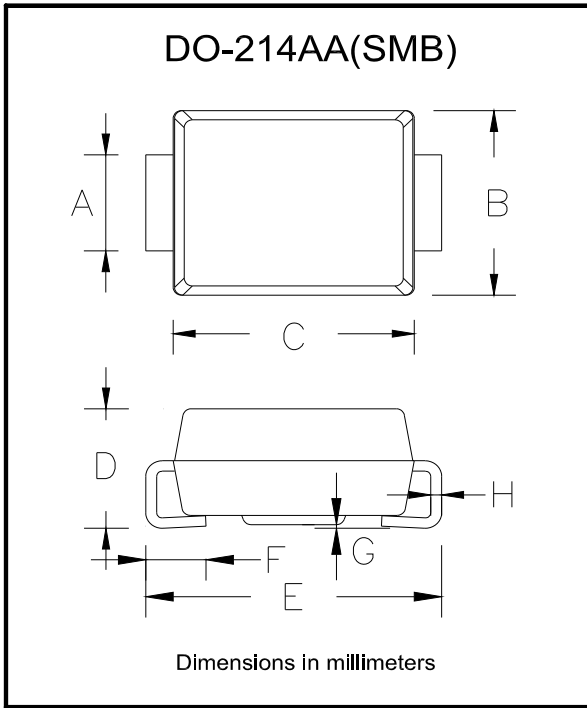


SMB5ZXXA SERIES

Ordering Information (Example)

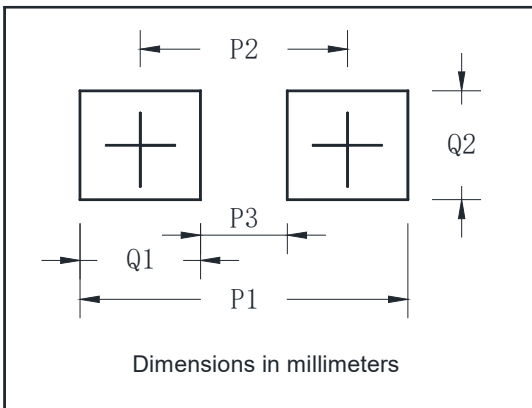
PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMB5ZXXA SERIES	F1	Approximate 0.096	3000	/	48000	13" reel

Outline Dimensions



DO-214AA(SMB)		
Dim	Min	Max
A	1.85	2.15
B	3.30	3.94
C	4.05	4.75
D	1.99	2.61
E	5.21	5.59
F	0.90	1.41
G	0.05	0.20
H	0.15	0.31

Suggested Pad Layout



DO-214AA(SMB)	
Dim	Millimeters
P1	6.8
P2	4.3
P3	1.8
Q1	2.5
Q2	2.3



SMB5ZXXA SERIES

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.