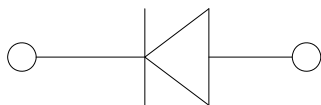


Surface Mount Zener Diodes



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, -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 T _L = 75 °C	P _D	W	2.0
Maximum instantaneous forward voltage@ I _F =200mA	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	Max
Typical Thermal resistance	R _{θJA}	°C/W	80
	R _{θJL}	°C/W	20

■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 _{YT} 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
SMB2Z3.3A	3.14	3.3	3.47	113.6	10.0	500	1.00	100.0	1.0	548.0
SMB2Z3.6A	3.42	3.6	3.78	104.2	9.0	500	1.00	100.0	1.0	502.0
SMB2Z3.9A	3.71	3.9	4.10	96.1	7.5	500	1.00	50.0	1.0	464.0
SMB2Z4.3A	4.09	4.3	4.52	87.2	6.0	500	1.00	50.0	1.0	421.0
SMB2Z4.7A	4.47	4.7	4.94	79.8	5.0	500	1.00	10.0	1.5	385.0
SMB2Z5.1A	4.85	5.1	5.36	73.5	4.0	350	1.00	10.0	2.0	354.0
SMB2Z5.6A	5.32	5.6	5.88	66.9	2.0	250	1.00	10.0	3.0	323.0

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
SMB2Z6.2A	5.89	6.2	6.51	80.5	1.5	700	1.00	10.0	3.0	292.0
SMB2Z6.8A	6.46	6.8	7.14	73.5	2.0	700	1.00	10.0	4.0	266.0
SMB2Z7.5A	7.13	7.5	7.88	66.5	2.0	700	0.50	10.0	5.0	242.0
SMB2Z8.2A	7.79	8.2	8.61	61.0	2.3	700	0.50	10.0	6.0	220.0
SMB2Z9.1A	8.65	9.1	9.56	55.0	2.5	700	0.50	10.0	7.0	200.0
SMB2Z10A	9.50	10.0	10.50	50.0	3.5	700	0.25	10.0	7.6	182.0
SMB2Z11A	10.45	11.0	11.55	45.5	4.0	700	0.25	0.5	8.4	166.0
SMB2Z12A	11.40	12.0	12.60	41.5	4.5	700	0.25	0.5	9.1	152.0
SMB2Z13A	12.35	13.0	13.65	38.5	5.0	700	0.25	0.5	9.9	138.0
SMB2Z14A	13.30	14.0	14.70	35.7	5.5	700	0.25	0.5	10.6	130.0
SMB2Z15A	14.25	15.0	15.75	33.4	7.0	700	0.25	0.5	11.4	122.0
SMB2Z16A	15.20	16.0	16.80	31.2	8.0	700	0.25	0.5	12.2	114.0
SMB2Z17A	16.15	17.0	17.85	29.4	9.0	750	0.25	0.5	13.0	107.0
SMB2Z18A	17.10	18.0	18.90	27.8	10.0	750	0.25	0.5	13.7	100.0
SMB2Z19A	18.05	19.0	19.95	26.3	11.0	750	0.25	0.5	14.4	95.0
SMB2Z20A	19.00	20.0	21.00	25.0	11.0	750	0.25	0.5	15.2	90.0
SMB2Z22A	20.90	22.0	23.10	22.8	12.0	750	0.25	0.5	16.7	82.0
SMB2Z24A	22.80	24.0	25.20	20.8	13.0	750	0.25	0.5	18.2	76.0
SMB2Z27A	25.65	27.0	28.35	18.5	18.0	750	0.25	0.5	20.6	68.0
SMB2Z30A	28.50	30.0	31.50	16.6	20.0	1000	0.25	0.5	22.5	60.0
SMB2Z33A	31.35	33.0	34.65	15.1	23.0	1000	0.25	0.5	25.1	55.0
SMB2Z36A	34.20	36.0	37.80	13.9	25.0	1000	0.25	0.5	27.4	50.0
SMB2Z39A	37.05	39.0	40.95	12.8	30.0	1000	0.25	0.5	29.7	47.0
SMB2Z43A	40.85	43.0	45.15	11.6	35.0	1500	0.25	0.5	32.7	43.0
SMB2Z47A	44.65	47.0	49.35	10.6	40.0	1500	0.25	0.5	35.8	39.0
SMB2Z51A	48.45	51.0	53.55	9.8	48.0	1500	0.25	0.5	38.8	36.0
SMB2Z56A	53.20	56.0	58.80	9.0	55.0	2000	0.25	0.5	42.6	32.0
SMB2Z62A	58.90	62.0	65.10	8.1	60.0	2000	0.25	0.5	47.1	29.0
SMB2Z68A	64.60	68.0	71.40	7.4	75.0	2000	0.25	0.5	51.7	27.0
SMB2Z75A	71.25	75.0	78.75	6.7	90.0	2000	0.25	0.5	56.0	24.0
SMB2Z82A	77.90	82.0	86.10	6.1	100.0	3000	0.25	0.5	62.2	22.0
SMB2Z91A	86.45	91.0	95.55	5.5	125.0	3000	0.25	0.5	69.2	20.0
SMB2Z100A	95.00	100.0	105.00	5.0	175.0	3000	0.25	0.5	76.0	18.0
SMB2Z110A	104.50	110.0	115.50	4.5	250.0	4000	0.25	0.5	83.6	17.0
SMB2Z120A	114.00	120.0	126.00	4.2	325.0	4500	0.25	0.5	91.2	15.0
SMB2Z130A	123.50	130.0	136.50	3.8	400.0	5000	0.25	0.5	98.8	14.0
SMB2Z140A	133.00	140.0	147.00	3.6	500.0	5500	0.25	0.5	106.4	13.0

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
SMB2Z150A	142.50	150.0	157.50	3.3	575.0	6000	0.25	0.5	114.0	12.0
SMB2Z160A	152.00	160.0	168.00	3.1	650.0	6500	0.25	0.5	121.6	11.0
SMB2Z170A	161.50	170.0	178.50	2.9	675.0	7000	0.25	0.5	130.4	11.0
SMB2Z180A	171.00	180.0	189.00	2.8	725.0	7000	0.25	0.5	136.8	10.0
SMB2Z190A	180.50	190.0	199.50	2.6	825.0	8000	0.25	0.5	144.8	10.0
SMB2Z200A	190.00	200.0	210.00	2.5	1900.0	9990	0.25	0.5	152.0	9.0
SMB2Z220A	209.00	220.0	231.00	2.0	2000.0	8500	0.25	0.5	167.0	8.0

Notes:

(1) Nominal Zener voltage Range: 95% $V_Z^{(1)}$ at I_{ZT} ----105% $V_Z^{(1)}$ at I_{ZT}

■ Characteristics (Typical)

FIG1: Power Temperature Derating Curve

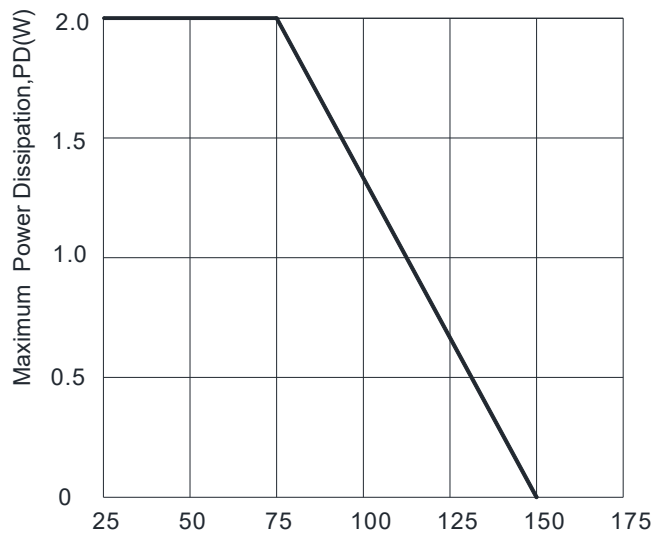


FIG2: Temperature Coefficients v.s. Zener Voltage

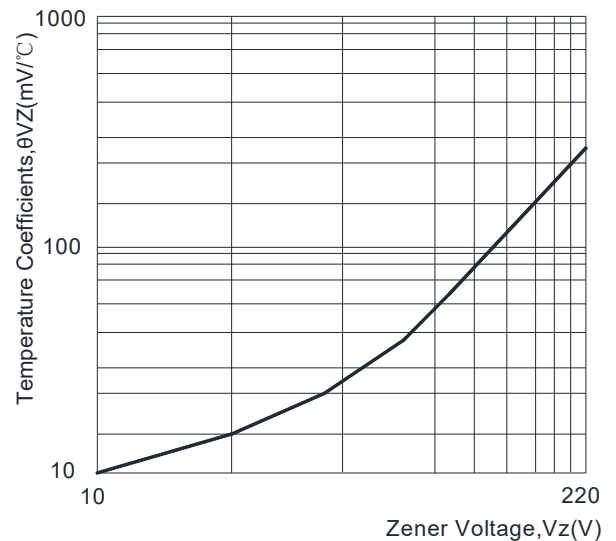


FIG3: Typical Forward Voltage T_L (°C)

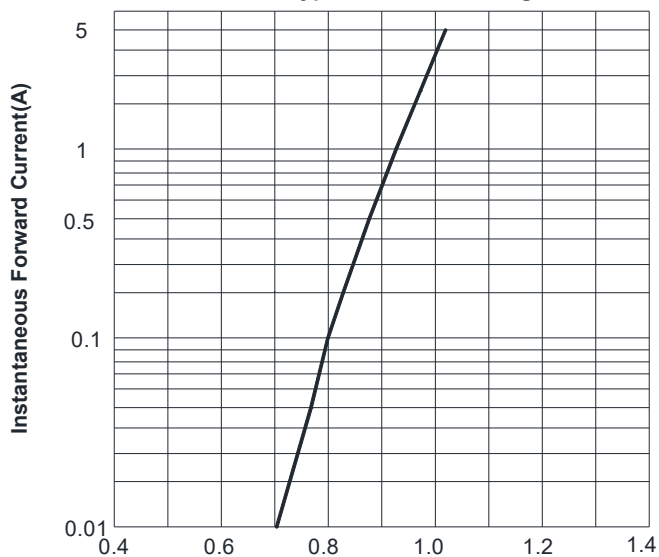
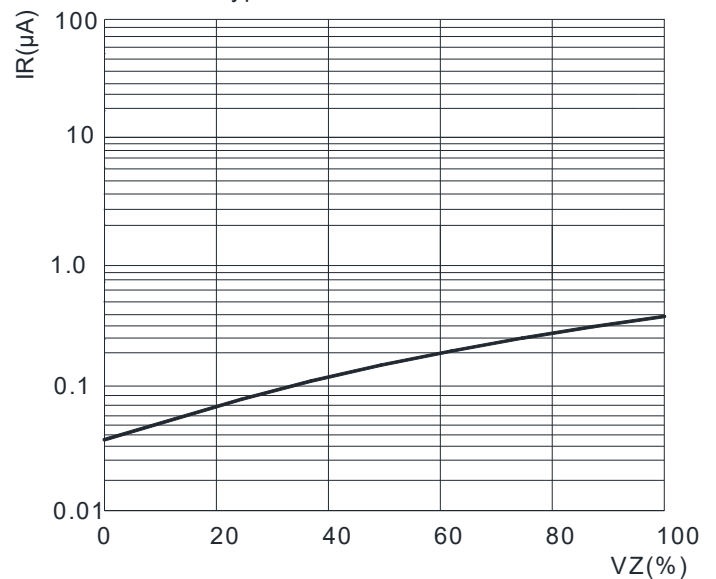


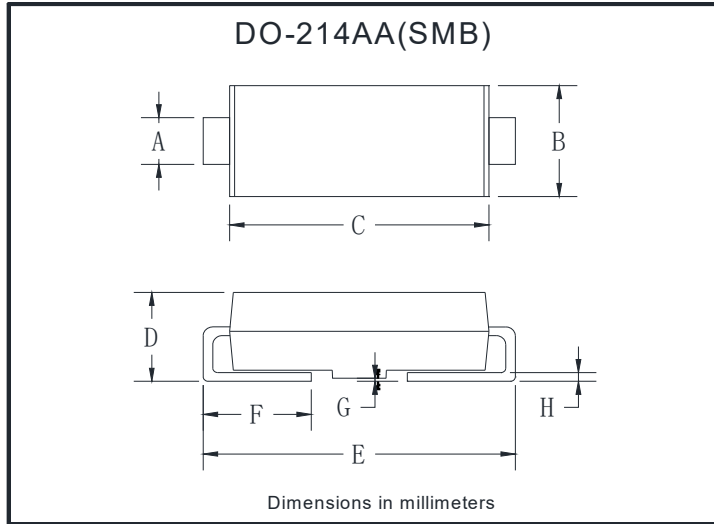
FIG4: Typical Reverse Characteristics



■ Ordering Information (Example)

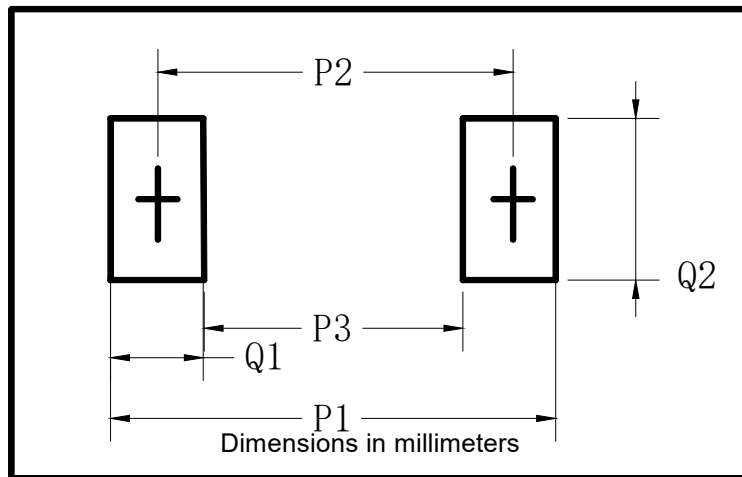
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMB2ZXXA SERIES	F1	Approximate 0.096	3000	6000	48000	13" reel

■ 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

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