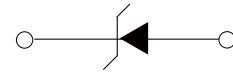


FEATURES

- | Complete voltage range 3.3 to 330 volts
- | High peak reverse power dissipation
- | High reliability
- | Low leakage current
- | Standard zener voltage tolerance is $\pm 5\%$
- | Meet AEC-Q101 Requirements



DO-214AC(SMA)



Schematic Symbol

MECHANICAL DATA

- | Case : Molded plastic body
- | Polarity : Polarity symbol marking on body
- | Mounting Position : Any

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
DC Power dissipation at $T_L = 50^{\circ}\text{C}$	P_D	2.0	W
Maximum instantaneous forward voltage@ $I_F=200\text{mA}$	V_F	1.2	V
Maximum junction temperature	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

Part Number	Device Marking Code	Nominal Zener Voltage			Test current	Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
		V _Z Min(V)	V _Z AVE.(V)	V _Z Max(V)		Z _{ZT} at I _{ZT} (Ω)	Z _{ZK} at I _{ZK} (Ω)	I _{ZK} (mA)	I _R (uA)	V _R (V)	
SMA2Z3.0AQ	2H1	2.85	3.0	3.15	160.0	8.0	400	1.00	100.0	1.0	603.0
SMA2Z3.3AQ	2H2	3.14	3.3	3.47	145.0	8.0	400	1.00	100.0	1.0	548.0
SMA2Z3.6AQ	2H3	3.42	3.6	3.78	139.0	5.0	400	1.00	100.0	1.0	502.0
SMA2Z3.9AQ	2H4	3.71	3.9	4.10	128.0	5.0	400	1.00	50.0	1.0	464.0
SMA2Z4.3AQ	2H5	4.09	4.3	4.52	116.0	4.5	400	1.00	50.0	1.0	421.0
SMA2Z4.7AQ	2H6	4.47	4.7	4.94	106.0	4.5	550	1.00	10.0	1.0	385.0
SMA2Z5.1AQ	2H7	4.85	5.1	5.36	98.0	3.5	600	1.00	10.0	1.0	354.0
SMA2Z5.6AQ	2H8	5.32	5.6	5.88	89.5	2.5	500	1.00	10.0	2.0	323.0
SMA2Z6.2AQ	2A0	5.89	6.2	6.51	80.5	1.5	700	1.00	10.0	3.0	292.0
SMA2Z6.8AQ	2A1	6.46	6.8	7.14	73.5	2.0	700	1.00	10.0	4.0	266.0
SMA2Z7.5AQ	2A2	7.13	7.5	7.88	66.5	2.0	700	0.50	10.0	5.0	242.0
SMA2Z8.2AQ	2A3	7.79	8.2	8.61	61.0	2.3	700	0.50	10.0	6.0	220.0
SMA2Z9.1AQ	2A4	8.65	9.1	9.56	55.0	2.5	700	0.50	10.0	7.0	200.0
SMA2Z10AQ	2A5	9.50	10.0	10.50	50.0	3.5	700	0.25	10.0	7.6	182.0
SMA2Z11AQ	2A6	10.45	11.0	11.55	45.5	4.0	700	0.25	1.0	8.4	166.0
SMA2Z12AQ	2A7	11.40	12.0	12.60	41.5	4.5	700	0.25	1.0	9.1	152.0
SMA2Z13AQ	2A8	12.35	13.0	13.65	38.5	5.0	700	0.25	0.5	9.9	138.0
SMA2Z14AQ	2A9	13.30	14.0	14.70	35.7	5.5	700	0.25	0.5	10.6	130.0
SMA2Z15AQ	2B0	14.25	15.0	15.75	33.4	7.0	700	0.25	0.5	11.4	122.0
SMA2Z16AQ	2B1	15.20	16.0	16.80	31.2	8.0	700	0.25	0.5	12.2	114.0
SMA2Z17AQ	2B2	16.15	17.0	17.85	29.4	9.0	750	0.25	0.5	13.0	107.0
SMA2Z18AQ	2B3	17.10	18.0	18.90	27.8	10.0	750	0.25	0.5	13.7	100.0
SMA2Z19AQ	2B4	18.05	19.0	19.95	26.3	11.0	750	0.25	0.5	14.4	95.0
SMA2Z20AQ	2B5	19.00	20.0	21.00	25.0	11.0	750	0.25	0.5	15.2	90.0
SMA2Z22AQ	2B6	20.90	22.0	23.10	22.8	12.0	750	0.25	0.5	16.7	82.0
SMA2Z24AQ	2B7	22.80	24.0	25.20	20.8	13.0	750	0.25	0.5	18.2	76.0
SMA2Z27AQ	2B8	25.65	27.0	28.35	18.5	18.0	750	0.25	0.5	20.6	68.0
SMA2Z30AQ	2B9	28.50	30.0	31.50	16.6	20.0	1000	0.25	0.5	22.5	60.0
SMA2Z33AQ	2C0	31.35	33.0	34.65	15.1	23.0	1000	0.25	0.5	25.1	55.0
SMA2Z36AQ	2C1	34.20	36.0	37.80	13.9	25.0	1000	0.25	0.5	27.4	50.0

Part Number	Device Marking Code	Nominal Zener Voltage			Test current	Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
		V_Z Min(V)	V_Z AVE.(V)	V_Z Max(V)		Z_{ZT} at I_{ZT} (Ω)	Z_{ZK} at I_{ZK} (Ω)	I_{ZK} (mA)	I_R (uA)	V_R (V)	I_{ZM} (mA)
SMA2Z39AQ	2C2	37.05	39.0	40.95	12.8	30.0	1000	0.25	0.5	29.7	47.0
SMA2Z43AQ	2C3	40.85	43.0	45.15	11.6	35.0	1500	0.25	0.5	32.7	43.0
SMA2Z47AQ	2C4	44.65	47.0	49.35	10.6	40.0	1500	0.25	0.5	35.8	39.0
SMA2Z51AQ	2C5	48.45	51.0	53.55	9.8	48.0	1500	0.25	0.5	38.8	36.0
SMA2Z56AQ	2C6	53.20	56.0	58.80	9.0	55.0	2000	0.25	0.5	42.6	32.0
SMA2Z62AQ	2C7	58.90	62.0	65.10	8.1	60.0	2000	0.25	0.5	47.1	29.0
SMA2Z68AQ	2C8	64.60	68.0	71.40	7.4	75.0	2000	0.25	0.5	51.7	27.0
SMA2Z75AQ	2C9	71.25	75.0	78.75	6.7	90.0	2000	0.25	0.5	56.0	24.0
SMA2Z82AQ	2F0	77.90	82.0	86.10	6.1	100.0	3000	0.25	0.5	62.2	22.0
SMA2Z91AQ	2F1	86.45	91.0	95.55	5.5	125.0	3000	0.25	0.5	69.2	20.0
SMA2Z100AQ	2F2	95.00	100.0	105.00	5.0	175.0	3000	0.25	0.5	76.0	18.0
SMA2Z110AQ	2F3	104.50	110.0	115.50	4.5	250.0	4000	0.25	0.5	83.6	17.0
SMA2Z120AQ	2F4	114.00	120.0	126.00	4.2	325.0	4500	0.25	0.5	91.2	15.0
SMA2Z130AQ	2F5	123.50	130.0	136.50	3.8	400.0	5000	0.25	0.5	98.8	14.0
SMA2Z140AQ	2F6	133.00	140.0	147.00	3.6	500.0	5500	0.25	0.5	106.4	13.0
SMA2Z150AQ	2F7	142.50	150.0	157.50	3.3	575.0	6000	0.25	0.5	114.0	12.0
SMA2Z160AQ	2F8	152.00	160.0	168.00	3.1	650.0	6500	0.25	0.5	121.6	11.0
SMA2Z170AQ	2F9	161.50	170.0	178.50	2.9	675.0	7000	0.25	0.5	130.4	11.0
SMA2Z180AQ	2G1	171.00	180.0	189.00	2.8	725.0	7000	0.25	0.5	136.8	10.0
SMA2Z190AQ	2G2	180.50	190.0	199.50	2.6	825.0	8000	0.25	0.5	144.8	10.0
SMA2Z200AQ	2G3	190.00	200.0	210.00	2.5	1900.0	9990	0.25	0.5	152.0	9.0
SMA2Z220AQ	2G4	209.00	220.0	231.00	2.0	2000.0	8500	0.25	0.5	167.0	8.0
SMA2Z270AQ	2G5	256.50	270.0	283.50	1.6	2200.0	8500	0.25	0.5	205.0	6.7
SMA2Z300AQ	2G6	285.00	300.0	315.00	1.5	2200.0	9000	0.25	0.5	228.0	5.9
SMA2Z330AQ	2G7	313.50	330.0	346.50	1.4	2300.0	9000	0.25	0.5	250.0	5.4

CHARACTERISTIC CURVES

Fig.1-Power Temperature Derating Curve

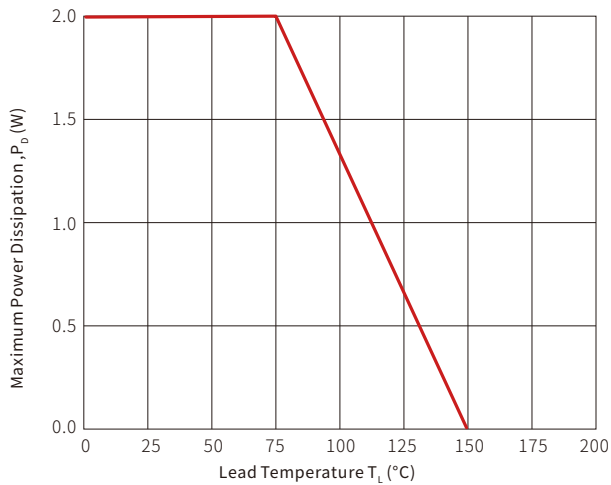


Fig.2-Temperature Coefficients v.s. Zener Voltage

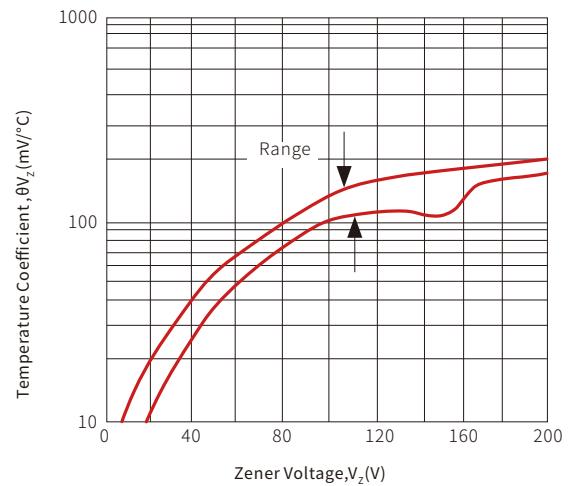


Fig.3-Typical Thermal Resistance v.s. Lead Length

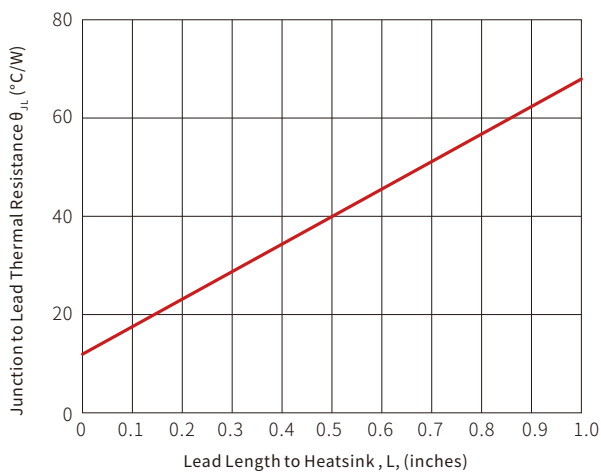
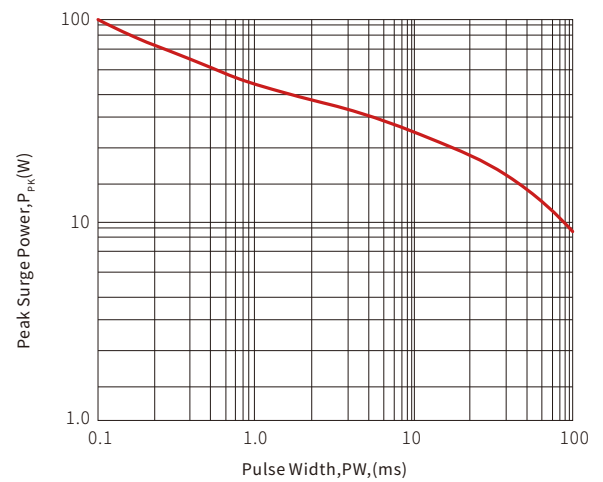
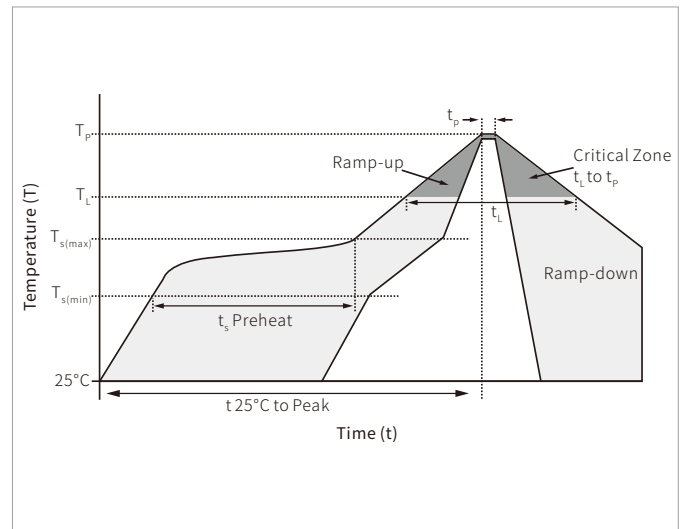


Fig.4-Maximum Surge Power

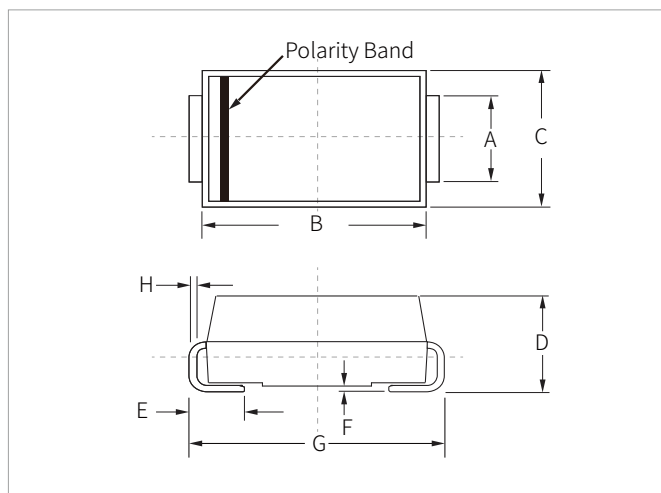


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

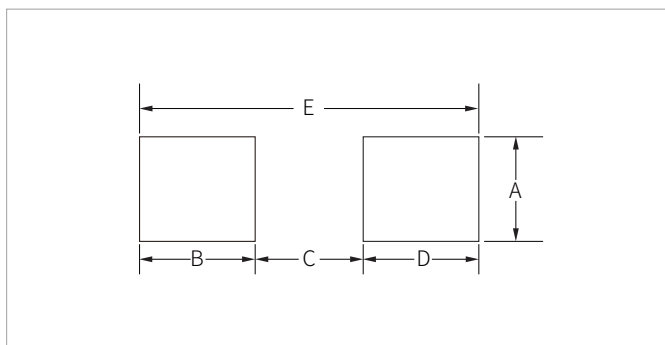


DO-214AC(SMA) PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.20	1.60	0.047	0.063
B	4.20	4.60	0.165	0.181
C	2.40	2.80	0.094	0.110
D	2.00	2.40	0.079	0.094
E	0.76	1.52	0.030	0.060
F	0.02	0.20	0.001	0.008
G	4.85	5.25	0.191	0.207
H	0.15	0.30	0.006	0.012

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.63	-	0.064	-
B	1.45	-	0.057	-
C	-	2.80	-	0.090
D	1.45	-	0.057	-
E	5.28REF		0.208REF	

ORDERING INFORMATION

Part Number	Component Package	Q'TY/Reel (Pcs)	QTY/Box (Pcs)	Q'TY/Carton (Pcs)	Reel Size
SMA2ZxxAQ	DO-214AC(SMA)	5000	10000	80000	11"
		7500	15000	120000	13"

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