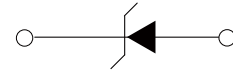


## FEATURES

- | Low profile package
- | Ideal for automated placement
- | Glass passivated chip junction
- | High forward surge capability



DO-214AC(SMA)



Schematic Symbol

## MECHANICAL DATA

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

## APPROVALS

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

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

Parameter	Symbo	Value	Unit
DC Power dissipation at $T_L = 75^{\circ}\text{C}$	$P_D$	2.0	W
Maximum instantaneous forward voltage@ $I_F=200\text{mA}$	$V_F$	1.5	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 $I_{ZT}$ (mA)	Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current $I_{ZM}$ (mA)
		$V_Z^{(1)}$ at $I_{ZT}$ Min(V)	$V_Z^{(1)}$ at $I_{ZT}$ Typ(V)	$V_Z^{(1)}$ at $I_{ZT}$ Max(V)		$Z_{ZT}$ at $I_{ZT}$ ( $\Omega$ )	$Z_{ZK}$ at $I_{ZK}$ ( $\Omega$ )	$I_{ZK}$ (mA)	$I_R$ (uA)	$V_R$ (V)	
SMA2Z3.0A	2W3.0V	2.85	3.0	3.15	160.0	8.0	400	1.00	100.0	1.0	603.0
SMA2Z3.3A	2W3.3V	3.14	3.3	3.47	145.0	8.0	400	1.00	100.0	1.0	548.0
SMA2Z3.6A	2W3.6V	3.42	3.6	3.78	139.0	5.0	400	1.00	100.0	1.0	502.0
SMA2Z3.9A	2W3.9V	3.71	3.9	4.10	128.0	5.0	400	1.00	50.0	1.0	464.0
SMA2Z4.3A	2W4.3V	4.09	4.3	4.52	116.0	4.5	400	1.00	50.0	1.0	421.0
SMA2Z4.7A	2W4.7V	4.47	4.7	4.94	106.0	4.5	550	1.00	10.0	1.0	385.0
SMA2Z5.1A	2W5.1V	4.85	5.1	5.36	98.0	3.5	600	1.00	10.0	1.0	354.0
SMA2Z5.6A	2W5.6V	5.32	5.6	5.88	89.5	2.5	500	1.00	10.0	2.0	323.0
SMA2Z6.2A	2W6.2V	5.89	6.2	6.51	80.5	1.5	700	1.00	10.0	3.0	292.0
SMA2Z6.8A	2W6.8V	6.46	6.8	7.14	73.5	2.0	700	1.00	10.0	4.0	266.0
SMA2Z7.5A	2W7.5V	7.13	7.5	7.88	66.5	2.0	700	0.50	10.0	5.0	242.0
SMA2Z8.2A	2W8.2V	7.79	8.2	8.61	61.0	2.3	700	0.50	10.0	6.0	220.0
SMA2Z9.1A	2W9.1V	8.65	9.1	9.56	55.0	2.5	700	0.50	10.0	7.0	200.0
SMA2Z10A	2W10V	9.50	10.0	10.50	50.0	3.5	700	0.25	10.0	7.6	182.0
SMA2Z11A	2W11V	10.45	11.0	11.55	45.5	4.0	700	0.25	1.0	8.4	166.0
SMA2Z12A	2W12V	11.40	12.0	12.60	41.5	4.5	700	0.25	1.0	9.1	152.0
SMA2Z13A	2W13V	12.35	13.0	13.65	38.5	5.0	700	0.25	0.5	9.9	138.0
SMA2Z14A	2W14V	13.30	14.0	14.70	35.7	5.5	700	0.25	0.5	10.6	130.0
SMA2Z15A	2W15V	14.25	15.0	15.75	33.4	7.0	700	0.25	0.5	11.4	122.0
SMA2Z16A	2W16V	15.20	16.0	16.80	31.2	8.0	700	0.25	0.5	12.2	114.0
SMA2Z17A	2W17V	16.15	17.0	17.85	29.4	9.0	750	0.25	0.5	13.0	107.0
SMA2Z18A	2W18V	17.10	18.0	18.90	27.8	10.0	750	0.25	0.5	13.7	100.0
SMA2Z19A	2W19V	18.05	19.0	19.95	26.3	11.0	750	0.25	0.5	14.4	95.0
SMA2Z20A	2W20V	19.00	20.0	21.00	25.0	11.0	750	0.25	0.5	15.2	90.0
SMA2Z22A	2W22V	20.90	22.0	23.10	22.8	12.0	750	0.25	0.5	16.7	82.0
SMA2Z24A	2W24V	22.80	24.0	25.20	20.8	13.0	750	0.25	0.5	18.2	76.0
SMA2Z27A	2W27V	25.65	27.0	28.35	18.5	18.0	750	0.25	0.5	20.6	68.0
SMA2Z30A	2W30V	28.50	30.0	31.50	16.6	20.0	1000	0.25	0.5	22.5	60.0
SMA2Z33A	2W33V	31.35	33.0	34.65	15.1	23.0	1000	0.25	0.5	25.1	55.0
SMA2Z36A	2W36V	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
		$V_Z^{(1)}$ at $I_{ZT}$ Min(V)	$V_Z^{(1)}$ at $I_{ZT}$ Typ(V)	$V_Z^{(1)}$ at $I_{ZT}$ Max(V)	$I_{ZT}$ (mA)	$Z_{ZT}$ at $I_{ZT}$ ( $\Omega$ )	$Z_{ZK}$ at $I_{ZK}$ ( $\Omega$ )	$I_{ZK}$ (mA)	$I_R$ (uA)	$V_R$ (V)	$I_{ZM}$ (mA)
SMA2Z39A	2W39V	37.05	39.0	40.95	12.8	30.0	1000	0.25	0.5	29.7	47.0
SMA2Z43A	2W43V	40.85	43.0	45.15	11.6	35.0	1500	0.25	0.5	32.7	43.0
SMA2Z47A	2W47V	44.65	47.0	49.35	10.6	40.0	1500	0.25	0.5	35.8	39.0
SMA2Z51A	2W51V	48.45	51.0	53.55	9.8	48.0	1500	0.25	0.5	38.8	36.0
SMA2Z56A	2W56V	53.20	56.0	58.80	9.0	55.0	2000	0.25	0.5	42.6	32.0
SMA2Z62A	2W62V	58.90	62.0	65.10	8.1	60.0	2000	0.25	0.5	47.1	29.0
SMA2Z68A	2W68V	64.60	68.0	71.40	7.4	75.0	2000	0.25	0.5	51.7	27.0
SMA2Z75A	2W75V	71.25	75.0	78.75	6.7	90.0	2000	0.25	0.5	56.0	24.0
SMA2Z82A	2W82V	77.90	82.0	86.10	6.1	100.0	3000	0.25	0.5	62.2	22.0
SMA2Z91A	2W91V	86.45	91.0	95.55	5.5	125.0	3000	0.25	0.5	69.2	20.0
SMA2Z100A	2W100V	95.00	100.0	105.00	5.0	175.0	3000	0.25	0.5	76.0	18.0
SMA2Z110A	2W110V	104.50	110.0	115.50	4.5	250.0	4000	0.25	0.5	83.6	17.0
SMA2Z120A	2W120V	114.00	120.0	126.00	4.2	325.0	4500	0.25	0.5	91.2	15.0
SMA2Z130A	2W130V	123.50	130.0	136.50	3.8	400.0	5000	0.25	0.5	98.8	14.0
SMA2Z140A	2W140V	133.00	140.0	147.00	3.6	500.0	5500	0.25	0.5	106.4	13.0
SMA2Z150A	2W150V	142.50	150.0	157.50	3.3	575.0	6000	0.25	0.5	114.0	12.0
SMA2Z160A	2W160V	152.00	160.0	168.00	3.1	650.0	6500	0.25	0.5	121.6	11.0
SMA2Z170A	2W170V	161.50	170.0	178.50	2.9	675.0	7000	0.25	0.5	130.4	11.0
SMA2Z180A	2W180V	171.00	180.0	189.00	2.8	725.0	7000	0.25	0.5	136.8	10.0
SMA2Z190A	2W190V	180.50	190.0	199.50	2.6	825.0	8000	0.25	0.5	144.8	10.0
SMA2Z200A	2W200V	190.00	200.0	210.00	2.5	1900.0	9990	0.25	0.5	152.0	9.0
SMA2Z220A	2W220V	209.00	220.0	231.00	2.0	2000.0	8500	0.25	0.5	167.0	8.0
SMA2Z270A	2W270V	256.50	270.0	283.50	1.6	2200.0	8500	0.25	0.5	205.0	6.7
SMA2Z300A	2W300V	285.00	300.0	315.00	1.5	2200.0	9000	0.25	0.5	228.0	5.9
SMA2Z330A	2W330V	313.50	330.0	346.50	1.4	2300.0	9000	0.25	0.5	250.0	5.4

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

# CHARACTERISTIC CURVES

Fig.1-Power Temperature Derating Curve

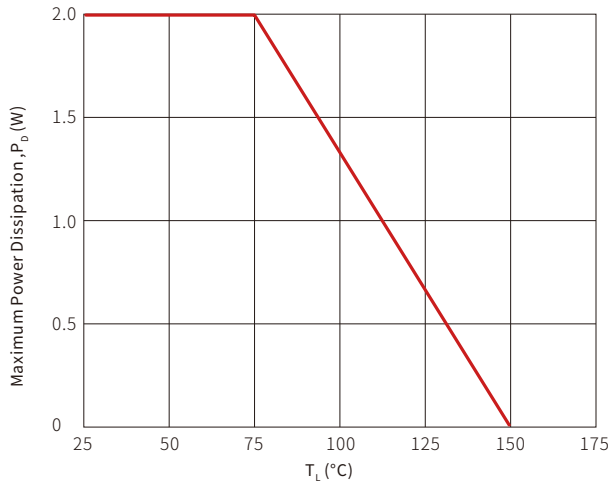


Fig.2-Temperature Coefficients v.s. Zener Voltage

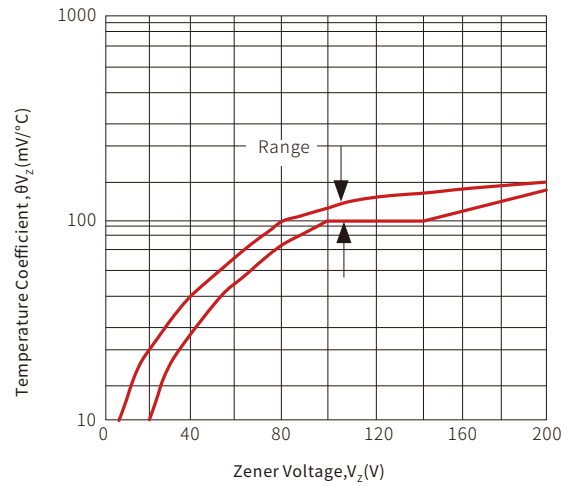


Fig.3-Pulse Waveform

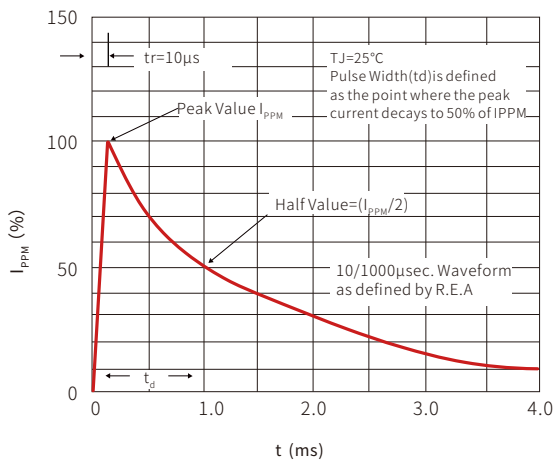
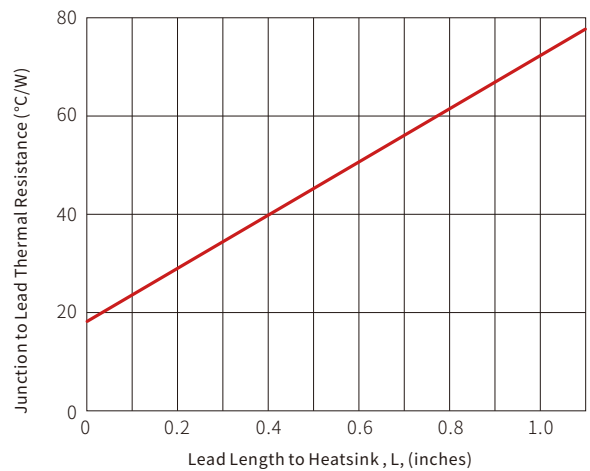
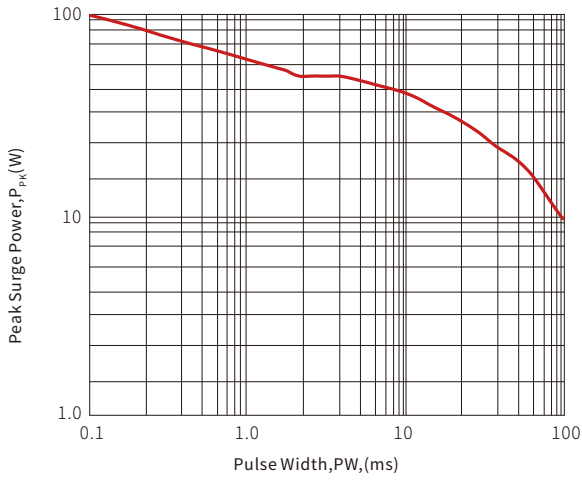


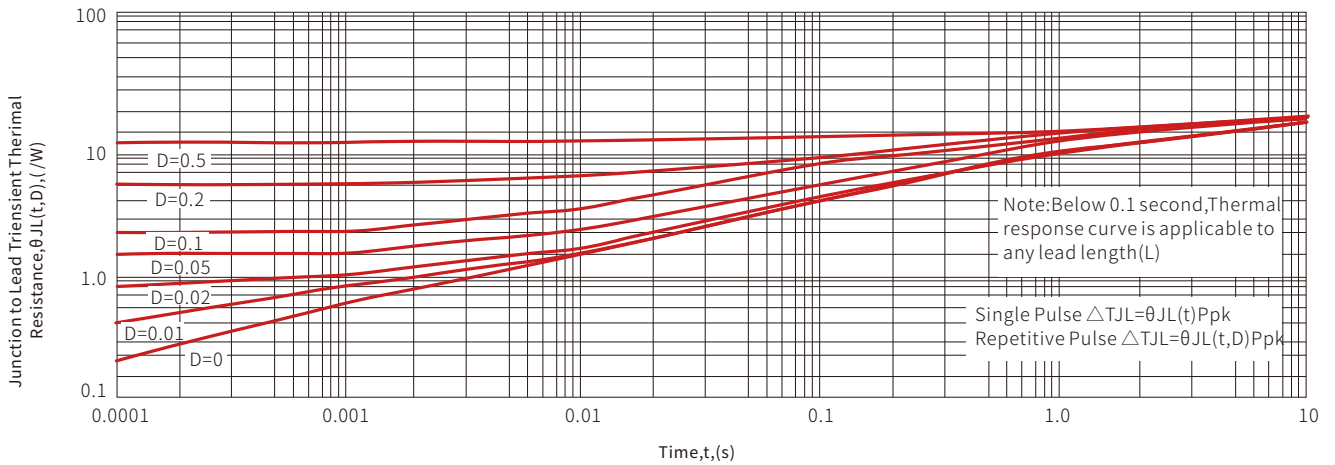
Fig.4-Typical Thermal Resistance v.s. Lead Length



**Fig.5-Maximum Surge Power**

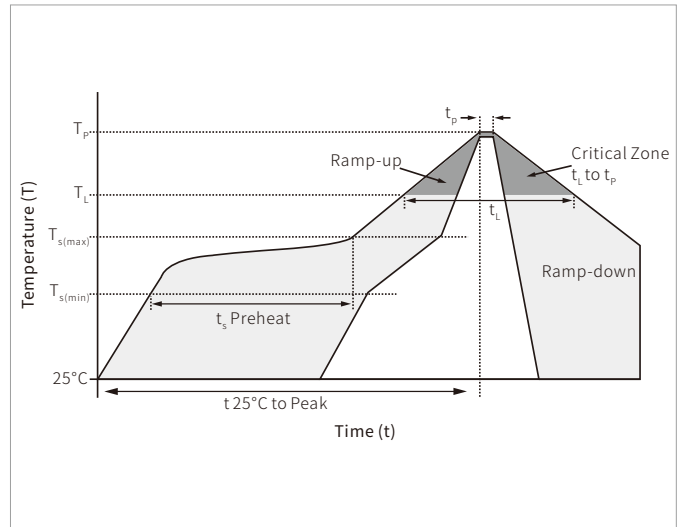


**Fig.6-Typical Thermal Response L, Lead Length=3/8inch**

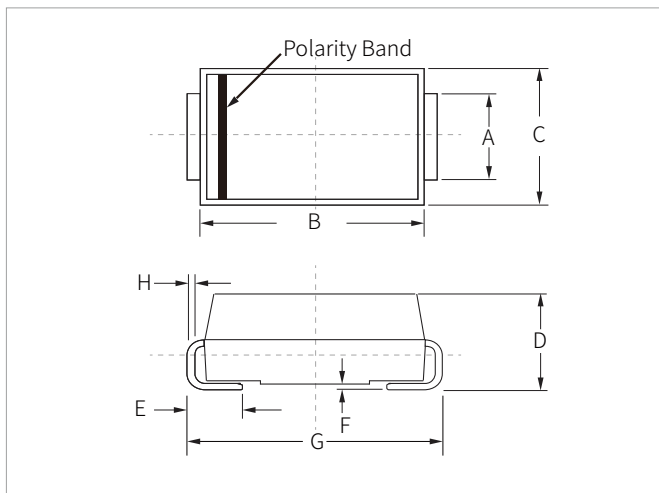


## SOLDERING PARAMETERS

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

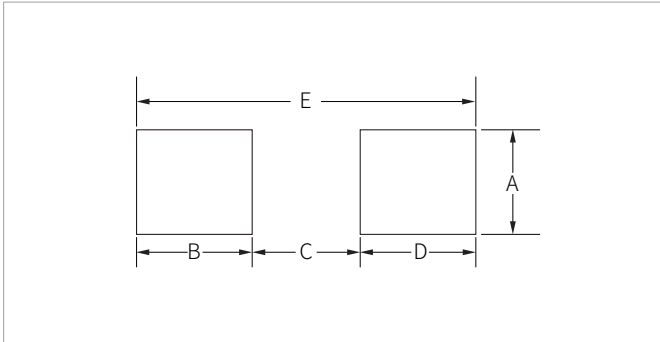


## DO-214AC(SMA) PACKAGE INFORMATION



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	Package Code	Minimum Package (Pcs)	Inner Box Quantity (Pcs)	Outer Carton Quantity (Pcs)	Delivery Mode reel
SMA2ZxxA	DO-214AC(SMA)	F1	5000	10000	80000	13"
		F2	7500	15000	120000	13"
		F3	7500	15000	60000	13"
		F4	1800	7200	57600	7"
		F5	2000	8000	64000	7"
		F6	5000	10000	100000	13"

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