



**THE DATASHEET OF  
1SMA4744A**



# 1SMA4738A thru 1SMA4764A

Surface Mount Zener Diodes  
 Vz Range:8.2V to 100V Power Dissipation:1W

## Features

- Silicon power zener diodes
- For use in stabilizing and clipping circuits with high power rating.
- Suffix "A" for  $\pm 5\%$  tolerance.



**DO-214AC  
(SMA)**

## Maximum Rating ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Zener Current	$I_{RM}, I_{ZM}$	See Electrical Characteristics	mA
Power Dissipation at $T_L=70^\circ\text{C}$	$P_D$	1	W
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^\circ\text{C}$
Typical Thermal Resistance <sup>(1)</sup>	$R_{\theta JA}$	125	$^\circ\text{C/W}$
	$R_{\theta JL}$	30	$^\circ\text{C/W}$

Note1: Thermal resistance from junction to ambient & lead, mounted on PCB with 5.0x5.0mm copper pads

## Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Part Number	Device Marking Code	Nominal Zener Voltage @ $I_{ZT}$ $V_Z$ (V) <sup>(2)</sup>	Test Current $I_{ZT}$ (mA)	Maximum Zener Impedance <sup>(3)</sup>			Maximum Reverse Leakage Current		Maximum Surge Current <sup>(4)</sup> $I_{RM}$ (mA)	Maximum Regulator Current <sup>(5)</sup> @ $T_A = 50^\circ\text{C}$ $I_{ZM}$ (mA)
				$Z_{ZT}$ @ $I_{ZT}$ ( $\Omega$ )	$Z_{ZK}$ ( $\Omega$ )	@ $I_{ZK}$ (mA)	$I_R$ ( $\mu\text{A}$ )	@ $V_R$ (V)		
1SMA4738A	4738A	8.2	31	4.5	700	0.5	10	6	550	122
1SMA4739A	4739A	9.1	28	5.0	700	0.5	10	7	500	110
1SMA4740A	4740A	10	25	7	700	0.25	10	7.6	454	100
1SMA4741A	4741A	11	23	8	700	0.25	5	8.4	414	83
1SMA4742A	4742A	12	21	9	700	0.25	5	9.1	380	76
1SMA4743A	4743A	13	19	10	700	0.25	5	9.9	344	69
1SMA4744A	4744A	15	17	14	700	0.25	5	11.4	304	61
1SMA4745A	4745A	16	15.5	16	700	0.25	5	12.2	285	57
1SMA4746A	4746A	18	14	20	750	0.25	5	13.7	250	50
1SMA4747A	4747A	20	12.5	22	750	0.25	5	15.2	225	45
1SMA4748A	4748A	22	11.5	23	750	0.25	5	16.7	205	41
1SMA4749A	4749A	24	10.5	25	750	0.25	5	18.2	190	38

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Surface Mount Zener Diodes

V<sub>z</sub> Range:8.2V to 100V Power Dissipation:1W

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

Part Number	Device Marking Code	Nominal Zener Voltage @ I <sub>ZT</sub> V <sub>Z</sub> (V) <sup>(1)</sup>	Test Current I <sub>ZT</sub> (mA)	Maximum Zener Impedance <sup>(2)</sup>			Maximum Reverse Leakage Current		Maximum Surge Current <sup>(3)</sup> I <sub>RM</sub> (mA)	Maximum Regulator Current <sup>(4)</sup> @ T <sub>A</sub> = 50°C I <sub>ZM</sub> (mA)
				Z <sub>ZT</sub> @ I <sub>ZT</sub> (Ω)	Z <sub>ZK</sub> (Ω)	@ I <sub>ZK</sub> (mA)	I <sub>R</sub> (uA)	@ V <sub>R</sub> (V)		
1SMA4750A	4750A	27.0	10	35.0	750	0.3	5	21	170	34
1SMA4751A	4751A	30.0	9	40.0	1000	0.3	5	23	150	30
1SMA4752A	4752A	33	8	45	1000	0.25	5	25.1	135	27
1SMA4753A	4553A	36	7	50	1000	0.25	5	27.4	125	25
1SMA4754A	4754A	39	7	60	1000	0.25	5	29.7	115	23
1SMA4755A	4755A	43	6	70	1500	0.25	5	32.7	110	22
1SMA4756A	4756A	47	6	80	1500	0.25	5	35.8	95	19
1SMA4757A	4757A	51	5.0	95	1500	0.25	5	38.8	90	18
1SMA4758A	4758A	56	5	110	2000	0.25	5	42.6	80	16
1SMA4759A	4759A	62	4.0	125	2000	0.25	5	47.1	70	14
1SMA4760A	4760A	68	3.7	150	2000	0.25	5	51.7	65	13
1SMA4761A	4761A	75	3.3	175	2000	0.25	5	56.0	60	12
1SMA4762A	4762A	82.0	3	200.0	3000	0.3	5	62	55	11
1SMA4763A	4763A	91.0	3	250.0	3000	0.3	5	69	50	10
1SMA4764A	4764A	100	3	350	3000	0.25	5	76.0	45	9

Notes:

(2) Measured under thermal equilibrium and DC test conditions. Voltage tolerance suffix A, ±5%.

(3) The Zener impedance is derived from the 1KHz AC voltage which results when an AC current having an R<sub>MS</sub> value equal to 10% of the Zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) . Zener impedance is measure at two points to ensure a sharp knee on the breakdown curve and to eliminate unstable units.

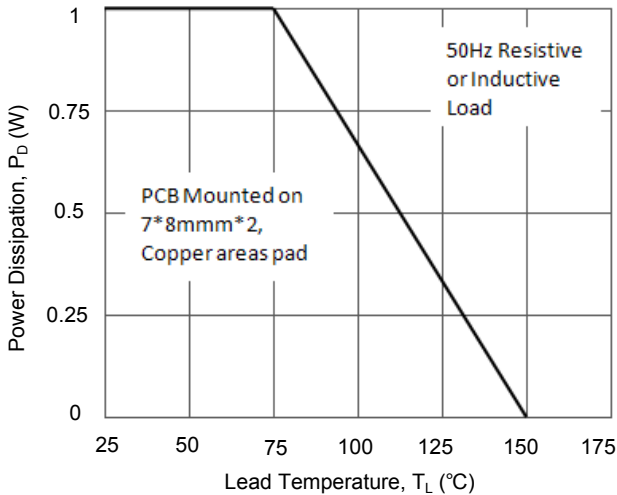
(4) Maximum surge current: Surge current is a non-repetitive, 8.3ms pulse width square wave or equivalent sine-wave superimposed on I<sub>ZT</sub> per JEDEC method.

(5) Valid provided that electrodes at a distance of 10 mm from case are kept at ambient temperature.

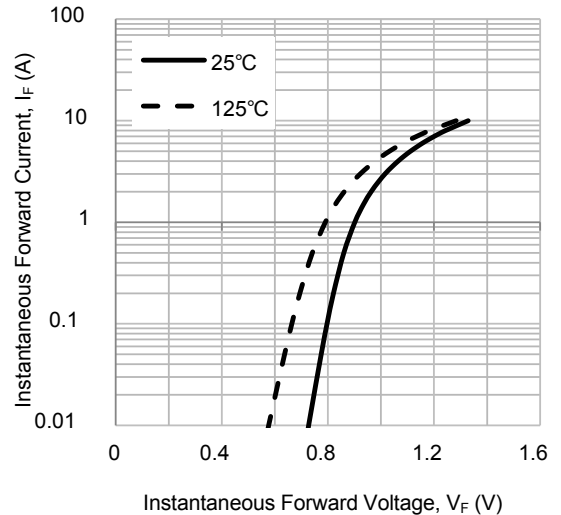
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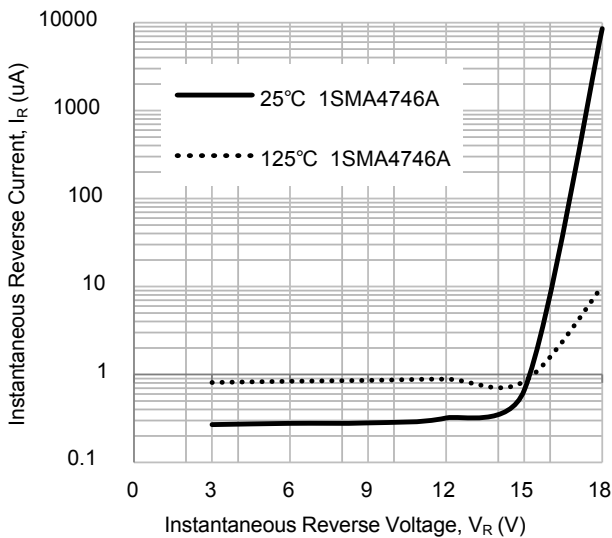
## Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise specified)



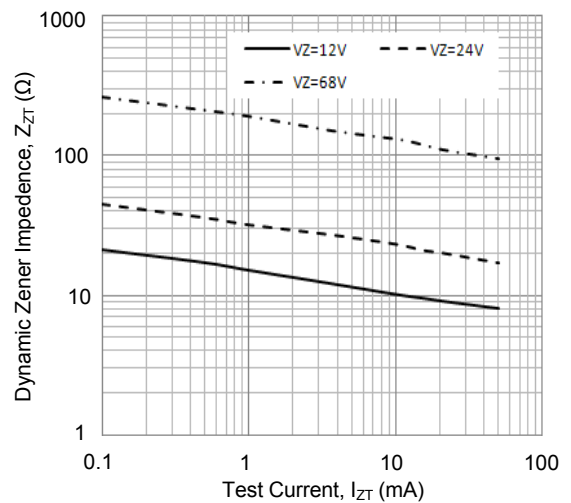
**Figure.1 Maximum Continuous Power Dissipation**



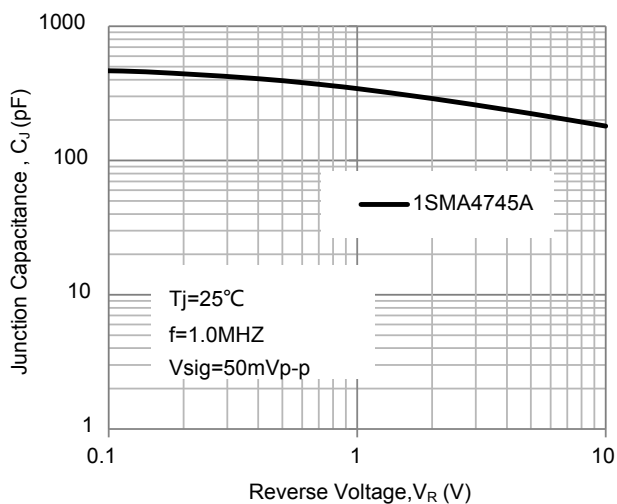
**Figure.2 Typical Instantaneous Forward Characteristics**



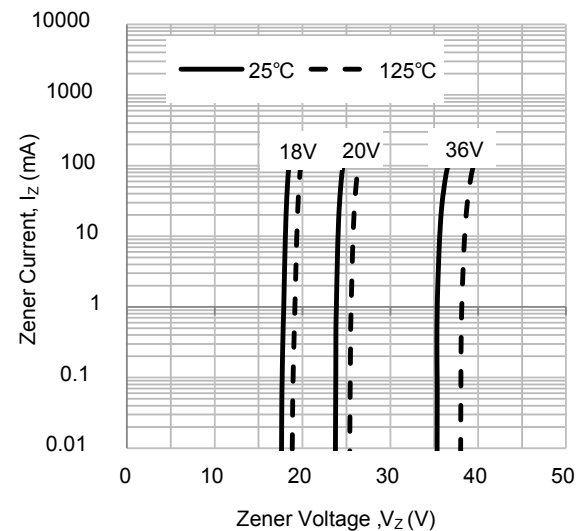
**Figure.3 Typical Reverse Characteristics**



**Figure.4 Typical Zener Impedance**



**Figure 5. Typical Junction Capacitance**

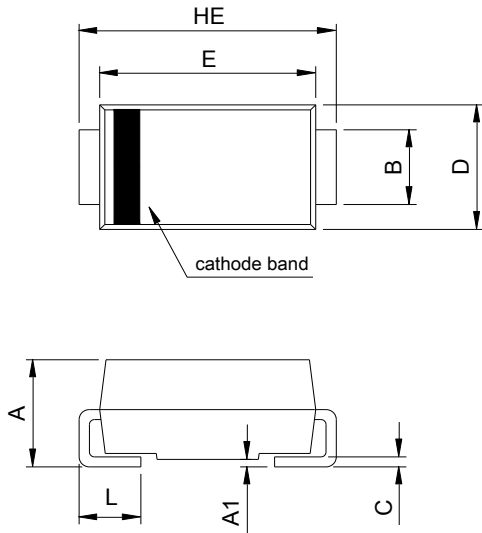


**Figure 6. Typical Zener Voltage**

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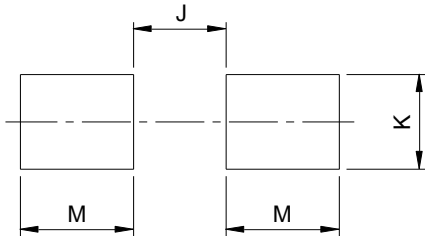
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## Package Outline Dimensions DO-214AC (SMA)



SMA (DO-214AC)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.90	2.30	0.075	0.091
A1	0.00	0.20	0.000	0.008
B	1.25	1.65	0.049	0.065
C	0.15	0.31	0.006	0.012
D	2.35	2.90	0.093	0.114
E	3.99	4.60	0.157	0.181
HE	4.80	5.30	0.189	0.209
L	0.76	1.52	0.030	0.060



## Recommended Pad Layout



Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	2.20	-	0.087
K	1.72	-	0.068	-
M	2.00	-	0.079	-

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