



THE DATASHEET OF 1SMA4746A



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 ⁽¹⁾	$R_{\theta JA}$	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) ⁽²⁾	Test Current I_{ZT} (mA)	Maximum Zener Impedance ⁽³⁾			Maximum Reverse Leakage Current		Maximum Surge Current ⁽⁴⁾ I_{RM} (mA)	Maximum Regulator Current ⁽⁵⁾ @ $T_A = 50^\circ\text{C}$ I_{ZM} (mA)
				Z_{ZT} @ I_{ZT} (Ω)	Z_{ZK} (Ω)	@ I_{ZK} (mA)	I_R (μA)	@ 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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Part Number	Device Marking Code	Nominal Zener Voltage @ I _{ZT} V _Z (V) ⁽¹⁾	Test Current I _{ZT} (mA)	Maximum Zener Impedance ⁽²⁾			Maximum Reverse Leakage Current		Maximum Surge Current ⁽³⁾ I _{RM} (mA)	Maximum Regulator Current ⁽⁴⁾ @ T _A = 50°C I _{ZM} (mA)
				Z _{ZT} @ I _{ZT} (Ω)	Z _{ZK} (Ω)	@ I _{ZK} (mA)	I _R (uA)	@ V _R (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_{MS} value equal to 10% of the Zener current (I_{ZT} or I_{ZK}) . 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_{ZT} 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)

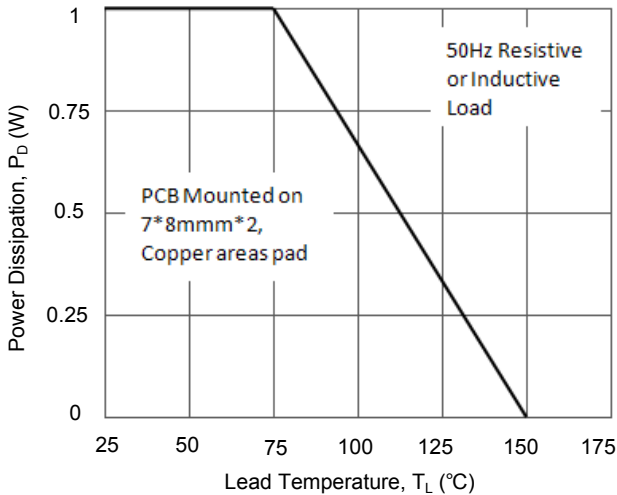


Figure.1 Maximum Continuous Power Dissipation

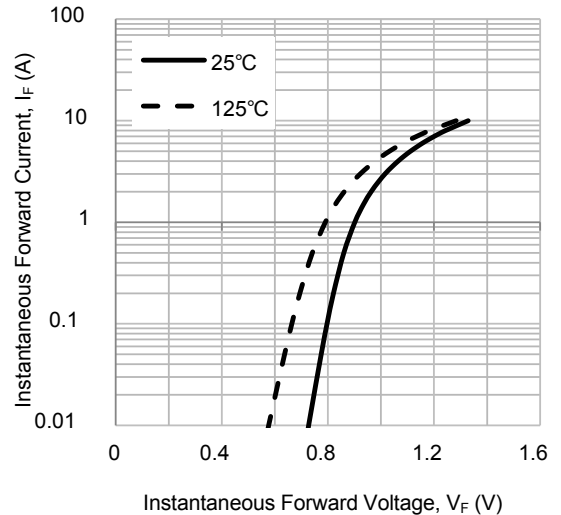


Figure.2 Typical Instantaneous Forward Characteristics

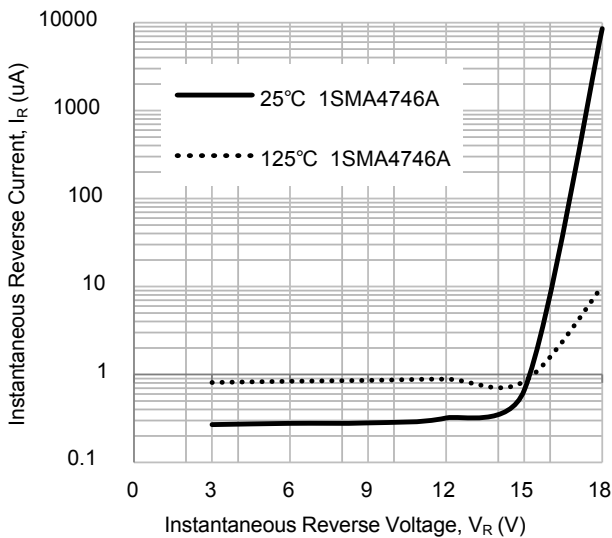


Figure.3 Typical Reverse Characteristics

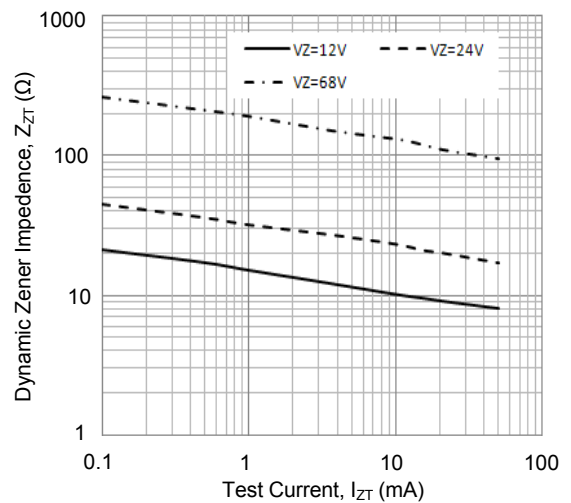


Figure.4 Typical Zener Impedance

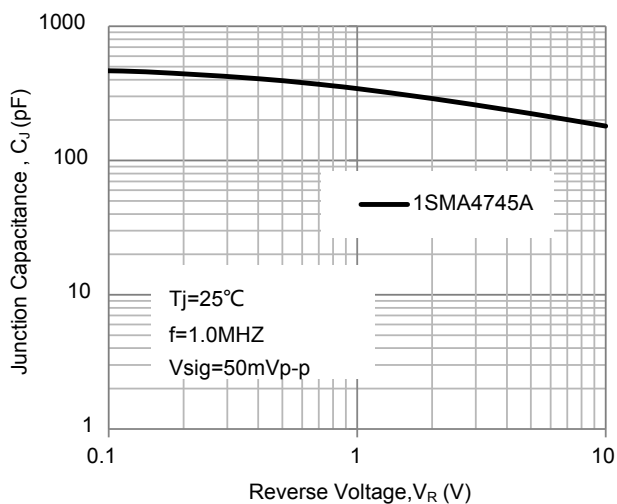


Figure 5. Typical Junction Capacitance

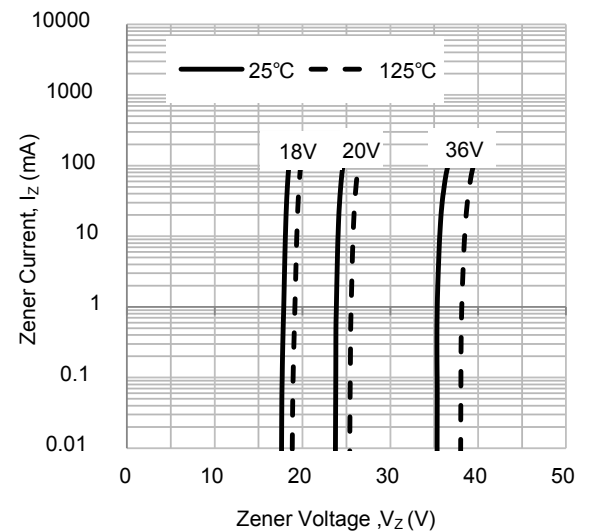
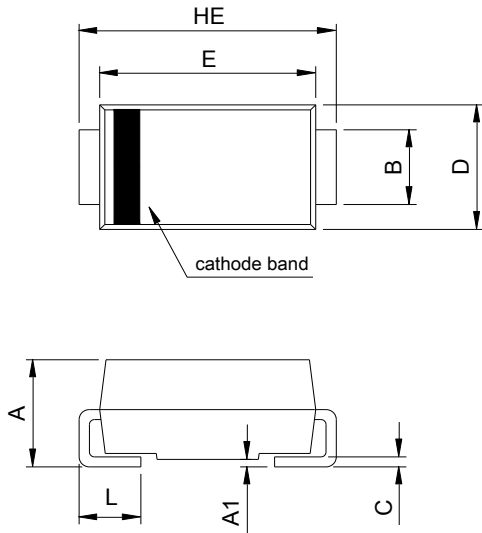


Figure 6. Typical Zener Voltage

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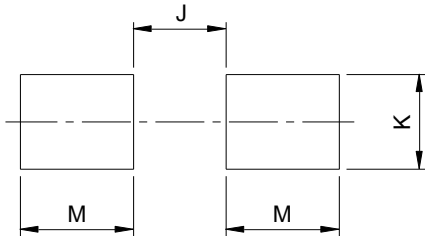
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Package Outline Dimensions DO-214AC (SMA)



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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