

General Information

VIC offers Transient Voltage Suppressor Diodes for surge and ESD protection applications, in compact chip package DO-214AC (SMA) size format. The Transient Voltage Suppressor series offers a choice of Working Peak Reverse Voltage from 5 V up to 495 V and BreakdownVoltage up to 550 V.

Typical fast response times are less than 1.0 picoseconds for unidirectional devices and less than 5.0 picoseconds for bidirectional devices from 0 V to Minimum Breakdown Voltage.



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Power Dissipation At Tj = 25° ,Tp=1ms	P _{PK}	400	W
Steady state power dissipation on infinite heat sink at $T_L=75^{\circ}$	P _{M(AV)}	3.0	W
Maximum Operating temperature	T _{OPER}	-55 to +155	Ĵ
Maximum Storage temperature	T _{STG}	-55 to +175	Ĵ
Maximum lead temperature for soldering during 10s	TL	260	Ĵ

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	V _{RWM}	IL	V _B	_R @I _T	I _T	Vc	I _{PP}
Uni-Polar	v	μA	min(V)	max(V)	mA	max(V)	Α
VP4SMA5.0A	5	100	6.4	7	10	9.2	43.5
VP4SMA6.0A	6	100	6.67	7.37	10	10.3	38.8
VP4SMA6.5A	6.5	50	7.22	7.98	10	11.2	35.7
VP4SMA7.0A	7	50	7.78	8.6	10	12	33.3
VP4SMA7.5A	7.5	50	8.33	9.21	1	12.9	31



Electrical Characteristics (@ $T_A = 25$ °C Unless Otherwise Noted)

Parameter	V _{RWM}	IL	VB	_R @I _T	Ι _τ	Vc	\mathbf{I}_{PP}
Uni-Polar	v	μΑ	min(V)	max(V)	mA	max(V)	А
VP4SMA8.0A	8	20	8.89	9.83	1	13.6	29.4
VP4SMA8.5A	8.5	10	9.44	10.4	1	14.4	27.8
VP4SMA9.0A	9	5	10	11.1	1	15.4	26
VP4SMA10A	10	2	11.1	12.3	1	17	23.5
VP4SMA11A	11	1	12.2	13.5	1	18.2	22
VP4SMA12A	12	1	13.3	14.7	1	19.9	20.1
VP4SMA13A	13	1	14.4	15.9	1	21.5	18.6
VP4SMA14A	14	1	15.6	17.2	1	23.2	17.3
VP4SMA15A	15	1	16.7	18.5	1	24.4	16.4
VP4SMA16A	16	1	17.8	19.7	1	26	15.4
VP4SMA17A	17	1	18.9	20.9	1	27.6	14.5
VP4SMA18A	18	1	20	22.1	1	29.2	13.7
VP4SMA20A	20	1	22.2	24.5	1	32.4	12.4
VP4SMA22A	22	1	24.4	26.9	1	35.5	11.3
VP4SMA24A	24	1	26.7	29.5	1	38.9	10.3
VP4SMA26A	26	1	28.9	31.9	1	42.1	9.5
VP4SMA28A	28	1	31.1	34.4	1	45.4	8.8
VP4SMA30A	30	1	33.3	36.8	1	48.4	8.3
VP4SMA33A	33	1	36.7	40.6	1	53.3	7.5
VP4SMA36A	36	1	40	44.2	1	58.1	6.9

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Parameter	V _{RWM}	IL	VB	_R @I _T	Ι _τ	Vc	\mathbf{I}_{PP}
Uni-Polar	v	μA	min(V)	max(V)	mA	max(V)	А
VP4SMA40A	40	1	44.4	49.1	1	64.5	6.2
VP4SMA43A	43	1	47.8	52.8	1	69.4	5.8
VP4SMA45A	45	1	50	55.3	1	72.7	5.5
VP4SMA48A	48	1	53.3	58.9	1	77.4	5.2
VP4SMA51A	51	1	56.7	62.7	1	82.4	4.9
VP4SMA54A	54	1	60	66.3	1	87.1	4.6
VP4SMA58A	58	1	64.4	71.2	1	93.6	4.3
VP4SMA60A	60	1	66.7	73.7	1	96.8	4.1
VP4SMA64A	64	1	71.1	78.6	1	103	3.9
VP4SMA70A	70	1	77.8	86	1	113	3.6
VP4SMA75A	75	1	83.3	92.1	1	121	3.3
VP4SMA78A	78	1	86.7	95.8	1	126	3.2
VP4SMA85A	85	1	94.4	104	1	137	2.9
VP4SMA90A	90	1	100	111	1	146	2.8
VP4SMA100A	100	1	100	111	1	162	2.5
VP4SMA110A	110	1	111	123	1	177	2.3
VP4SMA120A	120	1	122	135	1	193	2.1
VP4SMA130A	130	1	133	147	1	209	1.9
VP4SMA150A	150	1	144	159	1	243	1.7
VP4SMA160A	160	1	167	185	1	259	1.6
VP4SMA170A	170	1	178	197	1	275	1.5

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Parameter	V _{RWM}	IL	V _B	_R @I _T	Ι _τ	Vc	\mathbf{I}_{PP}
Uni-Polar	v	μA	min(V)	max(V)	mA	max(V)	А
VP4SMA180A	180	1	189	209	1	292	1.4
VP4SMA200A	200	1	201	222	1	324	1.3
VP4SMA220A	220	1	211	234	1	356	1.1
VP4SMA250A	250	1	224	247	1	405	1
VP4SMA300A	300	1	233	258	1	486	0.8
VP4SMA350A	350	1	391	432	1	567	0.7
VP4SMA400A	400	1	447	494	1	648	0.6



Schematic Diagram





Block Diagram



Uni-directional

Recommended PCB Footprint



Dimension	SMA (DO-214AC)
А	<u>2.70</u> (0.106)
В	$\frac{2.10}{(0.083)}$
С	<u>1.27</u> (0.050)
DIME	ENSIONS: <u>MM</u> (INCHES)





Dimension	SMA (DO-214AC)
A	$\frac{2.10-2.70}{(0.08-0.11)}$
В	<u>4.70-5.30</u> (0.180-0.200)
С	$\frac{1.20-1.70}{(0.05-0.06)}$
D	$\frac{4.22-4.70}{(0.166-0.185)}$
E	<u>0.91-1.42</u> (0.036-0.056)
F	<u>1.85-2.10</u> (0.073-0.087)
G	<u>0.05-0.20</u> (0.002-0.008)
н	<u>1.95-2.40</u> (0.077-0.094)
ſ	<u>0.80-1.35</u> (0.030-0.053)
к	<u>0.20-0.35</u> (0.008-0.014)
L	<u>0.99-1.24</u> (0.039-0.049)

DIMENSIONS:

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(INCHES)
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Performance Graphs



Figure 1: Peak Pulse Power Rating Curve



Figure 2: Pulse Derating Curve

Figure 3: Pulse Waveform







Figure 4: Typical Junction Capacitance



Figure 6: Maximum Non-Repetitive Forward Surge Current Only Unidirectional





Packaging Information

Symbol	SMA (DO-214AC)
А	$\frac{2.90\pm0.05}{(0.114\pm0.002)}$
В	<u>5.50±0.10</u> (0.217±0.004)
С	$\frac{2.26\pm0.20}{(0.089\pm0.008)}$
d	$\frac{1.50\pm0.10}{(0.061\pm0.004)}$
D	<u>330</u> (12.992)
D1	<u>50.0</u> (1.969)
D2	$\frac{13.0\pm0.20}{(0.512\pm0.008)}$
E	$\frac{1.75\pm0.10}{(0.069\pm0.004)}$
F	<u>5.50±0.05</u> (0.217±0.002)
Р	$\frac{4.00\pm0.10}{(0.157\pm0.004)}$
P0	<u>4.00±0.10</u> (0.157±0.004)
P1	<u>2.00±0.05</u> (0.079±0.002)
Т	$\frac{0.30\pm0.10}{(0.012\pm0.004)}$
W	$\frac{12.00\pm0.30}{(0.472\pm0.012)}$
W1	<u>18.4</u> (0.724)

Quantity of products in the taping package

- (1) Standard quantity : 5000pcs/Reel for the Series.
- (2) Shipping quantity is a multiple of standard quantity.
- (3) For more information, please contact our local agents.

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D2 D1 D

W1