Features

- 400 watts Peak Pulse Power (10/1000 μs)
- Response Time is Typically < 1 ns
- Excellent Clamping Capability

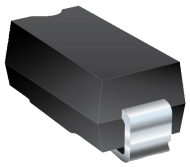
Applications

- Power lines
- Automotive and Telecommunication
- Computers &Consumer Electronics
- Industrial Electronics

VP4SMAxxCA Series ----- SURFACE MOUNT TVS Diodes

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 pulse power dissipation at 10/1000μs waveform	P_{PK}	400	W
Peak Forward Surge Current 8.3ms single half sine-wave super	I_{FSM}	50	A
Maximum Operating temperature	T_{OPER}	-55 to +155	℃
Maximum Storage temperature	T_{STG}	-55 to +175	℃
Maximum lead temperature for soldering during 10s	T_L	260	℃

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

Parameter	V_{RWM}	I_L	V_{BR}@I_T		I_T	V_C	I_{PP}
Uni-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
VP4SMA5.0CA	5	100	6.4	7	10	9.2	43.5
VP4SMA6.0CA	6	100	6.67	7.37	10	10.3	38.8
VP4SMA6.5CA	6.5	50	7.22	7.98	10	11.2	35.7
VP4SMA7.0CA	7	50	7.78	8.6	10	12	33.3
VP4SMA7.5CA	7.5	50	8.33	9.21	1	12.9	31

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

Parameter	V_{RWM}	I_L	V_{BR}@I_T		I_T	V_C	I_{PP}
Uni-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
VP4SMA8.0CA	8	20	8.89	9.83	1	13.6	29.4
VP4SMA8.5CA	8.5	10	9.44	10.4	1	14.4	27.8
VP4SMA9.0CA	9	5	10	11.1	1	15.4	26
VP4SMA10CA	10	2	11.1	12.3	1	17	23.5
VP4SMA11CA	11	1	12.2	13.5	1	18.2	22
VP4SMA12CA	12	1	13.3	14.7	1	19.9	20.1
VP4SMA13CA	13	1	14.4	15.9	1	21.5	18.6
VP4SMA14CA	14	1	15.6	17.2	1	23.2	17.3
VP4SMA15CA	15	1	16.7	18.5	1	24.4	16.4
VP4SMA16CA	16	1	17.8	19.7	1	26	15.4
VP4SMA17CA	17	1	18.9	20.9	1	27.6	14.5
VP4SMA18CA	18	1	20	22.1	1	29.2	13.7
VP4SMA20CA	20	1	22.2	24.5	1	32.4	12.4
VP4SMA22CA	22	1	24.4	26.9	1	35.5	11.3
VP4SMA24CA	24	1	26.7	29.5	1	38.9	10.3
VP4SMA26CA	26	1	28.9	31.9	1	42.1	9.5
VP4SMA28CA	28	1	31.1	34.4	1	45.4	8.8
VP4SMA30CA	30	1	33.3	36.8	1	48.4	8.3
VP4SMA33CA	33	1	36.7	40.6	1	53.3	7.5
VP4SMA36CA	36	1	40	44.2	1	58.1	6.9

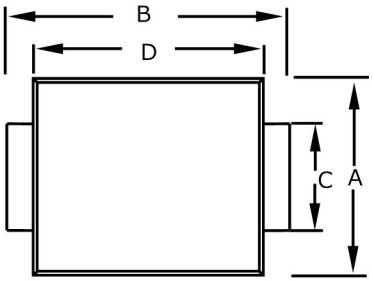
Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

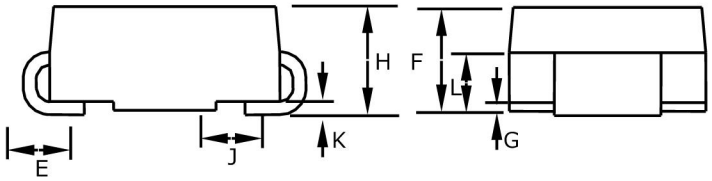
Parameter	V_{RWM}	I_L	V_{BR}@I_T		I_T	V_C	I_{PP}
Uni-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
VP4SMA40CA	40	1	44.4	49.1	1	64.5	6.2
VP4SMA43CA	43	1	47.8	52.8	1	69.4	5.8
VP4SMA45CA	45	1	50	55.3	1	72.7	5.5
VP4SMA48CA	48	1	53.3	58.9	1	77.4	5.2
VP4SMA51CA	51	1	56.7	62.7	1	82.4	4.9
VP4SMA54CA	54	1	60	66.3	1	87.1	4.6
VP4SMA58CA	58	1	64.4	71.2	1	93.6	4.3
VP4SMA60CA	60	1	66.7	73.7	1	96.8	4.1
VP4SMA64CA	64	1	71.1	78.6	1	103	3.9
VP4SMA70CA	70	1	77.8	86	1	113	3.6
VP4SMA75CA	75	1	83.3	92.1	1	121	3.3
VP4SMA78CA	78	1	86.7	95.8	1	126	3.2
VP4SMA85CA	85	1	94.4	104	1	137	2.9
VP4SMA90CA	90	1	100	111	1	146	2.8
VP4SMA100CA	100	1	100	111	1	162	2.5
VP4SMA110CA	110	1	111	123	1	177	2.3
VP4SMA120CA	120	1	122	135	1	193	2.1
VP4SMA130CA	130	1	133	147	1	209	1.9
VP4SMA150CA	150	1	144	159	1	243	1.7
VP4SMA160CA	160	1	167	185	1	259	1.6
VP4SMA170CA	170	1	178	197	1	275	1.5

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

Parameter	V_{RWM}	I_L	V_{BR}@I_T		I_T	V_C	I_{PP}
Uni-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
VP4SMA180CA	180	1	189	209	1	292	1.4
VP4SMA200CA	200	1	201	222	1	324	1.3
VP4SMA220CA	220	1	211	234	1	356	1.1
VP4SMA250CA	250	1	224	247	1	405	1
VP4SMA300CA	300	1	233	258	1	486	0.8
VP4SMA350CA	350	1	391	432	1	567	0.7
VP4SMA400CA	400	1	447	494	1	648	0.6
VP4SMA440CA	440	1	492	543	1	713	0.6

Product Dimensions

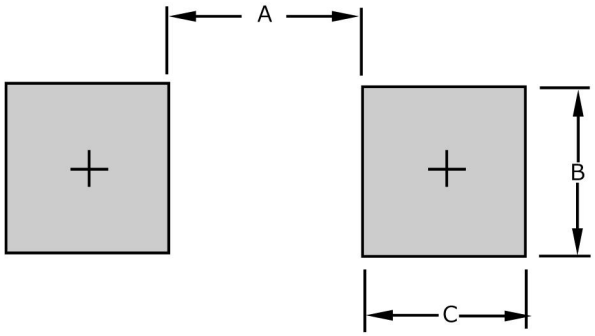




Dimension	SMA （DO-214AC）
A	2.10-2.70 (0.08-0.11)
B	4.70-5.30 (0.180-0.200)
C	1.20-1.70 (0.05-0.06)
D	4.22-4.70 (0.166-0.185)
E	0.91-1.42 (0.036-0.056)
F	1.85-2.10 (0.073-0.087)
G	0.05-0.20 (0.002-0.008)
H	1.95-2.40 (0.077-0.094)
J	0.80-1.35 (0.030-0.053)
K	0.20-0.35 (0.008-0.014)
L	0.99-1.24 (0.039-0.049)

DIMENSIONS: MM / (INCHES)

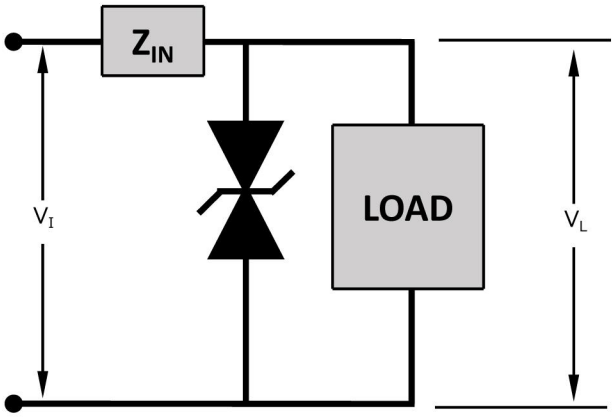
Recommended PCB Footprint



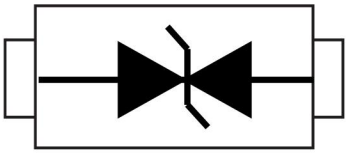
Dimension	SMA （DO-214AC）
A	2.70 (0.106)
B	2.10 (0.083)
C	1.27 (0.050)

DIMENSIONS: MM / (INCHES)

Typical Protection Circuit



Block Diagram



Bi-directional

Performance Graphs

Figure 1: Peak Pulse Power Rating Curve

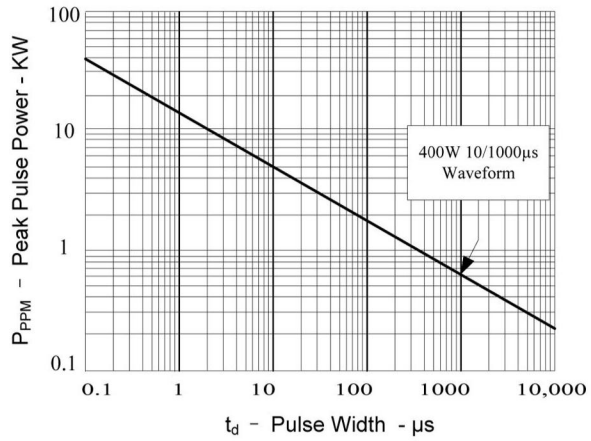


Figure 2: Pulse Derating Curve

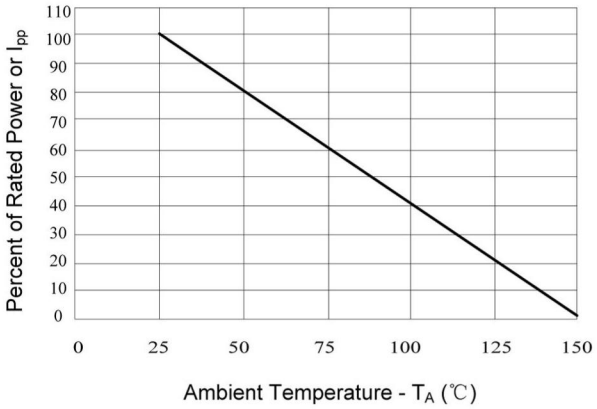


Figure 3: Pulse Waveform

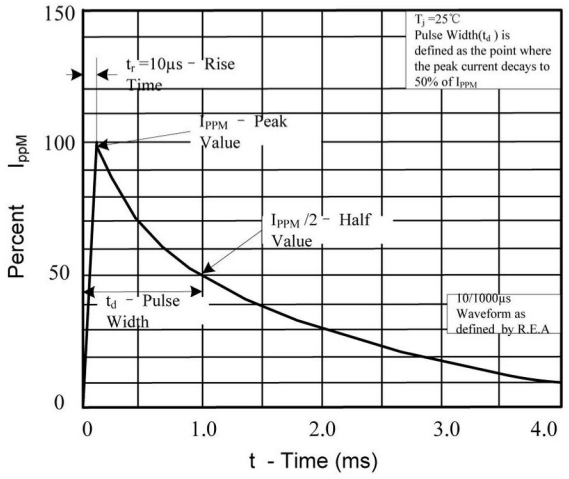


Figure 4: Typical Junction Capacitance

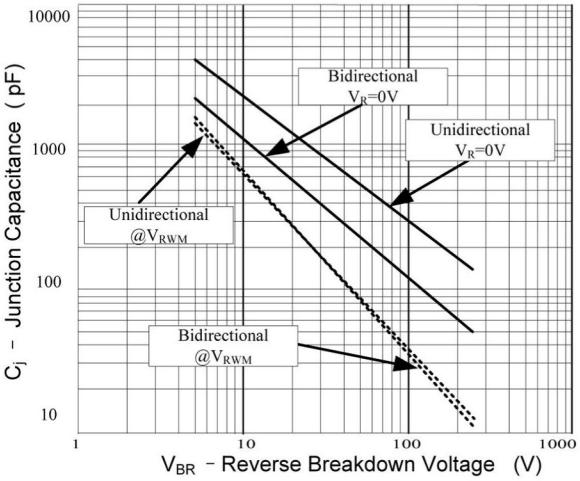


Figure 5: Steady State Power Dissipation Derating Curve

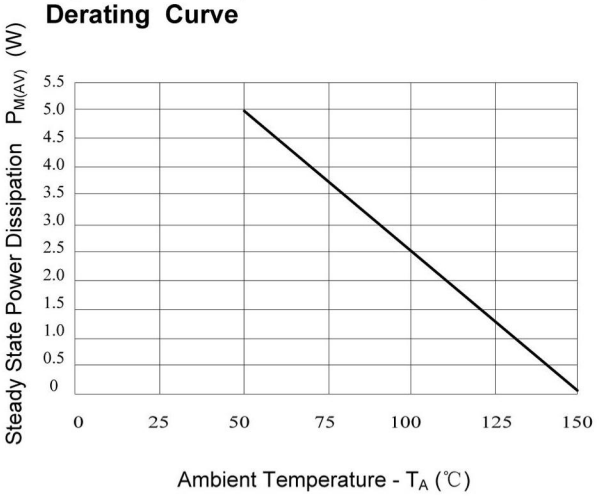
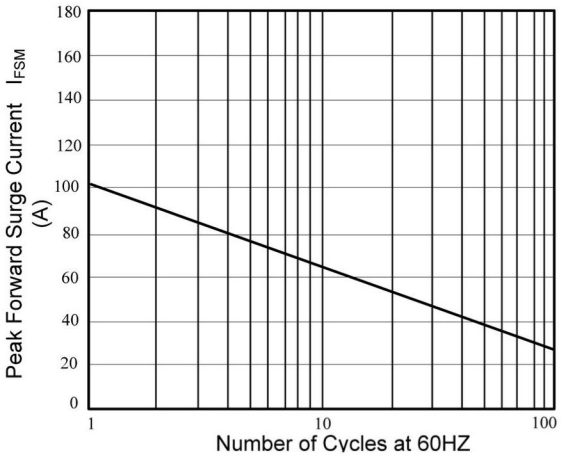
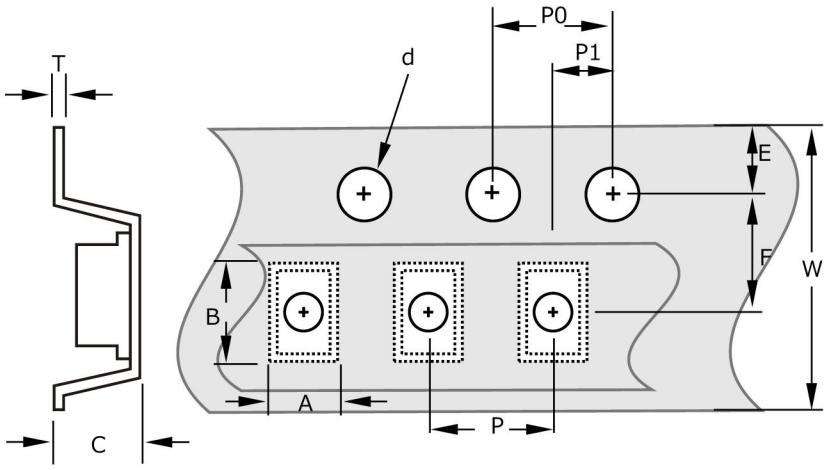


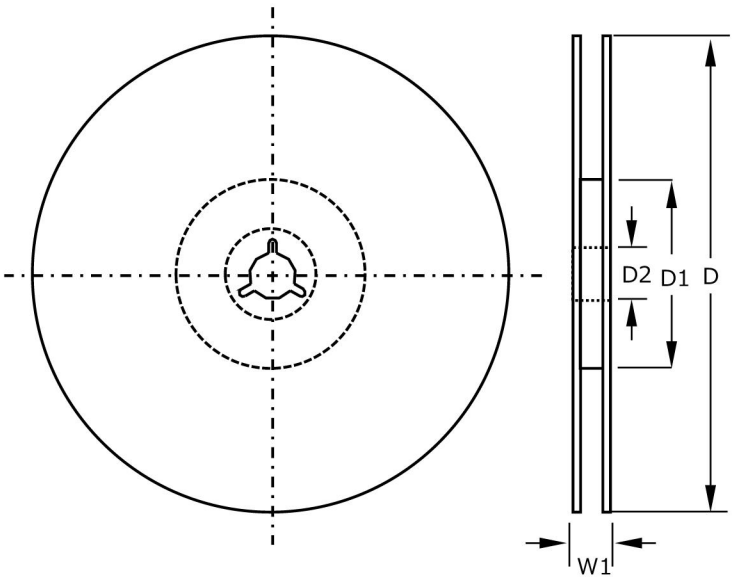
Figure 6: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



Packaging Information

Symbol	SMA（DO-214AC）
A	2.90±0.05 (0.114±0.002)
B	5.50±0.10 (0.217±0.004)
C	2.26±0.20 (0.089±0.008)
d	1.50±0.10 (0.061±0.004)
D	330 (12.992)
D1	50.0 (1.969)
D2	13.0±0.20 (0.512±0.008)
E	1.75±0.10 (0.069±0.004)
F	5.50±0.05 (0.217±0.002)
P	4.00±0.10 (0.157±0.004)
P0	4.00±0.10 (0.157±0.004)
P1	2.00±0.05 (0.079±0.002)
T	0.30±0.10 (0.012±0.004)
W	12.00±0.30 (0.472±0.012)
W1	18.4 (0.724)





DIMENSIONS: MM / (INCHES)

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.