Features

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

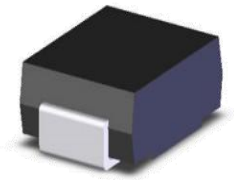
Applications

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

VP10SMBxxCA Series ----- SURFACE MOUNT TVS Diodes

General Information

VIC offers Transient Voltage Suppressor Diodes for surge and ESD protection applications, in compact chip package DO-214AA (SMB) size format. The Transient Voltage Suppressor series offers a choice of Working Peak Reverse Voltage from 5 V up to 440 V and BreakdownVoltage up to 450 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}	1000	W
Peak Forward Surge Current 8.3ms single half sine-wave super	I_{FSM}	100	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
VP10SMB5.0CA	5	200	6.4	7	10	9.2	108.7
VP10SMB6.0CA	6	200	6.67	7.37	10	10.3	97.1
VP10SMB6.5CA	6.5	100	7.22	7.98	10	11.2	89.3
VP10SMB7.0CA	7	80	7.78	8.6	10	12	83.4
VP10SMB7.5CA	7.5	50	8.33	9.21	1	12.9	77.6

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
VP10SMB8.0CA	8	20	8.89	9.83	1	13.6	73.6
VP10SMB8.5CA	8.5	10	9.44	10.4	1	14.4	69.5
VP10SMB9.0CA	9	5	10	11.1	1	15.4	65
VP10SMB10CA	10	2	11.1	12.3	1	17	58.9
VP10SMB11CA	11	1	12.2	13.5	1	18.2	55
VP10SMB12CA	12	1	13.3	14.7	1	19.9	50.3
VP10SMB13CA	13	1	14.4	15.9	1	21.5	46.6
VP10SMB14CA	14	1	15.6	17.2	1	23.2	43.1
VP10SMB15CA	15	1	16.7	18.5	1	24.4	41
VP10SMB16CA	16	1	17.8	19.7	1	26	38.5
VP10SMB17CA	17	1	18.9	20.9	1	27.6	36.3
VP10SMB18CA	18	1	20	22.1	1	29.2	34.3
VP10SMB20CA	20	1	22.2	24.5	1	32.4	30.9
VP10SMB22CA	22	1	24.4	26.9	1	35.5	28.2
VP10SMB24CA	24	1	26.7	29.5	1	38.9	25.7
VP10SMB26CA	26	1	28.9	31.9	1	42.1	23.8
VP10SMB28CA	28	1	31.1	34.4	1	45.4	22.1
VP10SMB30CA	30	1	33.3	36.8	1	48.4	20.7
VP10SMB33CA	33	1	36.7	40.6	1	53.3	18.8
VP10SMB36CA	36	1	40	44.2	1	58.1	17.3

■Vic Semi reserves the right to change or uprate, without notice, any information contained in this specification.

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

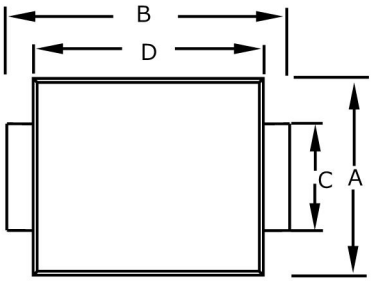
Parameter	V_{RWM}	I_L	V_{BR}@I_T		I_T	V_C	I_{PP}
Uni-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
VP10SMB40CA	40	1	44.4	49.1	1	64.5	15.5
VP10SMB43CA	43	1	47.8	52.8	1	69.4	14.4
VP10SMB45CA	45	1	50	55.3	1	72.7	13.8
VP10SMB48CA	48	1	53.3	58.9	1	77.4	13
VP10SMB51CA	51	1	56.7	62.7	1	82.4	12.2
VP10SMB54CA	54	1	60	66.3	1	87.1	11.5
VP10SMB58CA	58	1	64.4	71.2	1	93.6	10.7
VP10SMB60CA	60	1	66.7	73.7	1	96.8	10.4
VP10SMB64CA	64	1	71.1	78.6	1	103	9.7
VP10SMB70CA	70	1	77.8	86	1	113	8.9
VP10SMB75CA	75	1	83.3	92.1	1	121	8.3
VP10SMB78CA	78	1	86.7	95.8	1	126	8
VP10SMB85CA	85	1	94.4	104	1	137	7.3
VP10SMB90CA	90	1	100	111	1	146	6.9
VP10SMB100CA	100	1	111	123	1	162	6.2
VP10SMB110CA	110	1	122	135	1	177	5.7
VP10SMB120CA	120	1	133	147	1	193	5.2
VP10SMB130CA	130	1	144	159	1	209	4.8
VP10SMB150CA	150	1	167	185	1	243	4.2
VP10SMB160CA	160	1	178	197	1	259	3.9

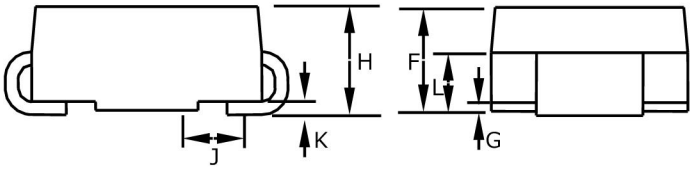
■Vic Semi reserves the right to change or uprate, without notice, any information contained in this specification.

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
VP10SMB170CA	170	1	189	209	1	275	3.7
VP10SMB180CA	180	1	201	222	1	292	3.5
VP10SMB190CA	190	1	211	234	1	307	3.3
VP10SMB200CA	200	1	224	247	1	324	3.1

Product Dimensions

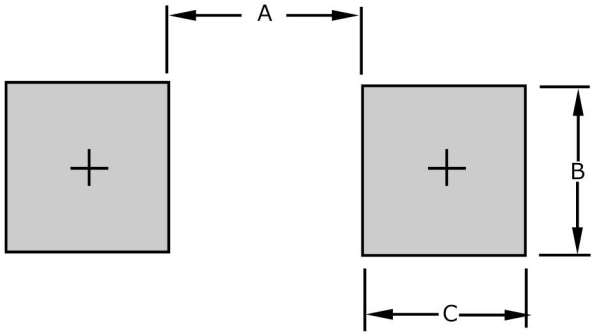




Dimension	SMB （DO-214AA）
A	3.40-3.94 (0.134-0.155)
B	5.21-5.59 (0.205-0.220)
C	1.90-2.11 (0.075-0.083)
D	4.22-4.70 (0.166-0.185)
E	0.91-1.42 (0.036-0.056)
F	1.85-2.10 (0.073-0.087)
G	0.05-0.20 (0.002-0.008)
H	1.95-2.40 (0.077-0.094)
J	1.09-1.35 (0.043-0.053)
K	0.20-0.35 (0.008-0.014)
L	0.99-1.24 (0.039-0.049)

DIMENSIONS: MM / (INCHES)

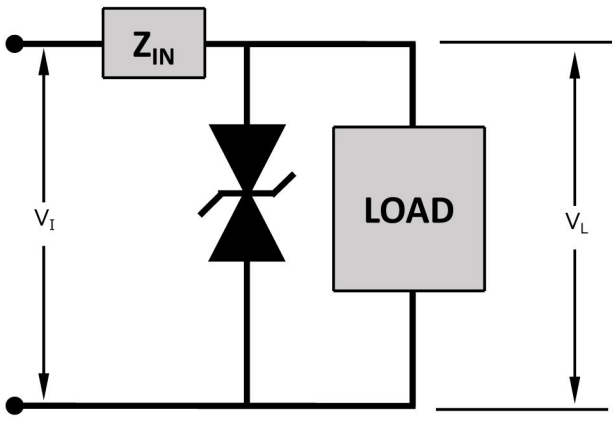
Recommended PCB Footprint



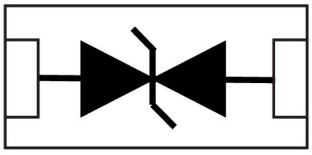
Dimension	SMB （DO-214AA）
A	1.80 (0.071)
B	2.30 (0.090)
C	2.50 (0.098)

DIMENSIONS: MM / (INCHES)

Typical Protection Circuit



Block Diagram



Bi-directional

Performance Graphs

Figure 1. Peak Pulse Power Rating Curve

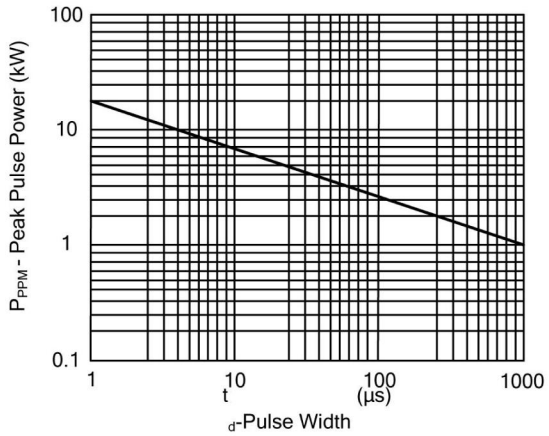


Figure 2. Pulse Derating Curve

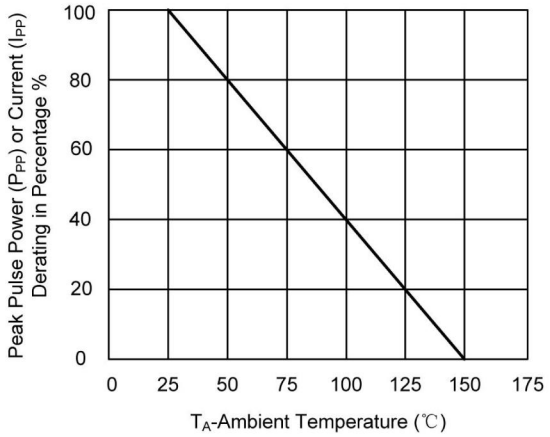


Figure 3. Pulse Waveform

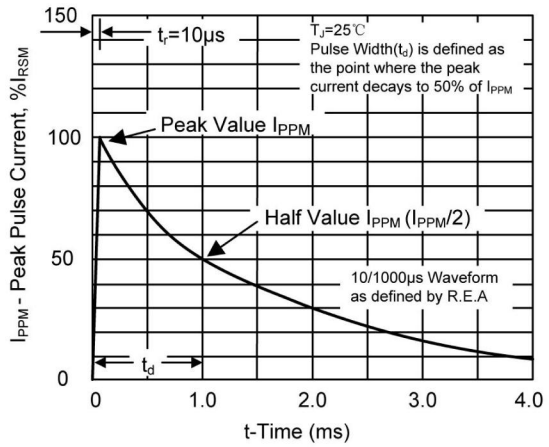


Figure 4. Typical Junction Capacitance

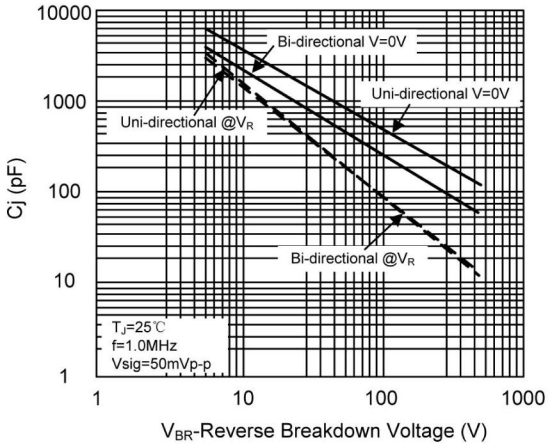


Figure 5. Steady State Power Dissipation Derating Curve

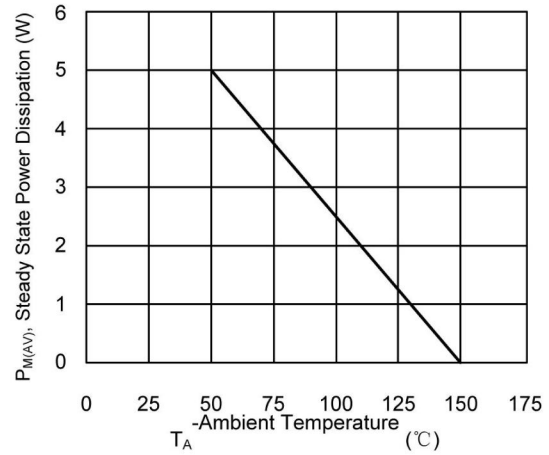
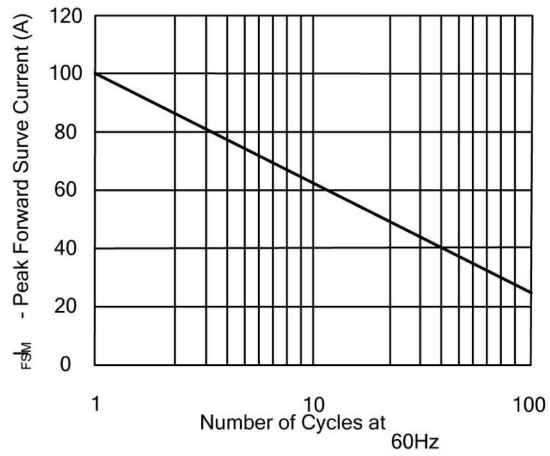
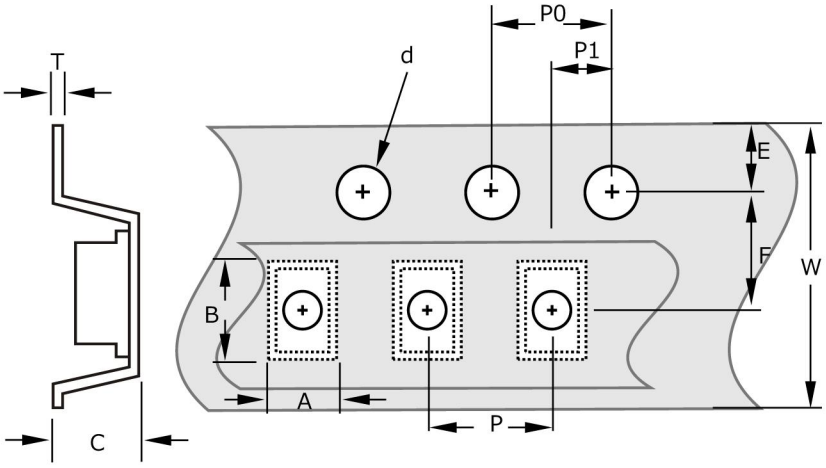


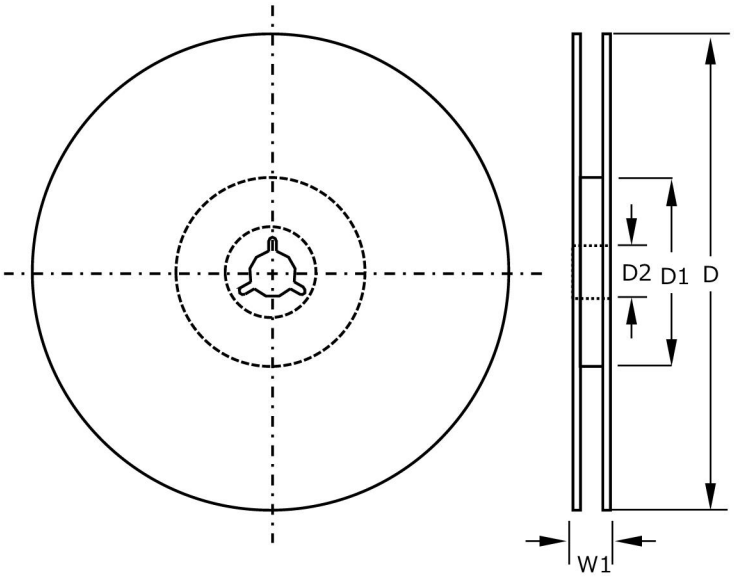
Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



Packaging Information

Symbol	SMB（DO-214AA）
A	3.67±0.05 (0.144±0.002)
B	5.60±0.05 (0.220±0.002)
C	2.57±0.20 (0.101±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	8.00±0.10 (0.315±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 : 3000 pcs/Reel for the Series.

(2) Shipping quantity is a multiple of standard quantity.

(3) For additional information, please contact your local Sales Representative.