Features

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

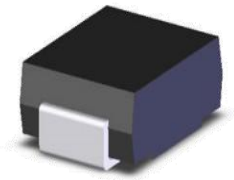
Applications

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

VP10SMBxxA 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
VP10SMB5.0A	5	200	6.4	7	10	9.2	108.7
VP10SMB6.0A	6	200	6.67	7.37	10	10.3	97.1
VP10SMB6.5A	6.5	100	7.22	7.98	10	11.2	89.3
VP10SMB7.0A	7	80	7.78	8.6	10	12	83.4
VP10SMB7.5A	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
VP10SMB8.0A	8	20	8.89	9.83	1	13.6	73.6
VP10SMB8.5A	8.5	10	9.44	10.4	1	14.4	69.5
VP10SMB9.0A	9	5	10	11.1	1	15.4	65
VP10SMB10A	10	2	11.1	12.3	1	17	58.9
VP10SMB11A	11	1	12.2	13.5	1	18.2	55
VP10SMB12A	12	1	13.3	14.7	1	19.9	50.3
VP10SMB13A	13	1	14.4	15.9	1	21.5	46.6
VP10SMB14A	14	1	15.6	17.2	1	23.2	43.1
VP10SMB15A	15	1	16.7	18.5	1	24.4	41
VP10SMB16A	16	1	17.8	19.7	1	26	38.5
VP10SMB17A	17	1	18.9	20.9	1	27.6	36.3
VP10SMB18A	18	1	20	22.1	1	29.2	34.3
VP10SMB20A	20	1	22.2	24.5	1	32.4	30.9
VP10SMB22A	22	1	24.4	26.9	1	35.5	28.2
VP10SMB24A	24	1	26.7	29.5	1	38.9	25.7
VP10SMB26A	26	1	28.9	31.9	1	42.1	23.8
VP10SMB28A	28	1	31.1	34.4	1	45.4	22.1
VP10SMB30A	30	1	33.3	36.8	1	48.4	20.7
VP10SMB33A	33	1	36.7	40.6	1	53.3	18.8
VP10SMB36A	36	1	40	44.2	1	58.1	17.3

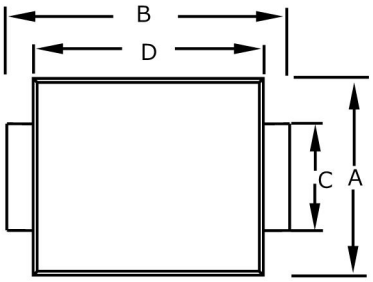
Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

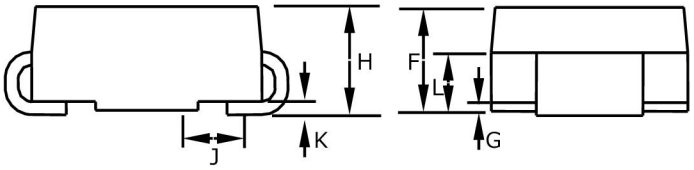
Parameter	V_{RWM}	I_L	V_{BR}@I_T		I_T	V_C	I_{PP}
Uni-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
VP10SMB40A	40	1	44.4	49.1	1	64.5	15.5
VP10SMB43A	43	1	47.8	52.8	1	69.4	14.4
VP10SMB45A	45	1	50	55.3	1	72.7	13.8
VP10SMB48A	48	1	53.3	58.9	1	77.4	13
VP10SMB51A	51	1	56.7	62.7	1	82.4	12.2
VP10SMB54A	54	1	60	66.3	1	87.1	11.5
VP10SMB58A	58	1	64.4	71.2	1	93.6	10.7
VP10SMB60A	60	1	66.7	73.7	1	96.8	10.4
VP10SMB64A	64	1	71.1	78.6	1	103	9.7
VP10SMB70A	70	1	77.8	86	1	113	8.9
VP10SMB75A	75	1	83.3	92.1	1	121	8.3
VP10SMB78A	78	1	86.7	95.8	1	126	8
VP10SMB85A	85	1	94.4	104	1	137	7.3
VP10SMB90A	90	1	100	111	1	146	6.9
VP10SMB100A	100	1	111	123	1	162	6.2
VP10SMB110A	110	1	122	135	1	177	5.7
VP10SMB120A	120	1	133	147	1	193	5.2
VP10SMB130A	130	1	144	159	1	209	4.8
VP10SMB150A	150	1	167	185	1	243	4.2
VP10SMB160A	160	1	178	197	1	259	3.9

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
VP10SMB170A	170	1	189	209	1	275	3.7
VP10SMB180A	180	1	201	222	1	292	3.5
VP10SMB190A	190	1	211	234	1	307	3.3
VP10SMB200A	200	1	224	247	1	324	3.1

Product Dimensions

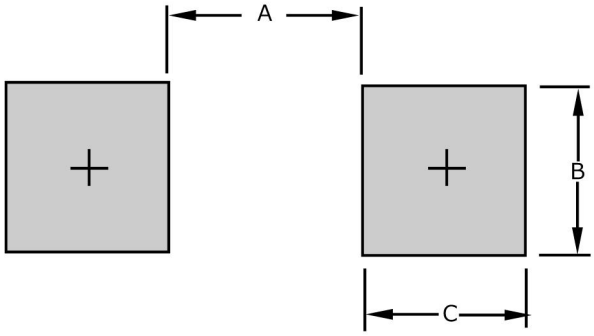




Dimension	SMB （DO-214AA）
A	3.40-3.94 (0.134-0.155)
B	5.21-5.59 (0.205-0.220)
C	1.90-2.11 (0.075-0.083)
D	4.22-4.70 (0.166-0.185)
E	0.91-1.42 (0.036-0.056)
F	1.85-2.10 (0.073-0.087)
G	0.05-0.20 (0.002-0.008)
H	1.95-2.40 (0.077-0.094)
J	1.09-1.35 (0.043-0.053)
K	0.20-0.35 (0.008-0.014)
L	0.99-1.24 (0.039-0.049)

DIMENSIONS: MM / (INCHES)

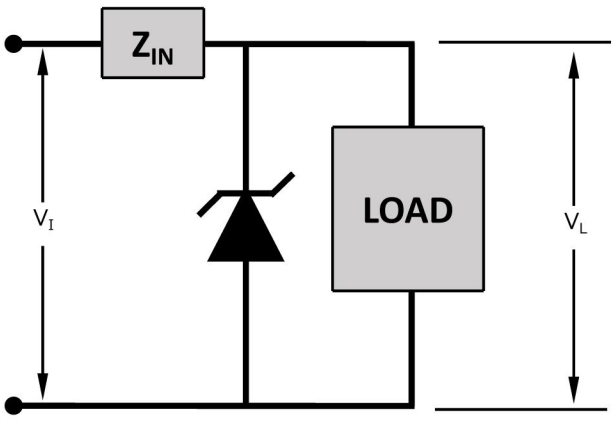
Recommended PCB Footprint



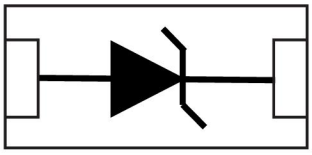
Dimension	SMB （DO-214AA）
A	1.80 (0.071)
B	2.30 (0.090)
C	2.50 (0.098)

DIMENSIONS: MM / (INCHES)

Typical Protection Circuit



Block Diagram



Uni-directional

Performance Graphs

Figure 1. Peak Pulse Power Rating Curve

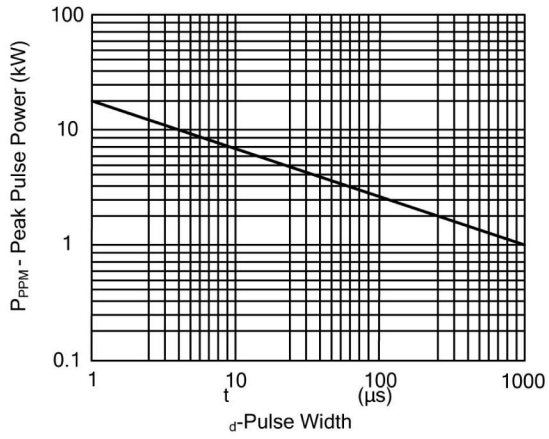


Figure 2. Pulse Derating Curve

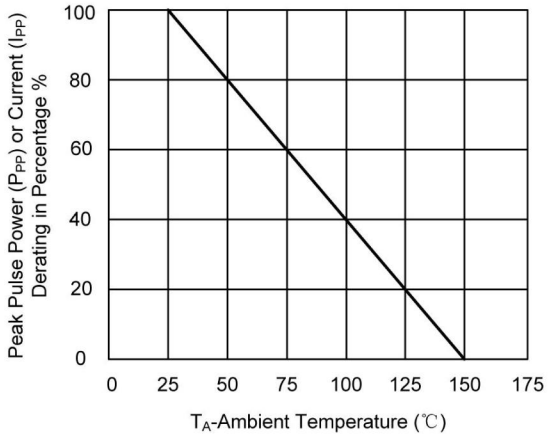


Figure 3. Pulse Waveform

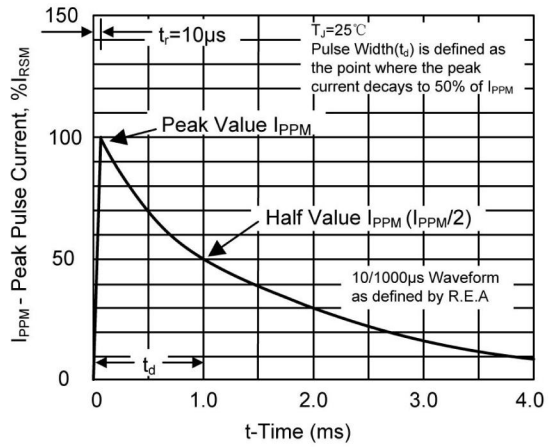


Figure 4. Typical Junction Capacitance

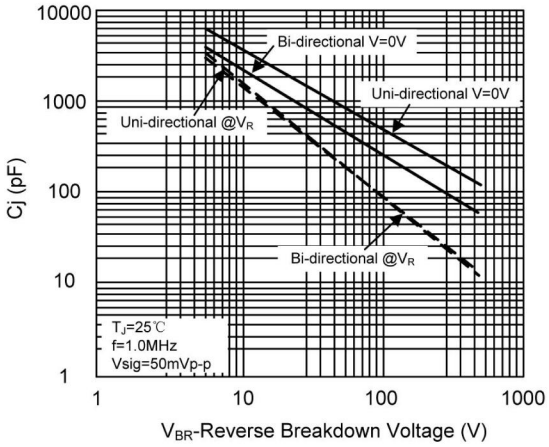


Figure 5. Steady State Power Dissipation Derating Curve

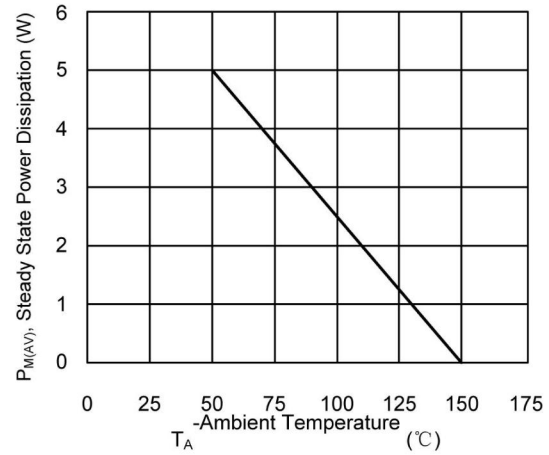
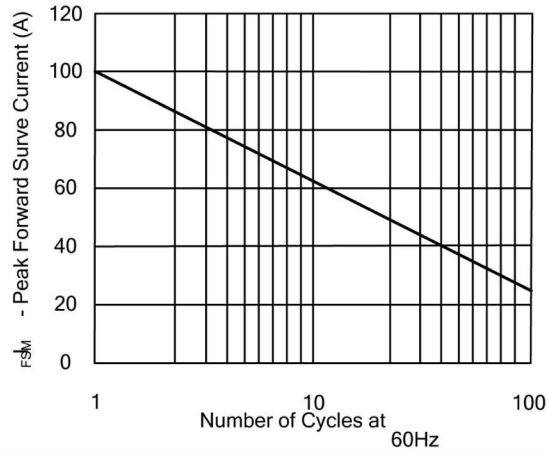
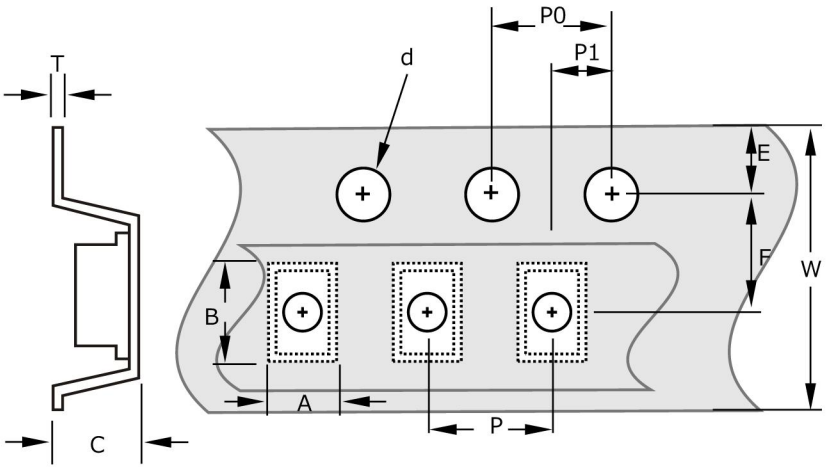


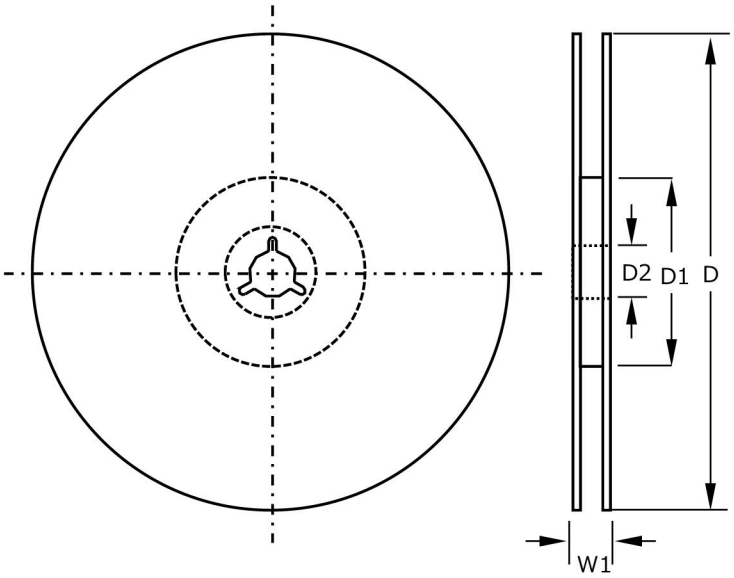
Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



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.