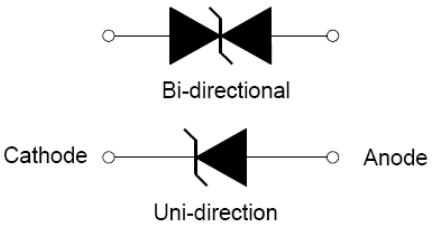
DESCRIPTION:

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

SMB



Symbol

FEATURES:

- ✧ Glass passivated or planar junction
- ✧ Excellent clamping capability
- ✧ Repetition rate (duty cycle): 0.01%
- ✧ Typical I_R less than 1μA above 10V.
- ✧ Low profile package and low inductance
- ✧ 600W Peak Pulse power capability at 10×1000μs waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature soldering: 260℃/10s at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-0.
- ✧ For surface mounted applications in order to optimize board space
- ✧ AEC-Q101 qualified.

ABSOLUTE MAXIMUM RATINGS (T_A=25ºC, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-55 to +125	℃
Operating junction temperature range	T_j	-55 to +125	℃
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	5.0	W
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	600	W
Maximum Instantaneous Forward Voltage at 50A for Unidirectional	V_F	5.0	V

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Part Number		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMBJ3.3A	SMBJ3.3CA	3.3	200	4.1	4.6	10	7.3	50
SMBJ5.0A	SMBJ5.0CA	5.0	100	6.40	7.00	10	9.2	65.2
SMBJ6.0A	SMBJ6.0CA	6.0	100	6.67	7.37	10	10.3	58.3
SMBJ6.5A	SMBJ6.5CA	6.5	50	7.22	7.98	10	11.2	53.6
SMBJ7.0A	SMBJ7.0CA	7.0	50	7.78	8.60	10	12.0	50.0
SMBJ7.5A	SMBJ7.5CA	7.5	50	8.33	9.21	1	12.9	46.5
SMBJ8.0A	SMBJ8.0CA	8.0	20	8.89	9.83	1	13.6	44.1
SMBJ8.5A	SMBJ8.5CA	8.5	10	9.44	10.40	1	14.4	41.7
SMBJ9.0A	SMBJ9.0CA	9.0	5	10.00	11.10	1	15.4	39.0
SMBJ10A	SMBJ10CA	10	2	11.10	12.30	1	17.0	35.3
SMBJ11A	SMBJ11CA	11	1	12.20	13.50	1	18.2	33.0
SMBJ12A	SMBJ12CA	12	1	13.30	14.70	1	19.9	30.2
SMBJ13A	SMBJ13CA	13	1	14.40	15.90	1	21.5	27.9
SMBJ14A	SMBJ14CA	14	1	15.60	17.20	1	23.2	25.9
SMBJ15A	SMBJ15CA	15	1	16.70	18.50	1	24.4	24.6
SMBJ16A	SMBJ16CA	16	1	17.80	19.70	1	26.0	23.1
SMBJ17A	SMBJ17CA	17	1	18.90	20.90	1	27.6	21.8
SMBJ18A	SMBJ18CA	18	1	20.00	22.10	1	29.2	20.6
SMBJ20A	SMBJ20CA	20	1	22.20	24.50	1	32.4	18.6
SMBJ22A	SMBJ22CA	22	1	24.40	26.90	1	35.5	16.9
SMBJ24A	SMBJ24CA	24	1	26.70	29.50	1	38.9	15.4
SMBJ26A	SMBJ26CA	26	1	28.90	31.90	1	42.1	14.3
SMBJ28A	SMBJ28CA	28	1	31.10	34.40	1	45.4	13.2
SMBJ30A	SMBJ30CA	30	1	33.30	36.80	1	48.4	12.4
SMBJ33A	SMBJ33CA	33	1	36.70	40.60	1	53.3	11.3
SMBJ36A	SMBJ36CA	36	1	40.00	44.20	1	58.1	10.4
SMBJ40A	SMBJ40CA	40	1	44.40	49.10	1	64.5	9.3
SMBJ43A	SMBJ43CA	43	1	47.80	52.80	1	69.4	8.7
SMBJ45A	SMBJ45CA	45	1	50.00	55.30	1	72.7	8.3
SMBJ48A	SMBJ48CA	48	1	53.30	58.90	1	77.4	7.8
SMBJ51A	SMBJ51CA	51	1	56.70	62.70	1	82.4	7.3

ELECTRICAL CHARACTERISTICS (T_A=25℃, continued)

Part Number		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMBJ54A	SMBJ54CA	54	1	60.00	66.30	1	87.1	6.9
SMBJ58A	SMBJ58CA	58	1	64.40	71.20	1	93.6	6.4
SMBJ60A	SMBJ60CA	60	1	66.70	73.70	1	96.8	6.2
SMBJ64A	SMBJ64CA	64	1	71.10	78.60	1	103.0	5.8
SMBJ70A	SMBJ70CA	70	1	77.80	86.00	1	113.0	5.3
SMBJ75A	SMBJ75CA	75	1	83.30	92.10	1	121.0	5.0
SMBJ78A	SMBJ78CA	78	1	86.70	95.80	1	126.0	4.8
SMBJ85A	SMBJ85CA	85	1	94.40	104.0	1	137.0	4.4
SMBJ90A	SMBJ90CA	90	1	100.0	111.0	1	146.0	4.1
SMBJ100A	SMBJ100CA	100	1	111.0	123.0	1	162.0	3.7
SMBJ110A	SMBJ110CA	110	1	122.0	135.0	1	177.0	3.4
SMBJ120A	SMBJ120CA	120	1	133.0	147.0	1	193.0	3.1
SMBJ130A	SMBJ130CA	130	1	144.0	159.0	1	209.0	2.9
SMBJ150A	SMBJ150CA	150	1	167.0	185.0	1	243.0	2.5
SMBJ160A	SMBJ160CA	160	1	178.0	197.0	1	259.0	2.3
SMBJ170A	SMBJ170CA	170	1	189.0	209.0	1	275.0	2.2
SMBJ180A	SMBJ180CA	180	1	201.0	222.0	1	292.0	2.1
SMBJ190A	SMBJ190CA	190	1	211.0	234.0	1	307.0	2.0
SMBJ200A	SMBJ200CA	200	1	224.0	247.0	1	324.0	1.9
SMBJ210A	SMBJ210CA	210	1	233.0	258.0	1	337.0	1.8
SMBJ220A	SMBJ220CA	220	1	246.0	272.0	1	356.0	1.7
SMBJ250A	SMBJ250CA	250	1	279.0	309.0	1	405.0	1.5
SMBJ300A	SMBJ300CA	300	1	335.0	371.0	1	486.0	1.3
SMBJ350A	SMBJ350CA	350	1	391.0	432.0	1	567.0	1.1
SMBJ400A	SMBJ400CA	400	1	447.0	494.0	1	648.0	0.9
SMBJ440A	SMBJ440CA	440	1	492.0	543.0	1	713.0	0.8

① Surge waveform: 10/1000μs

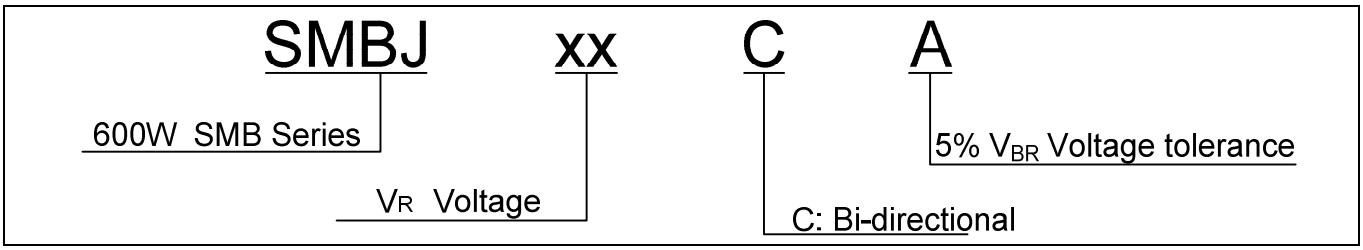
V_R ： Stand-off Voltage -- Maximum voltage that can be applied

V_{BR}： Breakdown Voltage

V_C：Clamping Voltage -- Peak voltage measured across the suppressor at a specified Ipp

I_R： Reverse Leakage Current

ORDERING INFORMATION



RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25ºC, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

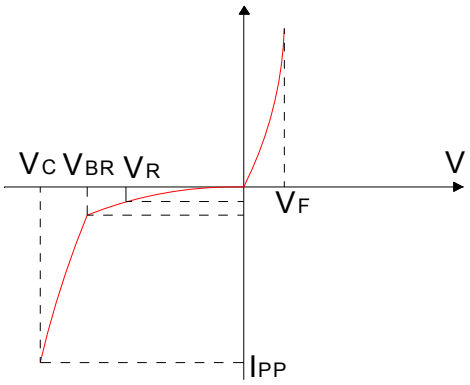


FIG.2:V- I curve characteristics (Bi-directional)

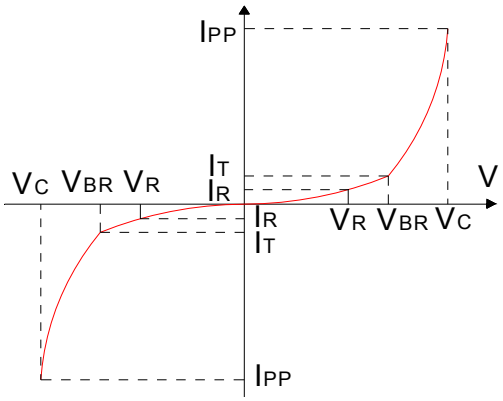


FIG.3: Pulse waveform

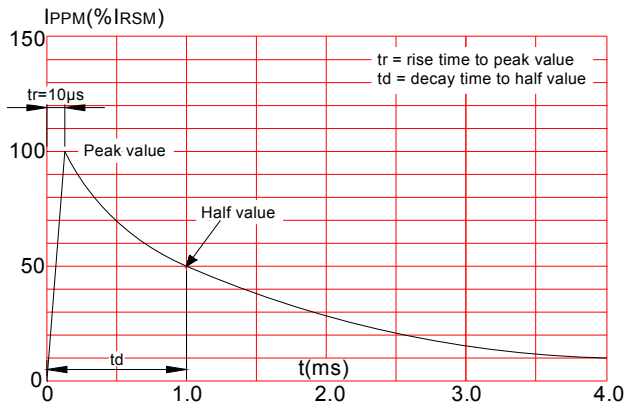
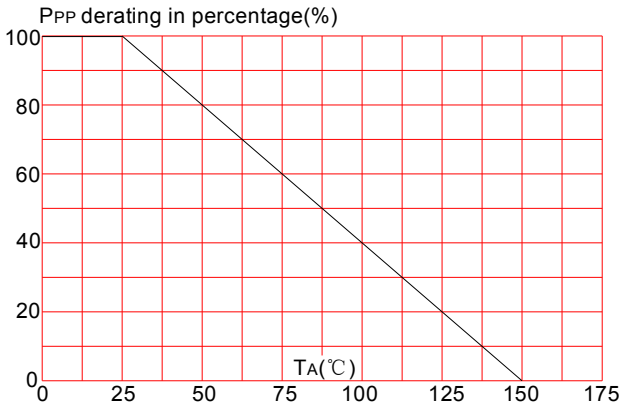
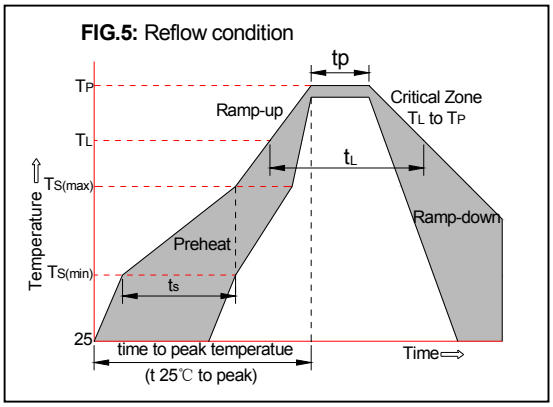


FIG.4: Pulse derating curve

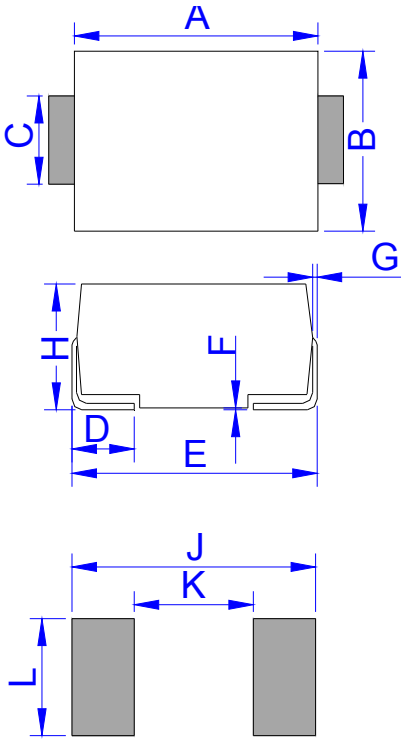


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃



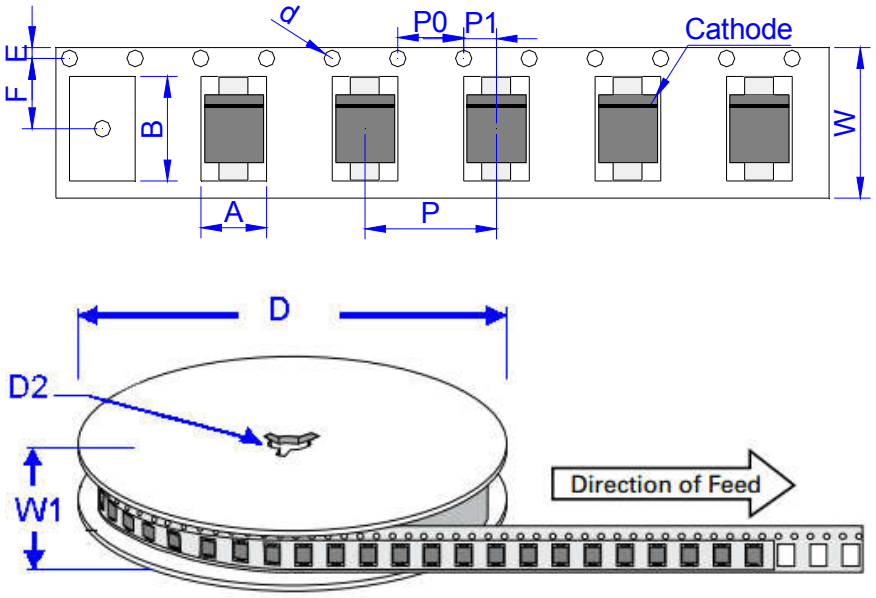
PACKAGE MECHANICAL DATA



DO-214AA (SMB)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.75	0.167	0.187
B	3.30	3.94	0.130	0.155
C	1.85	2.21	0.073	0.087
D	0.76	1.52	0.030	0.060
E	5.08	5.59	0.200	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.11	2.44	0.083	0.096
J	6.80		0.270	
K		2.60		0.100
L	2.40		0.090	

TAPE AND REEL SPECIFICATION-SMB



Ref.	Dimensions	
	Millimeters	Inches
A	3.76 ± 0.2	0.144 ± 0.012
B	5.69 ± 0.2	0.244 ± 0.012
d	1.5 ± 0.25	0.059 ± 0.004
D	330.0	13.0
D2	13 ± 1	0.512 ± 0.039
E	1.75 ± 0.2	0.059 ± 0.008
F	5.5 ± 0.1	0.222 ± 0.008
P	8.0 ± 0.2	0.315 ± 0.008
P0	4.0 ± 0.2	0.157 ± 0.008
P1	2.0 ± 0.2	0.079 ± 0.008
W	12.0 ± 0.3	0.472 ± 0.008
W1	16.8 ± 2.0	0.661 ± 0.079

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)
TAPING	3,000	48,000	330

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