

SuperTVS – 1500W Transient Voltage Suppressor

1. Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Meets MSL level 1, per J-STD-020
- IEC 61000-4-2(ESD) $\pm 30\text{KV}$ (air) $\pm 30\text{KV}$ (contact)
- 1500W peak pulse power capability at 10/1000 μs waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- Typical IR less than 1 μA above 10V
- Plastic package has underwriters laboratory flammability 94V-0
- High Temperature soldering: 260 $^{\circ}\text{C}$ /10 seconds at terminals

2. Mechanical Data

- Case: JEDEC DO-214AB. Molded plastic over glass passivated junction
- Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Standard Packaging: 12mm tape
- Weight: 0.26g

3. Marking Information

BI- directional	UNI-directional	Marking
		XXXX= Product type marking code (See Electrical Characteristics Table)
		

4. Maximum Ratings and Characteristics

Ratings at 25 $^{\circ}$ ambient temperature unless otherwise specified

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000 μs waveform(Note1,2)	P _{PPM}	1500	W
Peak pulse current of at 10/1000 μs waveform(Note1)	I _{PPM}	See Table	A
Steady state power dissipation at TA=50 $^{\circ}\text{C}$	P _{M(AV)}	6.5	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)(Note3)	I _{FSM}	200	A

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Operating junction and Storage Temperature Range	T _J , T _{STG}	-65 to 150	°C
Typical thermal resistance junction to lead	R _{θJL}	15	°C/W
Typical thermal resistance junction to ambient	R _{θJA}	75	°C/W

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above TA=25°C per Fig.2.
2. Mounted on 8.0mm×8.0mm copper pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

5. Electrical Characteristics (TA=25°C)

Part Number	Part Number	Marking		Reverse Stand off Voltage V _R	Breakdown Voltage V _{BR} (Volts) @ I _T		Test Current I _T	Maximum Clamping Voltage V _C @ I _{PP}	Maximum Peak Pulse Current I _{PP}	Maximum Reverse Leakage I _R @ V _R	ROHS2.0
		UNI	BI		MIN	MAX					
SMCJ5.0A	SMCJ5.0CA	GDE	BDE	5	6.4	7	10	9.2	163	400	y
SMCJ6.0A	SMCJ6.0CA	GDG	BDG	6	6.67	7.37	10	10.3	145.7	400	y
SMCJ6.5A	SMCJ6.5CA	GDK	BDK	6.5	7.22	7.98	10	11.2	134	250	y
SMCJ7.0A	SMCJ7.0CA	GDM	BDM	7	7.78	8.6	10	12	125	100	y
SMCJ7.5A	SMCJ7.5CA	GDP	BDP	7.5	8.33	9.21	1	12.9	116.3	80	y
SMCJ8.0A	SMCJ8.0CA	GDR	BDR	8	8.89	9.83	1	13.6	110.3	50	y
SMCJ8.5A	SMCJ8.5CA	GDT	BDT	8.5	9.44	10.4	1	14.4	104.2	20	y
SMCJ9.0A	SMCJ9.0CA	GDV	BDV	9	10	11.1	1	15.4	97.4	10	y
SMCJ10A	SMCJ10CA	GDX	BDX	10	11	12.3	1	17	88.3	5	y
SMCJ11A	SMCJ11CA	GDZ	BDZ	11	12.2	13.5	1	18.2	82.5	1	y
SMCJ12A	SMCJ12CA	GEE	BEE	12	13.3	14.7	1	19.9	75.4	1	y
SMCJ13A	SMCJ13CA	GEG	BEG	13	14.4	15.9	1	21.5	69.8	1	y
SMCJ14A	SMCJ14CA	GEK	BEK	14	15.6	17.2	1	23.2	64.7	1	y
SMCJ15A	SMCJ15CA	GEM	BEM	15	16.7	18.5	1	24.4	61.5	1	y
SMCJ16A	SMCJ16CA	GEP	BEP	16	17.8	19.7	1	26	57.7	1	y
SMCJ17A	SMCJ17CA	GER	BER	17	18.9	20.9	1	27.6	54.4	1	y
SMCJ18A	SMCJ18CA	GET	BET	18	20	22.1	1	29.2	51.4	1	y
SMCJ20A	SMCJ20CA	GEV	BEV	20	22.2	24.5	1	32.4	46.3	1	y
SMCJ22A	SMCJ22CA	GEX	BEX	22	24.4	26.9	1	35.5	42.3	1	y
SMCJ24A	SMCJ24CA	GEZ	BEZ	24	26.7	29.5	1	38.9	38.6	1	y
SMCJ26A	SMCJ26CA	GFE	BFE	26	28.9	31.9	1	42.1	35.7	1	y
SMCJ28A	SMCJ28CA	GFG	BFG	28	31.1	34.4	1	45.4	33.1	1	y
SMCJ30A	SMCJ30CA	GFK	BFK	30	33.3	36.8	1	48.4	31	1	y
SMCJ33A	SMCJ33CA	GFM	BFM	33	36.7	40.6	1	53.3	28.2	1	y

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Part Number	Part Number	Marking		Reverse Stand off Voltage V_R	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T	Maximum Clamping Voltage $V_C @ I_{PP}$	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage $I_R @ V_R$	ROHS2.0
UNI	BI	UNI	BI	(V)	MIN	MAX	(mA)	(V)	(A)	(μ A)	
SMCJ36A	SMCJ36CA	GFP	BFP	36	40	44.2	1	58.1	25.9	1	y
SMCJ40A	SMCJ40CA	GFR	BFR	40	44.4	49.1	1	64.5	23.3	1	y
SMCJ43A	SMCJ43CA	GFT	BFT	43	47.8	52.8	1	69.4	21.7	1	y
SMCJ45A	SMCJ45CA	GFV	BFV	45	50	55.3	1	72.7	20.6	1	y
SMCJ48A	SMCJ48CA	GFX	BFX	48	53.3	58.9	1	77.4	19.4	1	y
SMCJ51A	SMCJ51CA	GFZ	BFZ	51	56.7	62.7	1	82.4	18.2	1	y
SMCJ54A	SMCJ54CA	GGE	BGE	54	60	66.3	1	87.1	17.3	1	y
SMCJ58A	SMCJ58CA	GGG	BGG	58	64.4	71.2	1	93.6	16.1	1	y
SMCJ60A	SMCJ60CA	GGK	BGK	60	66.7	73.7	1	96.8	15.5	1	y
SMCJ64A	SMCJ64CA	GGM	BGM	64	71.1	78.6	1	103	14.6	1	y
SMCJ70A	SMCJ70CA	GGP	BGP	70	77.8	86	1	113	13.3	1	y
SMCJ75A	SMCJ75CA	GGR	BGR	75	83.3	92.1	1	121	12.4	1	y
SMCJ78A	SMCJ78CA	GGT	BGT	78	86.7	95.8	1	126	11.9	1	y
SMCJ85A	SMCJ85CA	GGV	BGV	85	94.4	104	1	137	11	1	y
SMCJ90A	SMCJ90CA	GGX	BGX	90	100	111	1	146	10.3	1	y
SMCJ100A	SMCJ100CA	GGZ	BGZ	100	111	123	1	162	9.3	1	y
SMCJ110A	SMCJ110CA	GHE	BHE	110	122	135	1	177	8.5	1	y
SMCJ120A	SMCJ120CA	GHG	BHG	120	133	147	1	193	7.8	1	y
SMCJ130A	SMCJ130CA	GHK	BHK	130	144	159	1	209	7.2	1	y
SMCJ150A	SMCJ150CA	GHM	BHM	150	167	185	1	243	6.2	1	y
SMCJ160A	SMCJ160CA	GHP	BHP	160	178	197	1	259	5.8	1	y
SMCJ170A	SMCJ170CA	GHR	BHR	170	189	209	1	275	5.5	1	y
SMCJ180A	SMCJ180CA	GHT	BHT	180	201	222	1	292	5.1	1	y
SMCJ200A	SMCJ200CA	GHV	BHV	200	224	247	1	324	4.6	1	y
SMCJ220A	SMCJ220CA	GHX	BHX	220	246	272	1	356	4.2	1	y
SMCJ250A	SMCJ250CA	GHZ	BHZ	250	279	309	1	405	3.7	1	y
SMCJ300A	SMCJ300CA	GJE	BJE	300	335	371	1	486	3.1	1	y
SMCJ350A	SMCJ350CA	GJG	BJG	350	391	432	1	567	2.6	1	y
SMCJ400A	SMCJ400CA	GJK	BJK	400	447	494	1	648	2.3	1	y
SMCJ440A	SMCJ440CA	GJM	BJM	440	492	543	1	713	2.1	1	y

For bidirectional type having V_R of 10 volts and less, the I_R limit is double.

6. Ratings and Characteristic Curves (TA =25°C unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

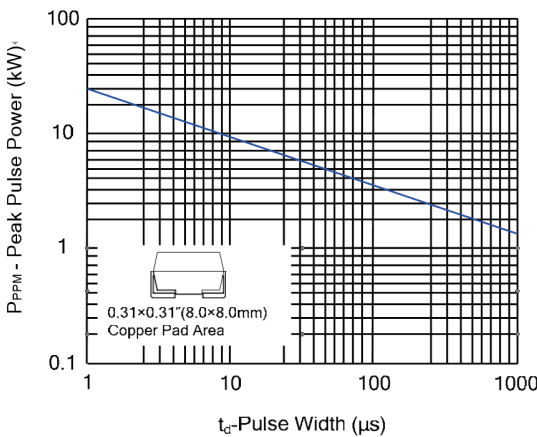


Figure 2 Pulse Derating Curve

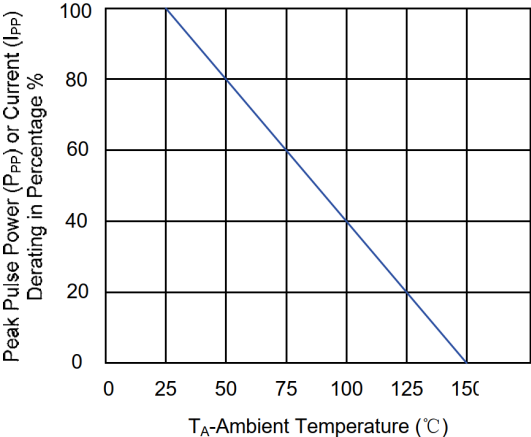


Figure 3 Pulse Waveform

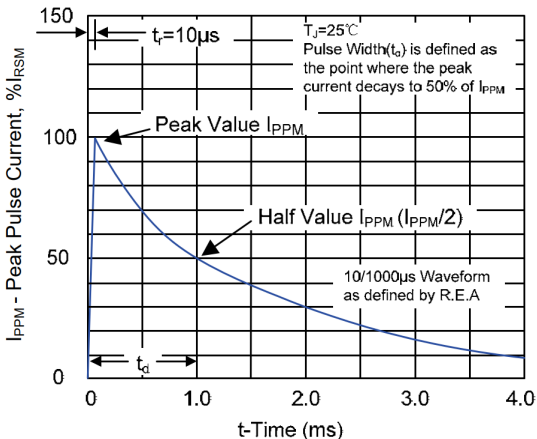


Figure 4 Typical Junction Capacitance

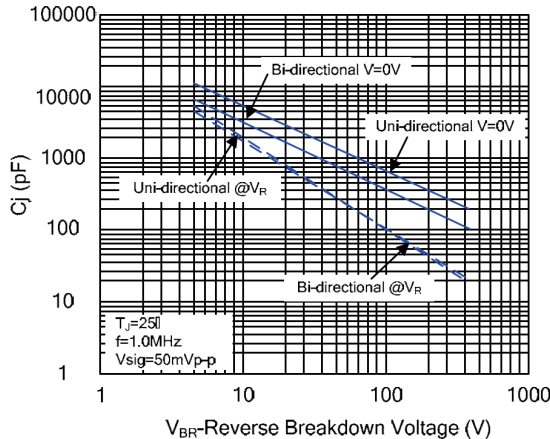


Figure 5 Steady State Power Dissipation Derating Curve

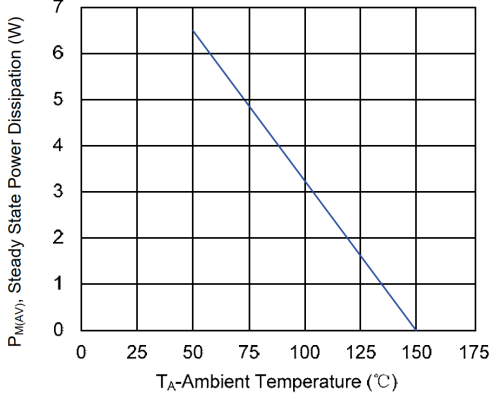
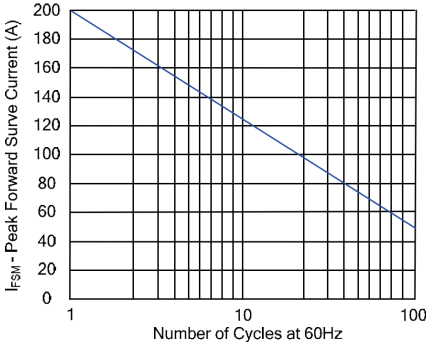


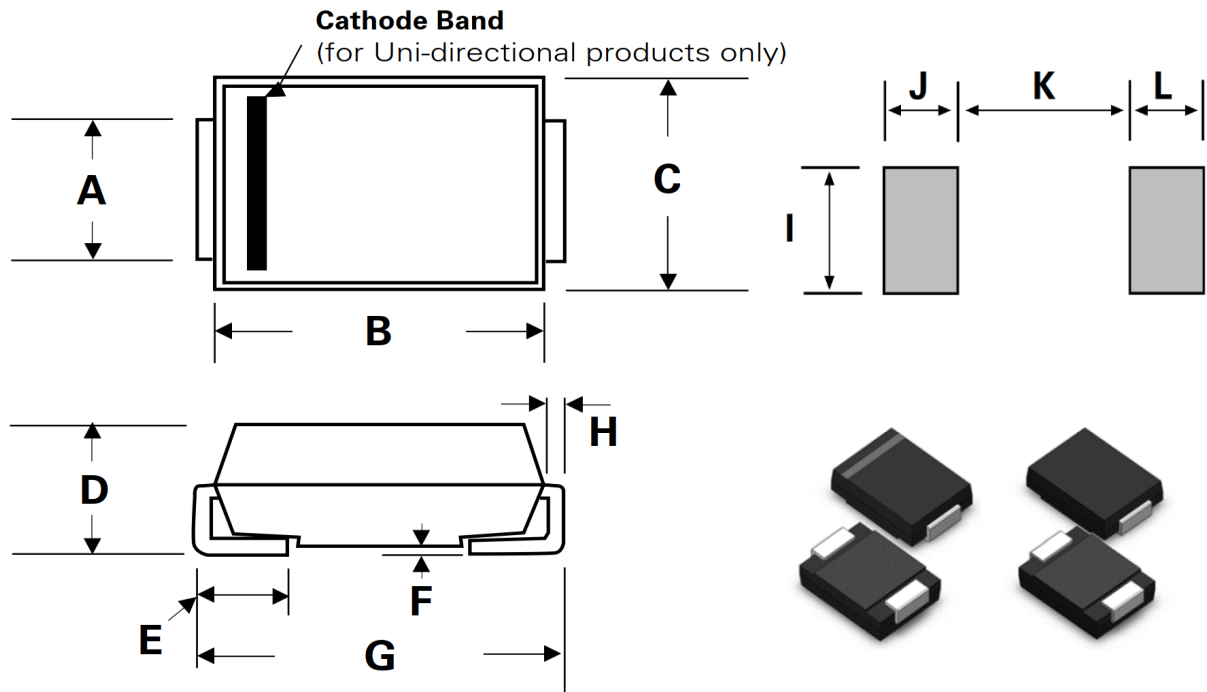
Figure 6 Maximum Non-Repetitive Forward Surge Current
Uni-Directional Only



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7. Dimension (SMC/DO-214AB)

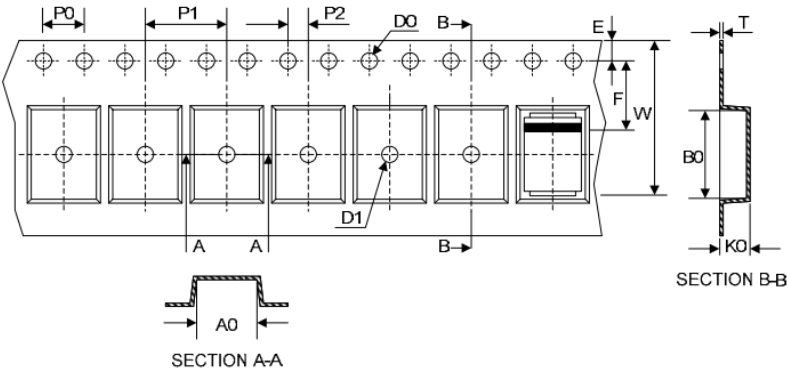
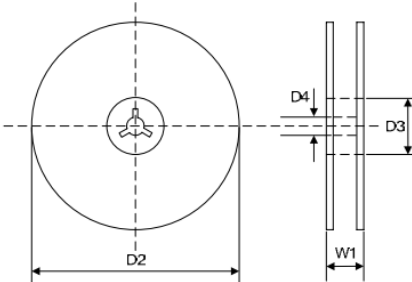
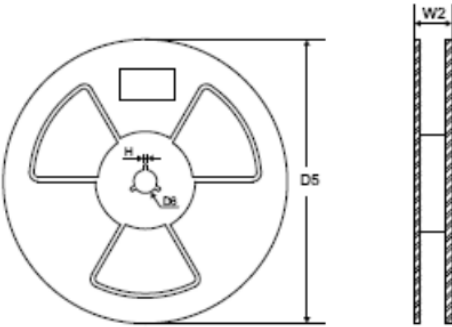


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.9	3.2
B	0.26	0.28	6.6	7.11
C	0.22	0.245	5.59	6.22
D	0.079	0.103	2.06	2.62
E	0.03	0.06	0.76	1.52
F	-	0.008	-	0.203
G	0.305	0.32	7.75	8.13
H	0.006	0.012	0.152	0.305
I	0.129	-	3.3	-
J	0.094	-	2.4	-
K	-	0.165	-	4.2
L	0.094	-	2.4	-

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8. Packaging

Tape		Symbol	Dimension (mm)
		W	16.00±0.20
		P0	4.00±0.10
		P1	8.00±0.10
		P2	2.00±0.10
		D0	Φ1.5±0.10
		D1	Φ1.5±0.10
		E	1.75±0.10
		F	7.50±0.10
		A0	6.27±0.10
		B0	8.30±0.10
		K0	3.15±0.15
		T	0.30±0.05
7" Reel		D2	Φ178.0±2.0
		D3	Φ50.0Min.
		D4	Φ13.0±0.5
		W1	20.0±2.0
		Quantity: 500PCS	
13" Reel		D5	Φ330.0±2.0
		D6	Φ13.5±0.5
		H	2.5±1.0
		W2	20.0±2.0
		Quantity: 3000PCS	

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