

SuperTVS – 3000W 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
- Excellent clamping capability
- Meets MSL level 1, per J-STD-020
- Fast response time
- IEC 61000-4-2(ESD) $\pm 30\text{KV}(\text{air})$
- $\pm 30\text{KV}(\text{contact})$
- 3000W peak pulse power capability at 10/1000 μs waveform, repetition rate (duty cycle): 0.01%
- 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: 0.28g

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}	3000	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}	300	A
Operating junction and Storage Temperature Range	T _J , T _{STG}	-65 to 150	$^{\circ}\text{C}$
Typical thermal resistance junction to lead	R _{θJL}	15	$^{\circ}\text{C}/\text{W}$

SMDJ SERIES

Rev-1.3

Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^{\circ}C/W$
--	-----------------	----	---------------

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^{\circ}C$ 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 ($T_A=25^{\circ}C$)

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	ROHS 2.0
		UNI	BI	(V)	MIN	MAX	(mA)	(V)	(A)	(μA)	
SMDJ5.0A	SMDJ5.0CA	RDE	DDE	5	6.4	7	10	9.2	326.1	400	y
SMDJ6.0A	SMDJ6.0CA	RDG	DDG	6	6.67	7.37	10	10.3	291.3	400	y
SMDJ6.5A	SMDJ6.5CA	RDK	DDK	6.5	7.22	7.98	10	11.2	267.9	250	y
SMDJ7.0A	SMDJ7.0CA	PDM	DDM	7	7.78	8.6	10	12	250	100	y
SMDJ7.5A	SMDJ7.5CA	PDP	DDP	7.5	8.33	9.21	1	12.9	232.6	80	y
SMDJ8.0A	SMDJ8.0CA	PDR	DDR	8	8.89	9.83	1	13.6	220.6	50	y
SMDJ8.5A	SMDJ8.5CA	PDT	DDT	8.5	9.44	10.4	1	14.4	208.3	20	y
SMDJ9.0A	SMDJ9.0CA	PDV	DDV	9	10	11.1	1	15.4	194.8	10	y
SMDJ10A	SMDJ10CA	PDX	DDX	10	11.1	12.3	1	17	176.5	5	y
SMDJ11A	SMDJ11CA	PDZ	DDZ	11	12.2	13.5	1	18.2	164.8	2	y
SMDJ12A	SMDJ12CA	PEE	DEE	12	13.3	14.7	1	19.9	150.8	2	y
SMDJ13A	SMDJ13CA	PEG	DEG	13	14.4	15.9	1	21.5	139.5	2	y
SMDJ14A	SMDJ14CA	PEK	DEK	14	15.6	17.2	1	23.2	129.3	2	y
SMDJ15A	SMDJ15CA	PEM	DEM	15	16.7	18.5	1	24.4	123	2	y
SMDJ16A	SMDJ16CA	PEP	DEP	16	17.8	19.7	1	26	115.4	2	y
SMDJ17A	SMDJ17CA	PER	DER	17	18.9	20.9	1	27.6	108.7	2	y
SMDJ18A	SMDJ18CA	PET	DET	18	20	22.1	1	29.2	102.7	2	y
SMDJ20A	SMDJ20CA	PEV	DEV	20	22.2	24.5	1	32.4	92.6	2	y
SMDJ22A	SMDJ22CA	PEX	DEX	22	24.4	26.9	1	35.5	84.5	2	y
SMDJ24A	SMDJ24CA	PEZ	DEZ	24	26.7	29.5	1	38.9	77.1	2	y
SMDJ26A	SMDJ26CA	PFE	DFE	26	28.9	31.9	1	42.1	71.3	2	y
SMDJ28A	SMDJ28CA	PFG	DFG	28	31.1	34.4	1	45.4	66.1	2	y
SMDJ30A	SMDJ30CA	PFK	DFK	30	33.3	36.8	1	48.4	62	2	y
SMDJ33A	SMDJ33CA	PFM	DFM	33	36.7	40.6	1	53.3	56.3	2	y
SMDJ36A	SMDJ36CA	PPF	DFP	36	40	44.2	1	58.1	51.6	2	y
SMDJ40A	SMDJ40CA	PFR	DFR	40	44.4	49.1	1	64.5	46.5	2	y
SMDJ43A	SMDJ43CA	PFT	DFT	43	47.8	52.8	1	69.4	43.2	2	y

SMDJ SERIES

Rev-1.3

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	ROHS
UNI	BI	UNI	BI	(V)	MIN	MAX	(mA)	(V)	(A)	(μA)	2.0
SMDJ45A	SMDJ45CA	PFV	DFV	45	50	55.3	1	72.7	41.3	2	y
SMDJ48A	SMDJ48CA	PFX	DFX	48	53.3	58.9	1	77.4	38.8	2	y
SMDJ51A	SMDJ51CA	PFZ	DFZ	51	56.7	62.7	1	82.4	36.4	2	y
SMDJ54A	SMDJ54CA	RGE	DGE	54	60	66.3	1	87.1	34.4	2	y
SMDJ58A	SMDJ58CA	PGG	DGG	58	64.4	71.2	1	93.6	32.1	2	y
SMDJ60A	SMDJ60CA	PGK	DGK	60	66.7	73.7	1	96.8	31	2	y
SMDJ64A	SMDJ64CA	PGM	DGM	64	71.1	78.6	1	103	29.1	2	y
SMDJ70A	SMDJ70CA	PGP	DGP	70	77.8	86	1	113	26.5	2	y
SMDJ75A	SMDJ75CA	PGR	DGR	75	83.3	92.1	1	121	24.8	2	y
SMDJ78A	SMDJ78CA	PGT	DGT	78	86.7	95.8	1	126	23.8	2	y
SMDJ85A	SMDJ85CA	PGV	DGV	85	94.4	104	1	137	21.9	2	y
SMDJ90A	SMDJ90CA	PGX	DGX	90	100	111	1	146	20.5	2	y
SMDJ100A	SMDJ100CA	PGZ	DGZ	100	111	123	1	162	18.5	2	y
SMDJ110A	SMDJ110CA	PHE	DHE	110	122	135	1	177	16.9	2	y
SMDJ120A	SMDJ120CA	PHG	DHG	120	133	147	1	193	15.5	2	y
SMDJ130A	SMDJ130CA	PHK	DHK	130	144	159	1	209	14.4	2	y
SMDJ150A	SMDJ150CA	PHM	DHM	150	167	185	1	243	12.3	2	y
SMDJ160A	SMDJ160CA	PHP	DHP	160	178	197	1	259	11.6	2	y
SMDJ170A	SMDJ170CA	PHR	DHR	170	189	209	1	275	10.9	2	y
SMDJ180A	SMDJ180CA	PHT	DHT	180	200	221	1	292	10.3	2	y
SMDJ220A	SMDJ220CA	PKE	DKE	220	244	270	1	356	8.4	2	y

For bidirectional type having V_{RWM} of 10 volts and less, the IR limit is double.

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

Figure 1. Peak Pulse Power Rating Curve

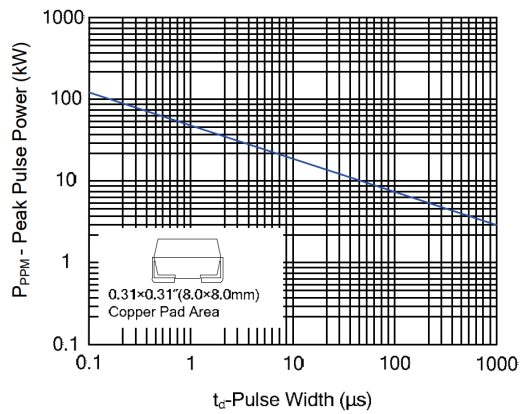


Figure 2 Pulse Derating Curve

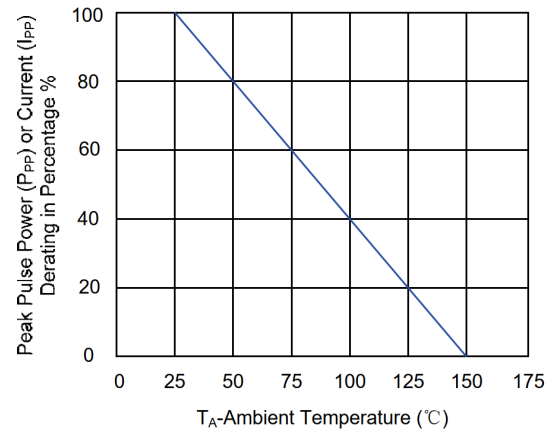


Figure 3 Pulse Waveform

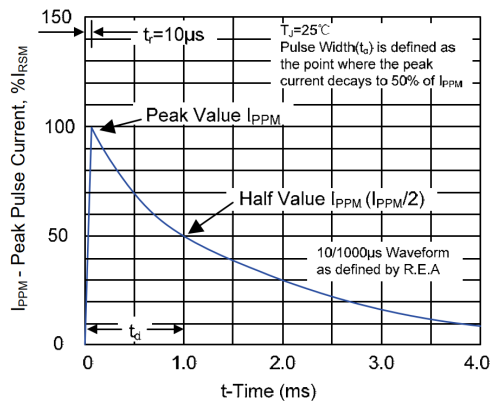


Figure 4 Typical Junction Capacitance

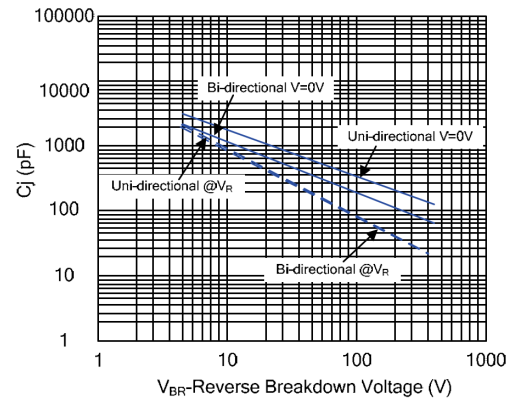
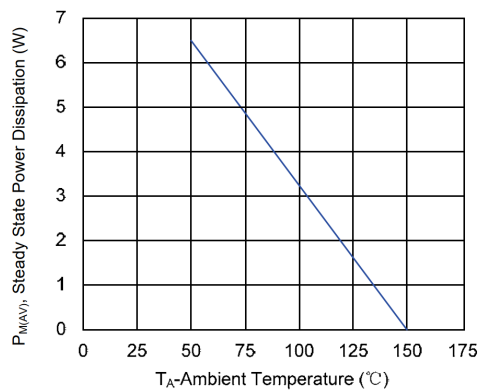
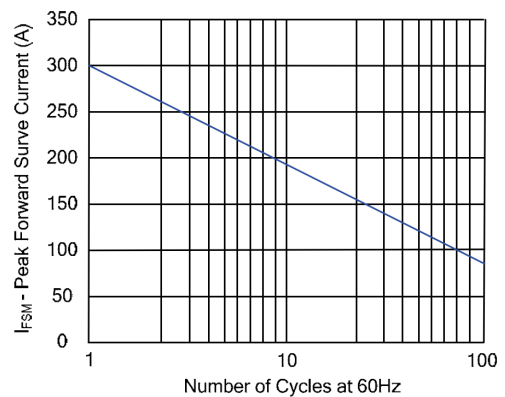


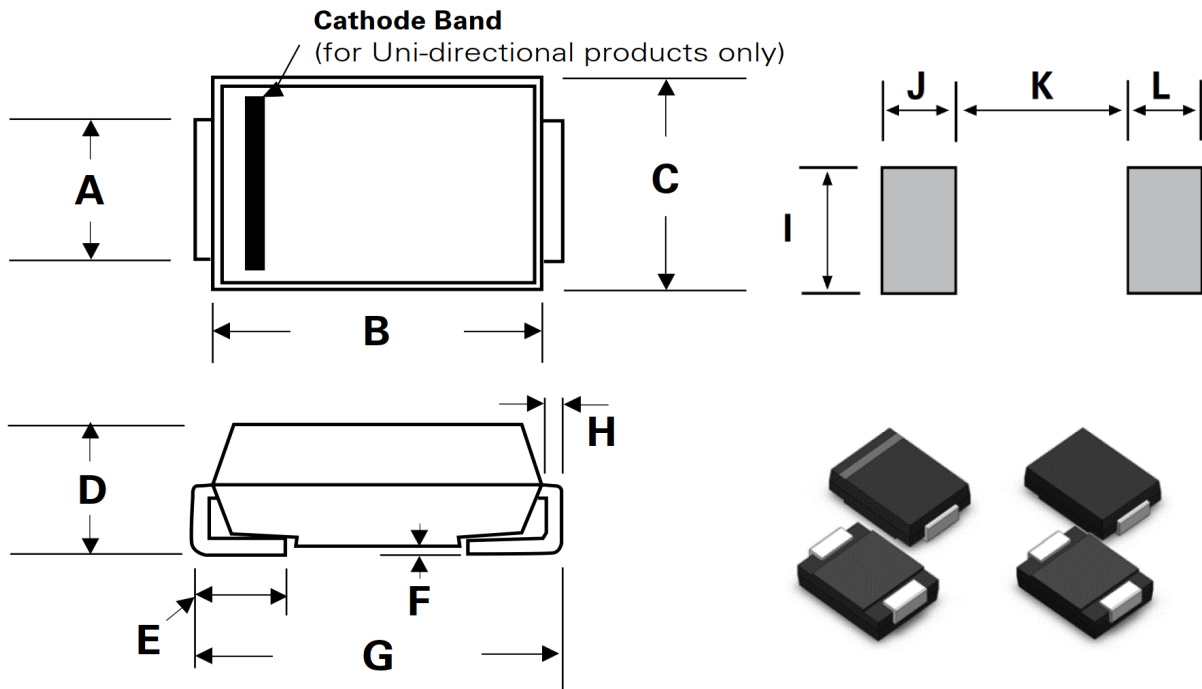
Figure 5 Steady State Power Dissipation Derating Curve

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

SMDJ SERIES

Rev-1.3

7. Dimension (SMC/DO-214AB)

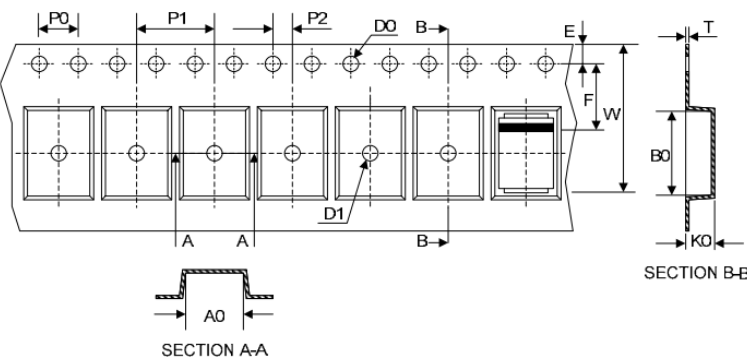
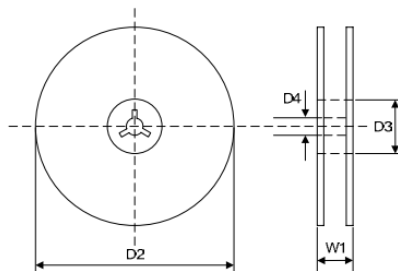
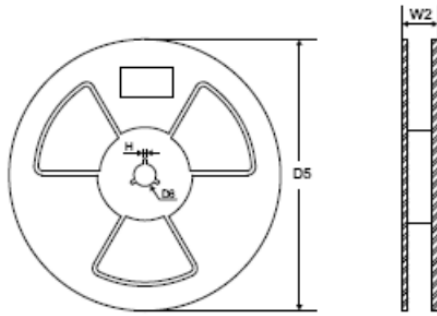


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.9	3.2
B	0.26	0.28	6.6	7.11
C	0.22	0.245	5.59	6.22
D	0.079	0.103	2.06	2.62
E	0.03	0.06	0.76	1.52
F	-	0.008	-	0.203
G	0.305	0.32	7.75	8.13
H	0.006	0.012	0.152	0.305
I	0.129	-	3.3	-
J	0.094	-	2.4	-
K	-	0.165	-	4.2
L	0.094	-	2.4	-

SMDJ SERIES

Rev-1.3

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	

DISCLAIMER

ELECSUPER SUPERTVS PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with ElecSuper products. You are solely responsible for

- (1) selecting the appropriate ElecSuper products for your application;
- (2) designing, validating and testing your application;
- (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. ElecSuper grants you permission to use these resources only for development of an application that uses the ElecSuper products described in the resource. Other reproduction and display of these resources are prohibited. No license is granted to any other ElecSuper intellectual property right or to any third party intellectual property right. ElecSuper disclaims responsibility for, and you will fully indemnify ElecSuper and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources. ElecSuper's products are provided subject to ElecSuper's Terms of Sale or other applicable terms available either on www.elecsuper.com or provided in conjunction with such ElecSuper products. ElecSuper's provision of these resources does not expand or otherwise alter ElecSuper's applicable warranties or warranty disclaimers for ElecSuper product.