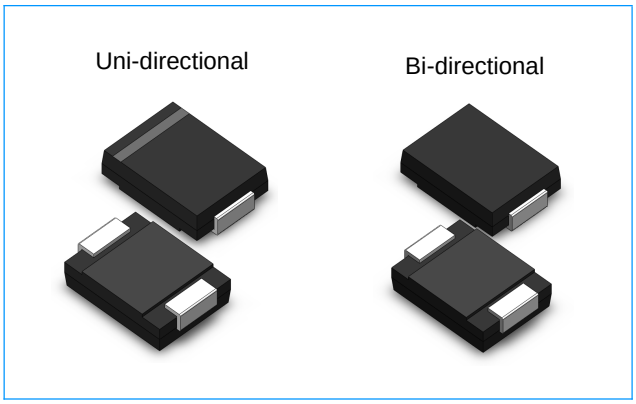
Surface Mount Transient Voltage Suppressors

5.0SMDJ-AT Series 5000W Transient Voltage Suppressor

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.

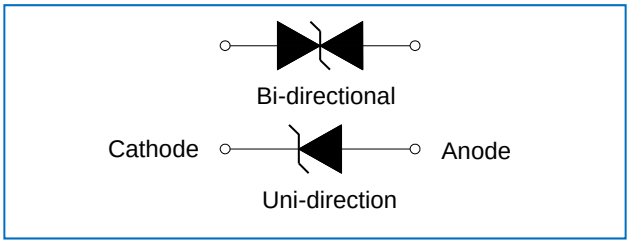
Working Voltage: 12 to 190V



Features

- Glass passivated or planar junction
- Excellent clamping capability
- Repetition rate (duty cycle): 0.01%
- Low profile package and low inductance
- 5000W 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.
- High reliability application and automotive grade AECQ101 qualified .

Functional Diagram



Applications

- I/O Interface.
- AC/DC Power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Mechanical Data

- Package: SMC/DO-214AB
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Polarity:Color band denotes cathode except bi-directional models
- Standard Packaging:12mm tape (EIA STD RS-481)
- Weight: 0.3g
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Maximum Ratings and Thermal Characteristics (T_A=25 ℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Peak power dissipation with a 10/1000μs waveform	P_{PPM}	5000	W
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	6.5	W
Storage temperature range	T_{stg}	-55 to +150	℃
Operating junction temperature range	T_j	-55 to +150	℃

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Electrical Characteristics (@ 25℃ Unless Otherwise Specified)

Part Number		Marking		Reverse Stand-Off Voltage V_{RWM}(V)	Breakdown Voltage V_{BR} (V) @I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @V_{RWM}
Uni	Bi	Uni	Bi		MIN	MAX				
5.0SMDJ12A-AT	5.0SMDJ12CA-AT	5PDZT	5BDZT	12	13.3	14.7	1	19.9	252.0	800
5.0SMDJ14A-AT	5.0SMDJ14CA-AT	5PEGT	5BEGT	14	15.6	17.2	1	23.2	216.0	200
5.0SMDJ15A-AT	5.0SMDJ15CA-AT	5PEKT	5BEKT	15	16.7	18.5	1	24.4	205.0	100
5.0SMDJ16A-AT	5.0SMDJ16CA-AT	5PEMT	5BEMT	16	17.8	19.7	1	26.0	193.0	50
5.0SMDJ17A-AT	5.0SMDJ17CA-AT	5PEPT	5BEPT	17	18.9	20.9	1	27.6	181.0	20
5.0SMDJ18A-AT	5.0SMDJ18CA-AT	5PERT	5BERT	18	20.0	22.1	1	29.2	172.0	10
5.0SMDJ20A-AT	5.0SMDJ20CA-AT	5PEVT	5BEVT	20	22.2	24.5	1	32.4	155.0	5
5.0SMDJ22A-AT	5.0SMDJ22CA-AT	5PEXT	5BEXT	22	24.4	26.9	1	35.5	141.0	5
5.0SMDJ24A-AT	5.0SMDJ24CA-AT	5PEZT	5BEZT	24	26.7	29.5	1	38.9	129.0	5
5.0SMDJ26A-AT	5.0SMDJ26CA-AT	5PFET	5BFET	26	28.9	31.9	1	42.1	119.0	5
5.0SMDJ28A-AT	5.0SMDJ28CA-AT	5PFGT	5BFGT	28	31.1	34.4	1	45.4	110.0	5
5.0SMDJ30A-AT	5.0SMDJ30CA-AT	5PFKT	5BFKT	30	33.3	36.8	1	48.4	103.0	5
5.0SMDJ33A-AT	5.0SMDJ33CA-AT	5PFMT	5BFMT	33	36.7	40.6	1	53.3	93.9	5
5.0SMDJ36A-AT	5.0SMDJ36CA-AT	5PFPT	5BFPT	36	40.0	44.2	1	58.1	86.1	5
5.0SMDJ40A-AT	5.0SMDJ40CA-AT	5PFRT	5BFRT	40	44.4	49.1	1	64.5	77.6	5
5.0SMDJ43A-AT	5.0SMDJ43CA-AT	5PFTT	5BFTT	43	47.8	52.8	1	69.4	72.1	5
5.0SMDJ45A-AT	5.0SMDJ45CA-AT	5PFVT	5BFVT	45	50.0	55.3	1	72.7	68.8	5
5.0SMDJ48A-AT	5.0SMDJ48CA-AT	5PFXT	5BFXT	48	53.3	58.9	1	77.4	64.7	5
5.0SMDJ51A-AT	5.0SMDJ51CA-AT	5PFZT	5BFZT	51	56.7	62.7	1	82.4	60.7	5
5.0SMDJ54A-AT	5.0SMDJ54CA-AT	5PGET	5BGET	54	60.0	66.3	1	87.1	57.5	5
5.0SMDJ58A-AT	5.0SMDJ58CA-AT	5PGGT	5BGGT	58	64.4	71.2	1	93.6	53.5	5
5.0SMDJ60A-AT	5.0SMDJ60CA-AT	5PGKT	5BGKT	60	66.7	73.7	1	96.8	51.7	5
5.0SMDJ64A-AT	5.0SMDJ64CA-AT	5PGMT	5BGMT	64	71.1	78.6	1	103.0	48.6	5
5.0SMDJ70A-AT	5.0SMDJ70CA-AT	5PGPT	5BGPT	70	77.8	86.0	1	113.0	44.3	5
5.0SMDJ75A-AT	5.0SMDJ75CA-AT	5PGRT	5BGRT	75	83.3	92.1	1	121.0	41.4	5
5.0SMDJ78A-AT	5.0SMDJ78CA-AT	5PGTT	5BGTT	78	86.7	95.8	1	126.0	39.7	5
5.0SMDJ85A-AT	5.0SMDJ85CA-AT	5PGVT	5BGVT	85	94.4	104.0	1	137.0	36.5	5
5.0SMDJ90A-AT	5.0SMDJ90CA-AT	5PGXT	5BGXT	90	100.0	111.0	1	146.0	34.3	5
5.0SMDJ100A-AT	5.0SMDJ100CA-AT	5PGZT	5BGZT	100	111.0	123.0	1	162.0	30.9	5
5.0SMDJ110A-AT	5.0SMDJ110CA-AT	5PHET	5BHET	110	122.0	135.0	1	177.0	28.3	5
5.0SMDJ120A-AT	5.0SMDJ120CA-AT	5PHGT	5BHGT	120	133.0	147.0	1	193.0	26.0	5
5.0SMDJ130A-AT	5.0SMDJ130CA-AT	5PHKT	5BHKT	130	144.0	159.0	1	209.0	24.0	5
5.0SMDJ150A-AT	5.0SMDJ150CA-AT	5PHMT	5BHMT	150	167.0	185.0	1	243.0	20.6	5
5.0SMDJ160A-AT	5.0SMDJ160CA-AT	5PHPT	5BHPT	160	178.0	197.0	1	259.0	19.3	5
5.0SMDJ170A-AT	5.0SMDJ170CA-AT	5PHRT	5BHRT	170	189.0	209.0	1	275.0	18.2	5
5.0SMDJ180A-AT	5.0SMDJ180CA-AT	5PHTT	5BHTT	180	201.0	222.0	1	292.0	17.5	5
5.0SMDJ190A-AT	5.0SMDJ190CA-AT	5PHVT	5BHVT	190	211.0	233.0	1	308.0	16.5	5

Note:

(1) Add suffix ' CA ' after part number to specify Bi-directional devices

(2) Suffix 'A ' denotes 5% tolerance device.

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Ratings and Characteristics Curves (T_A=25℃ unless otherwise noted)

Figure 1 - Pulse Waveform

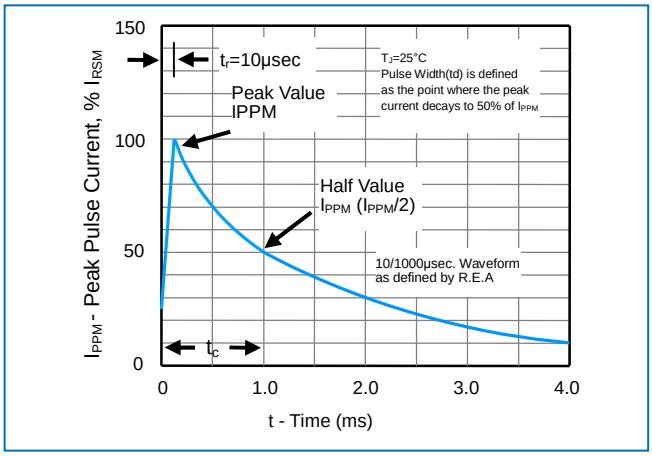
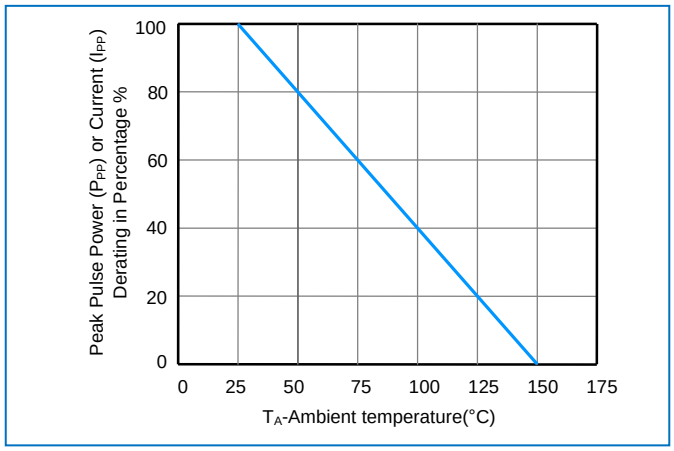
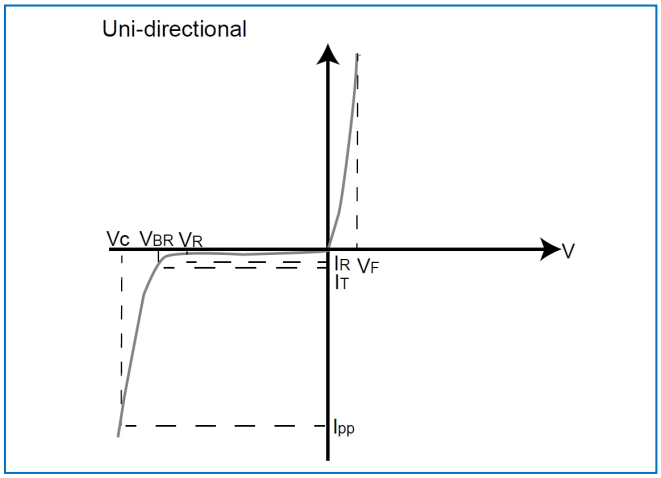
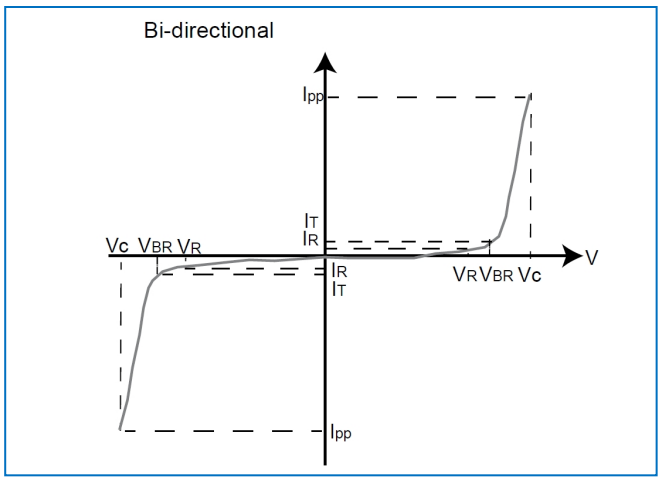


Figure 2 - Pulse Derating Curve

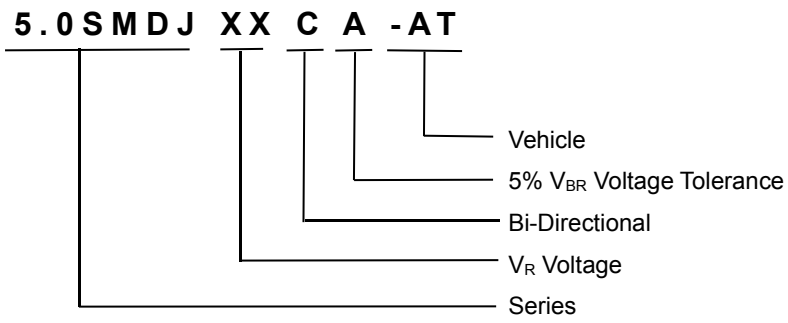


1-V Curves Characteristics





Part Numbering



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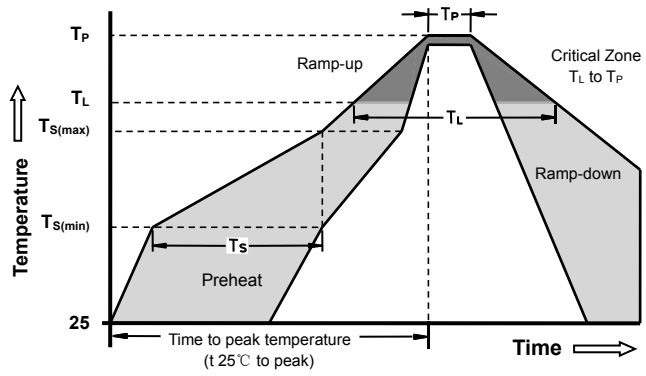
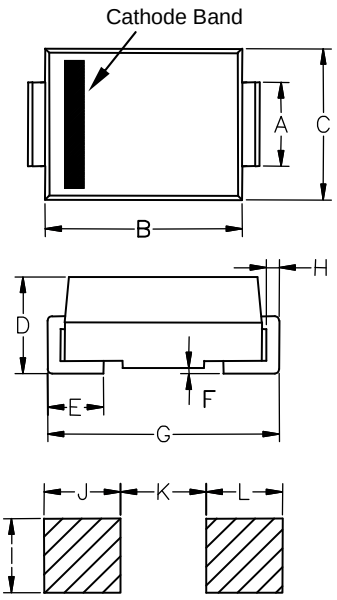
Soldering Parameters



Reflow Condition		Lead–free assembly
Pre Heat	**-Temperature Min ($T_{s(min)}$)**	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{S(max)}$ to TL - Ramp-up Rate		3°C/second max
Reflow	**- Temperature (T_L) (Liquidus)**	217°C
	- Time (min to max) (t_s)	60 -150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (t_p)		20 -40 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		260°C

Dimensions

DO-214AB (SMC)



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.86	3.160
B	0.260	0.280	6.520	7.020
C	0.220	0.245	5.520	6.150
D	0.079	0.103	1.980	2.590
E	0.030	0.060	0.750	1.510
F	-	0.008	-	0.203
G	0.305	0.320	7.640	8.020
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200
L	0.094	-	2.400	-