Description

Transient voltage suppression diodes, also known as TVS diodes, are protective electronic parts that protect electrical equipment from voltage spikes introduced by wires.

Applications

- Computer system
- Domestic appliance
- Video input

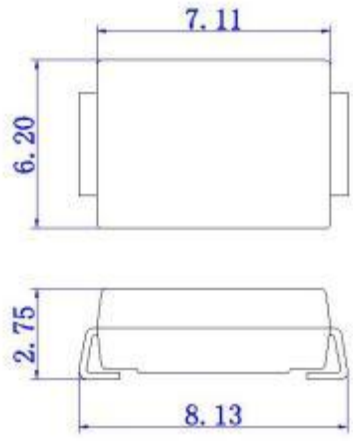
Features

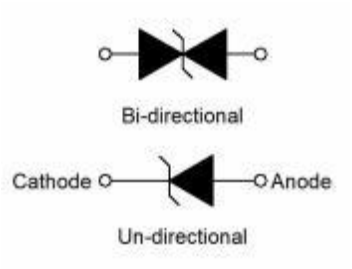
- For surface mounted applications
- Excellent clamping capability
- 3000 W peak pulse power capability with a 10/ 1000μs Waveform.
- VRWM 5.0-440V
- Low profile package and low inductance
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ps from 0V to VBR min.

Mechanical Characteristics

- Package: SMC/DO-214AB
- Case Material:Molded Plastic. UL Flammability Classification Rating 94V 0 .RoHS compliant
- Moisture Sensitivity: Meet MSL 1
- Terminal：Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Weight: 0.28g(approximate)

Equivalent Circuit & Pinning





Electrical Characteristics (T=25℃)

Part Number		Marking		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP} [1]
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
SMDJ5.0A	SMDJ5.0CA	SMDJ5.0A	SMDJ5.0CA	5.0	800	6.40	7.00	10	9.2	326.1
SMDJ6.0A	SMDJ6.0CA	SMDJ6.0A	SMDJ6.0CA	6.0	800	6.67	7.37	10	10.3	291.3
SMDJ6.5A	SMDJ6.5CA	SMDJ6.5A	SMDJ6.5CA	6.5	500	7.22	7.98	10	11.2	267.9
SMDJ7.0A	SMDJ7.0CA	SMDJ7.0A	SMDJ7.0CA	7.0	200	7.78	8.60	10	12.0	250.0
SMDJ7.5A	SMDJ7.5CA	SMDJ7.5A	SMDJ7.5CA	7.5	100	8.33	9.21	1	12.9	232.6
SMDJ8.0A	SMDJ8.0CA	SMDJ8.0A	SMDJ8.0CA	8.0	50	8.89	9.83	1	13.6	220.6
SMDJ8.5A	SMDJ8.5CA	SMDJ8.5A	SMDJ8.5CA	8.5	20	9.44	10.40	1	14.4	208.4
SMDJ9.0A	SMDJ9.0CA	SMDJ9.0A	SMDJ9.0CA	9.0	10	10.00	11.10	1	15.4	194.9
SMDJ10A	SMDJ10CA	SMDJ10A	SMDJ10CA	10.0	5	11.10	12.30	1	17.0	176.5
SMDJ11A	SMDJ11CA	SMDJ11A	SMDJ11CA	11.0	1	12.20	13.50	1	18.2	164.9
SMDJ12A	SMDJ12CA	SMDJ12A	SMDJ12CA	12.0	1	13.30	14.70	1	19.9	150.8
SMDJ13A	SMDJ13CA	SMDJ13A	SMDJ13CA	13.0	1	14.40	15.90	1	21.5	139.6
SMDJ14A	SMDJ14CA	SMDJ14A	SMDJ14CA	14.0	1	15.60	17.20	1	23.2	129.4
SMDJ15A	SMDJ15CA	SMDJ15A	SMDJ15CA	15.0	1	16.70	18.50	1	24.4	123.0
SMDJ16A	SMDJ16CA	SMDJ16A	SMDJ16CA	16.0	1	17.80	19.70	1	26.0	115.4
SMDJ17A	SMDJ17CA	SMDJ17A	SMDJ17CA	17.0	1	18.90	20.90	1	27.6	108.7
SMDJ18A	SMDJ18CA	SMDJ18A	SMDJ18CA	18.0	1	20.00	22.10	1	29.2	102.8
SMDJ20A	SMDJ20CA	SMDJ20A	SMDJ20CA	20.0	1	22.20	24.50	1	32.4	92.60
SMDJ22A	SMDJ22CA	SMDJ22A	SMDJ22CA	22.0	1	24.40	26.90	1	35.5	84.51
SMDJ24A	SMDJ24CA	SMDJ24A	SMDJ24CA	24.0	1	26.70	29.50	1	38.9	77.13
SMDJ26A	SMDJ26CA	SMDJ26A	SMDJ26CA	26.0	1	28.90	31.90	1	42.1	71.26
SMDJ28A	SMDJ28CA	SMDJ28A	SMDJ28CA	28.0	1	31.10	34.40	1	45.4	66.08
SMDJ30A	SMDJ30CA	SMDJ30A	SMDJ30CA	30.0	1	33.30	36.80	1	48.4	61.99
SMDJ33A	SMDJ33CA	SMDJ33A	SMDJ33CA	33.0	1	36.70	40.60	1	53.3	56.29
SMDJ36A	SMDJ36CA	SMDJ36A	SMDJ36CA	36.0	1	40.00	44.20	1	58.1	51.64
SMDJ40A	SMDJ40CA	SMDJ40A	SMDJ40CA	40.0	1	44.40	49.10	1	64.5	46.52
SMDJ43A	SMDJ43CA	SMDJ43A	SMDJ43CA	43.0	1	47.80	52.80	1	69.4	43.23
SMDJ45A	SMDJ45CA	SMDJ45A	SMDJ45CA	45.0	1	50.00	55.30	1	72.7	41.27
SMDJ48A	SMDJ48CA	SMDJ48A	SMDJ48CA	48.0	1	53.30	58.90	1	77.4	38.76
SMDJ51A	SMDJ51CA	SMDJ51A	SMDJ51CA	51.0	1	56.70	62.70	1	82.4	36.41
SMDJ54A	SMDJ54CA	SMDJ54A	SMDJ54CA	54.0	1	60.00	66.30	1	87.1	34.45
SMDJ58A	SMDJ58CA	SMDJ58A	SMDJ58CA	58.0	1	64.40	71.20	1	93.6	32.06
SMDJ60A	SMDJ60CA	SMDJ60A	SMDJ60CA	60.0	1	66.70	73.70	1	96.8	31.00
SMDJ64A	SMDJ64CA	SMDJ64A	SMDJ64CA	64.0	1	71.10	78.60	1	103.0	29.13
SMDJ70A	SMDJ70CA	SMDJ70A	SMDJ70CA	70.0	1	77.80	86.00	1	113.0	26.55

Electrical Characteristics(Ta=25℃)

Part Number		Marking		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
SMDJ75A	SMDJ75CA	SMDJ75A	SMDJ75CA	75.0	1	83.30	92.10	1	121.0	24.80
SMDJ78A	SMDJ78CA	SMDJ78A	SMDJ78CA	78.0	1	86.70	95.80	1	126.0	23.81
SMDJ85A	SMDJ85CA	SMDJ85A	SMDJ85CA	85.0	1	94.40	104.0	1	137.0	21.90
SMDJ90A	SMDJ90CA	SMDJ90A	SMDJ90CA	90.0	1	100.0	111.0	1	146.0	20.55
SMDJ100A	SMDJ100CA	SMDJ100A	SMDJ100CA	100.0	1	111.0	123.0	1	162.0	18.52
SMDJ110A	SMDJ110CA	SMDJ110A	SMDJ110CA	110.0	1	122.0	135.0	1	177.0	16.95
SMDJ120A	SMDJ120CA	SMDJ120A	SMDJ120CA	120.0	1	133.0	147.0	1	193.0	15.55
SMDJ130A	SMDJ130CA	SMDJ130A	SMDJ130CA	130.0	1	144.0	159.0	1	209.0	14.36
SMDJ150A	SMDJ150CA	SMDJ150A	SMDJ150CA	150.0	1	167.0	185.0	1	243.0	12.35
SMDJ160A	SMDJ160CA	SMDJ160A	SMDJ160CA	160.0	1	178.0	197.0	1	259.0	11.59
SMDJ170A	SMDJ170CA	SMDJ170A	SMDJ170CA	170.0	1	189.0	209.0	1	275.0	10.91
SMDJ180A	SMDJ180CA	SMDJ180A	SMDJ180CA	180.0	1	201.0	222.0	1	292.0	10.28
SMDJ190A	SMDJ190CA	SMDJ190A	SMDJ190CA	190.0	1	209.0	233.0	1	308.0	9.75
SMDJ200A	SMDJ200CA	SMDJ200A	SMDJ200CA	200.0	1	224.0	247.0	1	324.0	9.26
SMDJ210A	SMDJ210CA	SMDJ210A	SMDJ210CA	210.0	1	237.0	263.0	1	340.0	8.83
SMDJ220A	SMDJ220CA	SMDJ220A	SMDJ220CA	220.0	1	246.0	272.0	1	356.0	8.43
SMDJ250A	SMDJ250CA	SMDJ250A	SMDJ250CA	250.0	1	279.0	309.0	1	405.0	7.41
SMDJ300A	SMDJ300CA	SMDJ300A	SMDJ300CA	300.0	1	335.0	371.0	1	486.0	6.18
SMDJ350A	SMDJ350CA	SMDJ350A	SMDJ350CA	350.0	1	391.0	432.0	1	567.0	5.30
SMDJ400A	SMDJ400CA	SMDJ400A	SMDJ400CA	400.0	1	447.0	494.0	1	648.0	4.63
SMDJ440A	SMDJ440CA	SMDJ440A	SMDJ440CA	440.0	1	492.0	543.0	1	713.0	4.21

Notes：

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

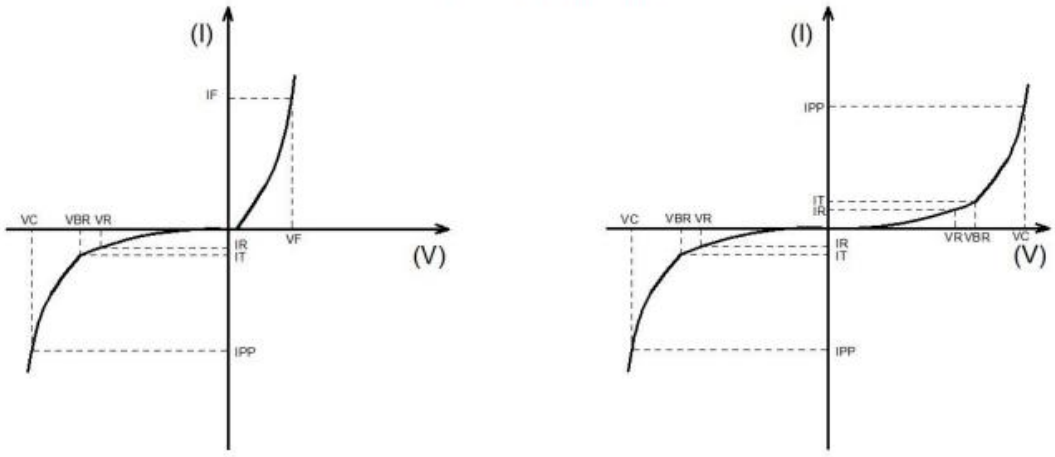
I_R ： Reverse Leakage Current

Absolute Maximum Ratings(T=25ºC, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000μs waveform	PPP	3000	W
Steady state power dissipation at TL=75℃	PM(AV)	6.5	W
Operating junction temperature range	Tj	-55 to +125	℃
Storage temperature range	Tstg	-55 to +150	℃

Ratings And V-I Characteristics Curves (T=25° C, unless otherwise noted)

FIG1：V-I cure characteristics



Symbol	Parameter
I_F	Mean Forward Current
V_F	Maximum Forward Voltage @I_F
V_R	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_R
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}

Typical Characteristics

FIG2：Pulse Derating Curve

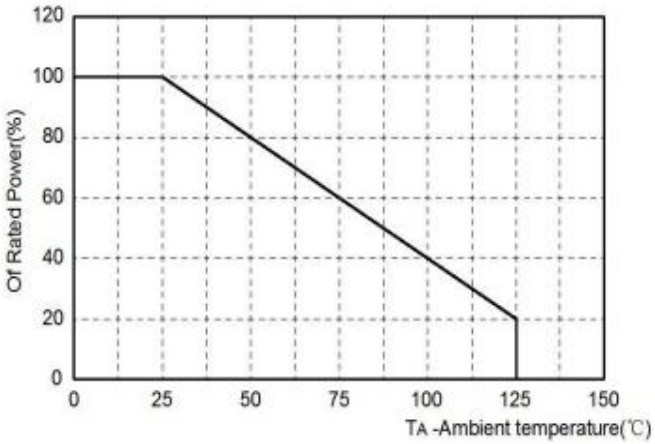


FIG3：Pulse Waveform

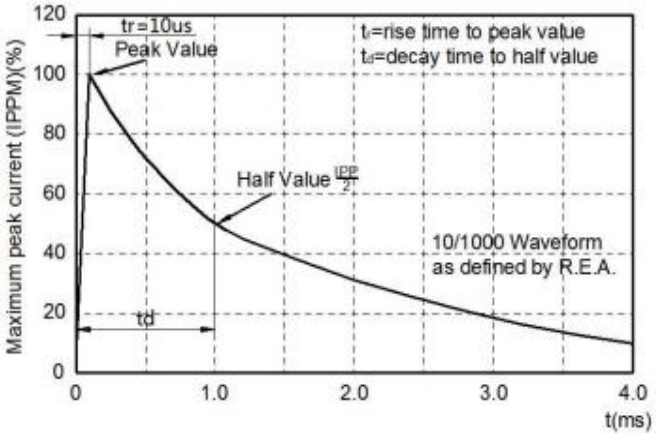


FIG4：Peak Pulse Power Rating Curve

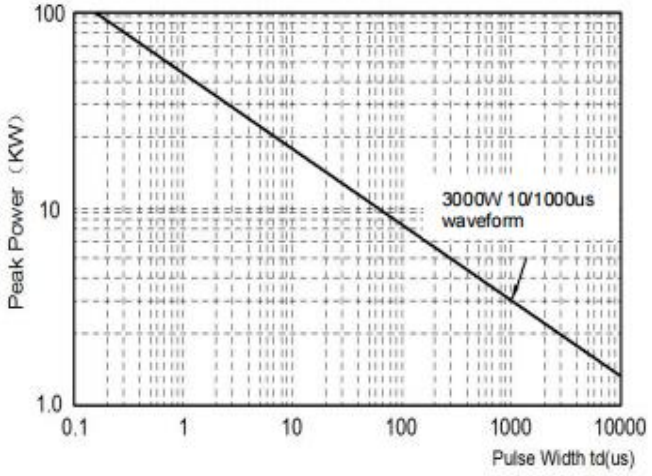
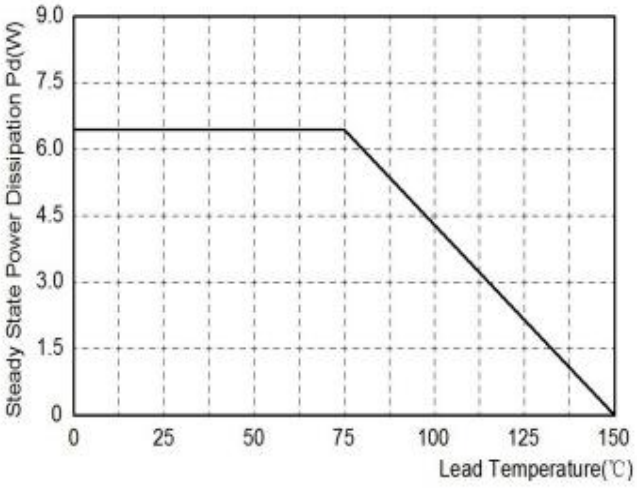
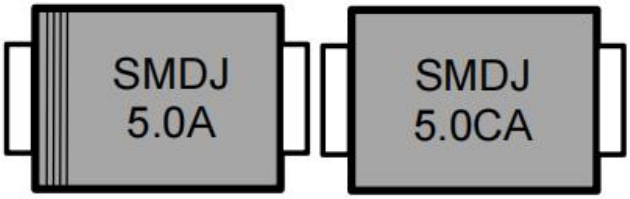


FIG5：Steady State Power Dissipation



Marking Instructions

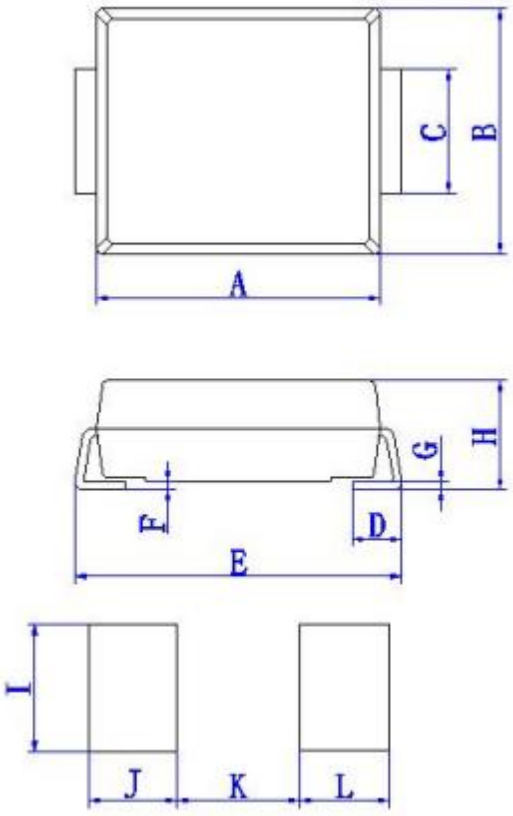


SMDJ5.0A：SMDJ5.0A Marking code
SMDJ5.0CA：SMDJ5.0CA Marking code

Packaging SPEC&Tape & reel specification - SMC

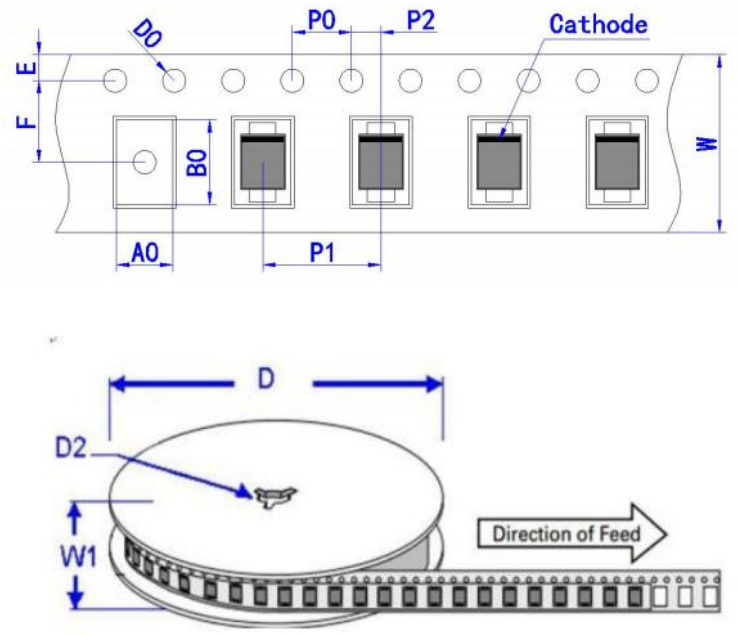
Out line	Reel (pcs)	Percartn (pcs)	Reel diameters
Taping	3K	48K	13inch

Package mechanical data & Suggested LandPattern



Ref.(mm)	Millimeters	
	Min.	Max.
A	6.60	7.11
B	5.59	6.20
C	2.75	3.20
D	0.76	1.52
E	7.71	8.13
F	0.051	0.203
G	0.15	0.25
H	2.06	2.75
I	3.30	
J	1.30	
K		5.30
L	1.30	

Tape & reel specification - SMC



Ref.	Millimeters
A0	6.20±0.20
B0	8.31±0.20
C	330.00
D0	1.55±0.10
E	1.75±0.20
E1	13.50±1.00
F	7.50±0.10
P0	8.00±0.20
P1	4.00±0.20
P2	2.00±0.20
W	16.00±0.30
W1	20.00±4.00
D	333.00±2.00
D2	13.50±0.30