

DESCRIPTION

The SMDJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

FEATURES

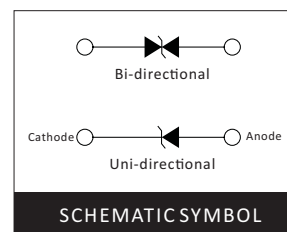
- > Low profile package
- > Ideal for automated placement
- > Glass passivated chip junction
- > Available in uni-directional and Bi-directional
- > 3000 Watt peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01 %
- > For surface mounted applications to optimize board space
- > Excellent clamping capability
- > Very fast response time
- > Low incremental surge resistance
- > Meets MSL level 1, per J-STD-020, maximum peak of 260 °C

APPLICATIONS

TVS devices are ideal for the protection of I/O Interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.



DO-214AB PACKAGE



SCHEMATIC SYMBOL

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000us waveform (Note1,Note2).	PPPM	3000	Watts
Peak Pulse Current of on 10/1000us waveform(Note1).	IPPM	See Table	Amps
Steady State Power Dissipation at $T_A = 50^\circ\text{C}$ (Note2).	PM(AV)	6.5	Watts
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only	V_F	3.5	Volts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3).	I_{FSM}	300	Amps

NOTES:

1. Non-repetitive current pulse, $T_A = 25^\circ\text{C}$.
2. Mounted on 8.0mm x 8.0mm (0.03mm thick) Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave for unidirectional device only, Duty cycle=4 pulses per minutes maximum.

THERMAL CONSIDERATIONS

Symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature	-40 to +150	$^\circ\text{C}$
T_S	Storage Temperature Range	-40 to +150	$^\circ\text{C}$
$R_{\theta JA}$	Junction to Ambient on printed circuit	75	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS

Part Number		Marking Code		Reverse Stand-off Voltage	Breakdown Voltage Min. @I _T	Breakdown Voltage Max. @I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Maximum Reverse Leakage @V _{RWM}
UNI	BI	UNI	BI	V _R (V)	V _B (V)	V _B (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μ A)
SMDJ5.0A	SMDJ5.0CA	RDE	DDE	5	6.4	7	10	9.2	326.1	800
SMDJ6.0A	SMDJ6.0CA	RDG	DDG	6	6.67	7.37	10	10.3	291.3	800
SMDJ6.5A	SMDJ6.5CA	RDK	DDK	6.5	7.22	7.98	10	11.2	267.9	500
SMDJ7.0A	SMDJ7.0CA	PDM	DDM	7	7.78	8.6	10	12	250	200
SMDJ7.5A	SMDJ7.5CA	PDP	DDP	7.5	8.33	9.21	1	12.9	232.6	100
SMDJ8.0A	SMDJ8.0CA	PDR	DDR	8	8.89	9.83	1	13.6	220.6	50
SMDJ8.5A	SMDJ8.5CA	PDT	DDT	8.5	9.44	10.4	1	14.4	208.3	20
SMDJ9.0A	SMDJ9.0CA	PDV	DDV	9	10	11.1	1	15.4	194.8	10
SMDJ10A	SMDJ10CA	PDX	DDX	10	11.1	12.3	1	17	176.5	5
SMDJ11A	SMDJ11CA	PDZ	DDZ	11	12.2	13.5	1	18.2	164.8	2
SMDJ12A	SMDJ12CA	PEE	DEE	12	13.3	14.7	1	19.9	150.8	2
SMDJ13A	SMDJ13CA	PEG	DEG	13	14.4	15.9	1	21.5	139.5	2
SMDJ14A	SMDJ14CA	PEK	DEK	14	15.6	17.2	1	23.2	129.3	2
SMDJ15A	SMDJ15CA	PEM	IEM	15	16.7	18.5	1	24.4	123	2
SMDJ16A	SMDJ16CA	PEP	DEP	16	17.8	19.7	1	26	115.4	2
SMDJ17A	SMDJ17CA	PER	DER	17	18.9	20.9	1	27.6	108.7	2
SMDJ18A	SMDJ18CA	PET	DET	18	20	22.1	1	29.2	102.7	2
SMDJ20A	SMDJ20CA	PEV	DEV	20	22.2	24.5	1	32.4	92.6	2
SMDJ22A	SMDJ22CA	PEX	DEX	22	24.4	26.9	1	35.5	84.5	2
SMDJ24A	SMDJ24CA	PEZ	DEZ	24	26.7	29.5	1	38.9	77.1	2
SMDJ26A	SMDJ26CA	PFE	DFE	26	28.9	31.9	1	42.1	71.3	2
SMDJ28A	SMDJ28CA	PFG	DFG	28	31.1	34.4	1	45.4	66.1	2
SMDJ30A	SMDJ30CA	PFK	DFK	30	33.3	36.8	1	48.4	62	2
SMDJ33A	SMDJ33CA	PFM	DFM	33	36.7	40.6	1	53.3	56.3	2
SMDJ36A	SMDJ36CA	PFP	IFP	36	40	44.2	1	58.1	51.6	2
SMDJ40A	SMDJ40CA	PFR	IFR	40	44.4	49.1	1	64.5	46.5	2
SMDJ43A	SMDJ43CA	PFT	DFT	43	47.8	52.8	1	69.4	43.2	2
SMDJ45A	SMDJ45CA	PFV	DFV	45	50	55.3	1	72.7	41.3	2
SMDJ48A	SMDJ48CA	PFX	DFX	48	53.3	58.9	1	77.4	38.8	2
SMDJ51A	SMDJ51CA	PFZ	DFZ	51	56.7	62.7	1	82.4	36.4	2
SMDJ54A	SMDJ54CA	RGE	DGE	54	60	66.3	1	87.1	34.4	2
SMDJ58A	SMDJ58CA	PGG	IGG	58	64.4	71.2	1	93.6	32.1	2
SMDJ60A	SMDJ60CA	PGK	IGK	60	66.7	73.7	1	96.8	31	2
SMDJ64A	SMDJ64CA	PGM	DGM	64	71.1	78.6	1	103	29.1	2
SMDJ70A	SMDJ70CA	PGP	DGP	70	77.8	86	1	113	26.5	2
SMDJ75A	SMDJ75CA	PGR	DGR	75	83.3	92.1	1	121	24.8	2
SMDJ78A	SMDJ78CA	PGT	DGT	78	86.7	95.8	1	126	23.8	2
SMDJ85A	SMDJ85CA	PGV	DGV	85	94.4	104	1	137	21.9	2
SMDJ90A	SMDJ90CA	PGX	DGX	90	100	111	1	146	20.5	2
SMDJ100A	SMDJ100CA	PGZ	DGZ	100	111	123	1	162	18.5	2

ELECTRICAL CHARACTERISTICS

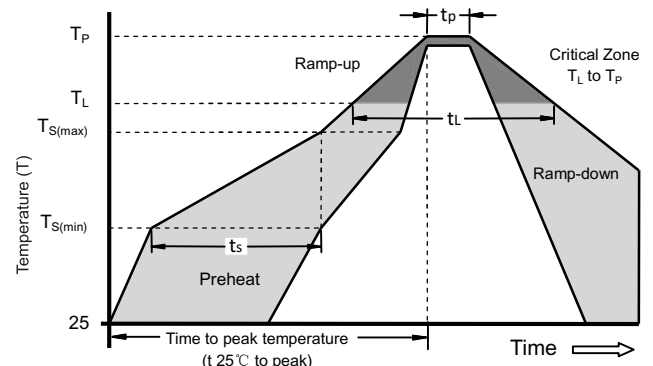
Part Number		Marking Code		Reverse Stand-off Voltage	Breakdown Voltage Min. @I _T	Breakdown Voltage Max. @I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Maximum Reverse Leakage @V _{RWM}
UNI	BI	UNI	BI	V _R (V)	V _B (V)	V _B (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μ A)
SMDJ110A	SMDJ110CA	PHE	DHE	110	122	135	1	177	16.9	2
SMDJ120A	SMDJ120CA	PHG	DHG	120	133	147	1	193	15.5	2
SMDJ130A	SMDJ130CA	PHK	DHK	130	144	159	1	209	14.4	2
SMDJ150A	SMDJ150CA	PHM	DHM	150	167	185	1	243	12.3	2
SMDJ160A	SMDJ160CA	PHP	DHP	160	178	197	1	259	11.6	2
SMDJ170A	SMDJ170CA	PHR	DHR	170	189	209	1	275	10.9	2
SMDJ180A	SMDJ180CA	PHT	DHT	180	201	222	1	292	10.3	2
SMDJ190A	SMDJ190CA	PHU	DHU	190	209	243	1	308	9.7	2
SMDJ200A	SMDJ200CA	PHV	DHV	200	224	247	1	324	9.3	2
SMDJ210A	SMDJ210CA	PHW	DHW	210	231	269	1	340	8.8	2
SMDJ220A	SMDJ220CA	PKE	DKE	220	246	272	1	356	8.4	2

ENVIRONMENTAL RELIABILITY CHARACTERISTICS

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature:150±3°C,Bias=80%V _{DRM} ;Time:168H
High Temperature Life Test	Temperature:150°C;Time:168H
High-Low Temperature Cycle Test	Temperature:From -40°C to 150°C;Dwell Time:30min,10-100 Cycles
High Temperature&High Humidity Test	Temperature:85°C.Humidity:85%; Time:168 H
Pressure Cooker Test	Temperature:121°C,2 atm.Humidity:100%; Time:24H To 168 H
Resistance Of Soldering Heat	Temperature:260 ±5°C;Time Of Dip Soldering:10s,3 Times

SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
PreHeat	Temperature Min (Ts(min))	150°C
	Temperature Max (Ts(max))	200°C
	Time (min to max) (ts)	60 – 180 secs
Average ramp up rate (Liquidus Temp (TL) to peak)		3°C/second max
Ts(max)to TL- Ramp-up Rate		3°C/second max
Reflow	Temperature (TL) (Liquidus)	217°C
	Time (min to max) (ts)	60 – 150 seconds
Peak Temperature (TP)		260°C
Time within 5°C of actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (Tp)		8 minutes Max.
Do not exceed		260°C



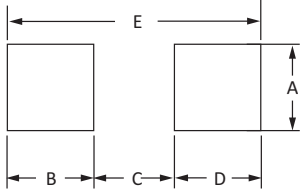
SMC PACKAGE DIMENSIONS

Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	6.60	7.11	0.260	0.280
D	5.59	6.22	0.220	0.245
D1	2.90	3.20	0.114	0.126
T	7.75	8.13	0.305	0.320
T1	0.76	1.52	0.030	0.060
d	-	0.20	-	0.008
s	2.06	2.62	0.079	0.103
t	0.152	0.31	0.006	0.012

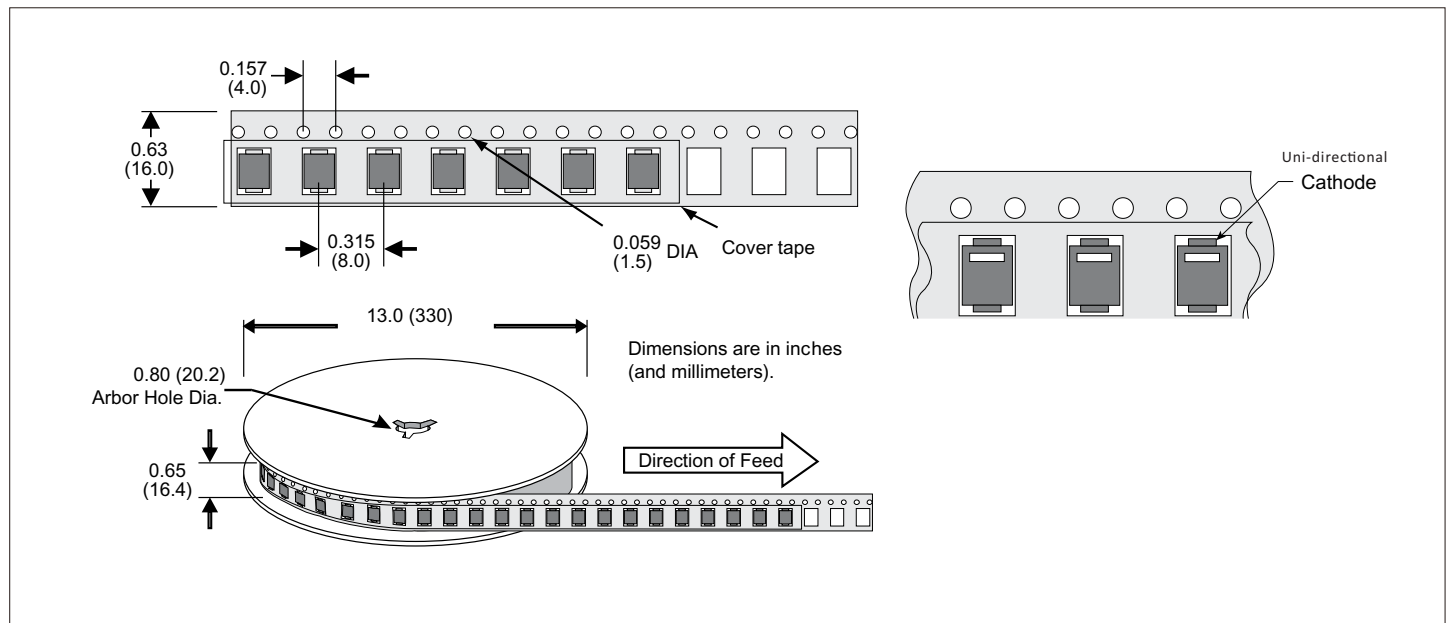
NOTES:

1. Dimensions are exclusive of mold flash and metal burrs
2. Cathode Band is only applicable to the unidirectional package

RECOMMENDED PAD LAYOUT DIMENSIONS

	Item	Millimeters		Inches	
		Min.	Max.	Min.	Max.
	A	3.300	-	0.129	-
	B	2.400	-	0.094	-
	C	-	4.200	-	0.165
	D	2.400	-	0.094	-
	E	8.13 REF		0.320 REF	

TAPE AND REEL SPECIFICATION



ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SMDJxx(C)A	DO-214AB	3000PCS	13"