



Surface Mount Uni/Bi-Directional TVS Diodes

Description

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

Features

- For surface mounted applications
- Low profile package
- 400W Peak pulse power capability at 10/1000 μ s waveform
- Excellent clamping capability
- Typical IR less than 1 μ A above 10V
- Fast response time: typically less than 1.0ps from 0 Volts to

VBR min

- High temperature soldering: 260°C/10s

Mechanical Data

- Case:SMA(DO-214AC)package
- Case material: "green" molding compound
- UL flammability classification rating 94V-0
- Polarity : by cathode band denotes uni-directional device, none cathode band denotes bi-directional device
- Weight: 0.07grams

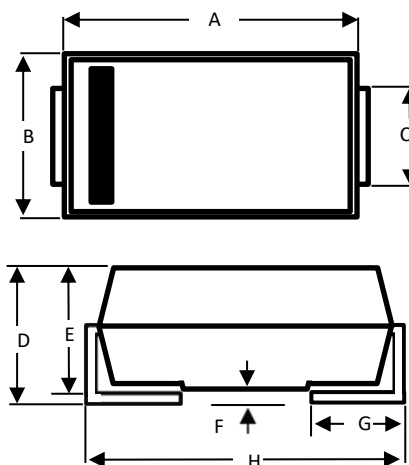
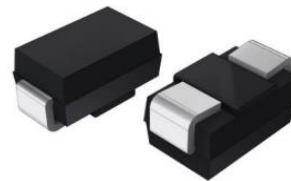
Note: Products with logo  or  are made by HY Electronic (Cayman) Limited

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.

Peak Pulse Power - 400 W
Reverse Stand Off Voltage - 5 to 440 V

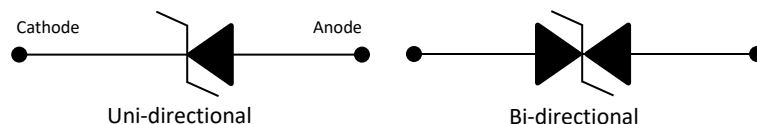
Package Outline Dimensions



SMA Package		
Dim	Min	Max
A	3.99	4.50
B	2.50	2.79
C	1.20	1.70
D	1.98	2.40
E	1.98	2.20
F	-	0.203
G	0.76	1.52
H	4.93	5.28

All Dimensions in mm

Device Schematic



Ordering Information

- Package :SMA(DO-214AC)
- Reel Size :13 (inches)
- Quantity Per Reel :5Kpcs
- Quantity Per Box :10Kpcs
- Quantity Per Carton :80Kpcs

Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Absolute Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10/1000us Waveform (Note 1)	P _{PP}	400	W
Power Dissipation on Infinite Heat Sink at TL=50°C	P _{M(AV)}	3.3	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2)	I _{FSM}	40	A
Maximum Instantaneous Forward Voltage at 30A (Note 2)	V _F	5	V
Operating Temperature Range	T _j	-55 to +150	° C
Storage Temperature Range	T _{STG}	-55 to +150	° C

Note:

1. Non-repetitive current pulse, per Fig.4 and derated above T_j(initial) =25°C per Fig.1
2. For unidirectional units only

Electrical Characteristics (@T_A = 25°C, unless otherwise specified.)

Part Number		Marking Code		Reverse Working Voltage	Reverse Breakdown Voltage			Reverse Leakage (Max)	Reverse Clamping Voltage (Max)	Peak Pulse Current (Max)
				V _{RWM} (V)	V _B (V)			I _R (μ A)		I _{PP} (A)
Uni.	Bi.	Uni.	Bi.		Min.	Max.	@I _T (mA)	@V _R	V _C (V) @I _{PP}	
SMAJ5.0A	SMAJ5.0CA	SMAJ5.0A	SMAJ5.0CA	5.0	6.40	7.00	10	800	9.2	43.5
SMAJ6.0A	SMAJ6.0CA	SMAJ6.0A	SMAJ6.0CA	6.0	6.67	7.37	10	800	10.3	38.8
SMAJ6.5A	SMAJ6.5CA	SMAJ6.5A	SMAJ6.5CA	6.5	7.22	7.98	10	500	11.2	35.7
SMAJ7.0A	SMAJ7.0CA	SMAJ7.0A	SMAJ7.0CA	7.0	7.78	8.60	10	200	12.0	33.3
SMAJ7.5A	SMAJ7.5CA	SMAJ7.5A	SMAJ7.5CA	7.5	8.33	9.21	1	100	12.9	31.0
SMAJ8.0A	SMAJ8.0CA	SMAJ8.0A	SMAJ8.0CA	8.0	8.89	9.83	1	50	13.6	29.4
SMAJ8.5A	SMAJ8.5CA	SMAJ8.5A	SMAJ8.5CA	8.5	9.44	10.40	1	20	14.4	27.8
SMAJ9.0A	SMAJ9.0CA	SMAJ9.0A	SMAJ9.0CA	9.0	10.0	11.1	1	10	15.4	26.0
SMAJ10A	SMAJ10CA	SMAJ10A	SMAJ10CA	10	11.1	12.3	1	5	17.0	23.5
SMAJ11A	SMAJ11CA	SMAJ11A	SMAJ11CA	11	12.2	13.5	1	1	18.2	22.0
SMAJ12A	SMAJ12CA	SMAJ12A	SMAJ12CA	12	13.3	14.7	1	1	19.9	20.1
SMAJ13A	SMAJ13CA	SMAJ13A	SMAJ13CA	13	14.4	15.9	1	1	21.5	18.6
SMAJ14A	SMAJ14CA	SMAJ14A	SMAJ14CA	14	15.6	17.2	1	1	23.2	17.3
SMAJ15A	SMAJ15CA	SMAJ15A	SMAJ15CA	15	16.7	18.5	1	1	24.4	16.4
SMAJ16A	SMAJ16CA	SMAJ16A	SMAJ16CA	16	17.8	19.7	1	1	26.0	15.4
SMAJ17A	SMAJ17CA	SMAJ17A	SMAJ17CA	17	18.9	20.9	1	1	27.6	14.5
SMAJ18A	SMAJ18CA	SMAJ18A	SMAJ18CA	18	20.0	22.1	1	1	29.2	13.7
SMAJ20A	SMAJ20CA	SMAJ20A	SMAJ20CA	20	22.2	24.5	1	1	32.4	12.4
SMAJ22A	SMAJ22CA	SMAJ22A	SMAJ22CA	22	24.4	26.9	1	1	35.5	11.3
SMAJ24A	SMAJ24CA	SMAJ24A	SMAJ24CA	24	26.7	29.5	1	1	38.9	10.3
SMAJ26A	SMAJ26CA	SMAJ26A	SMAJ26CA	26	28.9	31.9	1	1	42.1	9.5
SMAJ28A	SMAJ28CA	SMAJ28A	SMAJ28CA	28	31.1	34.4	1	1	45.4	8.8
SMAJ30A	SMAJ30CA	SMAJ30A	SMAJ30CA	30	33.3	36.8	1	1	48.4	8.3
SMAJ33A	SMAJ33CA	SMAJ33A	SMAJ33CA	33	36.7	40.6	1	1	53.3	7.5
SMAJ36A	SMAJ36CA	SMAJ36A	SMAJ36CA	36	40.0	44.2	1	1	58.1	6.9
SMAJ40A	SMAJ40CA	SMAJ40A	SMAJ40CA	40	44.4	49.1	1	1	64.5	6.2
SMAJ43A	SMAJ43CA	SMAJ43A	SMAJ43CA	43	47.8	52.8	1	1	69.4	5.8
SMAJ45A	SMAJ45CA	SMAJ45A	SMAJ45CA	45	50.0	55.3	1	1	72.7	5.5
SMAJ48A	SMAJ48CA	SMAJ48A	SMAJ48CA	48	53.3	58.9	1	1	77.4	5.2
SMAJ51A	SMAJ51CA	SMAJ51A	SMAJ51CA	51	56.7	62.7	1	1	82.4	4.9
SMAJ54A	SMAJ54CA	SMAJ54A	SMAJ54CA	54	60.0	66.3	1	1	87.1	4.6
SMAJ58A	SMAJ58CA	SMAJ58A	SMAJ58CA	58	64.4	71.2	1	1	93.6	4.3
SMAJ60A	SMAJ60CA	SMAJ60A	SMAJ60CA	60	66.7	73.7	1	1	96.8	4.1
SMAJ64A	SMAJ64CA	SMAJ64A	SMAJ64CA	64	71.1	78.6	1	1	103	3.9
SMAJ70A	SMAJ70CA	SMAJ70A	SMAJ70CA	70	77.8	86.0	1	1	113	3.6
SMAJ75A	SMAJ75CA	SMAJ75A	SMAJ75CA	75	83.3	92.1	1	1	121	3.3
SMAJ78A	SMAJ78CA	SMAJ78A	SMAJ78CA	78	86.7	95.8	1	1	126	3.2
SMAJ85A	SMAJ85CA	SMAJ85A	SMAJ85CA	85	94.4	104.0	1	1	137	2.9
SMAJ90A	SMAJ90CA	SMAJ90A	SMAJ90CA	90	100	111	1	1	146	2.8
SMAJ100A	SMAJ100CA	SMAJ100A	SMAJ100CA	100	111	123	1	1	162	2.5
SMAJ110A	SMAJ110CA	SMAJ110A	SMAJ110CA	110	122	135	1	1	177	2.3
SMAJ120A	SMAJ120CA	SMAJ120A	SMAJ120CA	120	133	147	1	1	193	2.1
SMAJ130A	SMAJ130CA	SMAJ130A	SMAJ130CA	130	144	159	1	1	209	1.9
SMAJ150A	SMAJ150CA	SMAJ150A	SMAJ150CA	150	167	185	1	1	243	1.7
SMAJ160A	SMAJ160CA	SMAJ160A	SMAJ160CA	160	178	197	1	1	259	1.6
SMAJ170A	SMAJ170CA	SMAJ170A	SMAJ170CA	170	189	209	1	1	275	1.5
SMAJ180A	SMAJ180CA	SMAJ180A	SMAJ180CA	180	201	222	1	1	292	1.4
SMAJ200A	SMAJ200CA	SMAJ200A	SMAJ200CA	200	224	247	1	1	324	1.3
SMAJ220A	SMAJ220CA	SMAJ220A	SMAJ220CA	220	246	272	1	1	356	1.1
SMAJ250A	SMAJ250CA	SMAJ250A	SMAJ250CA	250	279	309	1	1	405	1.0
SMAJ300A	SMAJ300CA	SMAJ300A	SMAJ300CA	300	335	371	1	1	486	0.8
SMAJ350A	SMAJ350CA	SMAJ350A	SMAJ350CA	350	391	432	1	1	567	0.7
SMAJ400A	SMAJ400CA	SMAJ400A	SMAJ400CA	400	447	494	1	1	648	0.6
SMAJ440A	SMAJ440CA	SMAJ440A	SMAJ440CA	440	492	543	1	1	713	0.6

Note:

1. Suffix "A" denotes 5% tolerance device.
2. Add suffix "CA" after part number to specify bi-directional devices.
3. The IR limit is double for bi-directional devices.



Rating and Characteristic Curves

FIG.1 - Peak Pulse Power Derating Curve

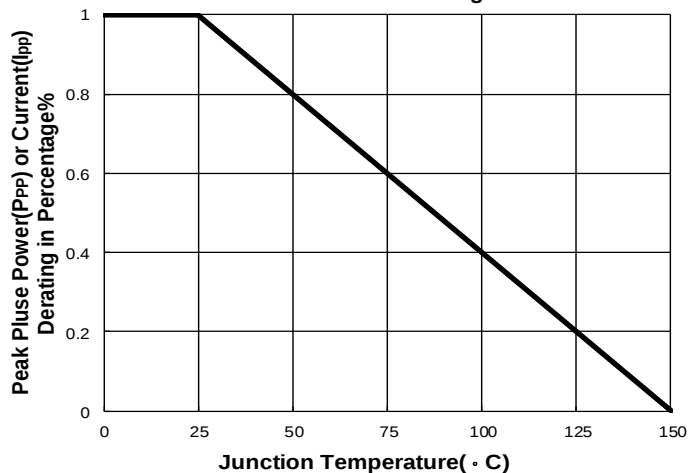


FIG.2 - Steady State Power Derating Curve

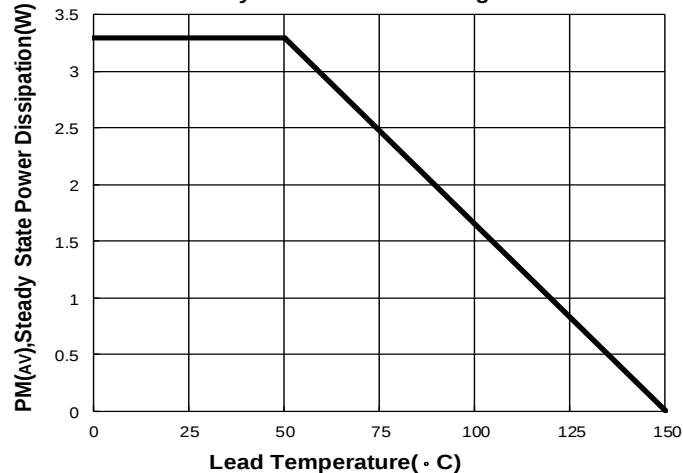


FIG.3 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

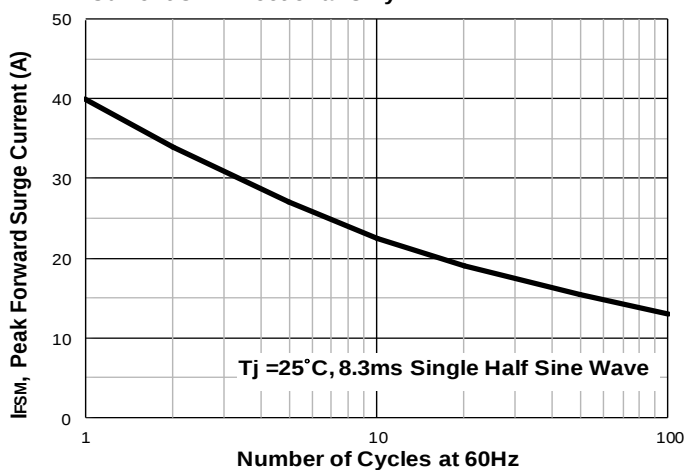


FIG.4 - Pulse Waveform

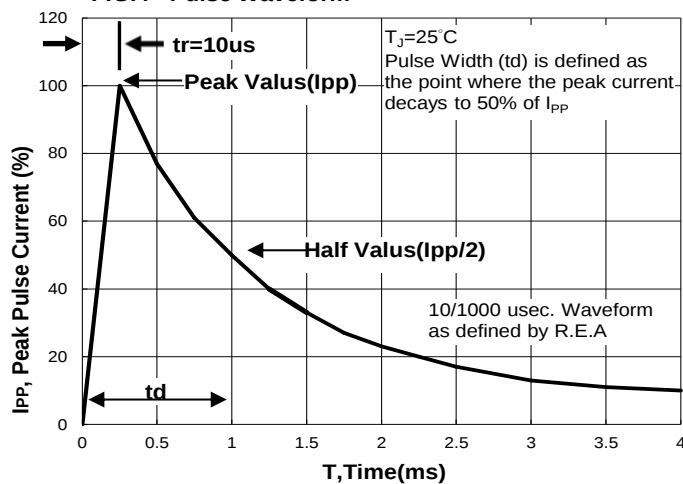


FIG.5 - Typical Junction Capacitance

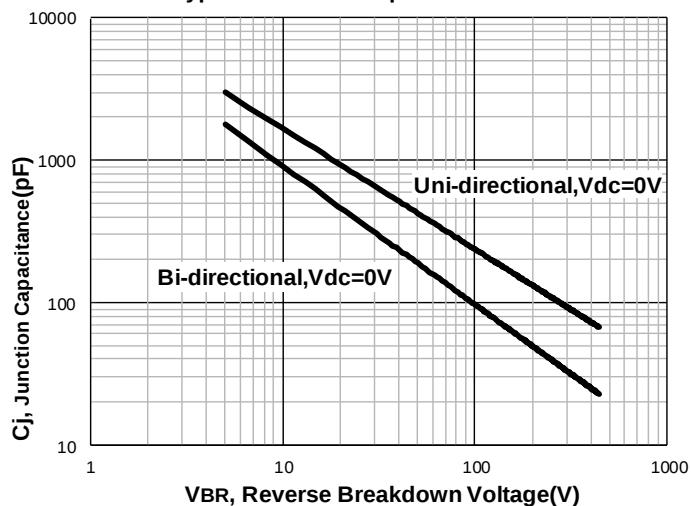
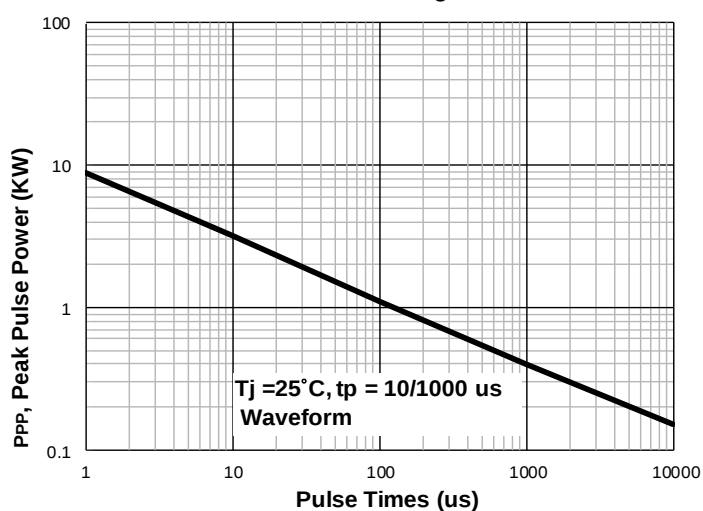


FIG.6 - Peak Pulse Power Rating Curve





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