GOOD-ARK
SEMICONDUCTOR

SMAJx Series

Surface Mount Transient Voltage Suppressors
Peak Pulse Power 400W Stand-off Voltage 5V to 440V

Features

- Glass passivated junction
- Low incremental surge resistance, excellent clamping capability
- 400W peak pulse power capability with a 10/1000us wave form, Repetition rate (duty cycle): 0.01% (300W above 78V)
- Fast response time
- High temperature soldering guaranteed: 250°C/10 seconds at terminals

DO-214AC(SMA)

RoHS
COMPLIANT

Applications

- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 1000-4-2 (IEC801-2)
- Ideal for EFT protection of data lines in accordance with IEC 1000-4-4 (IEC801-4)

Mechanical Data

Case: JEDEC DO-214AC(SMA) molded plastic over passivated Chip
Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Polarity: For unidirectional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation

Mounting Position: Any

Weight: 0.002oz., 0.064g

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation With a 10/1000us Waveform[1,2](see Fig. 1)	P_{PPM}	400	W
Peak Pulse Current With a 10/1000us Waveform[1]	I_{PPM}	See Next Table	A
Peak Forward Surge Current 8.3ms Single Half Sine-wave Uni-Directional Only[2]	I_{FSM}	40	A
Typical Thermal Resistance, Junction To Ambient[3]	$R_{\theta JA}$	120	°C/W
Typical Thermal Resistance, Junction To Lead	$R_{\theta JL}$	30	°C/W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Notes:
1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2 Rating is 300W above 78V.
2. Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal
3. Mounted on minimum recommended pad layout

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Electrical Characteristics T_A=25°C unless otherwise specified,V_F=3.5V at I_F=25A (uni-directional only)

Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage[1]		Test Current	Stand-off Voltage	Maximum Reverse Leakage Current[3]	Maximum Clamping Voltage	Maximum Peak Pulse Current[2]
				$V_{(BR)}$		I_T	V_{WM}	I_D@V_{WM}	V_C@ I_{PPM}	I_{PPM}
		UNI	BI	Min.	Max.					
				V	V	mA	V	μA	V	A
SMAJ5.0A	SMAJ5.0CA[4]	AE	WE	6.40	7.07	10	5.0	800	9.2	43.5
SMAJ6.0A	SMAJ6.0CA	AG	WG	6.67	7.37	10	6.0	800	10.3	38.8
SMAJ6.5A	SMAJ6.5CA	AK	WK	7.22	7.98	10	6.5	500	11.2	35.7
SMAJ7.0A	SMAJ7.0CA	AM	WM	7.78	8.60	10	7.0	200	12.0	33.3
SMAJ7.5A	SMAJ7.5CA	AP	WP	8.33	9.21	1.0	7.5	100	12.9	31.0
SMAJ8.0A	SMAJ8.0CA	AR	WR	8.89	9.83	1.0	8.0	50	13.6	29.4
SMAJ8.5A	SMAJ8.5CA	AT	WT	9.44	10.4	1.0	8.5	10	14.4	27.8
SMAJ9.0A	SMAJ9.0CA	AV	WV	10.0	11.1	1.0	9.0	5.0	15.4	26.0
SMAJ10A	SMAJ10CA	AX	WX	11.1	12.3	1.0	10	1.0	17.0	23.5
SMAJ11A	SMAJ11CA	AZ	WZ	12.2	13.5	1.0	11	1.0	18.2	22.0
SMAJ12A	SMAJ12CA	BE	XE	13.3	14.7	1.0	12	1.0	19.9	20.1
SMAJ13A	SMAJ13CA	BG	XG	14.4	15.9	1.0	13	1.0	21.5	18.6
SMAJ14A	SMAJ14CA	BK	XK	15.6	17.2	1.0	14	1.0	23.2	17.2
SMAJ15A	SMAJ15CA	BM	XM	16.7	18.5	1.0	15	1.0	24.4	16.4
SMAJ16A	SMAJ16CA	BP	XP	17.8	19.7	1.0	16	1.0	26.0	15.4
SMAJ17A	SMAJ17CA	BR	XR	18.9	20.9	1.0	17	1.0	27.6	14.5
SMAJ18A	SMAJ18CA	BT	XT	20.0	22.1	1.0	18	1.0	29.2	13.7
SMAJ20A	SMAJ20CA	BV	XV	22.2	24.5	1.0	20	1.0	32.4	12.3
SMAJ22A	SMAJ22CA	BX	XX	24.4	26.9	1.0	22	1.0	35.5	11.3
SMAJ24A	SMAJ24CA	BZ	XZ	26.7	29.5	1.0	24	1.0	38.9	10.3
SMAJ26A	SMAJ26CA	CE	YE	28.9	31.9	1.0	26	1.0	42.1	9.5
SMAJ28A	SMAJ28CA	CG	YG	31.1	34.4	1.0	28	1.0	45.4	8.8
SMAJ30A	SMAJ30CA	CK	YK	33.3	36.8	1.0	30	1.0	48.4	8.3
SMAJ33A	SMAJ33CA	CM	YM	36.7	40.6	1.0	33	1.0	53.3	7.5
SMBJ36A	SMAJ36CA	CP	YP	40.0	44.2	1.0	36	1.0	58.1	6.9
SMAJ40A	SMAJ40CA	CR	YR	44.4	49.1	1.0	40	1.0	64.5	6.2
SMAJ43A	SMAJ43CA	CT	YT	47.8	52.8	1.0	43	1.0	69.4	5.8

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Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage[1]		Test Current	Stand-off Voltage	Maximum Reverse Leakage Current[3]	Maximum Clamping Voltage	Maximum Peak Pulse Current[2]
				$V_{(BR)}$		I_T	VWM	I_D@V_{WM}	V_C@ I_{PPM}	I_{PPM2}
		UNI	BI	Min.	Max.					
				V	V	mA	V	μA	V	A
SMAJ45A	SMAJ45CA	CV	YV	50.0	55.3	1.0	45	1.0	72.7	5.5
SMAJ48A	SMAJ48CA	CX	YX	53.3	58.9	1.0	48	1.0	77.4	5.2
SMAJ51A	SMAJ51CA	CZ	YZ	56.7	62.7	1.0	51	1.0	82.4	4.9
SMAJ54A	SMAJ54CA	RE	ZE	60.0	66.3	1.0	54	1.0	87.1	4.6
SMAJ58A	SMAJ58CA	RG	ZG	64.4	71.2	1.0	58	1.0	93.6	4.3
SMAJ60A	SMAJ60CA	RK	ZK	66.7	73.7	1.0	60	1.0	96.8	4.1
SMAJ64A	SMAJ64CA	RM	ZM	71.1	78.6	1.0	64	1.0	103	3.9
SMAJ70A	SMAJ70CA	RP	ZP	77.8	86.0	1.0	70	1.0	113	3.5
SMAJ75A	SMAJ75CA	RR	ZR	83.3	92.1	1.0	75	1.0	121	3.3
SMAJ78A	SMAJ78CA	RT	ZT	86.7	95.8	1.0	78	1.0	126	3.2
SMAJ85A	SMAJ85CA	RV	ZV	94.4	104	1.0	85	1.0	137	2.2
SMAJ90A	SMAJ90CA	RX	ZX	100	111	1.0	90	1.0	146	2.1
SMAJ100A	SMAJ100CA	RZ	ZZ	111	123	1.0	100	1.0	162	1.9
SMAJ110A	SMAJ110CA	SE	VE	122	135	1.0	110	1.0	177	1.7
SMAJ120A	SMAJ120CA	SG	VG	133	147	1.0	120	1.0	193	1.6
SMAJ130A	SMAJ130CA	SK	VK	144	159	1.0	130	1.0	209	1.4
SMAJ150A	SMAJ150CA	SM	VM	167	185	1.0	150	1.0	243	1.2
SMAJ160A	SMAJ160CA	SP	VP	178	197	1.0	160	1.0	259	1.2
SMAJ170A	SMAJ170CA	SR	VR	189	209	1.0	170	1.0	275	1.09
SMAJ180A	SMAJ180CA	ST	VT	201	222	1.0	180	1.0	292	1.4
SMAJ200A	SMAJ200CA	SV	VV	224	247	1.0	200	1.0	324	1.2
SMAJ220A	SMAJ220CA	SX	VX	246	272	1.0	220	1.0	356	1.1
SMAJ250A	SMAJ250CA	SZ	VZ	279	309	1.0	250	1.0	405	1.0
SMAJ300A	SMAJ300CA	TE	UE	335	371	1.0	300	1.0	486	0.8
SMAJ350A	SMAJ350CA	TG	UG	391	432	1.0	350	1.0	567	0.7
SMAJ400A	SMAJ400CA	TK	UK	447	494	1.0	400	1.0	648	0.6
SMAJ440A	SMAJ440CA	TM	UM	492	543	1.0	440	1.0	713	0.6

Notes: 1. $V_{(BR)}$ measured after I_T applied for 300us square wave pulse or equivalent
2. Surge current waveform per Fig. 3 and derate per Fig. 2
3. For bi-directional types having V_{WM} of 10 Volts and less, the I_D limit is doubled
4. For the bidirectional SMAJ5.0CA, the maximum $V_{(BR)}$ is 7.25V.

Ratings and Characteristic Curves (T_A = 25 °C unless otherwise noted)

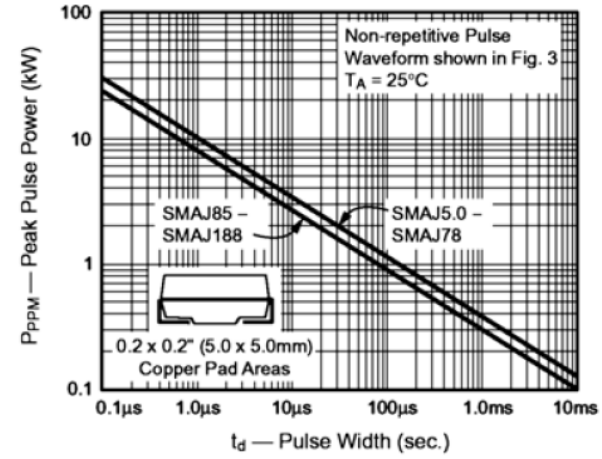


Figure 1. Peak Pulse Power Rating Curve

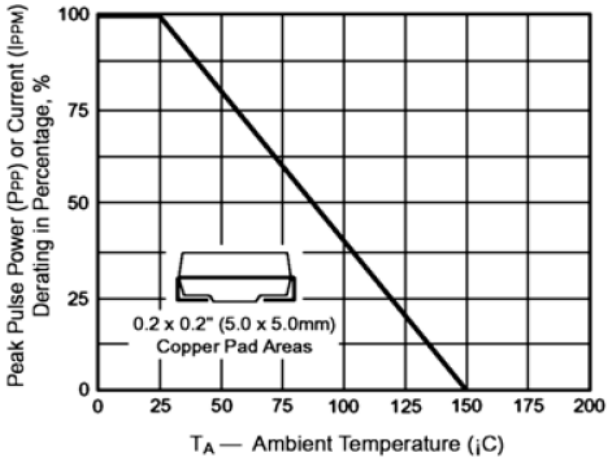


Figure 2. Pulse Derating Curve

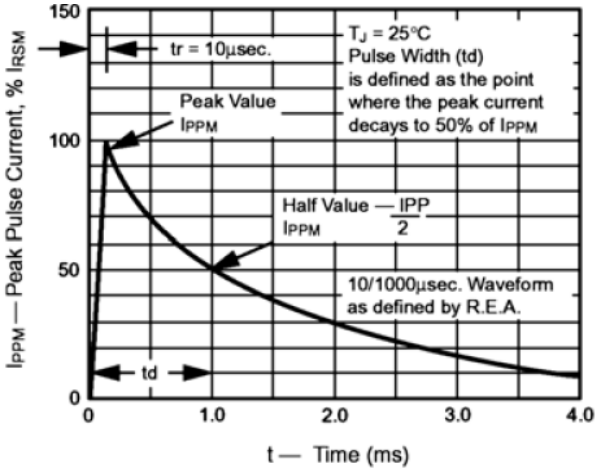


Figure 3. Pulse Waveform

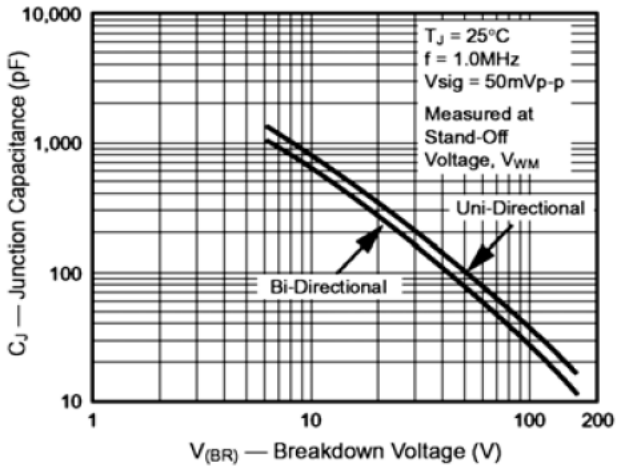


Figure 4. Typical Junction Capacitance

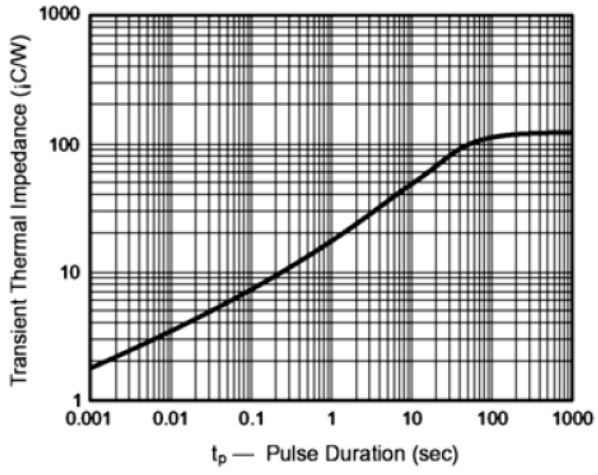


Figure 5. Typical Transient Thermal Impedance

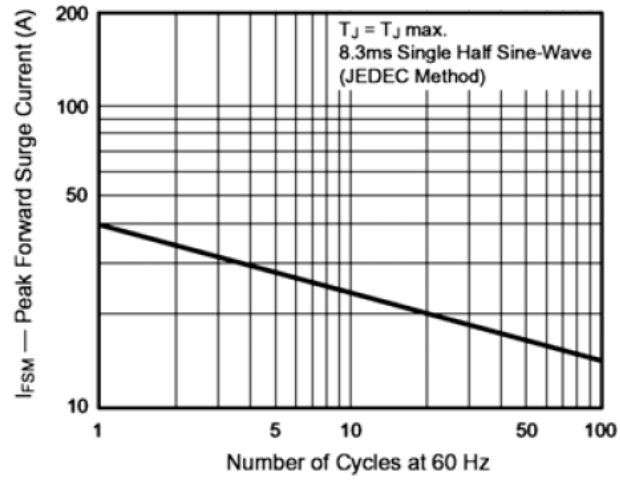
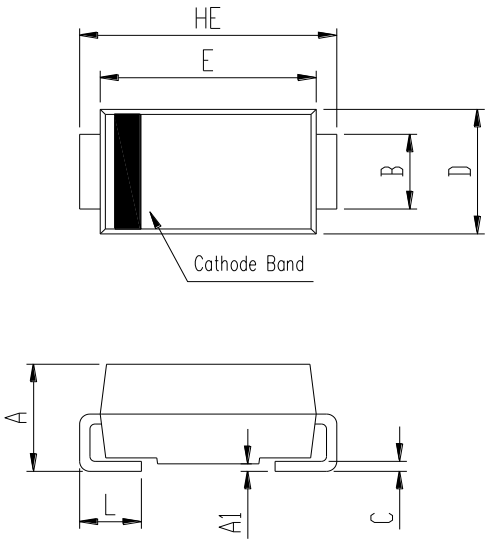


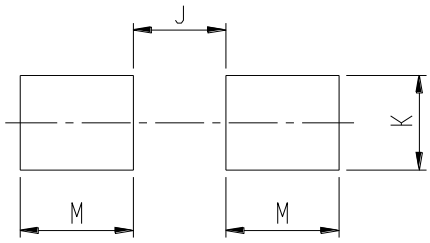
Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Package Outline Dimensions DO-214AC(SMA)



SMA (DO-214AC)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.90	2.25	0.075	0.089
A1	0.00	0.20	0.000	0.008
B	1.27	1.63	0.050	0.064
C	0.15	0.31	0.006	0.012
D	2.40	2.65	0.094	0.104
E	4.00	4.60	0.157	0.181
HE	4.80	5.20	0.189	0.205
L	0.80	1.50	0.031	0.059

Recommended Pad Layout



Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	2.20	-	0.087
K	1.72	-	0.068	-
M	2.00	-	0.079	-