

400W Transient Voltage Suppressors

Features

- Glass passivated chip.
- 400W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01%.
- IEC 61000-4-2 (ESD) \pm 30kV (air), \pm 30kV (contact)
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.
- RoHS Compliant.

Mechanical Data

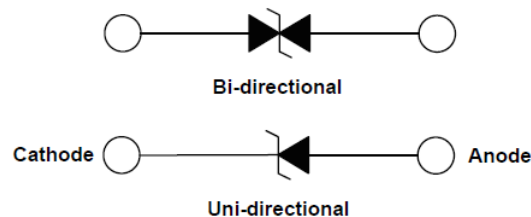
- Case: Epoxy, Molded
- Epoxy: UL 94V-0 rate flame retardant.
- Lead: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end.
- Moisture Sensitivity: Level 1 per J-STD-020.

SMA/DO-214AC



Bi-directional

UNI-directional



Applications

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	400	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	1.0	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	\pm 30	KV
ESD per IEC 61000-4-2 (Contact)		\pm 30	KV
Peak forward surge current, 8.3 ms single half sinewave unidirectional only ⁽²⁾	I_{FSM}	40	A
Maximum instantaneous forward voltage at 25 A for unidirectional only ⁽³⁾	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 ~150	$^\circ\text{C}$

Note : (1) Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.1

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

Electrical Characteristics (T _A = 25°C Unless otherwise noted)										
Part Number (UNI)	Part Number (Bi)	Marking Code		Breakdown Voltage V _{BR} @ I _T			Maximum Reverse Leakage I _R @V _{RWM} (μA)	Working Reverse Voltage V _{RWM} (V)	Maximum Clamping Voltage V _C @I _{PP} (V)	Maximum Reverse Current I _{PP} (A)
		UNI	Bi	Min (V)	Max (V)	I _T (mA)				
SMAJ5.0A-T	SMAJ5.0CA-T	AE	WE	6.4	7	10	800/1600	5	9.2	43.48
SMAJ6.0A-T	SMAJ6.0CA-T	AG	WG	6.67	7.37	10	800/1600	6	10.3	38.83
SMAJ6.5A-T	SMAJ6.5CA-T	AK	WK	7.22	7.98	10	500/1000	6.5	11.2	35.71
SMAJ7.0A-T	SMAJ7.0CA-T	AM	WM	7.78	8.6	10	200/400	7	12	33.33
SMAJ7.5A-T	SMAJ7.5CA-T	AP	WP	8.33	9.21	1	100/200	7.5	12.9	31.01
SMAJ8.0A-T	SMAJ8.0CA-T	AR	WR	8.89	9.83	1	50/100	8	13.6	29.41
SMAJ8.5A-T	SMAJ8.5CA-T	AT	WT	9.44	10.4	1	10/20	8.5	14.4	27.78
SMAJ9.0A-T	SMAJ9.0CA-T	AV	WV	10	11.1	1	5	9	15.4	25.97
SMAJ10A-T	SMAJ10CA-T	AX	WX	11.1	12.3	1	5	10	17	23.53
SMAJ11A-T	SMAJ11CA-T	AZ	WZ	12.2	13.5	1	1	11	18.2	21.98
SMAJ12A-T	SMAJ12CA-T	BE	XE	13.3	14.7	1	1	12	19.9	20.1
SMAJ13A-T	SMAJ13CA-T	BG	XG	14.4	15.9	1	1	13	21.5	18.6
SMAJ14A-T	SMAJ14CA-T	BK	XK	15.6	17.2	1	1	14	23.2	17.24
SMAJ15A-T	SMAJ15CA-T	BM	XM	16.7	18.5	1	1	15	24.4	16.39
SMAJ16A-T	SMAJ16CA-T	BP	XP	17.8	19.7	1	1	16	26	15.38
SMAJ17A-T	SMAJ17CA-T	BR	XR	18.9	20.9	1	1	17	27.6	14.49
SMAJ18A-T	SMAJ18CA-T	BT	XT	20	22.1	1	1	18	29.2	13.7
SMAJ19A-T	SMAJ19CA-T	BB	XB	21.1	23.3	1	1	19	30.8	13
SMAJ20A-T	SMAJ20CA-T	BV	XV	22.2	24.5	1	1	20	32.4	12.35
SMAJ22A-T	SMAJ22CA-T	BX	XX	24.4	26.9	1	1	22	35.5	11.27
SMAJ24A-T	SMAJ24CA-T	BZ	XZ	26.7	29.5	1	1	24	38.9	10.28
SMAJ26A-T	SMAJ26CA-T	CE	YE	28.9	31.9	1	1	26	42.1	9.5
SMAJ28A-T	SMAJ28CA-T	CG	YG	31.1	34.4	1	1	28	45.4	8.81
SMAJ30A-T	SMAJ30CA-T	CK	YK	33.3	36.8	1	1	30	48.4	8.26
SMAJ33A-T	SMAJ33CA-T	CM	YM	36.7	40.6	1	1	33	53.3	7.5
SMAJ36A-T	SMAJ36CA-T	CP	YP	40	44.2	1	1	36	58.1	6.88
SMAJ40A-T	SMAJ40CA-T	CR	YR	44.4	49.1	1	1	40	64.5	6.2
SMAJ43A-T	SMAJ43CA-T	CT	YT	47.8	52.8	1	1	43	69.4	5.76
SMAJ45A-T	SMAJ45CA-T	CV	YV	50	55.3	1	1	45	72.7	5.5
SMAJ48A-T	SMAJ48CA-T	CX	YX	53.3	58.9	1	1	48	77.4	5.17

Electrical Characteristics (T _A = 25°C Unless otherwise noted)										
Part Number (UNI)	Part Number (Bi)	Marking Code		Breakdown Voltage V _{BR} @ I _T			Maximum Reverse Leakage I _R @V _{RWM} (μA)	Working Reverse Voltage V _{RWM} (V)	Maximum Clamping Voltage V _C @I _{PP} (V)	Maximum Reverse Current I _{PP} (A)
		UNI	Bi	Min (V)	Max (V)	I _T (mA)				
SMAJ51A-T	SMAJ51CA-T	CZ	YZ	56.7	62.7	1	1	51	82.4	4.85
SMAJ54A-T	SMAJ54CA-T	RE	ZE	60	66.3	1	1	54	87.1	4.59
SMAJ58A-T	SMAJ58CA-T	RG	ZG	64.4	71.2	1	1	58	93.6	4.27
SMAJ60A-T	SMAJ60CA-T	RK	ZK	66.7	73.7	1	1	60	96.8	4.13
SMAJ64A-T	SMAJ64CA-T	RM	ZM	71.1	78.6	1	1	64	103	3.88
SMAJ70A-T	SMAJ70CA-T	RP	ZP	77.8	86	1	1	70	113	3.54
SMAJ75A-T	SMAJ75CA-T	RR	ZR	83.3	92.1	1	1	75	121	3.31
SMAJ78A-T	SMAJ78CA-T	RT	ZT	86.7	95.8	1	1	78	126	3.17
SMAJ80A-T	SMAJ80CA-T	RB	ZB	88.8	97.6	1	1	80	129.6	3.09
SMAJ85A-T	SMAJ85CA-T	RV	ZV	94.4	104	1	1	85	137	2.92
SMAJ90A-T	SMAJ90CA-T	RX	ZX	100	111	1	1	90	146	2.74
SMAJ100A-T	SMAJ100CA-T	RZ	ZZ	111	123	1	1	100	162	2.47
SMAJ110A-T	SMAJ110CA-T	SE	VE	122	135	1	1	110	177	2.26
SMAJ120A-T	SMAJ120CA-T	SG	VG	133	147	1	1	120	193	2.07
SMAJ130A-T	SMAJ130CA-T	SK	VK	144	159	1	1	130	209	1.91
SMAJ140A-T	SMAJ140CA-T	SB	VB	155	171	1	1	140	226.8	1.76
SMAJ150A-T	SMAJ150CA-T	SM	VM	167	185	1	1	150	243	1.65
SMAJ160A-T	SMAJ160CA-T	SP	VP	178	197	1	1	160	259	1.54
SMAJ170A-T	SMAJ170CA-T	SR	VR	189	209	1	1	170	275	1.45
SMAJ180A-T	SMAJ180CA-T	ST	VT	200	220	1	1	180	291.6	1.37
SMAJ190A-T	SMAJ190CA-T	SV	VV	211	232	1	1	190	307.8	1.3
SMAJ200A-T	SMAJ200CA-T	SW	VW	224	247	1	1	200	324	1.23
SMAJ220A-T	SMAJ220CA-T	SX	VX	246	272	1	1	220	356	1.12
SMAJ250A-T	SMAJ250CA-T	SZ	VZ	279	309	1	1	250	405	0.99
SMAJ300A-T	SMAJ300CA-T	DE	HE	335	371	1	1	300	486	0.82
SMAJ350A-T	SMAJ350CA-T	DG	HG	391	432	1	1	350	567	0.71
SMAJ400A-T	SMAJ400CA-T	DK	HK	447	494	1	1	400	648	0.62
SMAJ440A-T	SMAJ440CA-T	DM	HM	492	543	1	1	440	713	0.56

Typical Performance Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

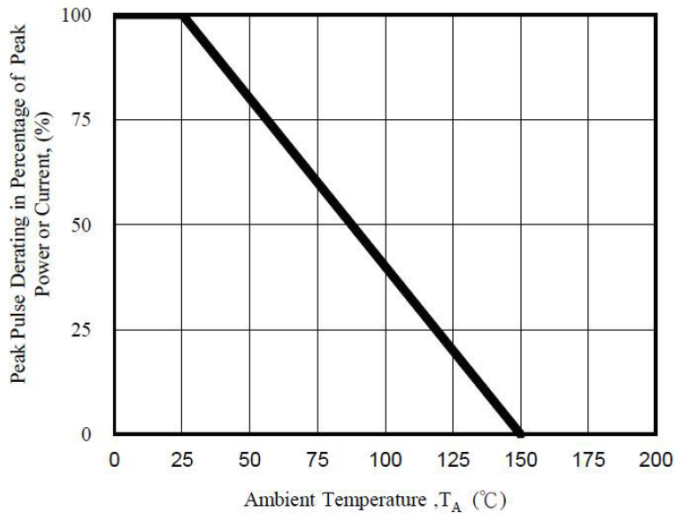


Fig 1. Pulse Derating Curve

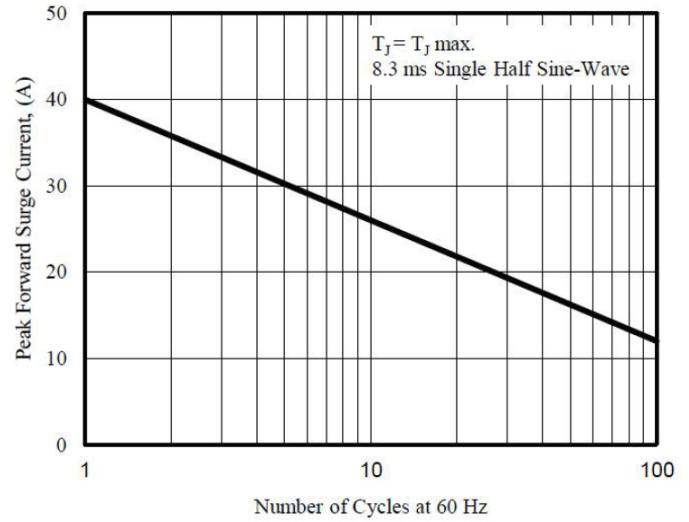


Fig 2. Maximum Non-Repetitive Surge Current

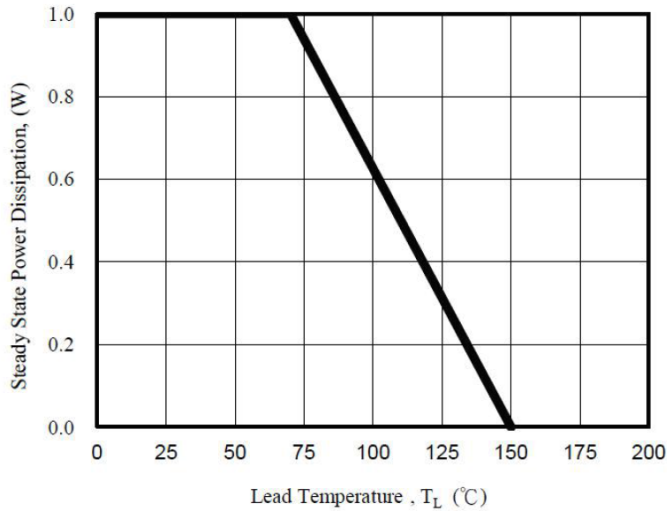


Fig 3. Steady State Power Derating Curve

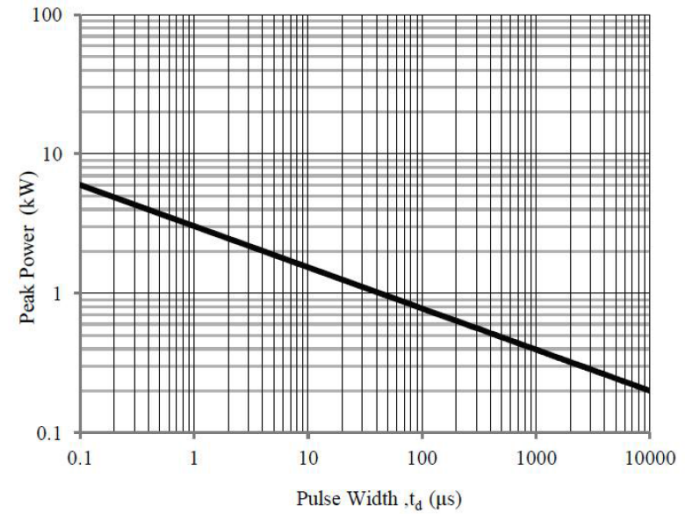


Fig 4. Peak Pulse Power Rating Curve

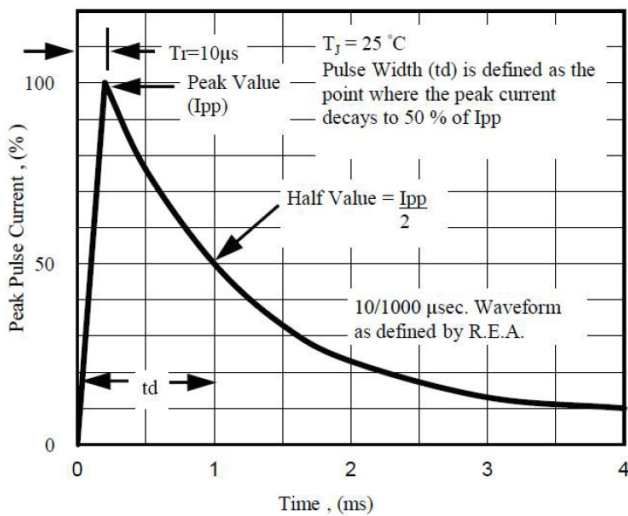


Fig 5. Pulse Waveform

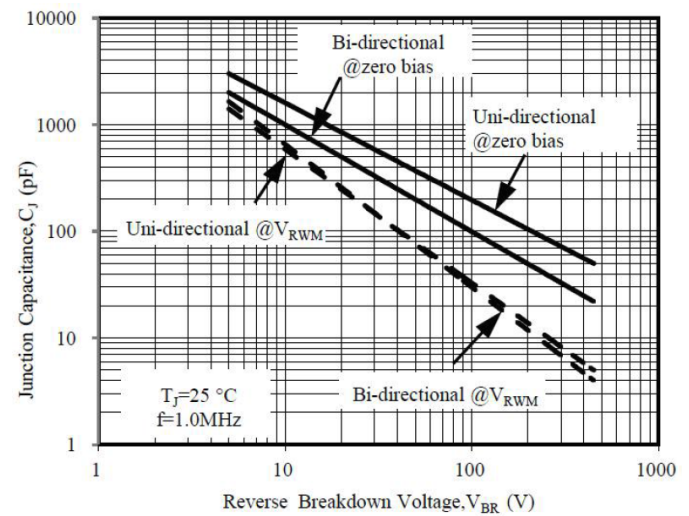
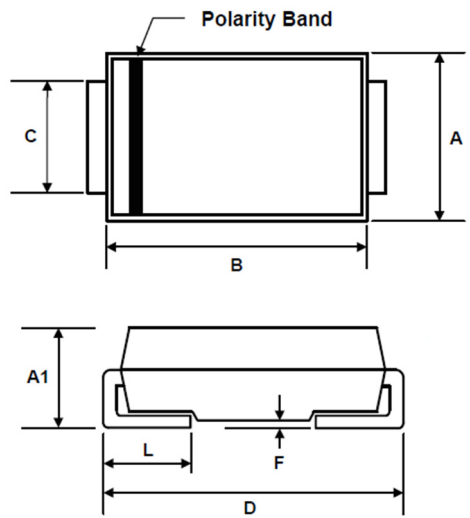
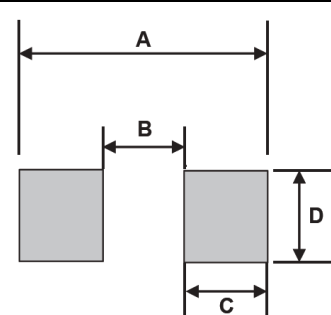


Fig 6. Typical Junction Capacitance

Package Outline Drawing

Symbol	Dimensions		
	Millimeters		
	Min.	Max.	
A	2.40	2.83	
B	4.00	4.60	
C	1.25	1.70	
A1	1.90	2.50	
D	4.80	5.30	
L	0.76	1.52	
F	0.00	0.20	

Suggested PAD Layout

Symbol	Dimensions	
	Millimeters	
A	6.50	
B	2.30	
C	2.10	
D	1.80	

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
SMAJxxx(A)CA-T	DO-214AC(SMA)	5,000	13	Tape and reel