

SMAJ-AM Series

Product Name	ESD TVS (Transient Voltage Suppressor)
Series	SMAJ-AM Series
Package Size	DO-214AC



SMAJ-AM Series Engineering Specification





1. Features

- 400W surface mount transient voltage suppressors
- Glass passivated chip junction
- Reliable low cost construction utilizing molded plastic technique
- Excellent clamping capability
- Low incremental surge resistance.
- Fast response time
- Qualified to AEC-Q101 standards for high reliability

2. Mechanical Date

- Case: Molded plastic DO-214AC
- Molding compound: UL94V-0
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

3. Pinning Information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		
Bi-Directional		

4. Maximum Ratings @Ta=25°C unless otherwise noted

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000μs waveform ⁽¹⁾	P _{PP}	400	W
Peak pulse current with a 10/1000μs waveform ⁽¹⁾	I _{PP}	See Next Table	A
Power dissipation on infinite heatsink at T _L =75°C	P _D	1.0	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I _{FSM}	40	A
Maximum instantaneous forward voltage at 25A for unidirectional only ⁽³⁾	V _F	3.5/5.0	V
Operating junction and storage temperature range	T _J , T _{STG}	- 55 to +150	°C

(1) Non-repetitive current pulse per Fig.5 and derated above TA= 25 °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) VF<3.5V for devices of VBR<200V and VF<5.0V for devices of VBR>201V

5. Electrical characteristics

Part Number		Device Marking		Breakdown Voltage V _{BR}			Maximum Reverse Leakage I _R @V _{RWM} (μ A)	Working Peak Reverse Voltage V _{RWM} (V)	Maximum Reverse Surge Current I _{PP} (A)	Maximum Clamping Voltage V _C @I _{PP} (V)
				@I _T						
Uni	Bi	Uni	Bi	Min (V)	Max (V)	I _T (mA)				
SMAJ10A-AM	SMAJ10CA-AM	AXA	WXA	11.10	12.30	1	5	10.0	23.53	17.0
SMAJ11A-AM	SMAJ11CA-AM	AZA	WZA	12.20	13.50	1	1	11.0	21.98	18.2
SMAJ12A-AM	SMAJ12CA-AM	BEA	XEA	13.30	14.70	1	1	12.0	20.10	19.9
SMAJ13A-AM	SMAJ13CA-AM	BGA	XGA	14.40	15.90	1	1	13.0	18.60	21.5
SMAJ14A-AM	SMAJ14CA-AM	BKA	XKA	15.60	17.20	1	1	14.0	17.24	23.2
SMAJ15A-AM	SMAJ15CA-AM	BMA	XMA	16.70	18.50	1	1	15.0	16.39	24.4
SMAJ16A-AM	SMAJ16CA-AM	BPA	XPA	17.80	19.70	1	1	16.0	15.38	26.0
SMAJ17A-AM	SMAJ17CA-AM	BRA	XRA	18.90	20.90	1	1	17.0	14.49	27.6
SMAJ18A-AM	SMAJ18CA-AM	BT A	XTA	20.00	22.10	1	1	18.0	13.70	29.2
SMAJ19A-AM	SMAJ19CA-AM	BBA	XBA	21.10	23.30	1	1	19.0	13.00	30.8
SMAJ20A-AM	SMAJ20CA-AM	BVA	XVA	22.20	24.50	1	1	20.0	12.35	32.4
SMAJ22A-AM	SMAJ22CA-AM	BXA	XXA	24.40	26.90	1	1	22.0	11.27	35.5
SMAJ24A-AM	SMAJ24CA-AM	BZA	XZA	26.70	29.50	1	1	24.0	10.28	38.9
SMAJ26A-AM	SMAJ26CA-AM	CEA	YEA	28.90	31.90	1	1	26.0	9.50	42.1
SMAJ28A-AM	SMAJ28CA-AM	CGA	YGA	31.10	34.40	1	1	28.0	8.81	45.4
SMAJ30A-AM	SMAJ30CA-AM	CKA	YKA	33.30	36.80	1	1	30.0	8.26	48.4
SMAJ33A-AM	SMAJ33CA-AM	CMA	YMA	36.70	40.60	1	1	33.0	7.50	53.3
SMAJ36A-AM	SMAJ36CA-AM	CPA	YPA	40.00	44.20	1	1	36.0	6.88	58.1
SMAJ40A-AM	SMAJ40CA-AM	CRA	YRA	44.40	49.10	1	1	40.0	6.20	64.5
SMAJ43A-AM	SMAJ43CA-AM	CTA	YTA	47.80	52.80	1	1	43.0	5.76	69.4
SMAJ45A-AM	SMAJ45CA-AM	CVA	YVA	50.00	55.30	1	1	45.0	5.50	72.7
SMAJ48A-AM	SMAJ48CA-AM	CXA	YXA	53.30	58.90	1	1	48.0	5.17	77.4
SMAJ51A-AM	SMAJ51CA-AM	CZA	YZA	56.70	62.70	1	1	51.0	4.85	82.4
SMAJ54A-AM	SMAJ54CA-AM	REA	ZEA	60.00	66.30	1	1	54.0	4.59	87.1
SMAJ58A-AM	SMAJ58CA-AM	RGA	ZGA	64.40	71.20	1	1	58.0	4.27	93.6
SMAJ60A-AM	SMAJ60CA-AM	RKA	ZKA	66.70	73.70	1	1	60.0	4.13	96.8
SMAJ64A-AM	SMAJ64CA-AM	RMA	ZMA	71.10	78.60	1	1	64.0	3.88	103.0
SMAJ70A-AM	SMAJ70CA-AM	RPA	ZPA	77.80	86.00	1	1	70.0	3.54	113.0
SMAJ75A-AM	SMAJ75CA-AM	RRA	ZRA	83.30	92.10	1	1	75.0	3.31	121.0
SMAJ78A-AM	SMAJ78CA-AM	RTA	ZTA	86.70	95.80	1	1	78.0	3.17	126.0
SMAJ80A-AM	SMAJ80CA-AM	RBA	ZBA	88.80	97.60	1	1	80.0	3.09	129.6
SMAJ85A-AM	SMAJ85CA-AM	RVA	ZVA	94.40	104.00	1	1	85.0	2.92	137.0

6. Typical Characteristics

Fig. 1 - Pulse Derating Curve

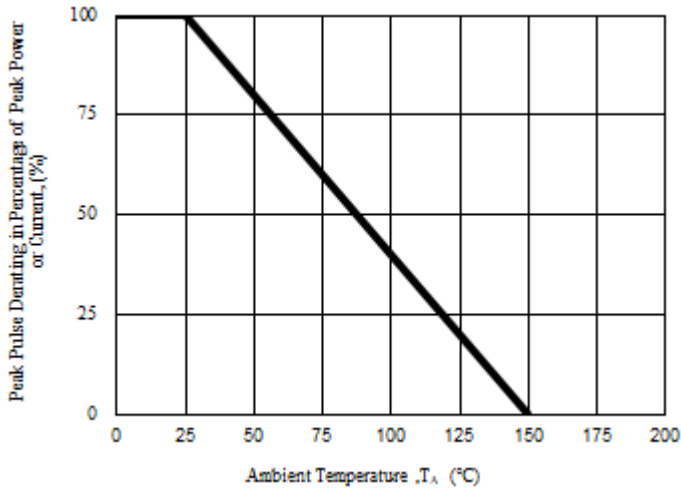


Fig. 2 - Maximum Non-Repetitive Surge Current

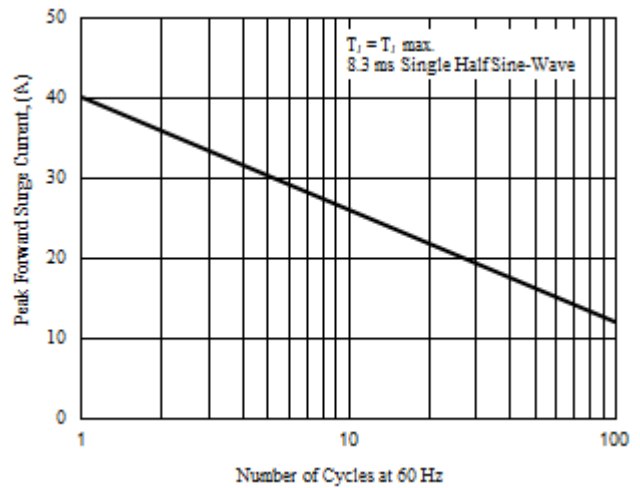


Fig. 3 - Steady State Power Derating Curve

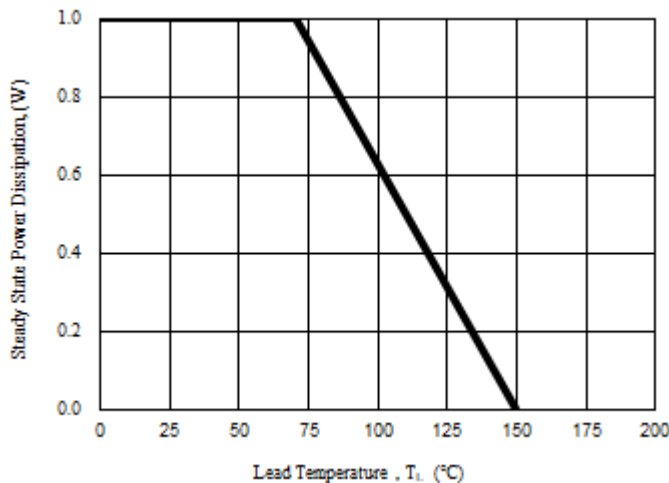


Fig. 4 - Peak Pulse Power Rating Curve

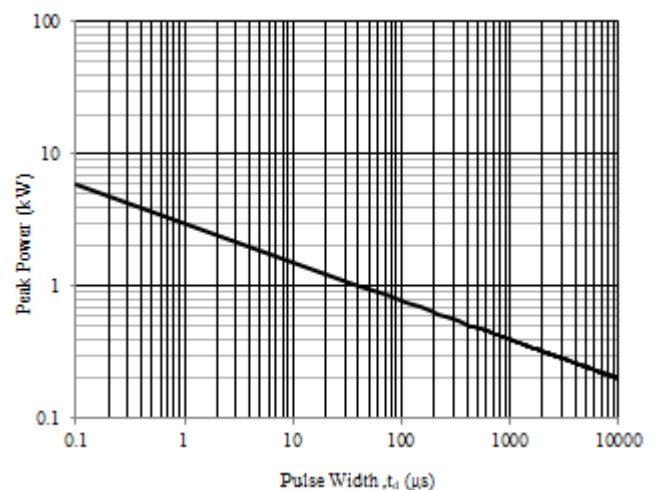


Fig. 5 - Pulse Waveform

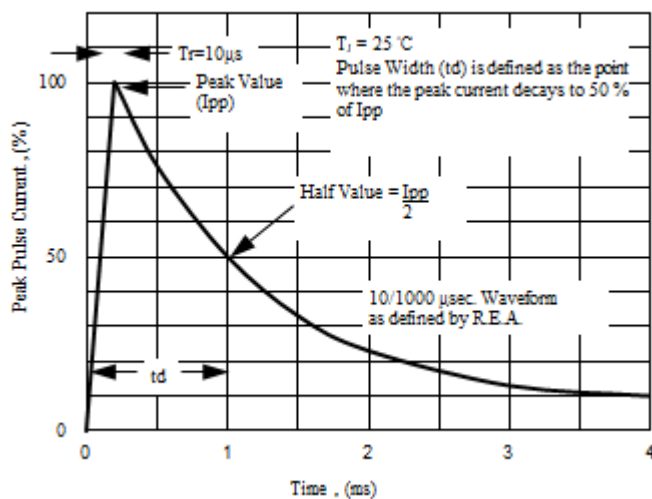
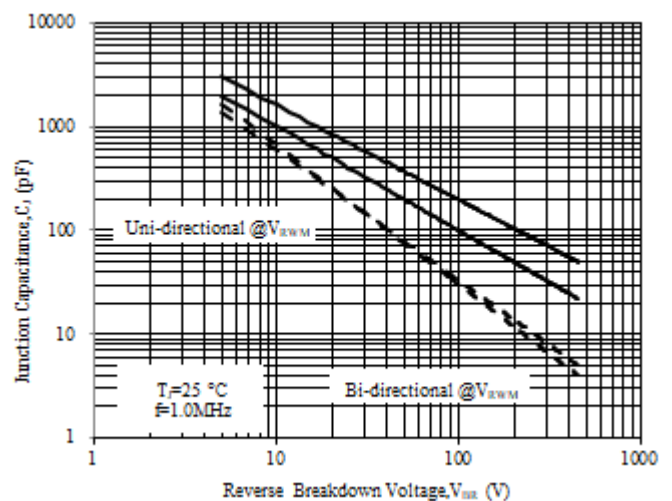
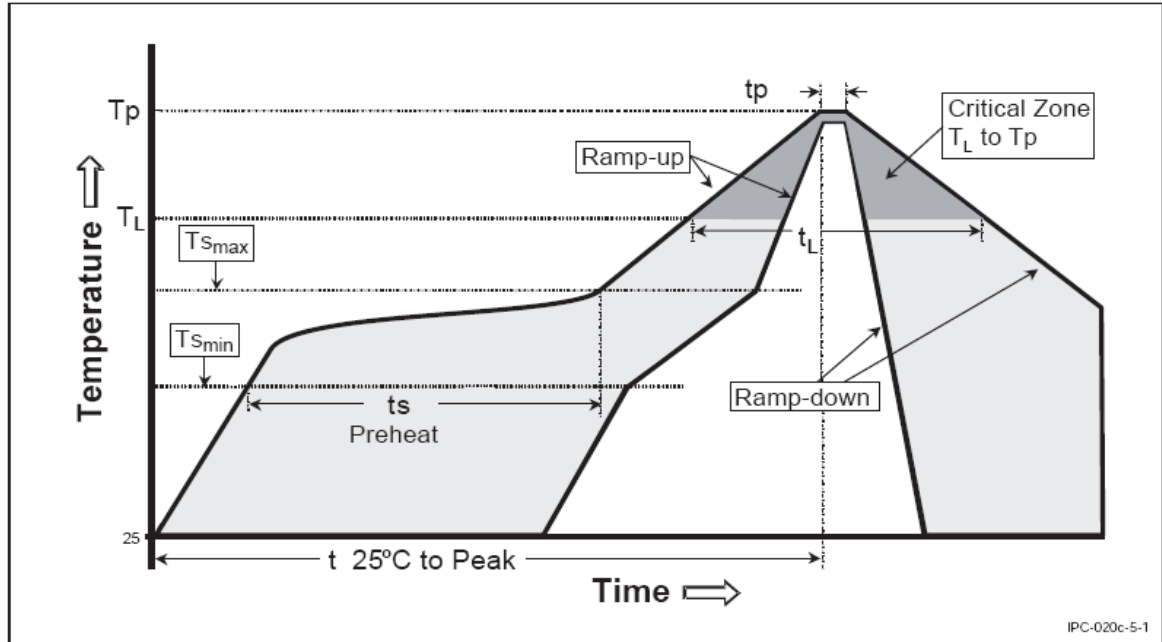


Fig. 6 - Typical Junction Capacitance



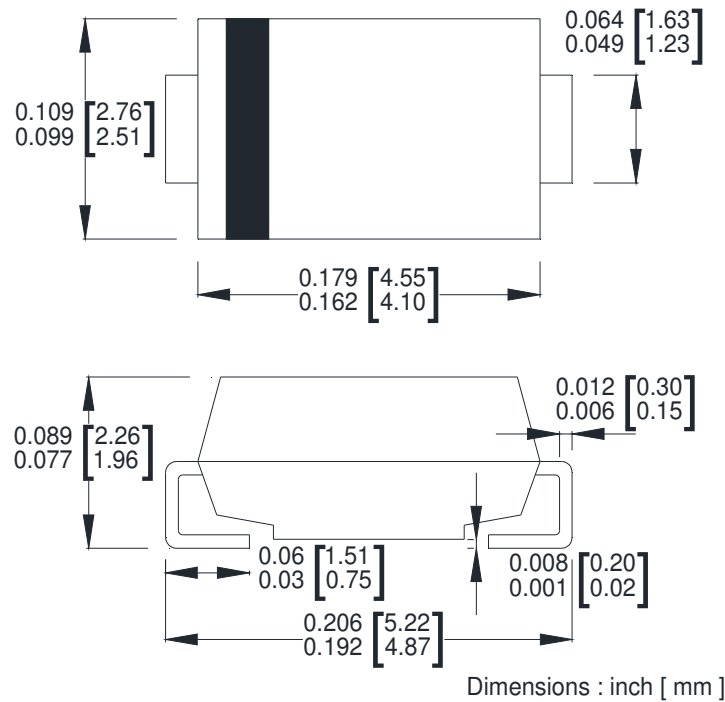
7. Reflow Soldering

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T _{smax} to T _p)	3° C/second max.
Preheat <ul style="list-style-type: none"> – Temperature Min (T_{smin}) – Temperature Max (T_{smax}) – Time (t_{smin} to t_{smax}) 	150 °C 200 °C 60-120 seconds
Time maintained above: <ul style="list-style-type: none"> – Temperature (T_L) – Time (t_L) 	217 °C 60-150 seconds
Peak/Classification Temperature (T _p)	260 °C
Time within 5 °C of actual Peak Temperature (t _p)	30 seconds
Ramp-Down Rate	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.

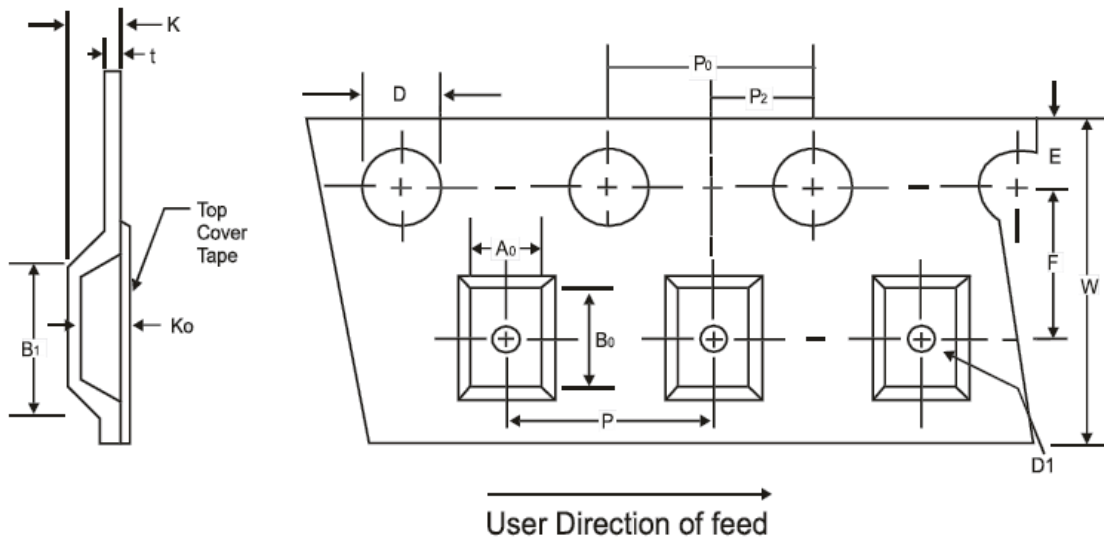


8. Outline Dimensions

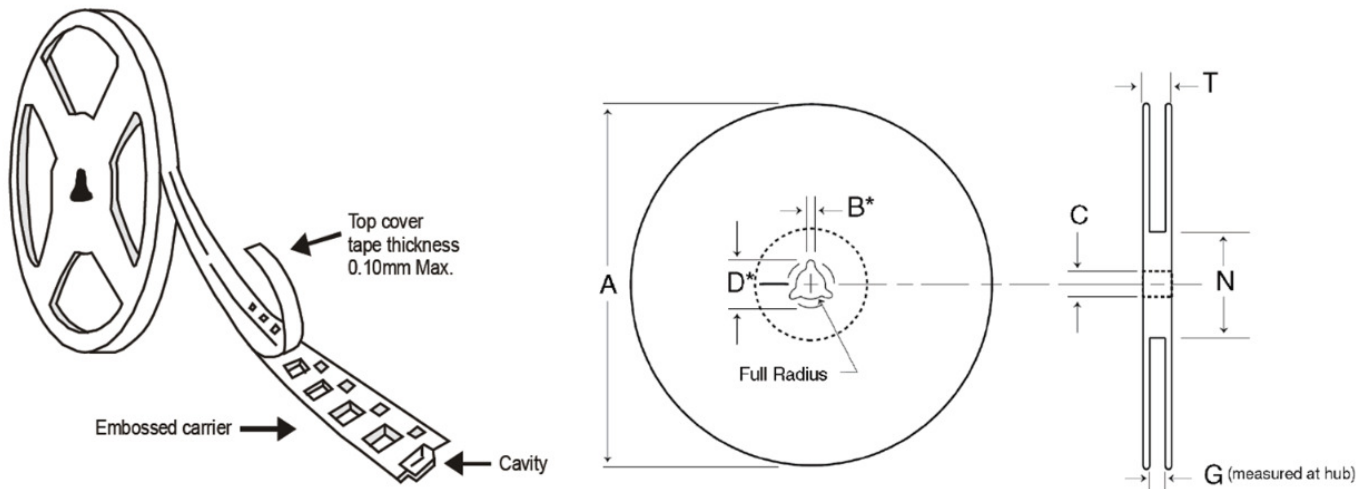
SMA / DO-214AC



9. Tape & Reel Information

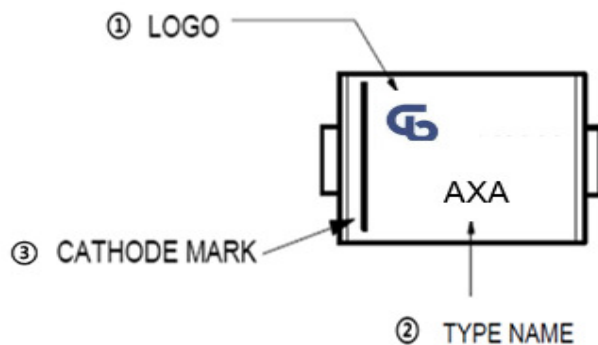


Symbol	W	D	E	P0	t	B1	D1	F	K	P2	P
DO-214AC	12.0±0.1	1.55±0.05	1.75±0.05	4.0±0.1	0.4	8.2	1.5	5.5±0.05	6.5	2.0±0.05	4.0±0.1
Unit : mm					max	max	min		max		



Symbol	Tape Size	A	B	C	D	N	G	T
DO-214AC Unit : mm	12	330±2.0 (13inch)	1.5 max	13±0.5	20.2 max	50 min	14.4 max	18.4 max

10. Marking Code



1. INPAQ LOGO
2. TYPE NAME (By Device Marking Code)
3. CATHODE MARK (For Uni-direction Products Only)

11. Order Information

Part Number	Quantity	Packaging Option
SMAJ-AM Series	5000 /reel	tape/13"reel

12. MSL Level

LEVEL 1