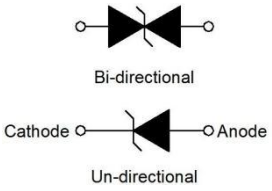
400W Transient Voltage Suppressor SMAJ Series

Parameter	Value	Unit
P_{PP}	400	W
T_j	-55 to +125	°C



SMA/DO-214AC

FEATURES

- Excellent clamping capability
- 400W peak pulse power capability with a 10/1000μs waveform.
- VRWM: 3.3-550V
- Low profile package and low inductance
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ps from 0V to VBR min.

APPLICATIONS

- For surface mounted applications
- Computer system
- Domestic appliance
- Video input

MAXIMUM RATED VALUES (at TJ = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000μs waveform	PPP	400	W
Steady state power dissipation at TL=75℃	PM(AV)	1.0	W
Operating junction temperature range	Tj	-55 to +125	℃
Storage temperature range	Tstg	-55 to +150	℃

ELECTRICAL CHARACTERISTICS (at TJ = 25°C unless otherwise specified)

Part Number		VR	IR@VR	VBR@IT		IT	VC@IPP	IPP①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMAJ3.3A	/	3.3	200	5.2	6	10	8.0	50.00
SMAJ5.0A	SMAJ5.0CA	5.0	800	6.40	7.00	10	9.2	43.48
SMAJ6.0A	SMAJ6.0CA	6.0	800	6.67	7.37	10	10.3	38.84
SMAJ6.5A	SMAJ6.5CA	6.5	500	7.22	7.98	10	11.2	35.72
SMAJ7.0A	SMAJ7.0CA	7.0	200	7.78	8.60	10	12.0	33.34
SMAJ7.5A	SMAJ7.5CA	7.5	100	8.33	9.21	1	12.9	31.01
SMAJ8.0A	SMAJ8.0CA	8.0	50	8.89	9.83	1	13.6	29.42
SMAJ8.5A	SMAJ8.5CA	8.5	20	9.44	10.40	1	14.4	27.78
SMAJ9.0A	SMAJ9.0CA	9.0	10	10.00	11.10	1	15.4	25.98
SMAJ10A	SMAJ10CA	10.0	5	11.10	12.30	1	17.0	23.53
SMAJ11A	SMAJ11CA	11.0	1	12.20	13.50	1	18.2	21.98

SMAJ12A	SMAJ12CA	12.0	1	13.30	14.70	1	19.9	20.11
SMAJ13A	SMAJ13CA	13.0	1	14.40	15.90	1	21.5	18.61
SMAJ14A	SMAJ14CA	14.0	1	15.60	17.20	1	23.2	17.25
SMAJ15A	SMAJ15CA	15.0	1	16.70	18.50	1	24.4	16.40
SMAJ16A	SMAJ16CA	16.0	1	17.80	19.70	1	26.0	15.39
SMAJ17A	SMAJ17CA	17.0	1	18.90	20.90	1	27.6	14.50
SMAJ18A	SMAJ18CA	18.0	1	20.00	22.10	1	29.2	13.70
SMAJ20A	SMAJ20CA	20.0	1	22.20	24.50	1	32.4	12.35
SMAJ22A	SMAJ22CA	22.0	1	24.40	26.90	1	35.5	11.27
SMAJ24A	SMAJ24CA	24.0	1	26.70	29.50	1	38.9	10.29
SMAJ26A	SMAJ26CA	26.0	1	28.90	31.90	1	42.1	9.51
SMAJ28A	SMAJ28CA	28.0	1	31.10	34.40	1	45.4	8.82
SMAJ30A	SMAJ30CA	30.0	1	33.30	36.80	1	48.4	8.27
SMAJ33A	SMAJ33CA	33.0	1	36.70	40.60	1	53.3	7.51
SMAJ36A	SMAJ36CA	36.0	1	40.00	44.20	1	58.1	6.89
SMAJ40A	SMAJ40CA	40.0	1	44.40	49.10	1	64.5	6.21
SMAJ43A	SMAJ43CA	43.0	1	47.80	52.80	1	69.4	5.77
SMAJ45A	SMAJ45CA	45.0	1	50.00	55.30	1	72.7	5.51
SMAJ48A	SMAJ48CA	48.0	1	53.30	58.90	1	77.4	5.17
SMAJ51A	SMAJ51CA	51.0	1	56.70	62.70	1	82.4	4.86
SMAJ54A	SMAJ54CA	54.0	1	60.00	66.30	1	87.1	4.60
SMAJ58A	SMAJ58CA	58.0	1	64.40	71.20	1	93.6	4.28
SMAJ60A	SMAJ60CA	60.0	1	66.70	73.70	1	96.8	4.14
SMAJ64A	SMAJ64CA	64.0	1	71.10	78.60	1	103.0	3.89
SMAJ70A	SMAJ70CA	70.0	1	77.80	86.00	1	113.0	3.54
SMAJ75A	SMAJ75CA	75.0	1	83.30	92.10	1	121.0	3.31
SMAJ78A	SMAJ78CA	78.0	1	86.70	95.80	1	126.0	3.18
SMAJ85A	SMAJ85CA	85.0	1	94.40	104.0	1	137.0	2.92
SMAJ90A	SMAJ90CA	90.0	1	100.0	111.0	1	146.0	2.74
SMAJ100A	SMAJ100CA	100.0	1	111.0	123.0	1	162.0	2.47
SMAJ110A	SMAJ110CA	110.0	1	122.0	135.0	1	177.0	2.26
SMAJ120A	SMAJ120CA	120.0	1	133.0	147.0	1	193.0	2.08
SMAJ130A	SMAJ130CA	130.0	1	144.0	159.0	1	209.0	1.92
SMAJ150A	SMAJ150CA	150.0	1	167.0	185.0	1	243.0	1.65
SMAJ160A	SMAJ160CA	160.0	1	178.0	197.0	1	259.0	1.55
SMAJ170A	SMAJ170CA	170.0	1	189.0	209.0	1	275.0	1.46
SMAJ180A	SMAJ180CA	180.0	1	201.0	222.0	1	292.0	1.37
SMAJ190A	SMAJ190CA	190.0	1	209.0	233.0	1	308.0	1.30
SMAJ200A	SMAJ200CA	200.0	1	224.0	247.0	1	324.0	1.24
SMAJ210A	SMAJ210CA	210.0	1	237.0	263.0	1	340.0	1.18
SMAJ220A	SMAJ220CA	220.0	1	246.0	272.0	1	356.0	1.13

SMAJ250A	SMAJ250CA	250.0	1	279.0	309.0	1	405.0	0.99
SMAJ300A	SMAJ300CA	300.0	1	335.0	371.0	1	486.0	0.83
SMAJ350A	SMAJ350CA	350.0	1	391.0	432.0	1	567.0	0.71
SMAJ400A	SMAJ400CA	400.0	1	447.0	494.0	1	648.0	0.62
SMAJ440A	SMAJ440CA	440.0	1	492.0	543.0	1	713.0	0.57
SMAJ550A	SMAJ550CA	550.0	1	614.7	679.4	1	972.0	0.42

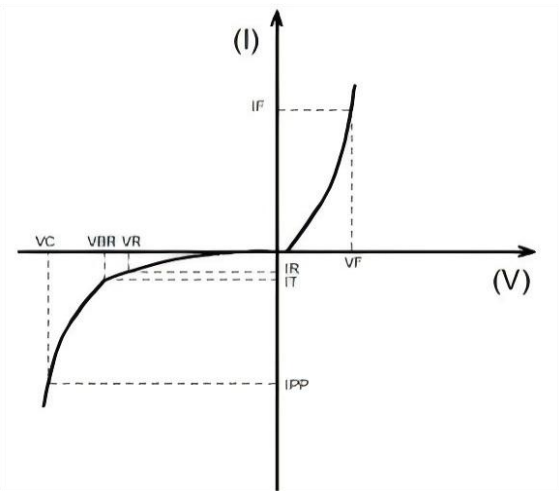
Notes：

① Surge waveform: 10/1000μs
VR: Stand-off Voltage -- Maximum voltage that can be applied
VBR: Breakdown Voltage
VC: Clamping Voltage -- Peak voltage measured across the suppressor at a specified Ipp
IR: Reverse Leakage Current

Symbol	Parameter
I_F	Mean Forward Current
V_F	Maximum Forward Voltage @IF
V_R	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ VR
V_{BR}	Breakdown Voltage @ IT
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ IPP

TYPICAL CHARACTERISTICS CURVES

Fig1：V-i cure characteristics



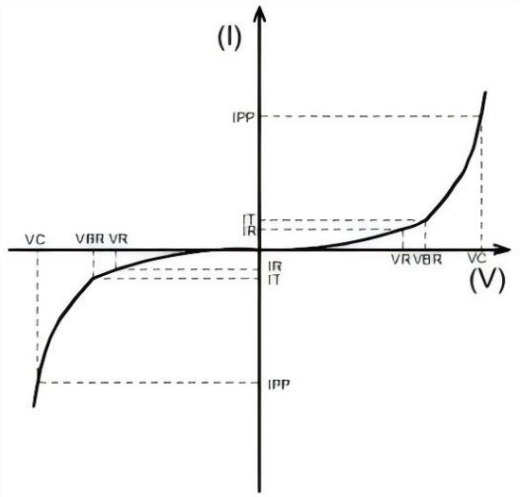


Fig2:Pulse derating curve

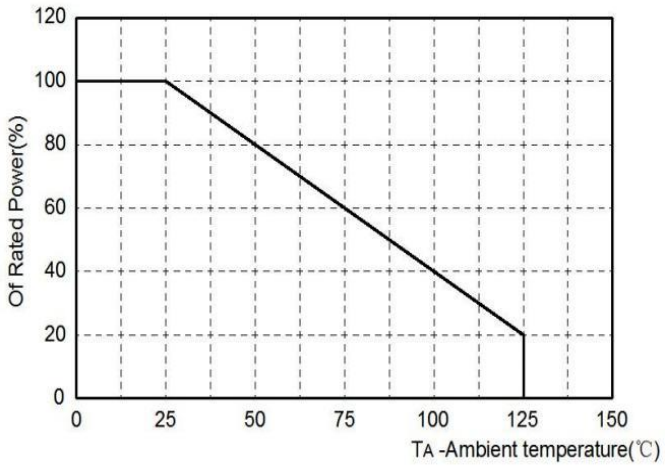


Fig3：Pulse waveform

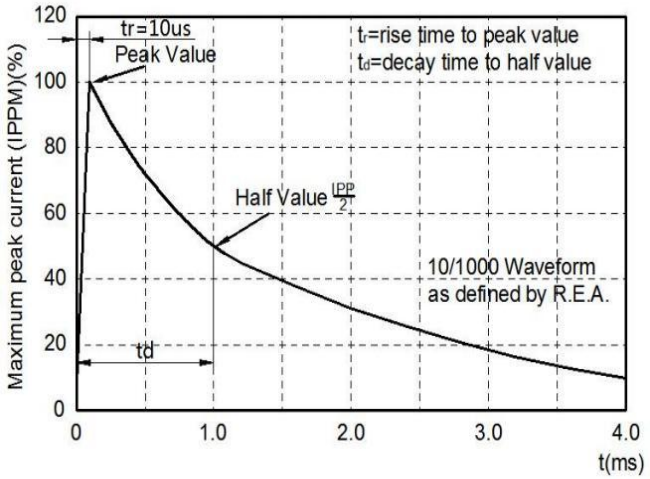


Fig4:Peak Pulse Power Rating Curve

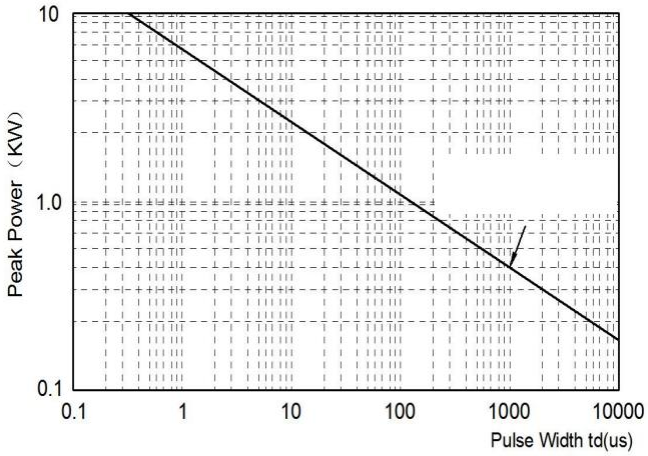
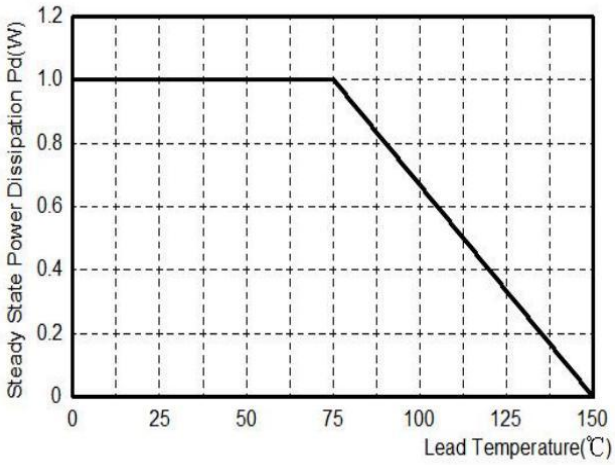
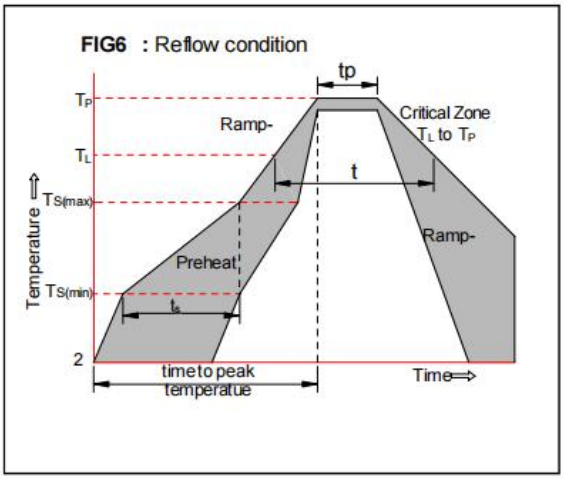


Fig5: Steady State Power Dissipation

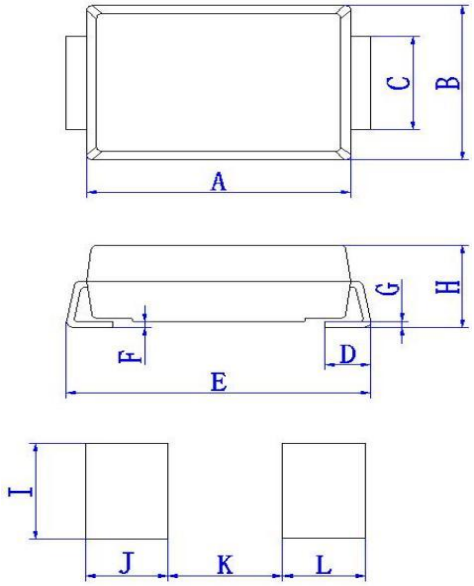


Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	Temperature Min ($T_{s(min)}$)	+150℃
	Temperature Max($T_{s(max)}$)	+200℃
	Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217℃
	Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃



PACKAGE OUTLINES



Ref.(mm)	Millimeters	
	Min.	Max.
A	6.60	7.11
B	5.59	6.20
C	2.75	3.20
D	0.76	1.52
E	7.71	8.13
F	0.051	0.203
G	0.15	0.25
H	2.06	2.75
I	3.30	
J	1.30	
K		5.30
L	1.30	

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