

# SMAJ5.0(C)A-T to SMAJ440(C)A-T

# 400Watts

## Automotive Transient Voltage Suppressors

PROSEMI offers AEC-Q101 qualified TVS diode device is specially designed to protect sensitive electronic devices from lightning and other transient voltage induced voltage transient events.



### Features

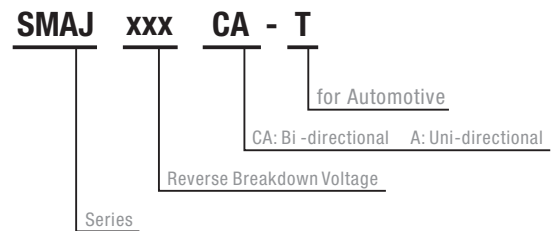
- Low profile package
- Very fast response time
- Unidirectional(A) and Bidirectional(CA) Protection
- AEC-Q101 qualified available
- Excellent Clamping Capability
- Glass Passivated Junction
- Built-in Strain relief



### Applications

- I/O Interfaces
- Power lines
- Computers & Consumer Electronics
- Automotive and Telecommunication
- Industrial Electronics

### Part Numbering System



### Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000µs) (see Note1,2&3)	P <sub>PPM</sub>	400	Watts
Peak pulse current (10/1000 µs) (see Note2&3)	I <sub>PPM</sub>	See Electrical Characteristics	A
Peak Forward surge current (see Note4&5)	I <sub>FSM</sub>	40	A
Power Dissipation on infinite heat sink T <sub>A</sub> = 50 °C (Fig5)	P <sub>D</sub>	1.0	W
Operating Junction Temperature range	T <sub>J</sub>	-65 to + 150	°C
Storage Temperature range	T <sub>STG</sub>	-65 to + 150	°C

Note1: Peak Pulse Power Rating as Pulse Width ,perFig1.

Note2: Peak Pusle Power or Current Derated above T<sub>A</sub>=25 °C Per Fig. 2 and Non-Repetitive Current Pulse,Per Fig.3.

Note3: Mounted on 5.0x5.0mm<sup>2</sup> copper pad to each terminal.

Note4: 8.3ms Single Half Sine Wave or Equivalent Square Wave

Note5: Maximum Forward Surge Current only for Unidirectional Device per Fig6.

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#### Electrical Characteristics

Part Number		Marking		Reverse Stand Off Voltage	Breakdown Voltage		Test Current	Maximum Clamping Voltage	Maximum Peak Pulse Current	Maximum Reverse Leakage
Uni	Bi	Uni	Bi	$V_R$ (V)	$V_{BR}$ (V) @ $I_T$		$I_T$ (mA)	$V_C$ (V) @ $I_{PP}$	$I_{PP}$ (A)	$I_R$ ( $\mu$ A) @ $V_R$
					Min.	Max.				
SMAJ5.0A-T	SMAJ5.0CA-T	AET	WET	5	6.4	7	10	9.2	43.5	800
SMAJ6.0A-T	SMAJ6.0CA-T	AGT	WGT	6	6.67	7.37	10	10.3	38.8	800
SMAJ6.5A-T	SMAJ6.5CA-T	AKT	WKT	6.5	7.22	7.98	10	11.2	35.7	500
SMAJ7.0A-T	SMAJ7.0CA-T	AMT	WMT	7	7.78	8.6	10	12	33.3	200
SMAJ7.5A-T	SMAJ7.5CA-T	APT	WPT	7.5	8.33	9.21	1	12.9	31	100
SMAJ8.0A-T	SMAJ8.0CA-T	ART	WRT	8	8.89	9.83	1	13.6	29.4	50
SMAJ8.5A-T	SMAJ8.5CA-T	ATT	WTT	8.5	9.44	10.4	1	14.4	27.8	20
SMAJ9.0A-T	SMAJ9.0CA-T	AVT	WVT	9	10	11.1	1	15.4	26	10
SMAJ10A-T	SMAJ10CA-T	AXT	WXT	10	11.1	12.3	1	17	23.5	5
SMAJ11A-T	SMAJ11CA-T	AZT	WZT	11	12.2	13.5	1	18.2	22	1
SMAJ12A-T	SMAJ12CA-T	BET	XET	12	13.3	14.7	1	19.9	20.1	1
SMAJ13A-T	SMAJ13CA-T	BGT	XGT	13	14.4	15.9	1	21.5	18.6	1
SMAJ14A-T	SMAJ14CA-T	BKT	XKT	14	15.6	17.2	1	23.2	17.2	1
SMAJ15A-T	SMAJ15CA-T	BMT	XMT	15	16.7	18.5	1	24.4	16.4	1
SMAJ16A-T	SMAJ16CA-T	BPT	XPT	16	17.8	19.7	1	26	15.4	1
SMAJ17A-T	SMAJ17CA-T	BRT	XRT	17	18.9	20.9	1	27.6	14.5	1
SMAJ18A-T	SMAJ18CA-T	BTT	XTT	18	20	22.1	1	29.2	13.7	1
SMAJ20A-T	SMAJ20CA-T	BVT	XVT	20	22.2	24.5	1	32.4	12.3	1
SMAJ22A-T	SMAJ22CA-T	BXT	XXT	22	24.4	26.9	1	35.5	11.3	1
SMAJ24A-T	SMAJ24CA-T	BZT	XZT	24	26.7	29.5	1	38.9	10.3	1
SMAJ26A-T	SMAJ26CA-T	CET	YET	26	28.9	31.9	1	42.1	9.5	1
SMAJ28A-T	SMAJ28CA-T	CGT	YGT	28	31.1	34.4	1	45.4	8.8	1
SMAJ30A-T	SMAJ30CA-T	CKT	YKT	30	33.3	36.8	1	48.4	8.3	1
SMAJ33A-T	SMAJ33CA-T	CMT	YMT	33	36.7	40.6	1	53.3	7.5	1
SMAJ36A-T	SMAJ36CA-T	CPT	YPT	36	40	44.2	1	58.1	6.9	1
SMAJ40A-T	SMAJ40CA-T	CRT	YRT	40	44.4	49.1	1	64.5	6.2	1
SMAJ43A-T	SMAJ43CA-T	CTT	YTT	43	47.8	52.8	1	69.4	5.8	1
SMAJ45A-T	SMAJ45CA-T	CVT	YVT	45	50	55.3	1	72.7	5.5	1
SMAJ48A-T	SMAJ48CA-T	CXT	YXT	48	53.3	58.9	1	77.4	5.2	1
SMAJ51A-T	SMAJ51CA-T	CZT	YZT	51	56.7	62.7	1	82.4	4.9	1
SMAJ54A-T	SMAJ54CA-T	RET	ZET	54	60	66.3	1	87.1	4.6	1
SMAJ58A-T	SMAJ58CA-T	RGT	ZGT	58	64.4	71.2	1	93.6	4.3	1
SMAJ60A-T	SMAJ60CA-T	RKT	ZKT	60	66.7	73.7	1	96.8	4.1	1
SMAJ64A-T	SMAJ64CA-T	RMT	ZMT	64	71.1	78.6	1	103	3.9	1
SMAJ70A-T	SMAJ70CA-T	RPT	ZPT	70	77.8	86	1	113	3.5	1
SMAJ75A-T	SMAJ75CA-T	RRT	ZRT	75	83.3	92.1	1	121	3.3	1
SMAJ78A-T	SMAJ78CA-T	RTT	ZTT	78	86.7	95.8	1	126	3.2	1
SMAJ85A-T	SMAJ85CA-T	RVT	ZVT	85	94.4	104	1	137	2.9	1
SMAJ90A-T	SMAJ90CA-T	RXT	ZXT	90	100	111	1	146	2.7	1
SMAJ100A-T	SMAJ100CA-T	RZT	ZZT	100	111	123	1	162	2.5	1

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#### Electrical Characteristics (continued)

Part Number		Marking		Reverse Stand Off Voltage	Breakdown Voltage		Test Current	Maximum Clamping Voltage	Maximum Peak Pulse Current	Maximum Reverse Leakage
Uni	Bi	Uni	Bi	$V_R$ (V)	$V_{BR}$ (V) @ $I_T$		$I_T$ (mA)	$V_C$ (V) @ $I_{PP}$	$I_{PP}$ (A)	$I_R$ ( $\mu$ A) @ $V_R$
					Min.	Max.				
SMAJ110A-T	SMAJ110CA-T	SET	VET	110	122	135	1	177	2.3	1
SMAJ120A-T	SMAJ120CA-T	SGT	VGT	120	133	147	1	193	2.1	1
SMAJ130A-T	SMAJ130CA-T	SKT	VKT	130	144	159	1	209	1.9	1
SMAJ150A-T	SMAJ150CA-T	SMT	VMT	150	167	185	1	243	1.6	1
SMAJ160A-T	SMAJ160CA-T	SPT	VPT	160	178	197	1	259	1.5	1
SMAJ170A-T	SMAJ170CA-T	SRT	VRT	170	189	209	1	275	1.5	1
SMAJ180A-T	SMAJ180CA-T	STT	VTT	180	201	222	1	292	1.4	1
SMAJ190A-T	SMAJ190CA-T	SUT	YUT	190	209	243	1	308	1.3	1
SMAJ200A-T	SMAJ200CA-T	SVT	VVT	200	224	247	1	324	1.2	1
SMAJ220A-T	SMAJ220CA-T	SXT	VXT	220	246	272	1	356	1.1	1
SMAJ250A-T	SMAJ250CA-T	SZT	VZT	250	279	309	1	405	1	1
SMAJ300A-T	SMAJ300CA-T	TET	UET	300	335	371	1	486	0.8	1
SMAJ350A-T	SMAJ350CA-T	TGT	UGT	350	391	432	1	567	0.7	1
SMAJ400A-T	SMAJ400CA-T	TKT	UKT	400	447	494	1	648	0.6	1
SMAJ440A-T	SMAJ440CA-T	TMT	UMT	440	492	543	1	713	0.6	1

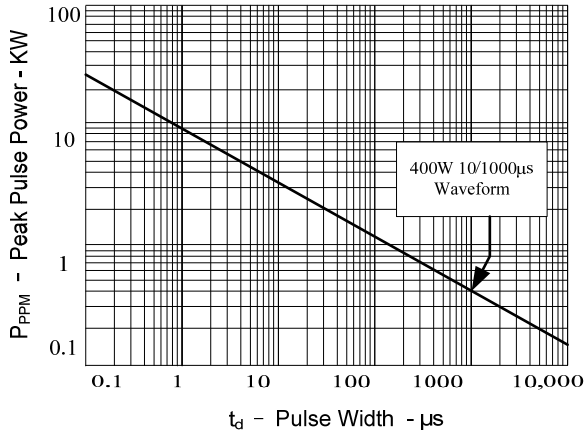
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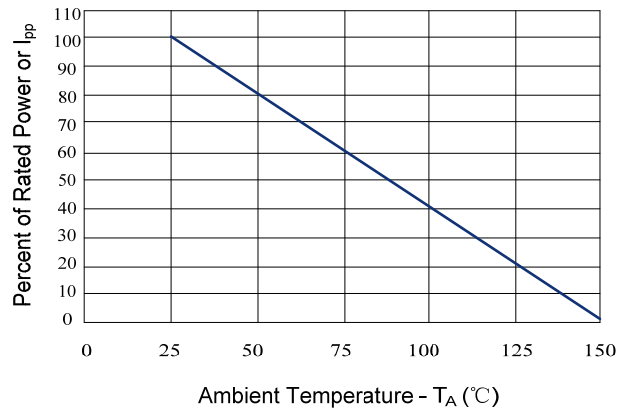
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### Typical Characteristics

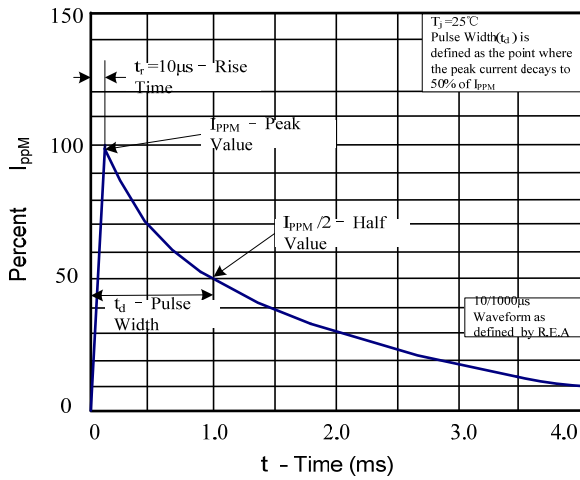
**Figure 1: Peak Pulse Power Rating Curve**



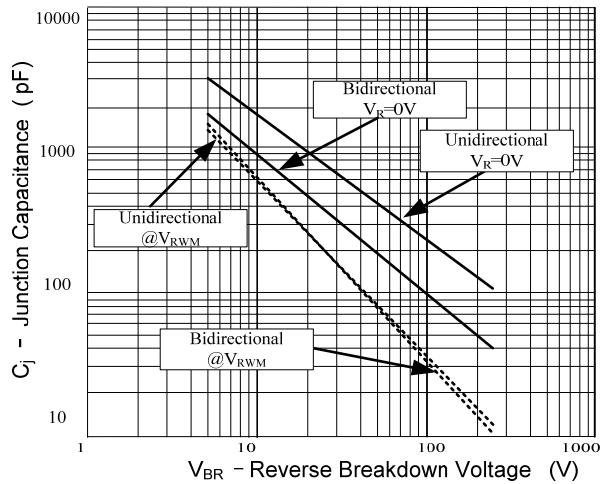
**Figure 2: Pulse Derating Curve**



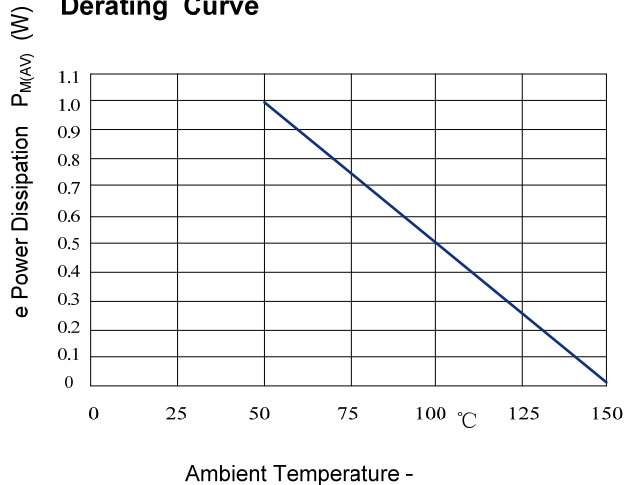
**Figure 3: Pulse Waveform**



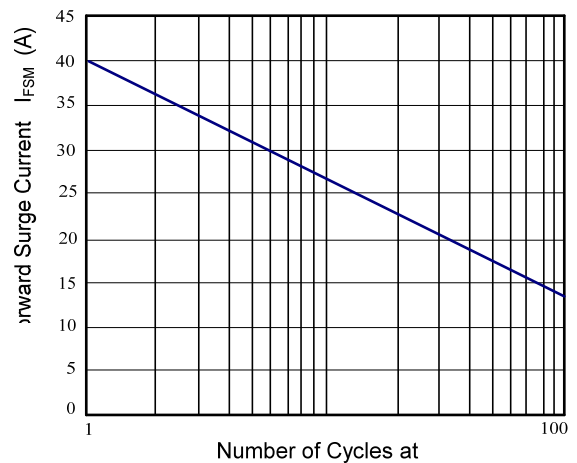
**Figure 4: Typical Junction Capacitance**



**Figure 5: Steady State Power Dissipation Derating Curve**



**Figure 6: Maximum Non-Repetitive Forward Surge Current Only Unidirectional**

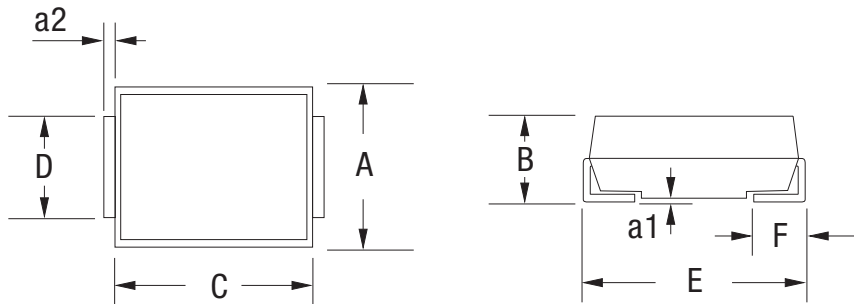


## Automotive Transient Voltage Suppressors

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Dimension (Unit: mm)



A		B		C		D		E		F		a1		a2	
Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2.500	2.800	1.900	2.450	3.900	4.600	1.400	1.800	4.800	5.280	0.760	1.520	-	0.203	0.145	0.255

### Packaging

- Quantity: 5,000pcs
- 12mm wide tape on 330mm(13 inch) diameter reel –specification EIA Standard 481.