

SMD Type 600 W

■ Features

1. Glass passivated chip
2. 600W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycle): 0.01%
3. Excellent clamping capability
4. Very fast response time
5. Low clamping voltage
6. Low leakage current
7. Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C
8. JESD22-A114-B ESD Voltage: HBM 15KV
9. JEDEC EIA/JESD22-C101F ESD Voltage: CDM 500V
10. JEDEC EIA/JESD22-A115 ESD Voltage: MM 400V
11. ESD-immunity acc. IEC 61000-4-2 ±30kV(contact), ±30kV(air)
12. Halogen free and RoHS compliant
13. AEC Q101 qualified



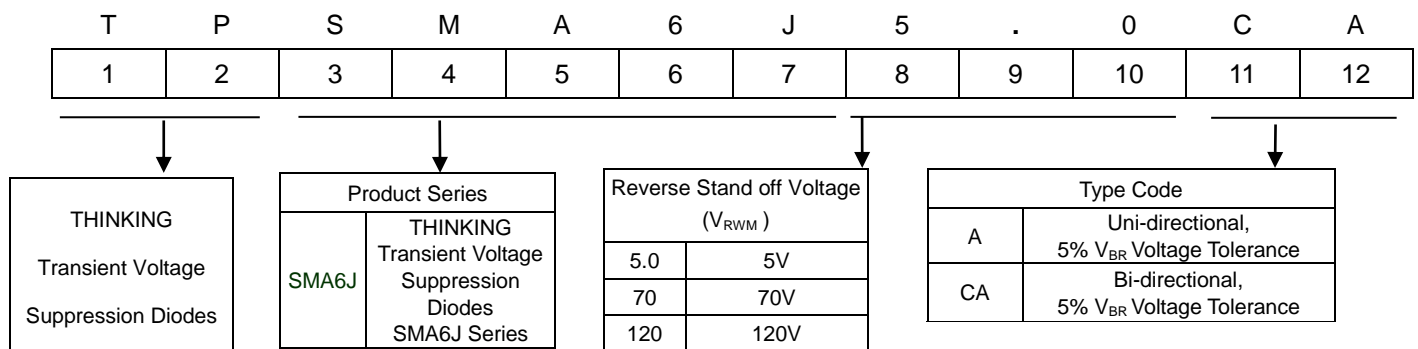
■ Recommended Applications

1. Computers
2. Telecom system
3. Industrial equipment
4. Consumer electronic applications
5. Other VCC bus and I/O interfaces

■ Mechanical Data

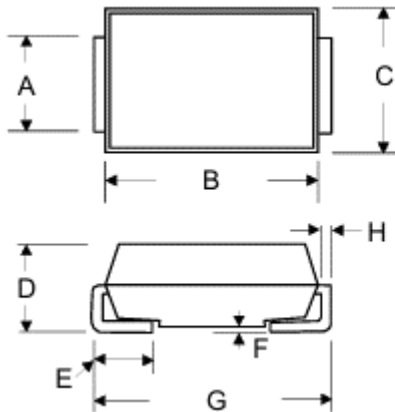
1. Case: DO-214AC (SMA), molded plastic
2. Epoxy : UL 94V-0 rate flame retardant
3. Terminals: Solderable per MIL-STD-750, method 2026
4. Polarity: Color band denotes cathode end
5. Mounting Position: Any

■ Part Number Code

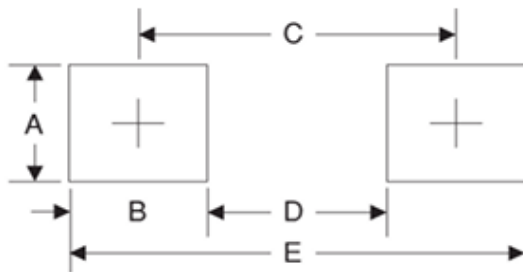


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Structures and Dimensions



Symbol	Dimensions in millimeters	
	Min	Max
A	1.30	1.70
B	3.90	4.50
C	2.40	2.80
D	2.00	2.50
E	0.76	1.52
F	0.10	0.20
G	4.80	5.30
H	0.15	0.31



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.90	0.154
D	2.41	0.095
E	5.45	0.215

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

Parameter	Symbol	Value	Unit
Peak pulse power dissipation at $T_A=25^\circ\text{C}$ by 10/1000 μs waveform (Note 1, 2)	P_{PPM}	600	W
Peak pulse current with 10/1000 μs waveform (Note 1)	I_{PPM}	See next table	A
Peak forward surge current, 8.3ms single half sine wave on rated load (Note 3)	I_{FSM}	100	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	5.0	W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	$^\circ\text{C/W}$
Operating junction and storage temperature range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$

Notes : (1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2

(2) Mounted on 5.0 x 5.0mm copper pad to each terminal

(3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

TVS Diode: TPSMA6J Series



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■ Electrical Characteristics (T_A=25°C unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage VBR @ IT		Test Current IT (mA)	Maximum Clamping Voltage VC @ Ipp	Maximum Peak Pulse Current Ipp(A)	Maximum Reverse Leakage IR @VRWM	Marking Code	
			Min (V)	Max (V)					Uni	Bi
TPSMA6J5.0A	TPSMA6J5.0CA	5	6.4	7	10	9.2	65.2	800	KE	AE
TPSMA6J6.0A	TPSMA6J6.0CA	6	6.7	7.4	10	10.3	58.3	800	KG	AG
TPSMA6J6.5A	TPSMA6J6.5CA	6.5	7.2	8	10	11.2	53.57	500	KK	AK
TPSMA6J7.0A	TPSMA6J7.0CA	7	7.8	8.6	10	12	50	200	KM	AM
TPSMA6J7.5A	TPSMA6J7.5CA	7.5	8.3	9.2	1	12.9	46.5	100	KP	AP
TPSMA6J8.0A	TPSMA6J8.0CA	8	8.9	9.8	1	13.6	44.1	50	KR	AR
TPSMA6J8.5A	TPSMA6J8.5CA	8.5	9.4	10.4	1	14.4	41.7	10	KT	AT
TPSMA6J9.0A	TPSMA6J9.0CA	9	10	11	1	15.4	39	5	KV	AV
TPSMA6J10A	TPSMA6J10CA	10	11.1	12.3	1	17	35.3	5	KX	AX
TPSMA6J11A	TPSMA6J11CA	11	12.2	13.5	1	18.2	33	1	KZ	AZ
TPSMA6J12A	TPSMA6J12CA	12	13.3	14.7	1	19.9	30.2	1	LE	BE
TPSMA6J13A	TPSMA6J13CA	13	14.4	15.9	1	21.5	28	1	LG	BG
TPSMA6J14A	TPSMA6J14CA	14	15.6	17.2	1	23.2	25.9	1	LK	BK
TPSMA6J15A	TPSMA6J15CA	15	16.7	18.5	1	24.4	24.6	1	LM	BM
TPSMA6J16A	TPSMA6J16CA	16	17.8	19.7	1	26	23.1	1	LP	BP
TPSMA6J17A	TPSMA6J17CA	17	18.9	20.9	1	27.6	21.8	1	LR	BR
TPSMA6J18A	TPSMA6J18CA	18	20	22.1	1	29.2	20.6	1	LT	BT
TPSMA6J19A	TPSMA6J19CA	19	21.1	23.3	1	30.8	19.5	1	LW	BW
TPSMA6J20A	TPSMA6J20CA	20	22.2	24.5	1	32.4	18.6	1	LV	BV
TPSMA6J22A	TPSMA6J22CA	22	24.4	26.9	1	35.5	16.9	1	LX	BX
TPSMA6J24A	TPSMA6J24CA	24	26.7	29.5	1	38.9	15.5	1	LZ	BZ
TPSMA6J26A	TPSMA6J26CA	26	28.9	31.9	1	42.1	14.3	1	ME	CE
TPSMA6J28A	TPSMA6J28CA	28	31.1	34.4	1	45.4	13.3	1	MG	CG
TPSMA6J30A	TPSMA6J30CA	30	33.3	36.8	1	48.4	12.4	1	MK	CK
TPSMA6J33A	TPSMA6J33CA	33	36.7	40.6	1	53.3	11.3	1	MM	CM
TPSMA6J36A	TPSMA6J36CA	36	40	44.2	1	58.1	10.4	1	MP	CP
TPSMA6J40A	TPSMA6J40CA	40	44.4	49.1	1	64.5	9.3	1	MR	CR
TPSMA6J43A	TPSMA6J43CA	43	47.8	52.8	1	69.4	8.7	1	MT	CT
TPSMA6J45A	TPSMA6J45CA	45	50	55.3	1	72.7	8.3	1	MV	CV
TPSMA6J48A	TPSMA6J48CA	48	53.3	58.9	1	77.4	7.8	1	MX	CX

TVS Diode: TPSMA6J Series

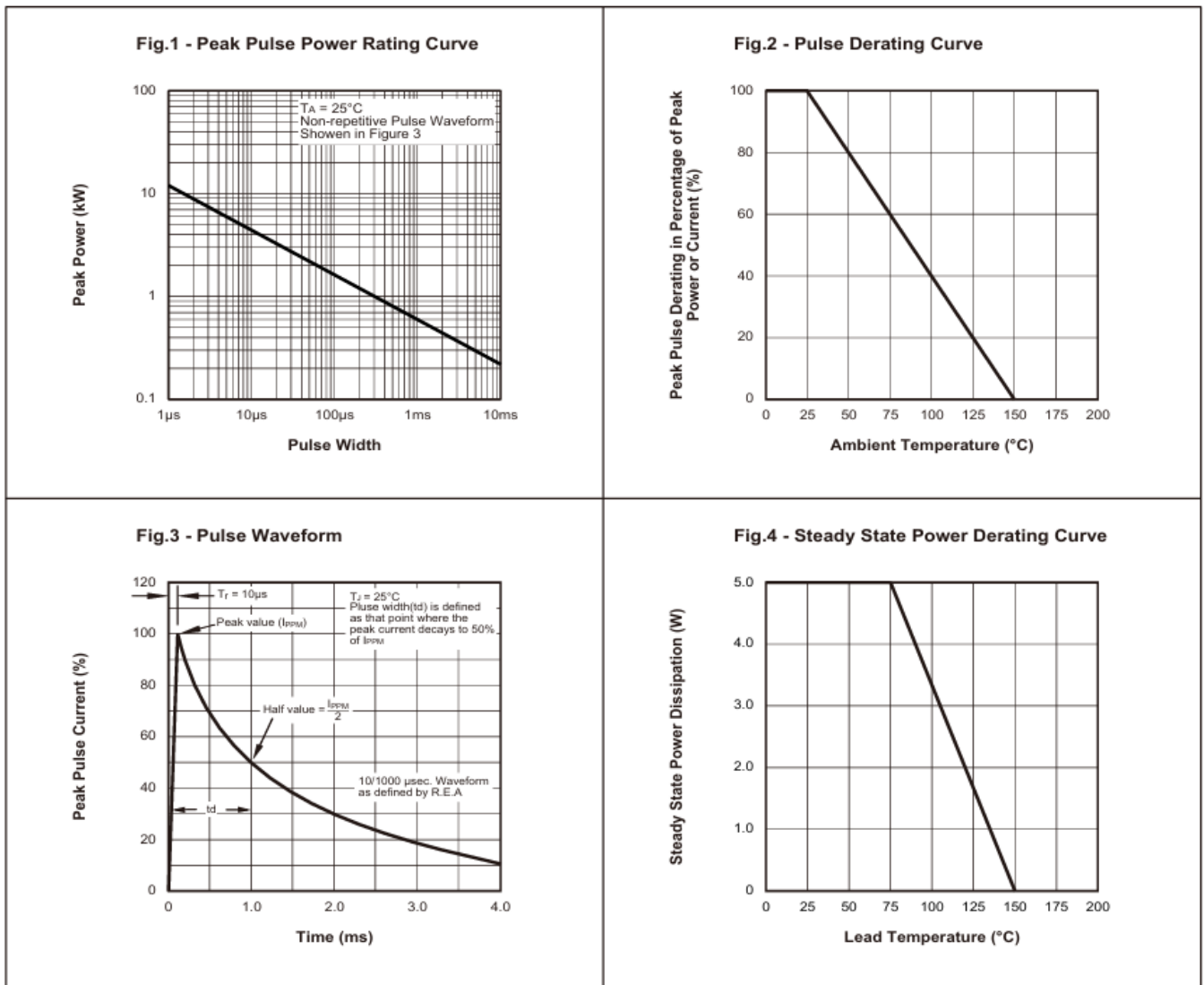


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■ Electrical Characteristics (T_A=25°C unless otherwise noted)

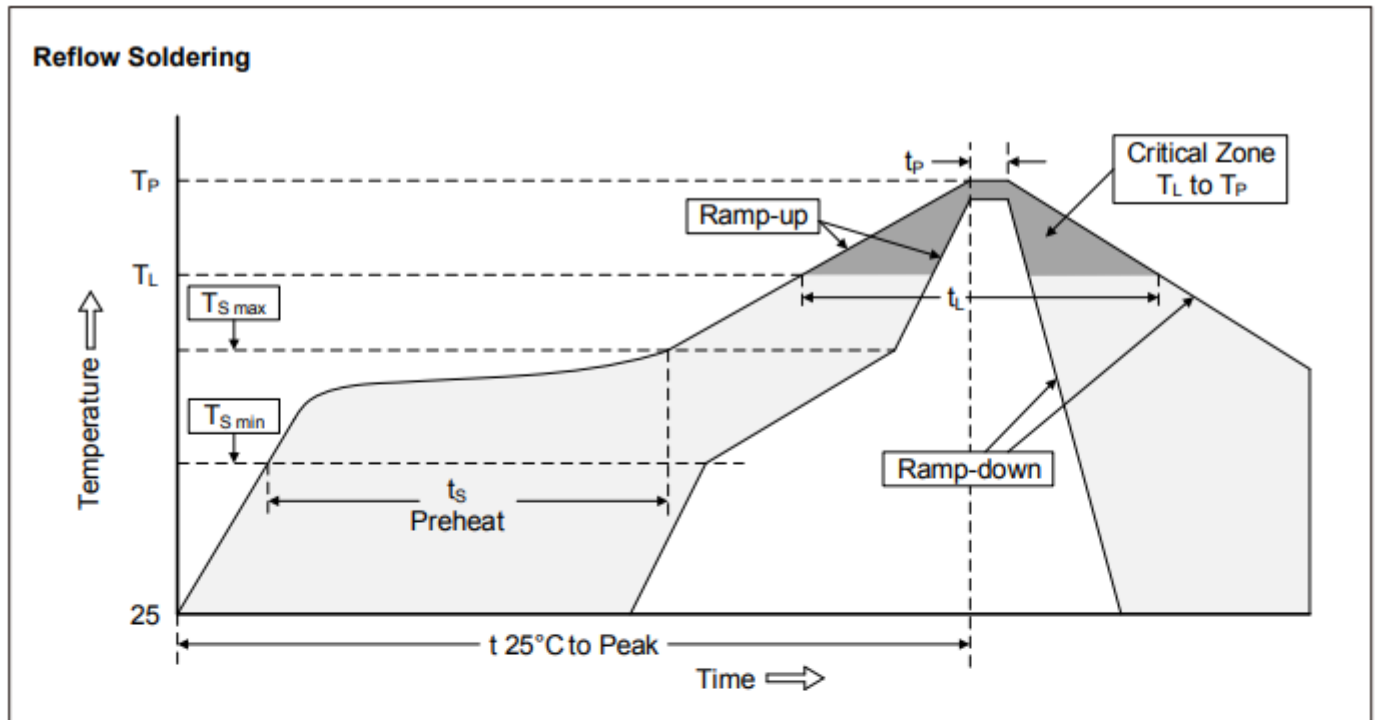
Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage VBR @ IT		Test Current IT(mA)	Maximum Clamping Voltage VC @ Ipp	Maximum Peak Pulse Current Ipp(A)	Maximum Reverse Leakage IR @VRWM	Marking Code	
			VRWM (V)	Min(V)					Max(V)	Uni
TPSMA6J51A	TPSMA6J51CA	51	56.7	62.7	1	82.4	7.3	1	MZ	CZ
TPSMA6J54A	TPSMA6J54CA	54	60	66.3	1	87.1	6.9	1	NE	DE
TPSMA6J58A	TPSMA6J58CA	58	64.4	71.2	1	93.6	6.5	1	NG	DG
TPSMA6J60A	TPSMA6J60CA	60	66.7	73.7	1	96.8	6.2	1	NK	DK
TPSMA6J64A	TPSMA6J64CA	64	71.1	78.6	1	103	5.9	1	NM	DM
TPSMA6J70A	TPSMA6J70CA	70	77.8	86	1	113	5.3	1	NP	DP
TPSMA6J75A	TPSMA6J75CA	75	83.3	92.1	1	121	5	1	NR	DR
TPSMA6J78A	TPSMA6J78CA	78	86.7	95.8	1	126	4.8	1	NT	DT
TPSMA6J80A	TPSMA6J80CA	80	88.8	97.6	1	129.6	4.6	1	NW	DW
TPSMA6J85A	TPSMA6J85CA	85	94.4	104	1	137	4.4	1	NV	DV
TPSMA6J90A	TPSMA6J90CA	90	100	111	1	146	4.1	1	NX	DX
TPSMA6J100A	TPSMA6J100CA	100	111	123	1	162	3.7	1	NZ	DZ
TPSMA6J110A	TPSMA6J110CA	110	122	135	1	177	3.4	1	PE	FE
TPSMA6J120A	TPSMA6J120CA	120	133	147	1	193	3.2	1	PG	FG
TPSMA6J130A	TPSMA6J130CA	130	144	159	1	209	2.9	1	PK	FK
TPSMA6J140A	TPSMA6J140CA	140	155	171	1	227	2.7	1	PL	FL
TPSMA6J150A	TPSMA6J150CA	150	167	185	1	243	2.5	1	PM	FM
TPSMA6J160A	TPSMA6J160CA	160	178	197	1	259	2.3	1	PP	FP
TPSMA6J170A	TPSMA6J170CA	170	189	209	1	275	2.2	1	PR	FR
TPSMA6J180A	TPSMA6J180CA	180	200	220	1	291	2.1	1	PT	FT
TPSMA6J190A	TPSMA6J190CA	190	211	232	1	308	2	1	PU	FU
TPSMA6J200A	TPSMA6J200CA	200	224	247	1	324	1.9	1	PV	FV
TPSMA6J220A	TPSMA6J220CA	220	246	272	1	356	1.7	1	PX	FX

■ Rate and Characteristic Curve ($T_A=25^\circ\text{C}$ unless otherwise noted)



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IR-reflow soldering profile

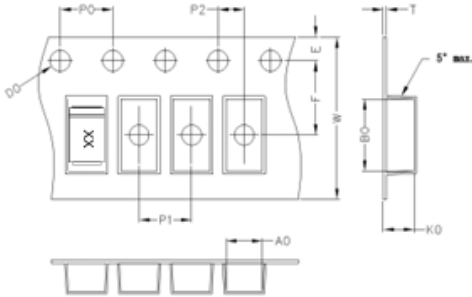


Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{S\ min}$)	150°C
-Temperature Max ($T_{S\ max}$)	200°C
-Time (min to max) (t_s)	60-180 seconds
$T_{S\ max}$ to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T_L)	217°C
-Time (t_L)	60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

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■ Packaging



A0	B0	K0	D0	E	F
2.80	5.30	2.36	1.55	1.75	5.50
P0	P1	P2	T	W	Tolerance
4.0	4.0	2.0	0.25	12	0.1

■ Quantity

Series Type	Packaging option	Base quantity	Packaging specification
TPSMA6J	Tape and reel	7500pcs / reel	EIA STD RS-481

■ Warehouse Storage Conditions of product

- Storage Condition:
 1. Storage Temperature: $\leq 25^{\circ}\text{C}$
 2. Relative Humidity: 50%~80%RH
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.