TECH PUBLIC
台舟电子

TPSMA6J Series

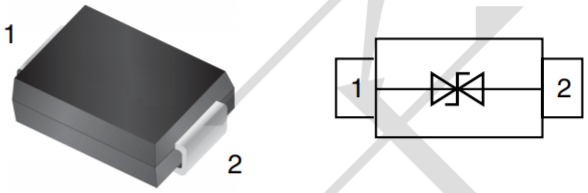
Transient Voltage Suppressor Diodes

WWW.TECHPUBLIC.COM

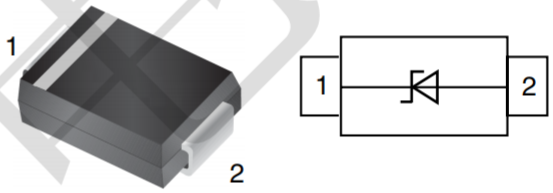
Features

- Glass passivated chip
- 600W peak pulse power(10/1000us)
- High accuracy, 5% tolerance
- Uni and Bidirectional unit
- Low clamping voltage
- Low Leakage current
- Very fast response time
- Meet MSL level1, per J-STD-020, LF maximun peak of 260°C
- JESD22-A114-B ESD Voltage:HBM 15KV
- JEDEC EIA/JESD22-C101F ESD Voltage:CDM 500V
- JEDEC EIA/JESD22-A115 ESD Voltage:MM 400V
- ESD-immunity acc. IEC 61000-4-2 ±30KV contact ±30KV air
- Base P/N-HM AEC-Q101 qualified

Bidirectional



Unidirectional



Mechanical Data

- **Case:** DO-214AC/SMA (plastic package). RoHS compliant
- **Molding Compound Flammability Rating:** UL 94 V-0
- **Terminals:** High temperature soldering guaranteed: 260 °C/10 sec. at terminals

Applications

- Computers
- Telecom system
- Industrial equipments
- Consumer electronic applications
- Other VCC bus and I/O interfaces

Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000us waveform (1)	P_{PP}	600	W
Maximum peak reverse pulse current a 10/1000us waveform (1)	I_{PP}	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave (2)	I_{FSM}	60	A
Maximum instantaneous forward voltage at 25A for unidirectional only(3)	V_F	3.5/5.0	V
Thermal resistance	$R_{\theta JL}$	30	℃/W
	$R_{\theta JA}$	120	℃/W
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	℃

Notes:

1.Non-repetitive current pulse,per Fig.5 and detated above TA=25°C per Fig.1

2.Measured on 8.3ms single half sine-wave,or equivalentsquare 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

Electrical Characteristics (T_A = 25 °C unless otherwise specified)

Part Number	Direction	Maximum Working Voltage V_{RWM} (V)	Maximum Reverse Current@V_{RWM} I_R max(uA)	Breakdown Voltage@I_T			Peak Surge Current I_{PP} (A)	Maximum Clamping Voltage@I_{PP} V_C (V)
				V_{BR} min(V)	V_{BR} max(V)	I_T(mA)		
TPSMA6J5.0A	Uni-Dir	5.0	800	6.4	7.07	10	65.22	9.2
TPSMA6J5.0CA	Bi-Dir	5.0	1600	6.4	7.07	10	65.22	9.2
TPSMA6J6.0A	Uni-Dir	6.0	800	6.67	7.37	10	58.25	10.3
TPSMA6J6.0CA	Bi-Dir	6.0	1600	6.67	7.37	10	58.25	10.3
TPSMA6J6.5A	Uni-Dir	6.5	500	7.22	7.98	10	53.57	11.2
TPSMA6J6.5CA	Bi-Dir	6.5	1000	7.22	7.98	10	53.57	11.2
TPSMA6J7.0A	Uni-Dir	7.0	200	7.78	8.60	10	50.00	12.0
TPSMA6J7.0CA	Bi-Dir	7.0	400	7.78	8.60	10	50.00	12.0
TPSMA6J7.5A	Uni-Dir	7.5	100	8.33	9.21	1	46.51	12.9
TPSMA6J7.5CA	Bi-Dir	7.5	200	8.33	9.21	1	46.51	12.9
TPSMA6J8.0A	Uni-Dir	8.0	50	8.89	9.83	1	44.12	13.6
TPSMA6J8.0CA	Bi-Dir	8.0	100	8.89	9.83	1	44.12	13.6
TPSMA6J8.5A	Uni-Dir	8.5	10	9.44	10.40	1	41.67	14.4
TPSMA6J8.5CA	Bi-Dir	8.5	20	9.44	10.40	1	41.67	14.4
TPSMA6J9.0A	Uni-Dir	9.0	5	10.00	11.10	1	38.96	15.4
TPSMA6J9.0CA	Bi-Dir	9.0	10	10.00	11.10	1	38.96	15.4
TPSMA6J10A	Uni-Dir	10.0	5	11.10	12.30	1	35.29	17.0
TPSMA6J10CA	Bi-Dir	10.0	10	11.10	12.30	1	35.29	17.0
TPSMA6J11A	Uni-Dir	11.0	1	12.20	13.50	1	32.97	18.2
TPSMA6J11CA	Bi-Dir	11.0	1	12.20	13.50	1	32.97	18.2
TPSMA6J12A	Uni-Dir	12.0	1	13.30	14.70	1	30.15	19.9
TPSMA6J12CA	Bi-Dir	12.0	1	13.30	14.70	1	30.15	19.9
TPSMA6J13A	Uni-Dir	13.0	1	14.40	15.90	1	27.91	21.5
TPSMA6J13CA	Bi-Dir	13.0	1	14.40	15.90	1	27.91	21.5
TPSMA6J14A	Uni-Dir	14.0	1	15.60	17.20	1	25.86	23.2
TPSMA6J14CA	Bi-Dir	14.0	1	15.60	17.20	1	25.86	23.2
TPSMA6J15A	Uni-Dir	15.0	1	16.70	18.50	1	24.59	24.4
TPSMA6J15CA	Bi-Dir	15.0	1	16.70	18.50	1	24.59	24.4
TPSMA6J16A	Uni-Dir	16.0	1	17.80	19.70	1	23.08	26.0
TPSMA6J16CA	Bi-Dir	16.0	1	17.80	19.70	1	23.08	26.0
TPSMA6J17A	Uni-Dir	17.0	1	18.90	20.90	1	21.74	27.6
TPSMA6J17CA	Bi-Dir	17.0	1	18.90	20.90	1	21.74	27.6
TPSMA6J18A	Uni-Dir	18.0	1	20.00	22.10	1	20.55	29.2
TPSMA6J18CA	Bi-Dir	18.0	1	20.00	22.10	1	20.55	29.2
TPSMA6J19A	Uni-Dir	19.0	1	21.10	23.30	1	19.49	30.8
TPSMA6J19CA	Bi-Dir	19.0	1	21.10	23.30	1	19.49	30.8
TPSMA6J20A	Uni-Dir	20.0	1	22.20	24.50	1	18.52	32.4
TPSMA6J20CA	Bi-Dir	20.0	1	22.20	24.50	1	18.52	32.4

TPSMA6J Series

Transient Voltage Suppressor Diodes

Part Number	Direction	Maximum Working Voltage V_{RWM} (V)	Maximum Reverse Current@V_{RWM} I_R max(uA)	Breakdown Voltage@I_T			Peak Surge Current I_{PP} (A)	Maximum Clamping Voltage@I_{PP} V_C (V)
				V_{BR} min(V)	V_{BR} max(V)	I_T(mA)		
TPSMA6J22A	Uni-Dir	22.0	1	24.40	26.90	1	16.90	35.5
TPSMA6J22CA	Bi-Dir	22.0	1	24.40	26.90	1	16.90	35.5
TPSMA6J24A	Uni-Dir	24.0	1	26.70	29.50	1	15.42	38.9
TPSMA6J24CA	Bi-Dir	24.0	1	26.70	29.50	1	15.42	38.9
TPSMA6J26A	Uni-Dir	26.0	1	28.90	31.90	1	14.25	42.1
TPSMA6J26CA	Bi-Dir	26.0	1	28.90	31.90	1	14.25	42.1
TPSMA6J28A	Uni-Dir	28.0	1	31.10	34.40	1	13.22	45.4
TPSMA6J28CA	Bi-Dir	28.0	1	31.10	34.40	1	13.22	45.4
TPSMA6J30A	Uni-Dir	30.0	1	33.30	36.80	1	12.40	48.4
TPSMA6J30CA	Bi-Dir	30.0	1	33.30	36.80	1	12.40	48.4
TPSMA6J33A	Uni-Dir	33.0	1	36.70	40.60	1	11.26	53.3
TPSMA6J33CA	Bi-Dir	33.0	1	36.70	40.60	1	11.26	53.3
TPSMA6J36A	Uni-Dir	36.0	1	40.00	44.20	1	10.33	58.1
TPSMA6J36CA	Bi-Dir	36.0	1	40.00	44.20	1	10.33	58.1
TPSMA6J40A	Uni-Dir	40.0	1	44.40	49.10	1	9.30	64.5
TPSMA6J40CA	Bi-Dir	40.0	1	44.40	49.10	1	9.30	64.5
TPSMA6J43A	Uni-Dir	43.0	1	47.80	52.80	1	8.65	69.4
TPSMA6J43CA	Bi-Dir	43.0	1	47.80	52.80	1	8.65	69.4
TPSMA6J45A	Uni-Dir	45.0	1	50.00	55.30	1	8.25	72.7
TPSMA6J45CA	Bi-Dir	45.0	1	50.00	55.30	1	8.25	72.7
TPSMA6J48A	Uni-Dir	48.0	1	53.30	58.90	1	7.75	77.4
TPSMA6J48CA	Bi-Dir	48.0	1	53.30	58.90	1	7.75	77.4
TPSMA6J51A	Uni-Dir	51.0	1	56.70	62.70	1	7.28	82.4
TPSMA6J51CA	Bi-Dir	51.0	1	56.70	62.70	1	7.28	82.4
TPSMA6J54A	Uni-Dir	54.0	1	60.00	66.30	1	6.89	87.1
TPSMA6J54CA	Bi-Dir	54.0	1	60.00	66.30	1	6.89	87.1
TPSMA6J58A	Uni-Dir	58.0	1	64.40	71.20	1	6.41	93.6
TPSMA6J58CA	Bi-Dir	58.0	1	64.40	71.20	1	6.41	93.6
TPSMA6J60A	Uni-Dir	60.0	1	66.70	73.70	1	6.20	96.8
TPSMA6J60CA	Bi-Dir	60.0	1	66.70	73.70	1	6.20	96.8
TPSMA6J64A	Uni-Dir	64.0	1	71.10	78.60	1	5.83	103.0
TPSMA6J64CA	Bi-Dir	64.0	1	71.10	78.60	1	5.83	103.0
TPSMA6J70A	Uni-Dir	70.0	1	77.80	86.00	1	5.31	113.0
TPSMA6J70CA	Bi-Dir	70.0	1	77.80	86.00	1	5.31	113.0
TPSMA6J75A	Uni-Dir	75.0	1	83.30	92.10	1	4.96	121.0
TPSMA6J75CA	Bi-Dir	75.0	1	83.30	92.10	1	4.96	121.0
TPSMA6J78A	Uni-Dir	78.0	1	86.70	95.80	1	4.76	126.0
TPSMA6J78CA	Bi-Dir	78.0	1	86.70	95.80	1	4.76	126.0

TPSMA6J Series

Transient Voltage Suppressor Diodes

Part Number	Direction	Maximum Working Voltage V_{RWM} (V)	Maximum Reverse Current@V_{RWM} I_R max(uA)	Breakdown Voltage@I_T			Peak Surge Current I_{PP} (A)	Maximum Clamping Voltage@I_{PP} V_C (V)
				V_{BR} min(V)	V_{BR} max(V)	I_T(mA)		
TPSMA6J80A	Uni-Dir	80.0	1	88.80	97.60	1	4.63	129.6
TPSMA6J80CA	Bi-Dir	80.0	1	88.80	97.60	1	4.63	129.6
TPSMA6J85A	Uni-Dir	85.0	1	94.40	104.00	1	4.38	137.0
TPSMA6J85CA	Bi-Dir	85.0	1	94.40	104.00	1	4.38	137.0
TPSMA6J90A	Uni-Dir	90.0	1	100.00	111.00	1	4.11	146.0
TPSMA6J90CA	Bi-Dir	90.0	1	100.00	111.00	1	4.11	146.0
TPSMA6J100A	Uni-Dir	100.0	1	111.00	123.00	1	3.70	162.0
TPSMA6J100CA	Bi-Dir	100.0	1	111.00	123.00	1	3.70	162.0
TPSMA6J110A	Uni-Dir	110.0	1	122.00	135.00	1	3.39	177.0
TPSMA6J110CA	Bi-Dir	110.0	1	122.00	135.00	1	3.39	177.0
TPSMA6J120A	Uni-Dir	120.0	1	133.00	147.00	1	3.11	193.0
TPSMA6J120CA	Bi-Dir	120.0	1	133.00	147.00	1	3.11	193.0
TPSMA6J130A	Uni-Dir	130.0	1	144.00	159.00	1	2.87	209.0
TPSMA6J130CA	Bi-Dir	130.0	1	144.00	159.00	1	2.87	209.0
TPSMA6J140A	Uni-Dir	140.0	1	155.00	171.00	1	2.65	226.8
TPSMA6J140CA	Bi-Dir	140.0	1	155.00	171.00	1	2.65	226.8
TPSMA6J150A	Uni-Dir	150.0	1	167.00	185.00	1	2.47	243.0
TPSMA6J150CA	Bi-Dir	150.0	1	167.00	185.00	1	2.47	243.0
TPSMA6J160A	Uni-Dir	160.0	1	178.00	197.00	1	2.32	259.0
TPSMA6J160CA	Bi-Dir	160.0	1	178.00	197.00	1	2.32	259.0
TPSMA6J170A	Uni-Dir	170.0	1	189.00	209.00	1	2.18	275.0
TPSMA6J170CA	Bi-Dir	170.0	1	189.00	209.00	1	2.18	275.0
TPSMA6J180A	Uni-Dir	180.0	1	200.00	220.00	1	2.06	291.6
TPSMA6J180CA	Bi-Dir	180.0	1	200.00	220.00	1	2.06	291.6
TPSMA6J190A	Uni-Dir	190.0	1	211.00	232.00	1	1.95	307.8
TPSMA6J190CA	Bi-Dir	190.0	1	211.00	232.00	1	1.95	307.8
TPSMA6J200A	Uni-Dir	200.0	1	224.00	247.00	1	1.85	324.0
TPSMA6J200CA	Bi-Dir	200.0	1	224.00	247.00	1	1.85	324.0

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

Fig. 1 - Pulse Derating Curve

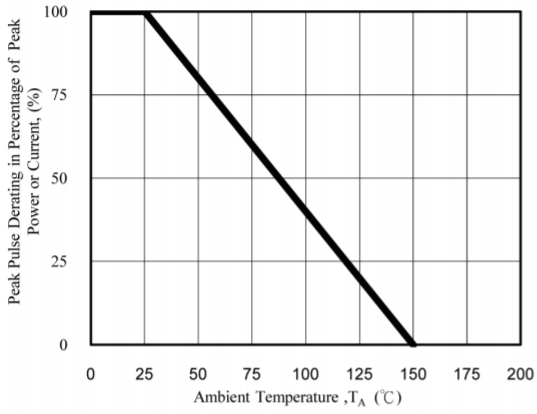


Fig. 2 - Maximum Non-Repetitive Surge Current

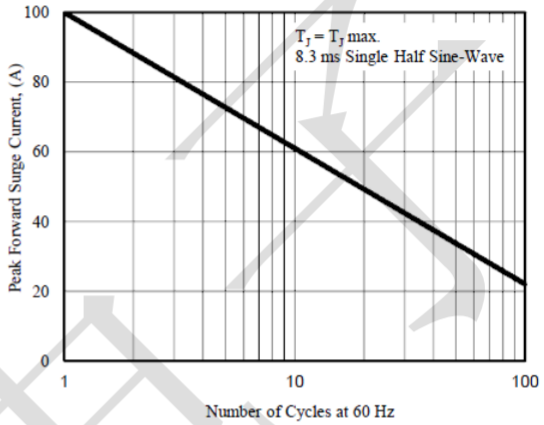


Fig. 3 - Steady State Power Derating Curve

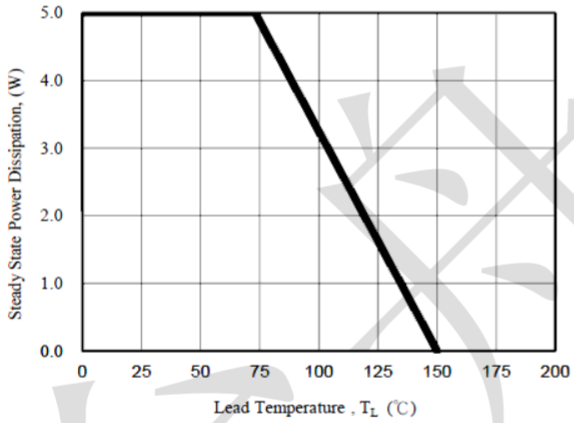


Fig. 4 - Peak Pulse Power Rating Curve

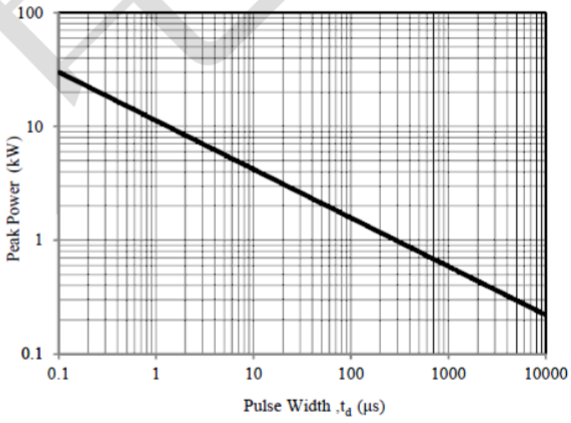


Fig. 5 - Pulse Waveform

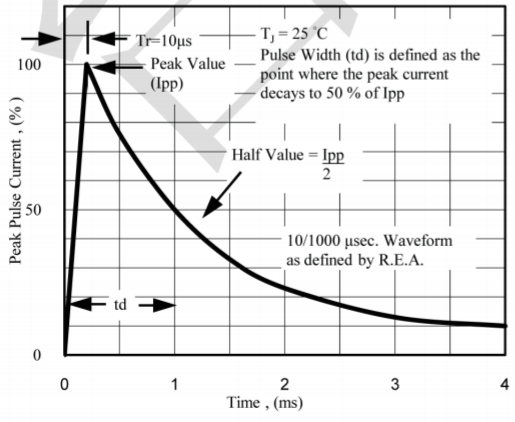
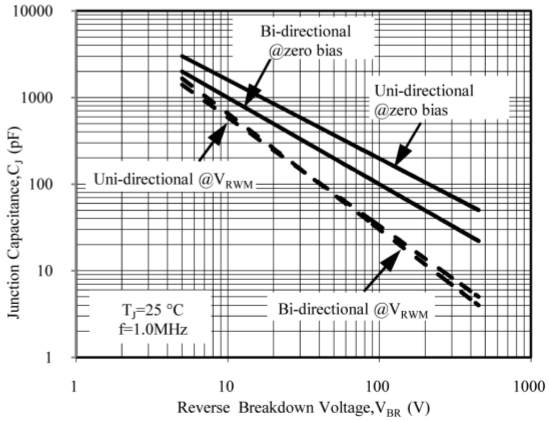


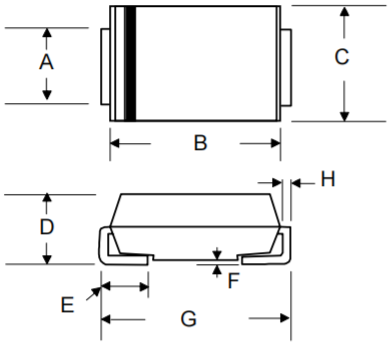
Fig. 6 - Typical Junction Capacitance



TPSMA6J Series

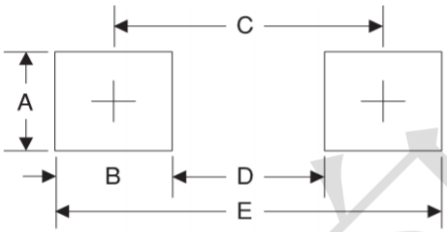
Transient Voltage Suppressor Diodes

Package Dimensions



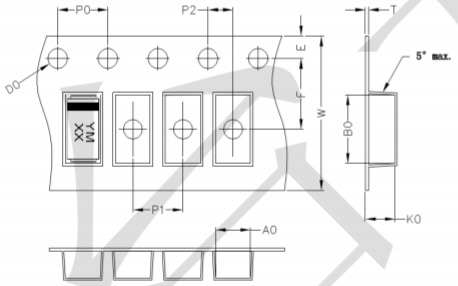
Symbol	Dimensions in millimeters	
	Min	Max
A	1.30	1.70
B	3.90	4.50
C	2.40	2.80
D	2.00	2.50
E	0.76	1.52
F	0.10	0.20
G	4.80	5.30
H	0.15	0.31

PAD Dimensions



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

Packing Information



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