

SMD Type 1500 W

■ Features

1. High reliability application and automotive grade AEC-Q101 qualified
2. 1500W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01%
3. Low leakage current
4. Excellent clamping capability
5. Very fast response time
6. RoHS compliant
7. ESD protection of data lines in accordance with IEC 61000-4-2,30kV(Air),30kV(Contact)



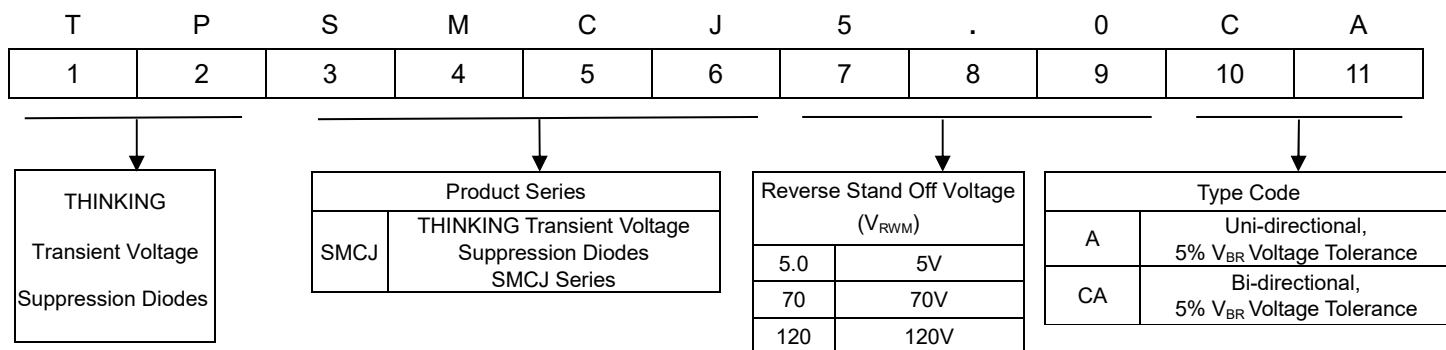
■ Recommended Applications

1. Telecommunication
2. Computer
3. Industrial device
4. Consumer electronic device
5. Automotive

■ Mechanical Data

1. Case: DO-214AB (SMC), molded plastic meets
2. Epoxy : UL 94V-0 rate flame retardant
3. Terminal: Solderable per MIL-STD-750, Method 2026
4. Polarity: Color band denotes cathode end

■ Part Number Code

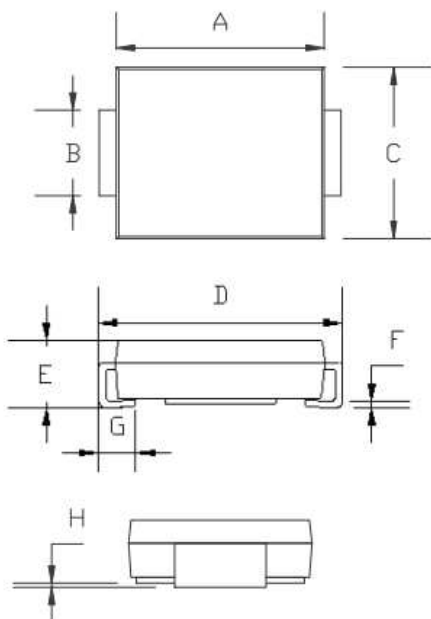


Transient Voltage Suppression Diodes: TPSCMJ Series

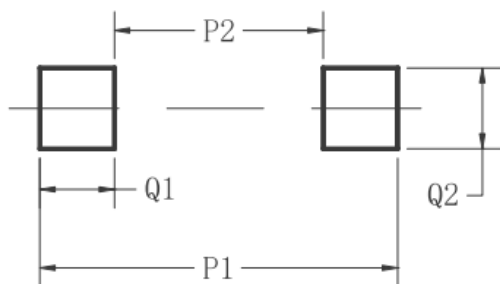
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Structures and Dimensions



SMC / DO-214AB		
Dimensions	Millimeters	
	Min	Max
A	6.60	7.15
B	2.75	3.27
C	5.55	6.22
D	7.75	8.13
E	1.98	2.80
F	0.15	0.31
G	0.75	1.52
H	0.00	0.30



SMC / DO-214AB	
Dimensions	Millimeters
P1	9.90
P2	3.84
Q1	3.03
Q2	3.82

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}	1500	W
Peak forward surge current, 8.3ms single half sine wave on rated load (Note 3)	I_{FSM}	200	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	6.5	W
Maximum instantaneous forward voltage at 100A for unidirectional only	VF	3.5	V
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^\circ\text{C/W}$
Operating junction and storage temperature range	T_J, T_{STG}	-65~+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 copper pad area of 0.31" x 0.31" (8.0 x 8.0mm) 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

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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	Maximum Reverse Leakage IR @VRWM	Marking Code	
			VRWM (V)	Min(V)					Max(V)	Uni
TPSMCJ5.0A	TPSMCJ5.0CA	5	6.4	7	10	9.2	163.04	800	GDE	BDE
TPSMCJ6.0A	TPSMCJ6.0CA	6	6.67	7.37	10	10.3	145.63	800	GDG	BDG
TPSMCJ6.5A	TPSMCJ6.5CA	6.5	7.22	7.98	10	11.2	133.93	500	GDK	BDK
TPSMCJ7.0A	TPSMCJ7.0CA	7	7.78	8.6	10	12	125	200	GDM	BDM
TPSMCJ7.5A	TPSMCJ7.5CA	7.5	8.33	9.21	1	12.9	116.28	100	GDP	BDP
TPSMCJ8.0A	TPSMCJ8.0CA	8	8.89	9.83	1	13.6	110.29	50	GDR	BDR
TPSMCJ8.5A	TPSMCJ8.5CA	8.5	9.44	10.4	1	14.4	104.17	10	GDT	BDT
TPSMCJ9.0A	TPSMCJ9.0CA	9	10	11.1	1	15.4	97.4	5	GDV	BDV
TPSMCJ10A	TPSMCJ10CA	10	11.1	12.3	1	17	88.24	5	GDX	BDX
TPSMCJ11A	TPSMCJ11CA	11	12.2	13.5	1	18.2	82.42	5	GDZ	BDZ
TPSMCJ12A	TPSMCJ12CA	12	13.3	14.7	1	19.9	75.38	5	GEE	BEE
TPSMCJ13A	TPSMCJ13CA	13	14.4	15.9	1	21.5	69.77	1	GEG	BEG
TPSMCJ14A	TPSMCJ14CA	14	15.6	17.2	1	23.2	64.66	1	GEK	BEK
TPSMCJ15A	TPSMCJ15CA	15	16.7	18.5	1	24.4	61.48	1	GEM	BEM
TPSMCJ16A	TPSMCJ16CA	16	17.8	19.7	1	26	57.69	1	GEP	BEP
TPSMCJ17A	TPSMCJ17CA	17	18.9	20.9	1	27.6	54.35	1	GFR	BER
TPSMCJ18A	TPSMCJ18CA	18	20	22.1	1	29.2	51.37	1	GET	BET
TPSMCJ20A	TPSMCJ20CA	20	22.2	24.5	1	32.4	46.30	1	GEV	BEV
TPSMCJ22A	TPSMCJ22CA	22	24.4	26.9	1	35.5	42.25	1	GEX	BEX
TPSMCJ24A	TPSMCJ24CA	24	26.7	29.5	1	38.9	38.56	1	GEZ	BEZ
TPSMCJ26A	TPSMCJ26CA	26	28.9	31.9	1	42.1	35.63	1	GFE	BFE
TPSMCJ28A	TPSMCJ28CA	28	31.1	34.4	1	45.4	33.04	1	GFG	BFG
TPSMCJ30A	TPSMCJ30CA	30	33.3	36.8	1	48.4	30.99	1	GFK	BFK
TPSMCJ33A	TPSMCJ33CA	33	36.7	40.6	1	53.3	28.14	1	GFM	BFM
TPSMCJ36A	TPSMCJ36CA	36	40	44.2	1	58.1	25.82	1	GFP	BFP
TPSMCJ40A	TPSMCJ40CA	40	44.4	49.1	1	64.5	23.26	1	GFR	BFR
TPSMCJ43A	TPSMCJ43CA	43	47.8	52.8	1	69.4	21.61	1	GFT	BFT
TPSMCJ45A	TPSMCJ45CA	45	50	55.3	1	72.7	20.63	1	GFV	BFV
TPSMCJ48A	TPSMCJ48CA	48	53.3	58.9	1	77.4	19.38	1	GFX	BFX

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			VRWM (V)	Min(V)					Max(V)	Uni
TPSMCJ51A	TPSMCJ51CA	51	56.7	62.7	1	82.4	18.20	1	GFZ	BFZ
TPSMCJ54A	TPSMCJ54CA	54	60	66.3	1	87.1	17.22	1	GGE	BGE
TPSMCJ58A	TPSMCJ58CA	58	64.4	71.2	1	93.6	16.03	1	GGG	BGG
TPSMCJ60A	TPSMCJ60CA	60	66.7	73.7	1	96.8	15.50	1	GGK	BGK
TPSMCJ64A	TPSMCJ64CA	64	71.1	78.6	1	103	14.56	1	GGM	BGM
TPSMCJ70A	TPSMCJ70CA	70	77.8	86	1	113	13.27	1	GGP	BGP
TPSMCJ75A	TPSMCJ75CA	75	83.3	92.1	1	121	12.40	1	GGR	BGR
TPSMCJ78A	TPSMCJ78CA	78	86.7	95.8	1	126	11.90	1	GGT	BGT
TPSMCJ85A	TPSMCJ85CA	85	94.4	104	1	137	10.95	1	GGV	BGV
TPSMCJ90A	TPSMCJ90CA	90	100	111	1	146	10.27	1	GGX	BGX
TPSMCJ100A	TPSMCJ100CA	100	111	123	1	162	9.26	1	GGZ	BGZ
TPSMCJ110A	TPSMCJ110CA	110	122	135	1	177	8.47	1	GHE	BHE
TPSMCJ120A	TPSMCJ120CA	120	133	147	1	193	7.77	1	GHG	BHG
TPSMCJ130A	TPSMCJ130CA	130	144	159	1	209	7.18	1	GHK	BHK
TPSMCJ150A	TPSMCJ150CA	150	167	185	1	243	6.17	1	GHM	BHM
TPSMCJ160A	TPSMCJ160CA	160	178	197	1	259	5.79	1	GHP	BHP
TPSMCJ170A	TPSMCJ170CA	170	189	209	1	275	5.45	1	GHR	BHR

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

Fig.1 - Peak Pulse Power Rating Curve

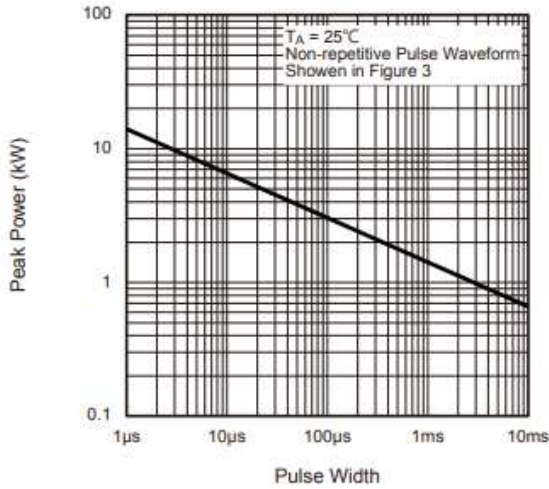


Fig.2 - Pulse Derating Curve

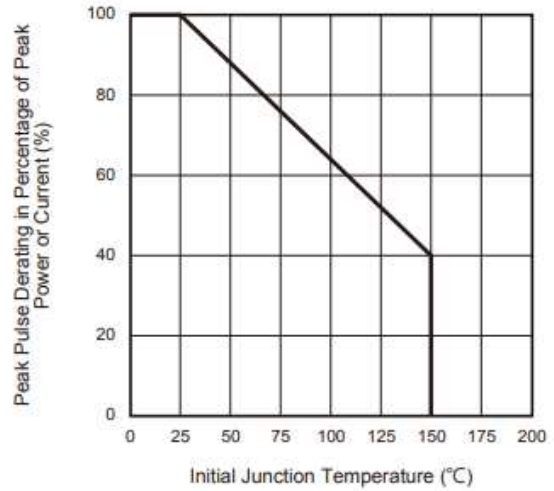


Fig.3 - Pulse Waveform

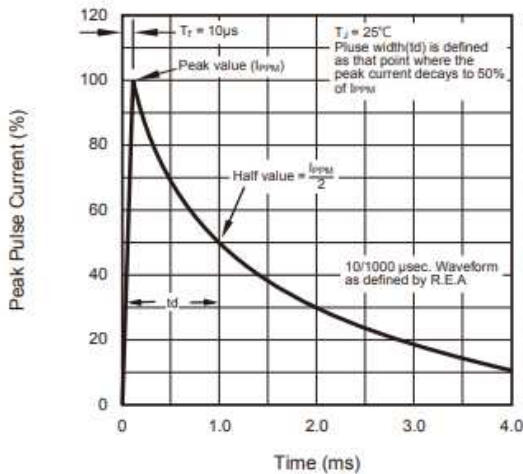


Fig.4 - Typical Junction Capacitance

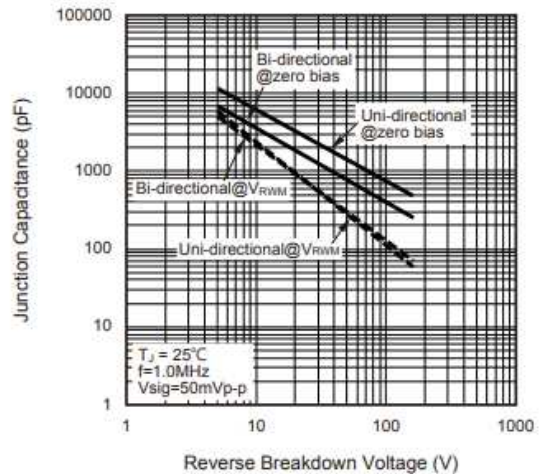


Fig.5 - Steady State Power Derating Curve

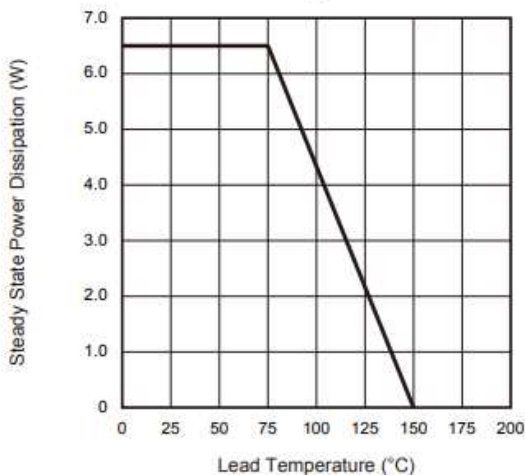
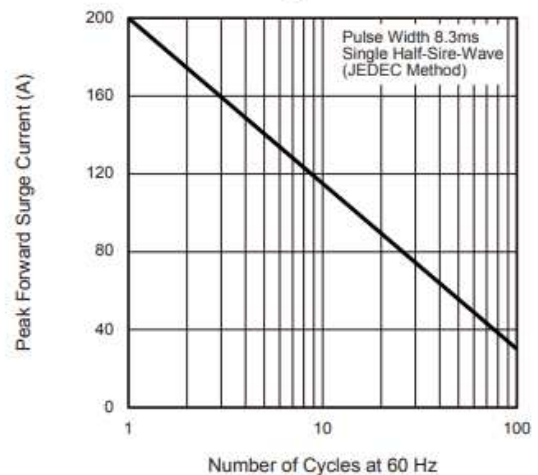


Fig.6 - Maximum Non-Repetitive Surge Current

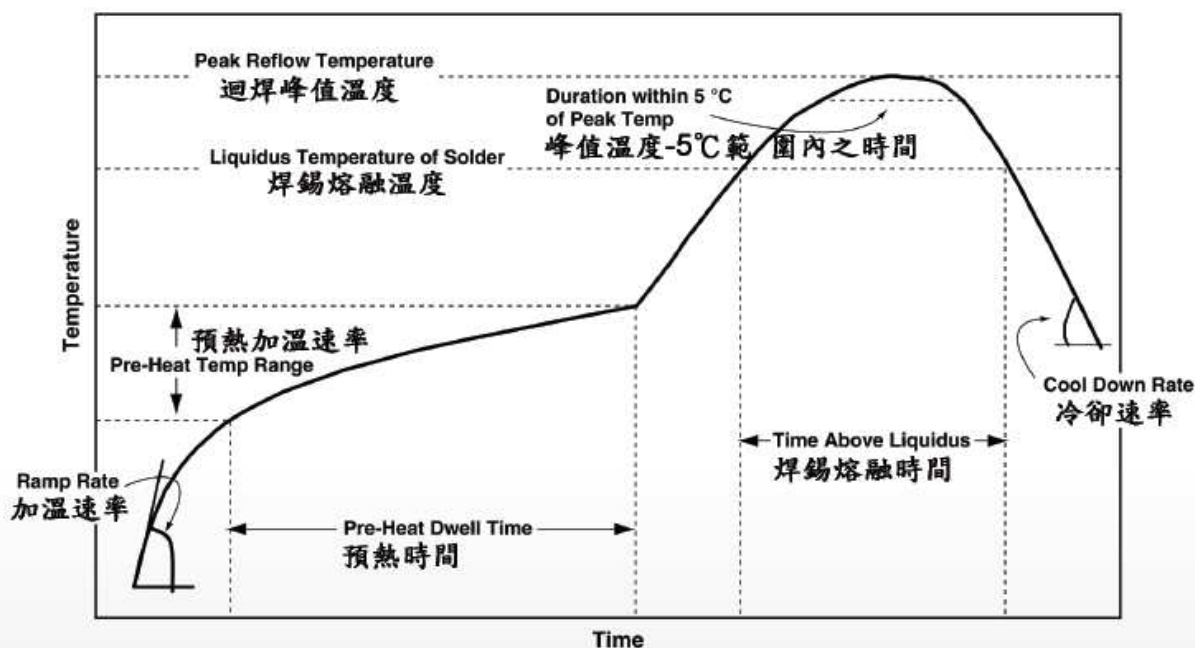


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IR-reflow soldering profile



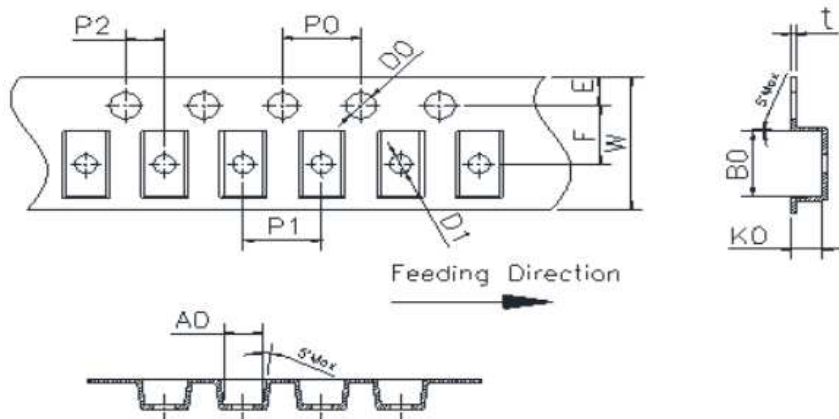
LEAD(Pb)-FREE SOLDER(SnAgCu) REFLOW PROFILE ATTRIBUTES	
PROFILE ATTRIBUTE	PROFILE ATTRIBUTE
Peak Reflow Temperature	260(+8/-8)°C
Time within 5°C of Peak Temperature	30s max
Liquidus Temperature of Solder	217°C
Cool Down Rate	6 °C/s max
Time above Liquidus	60s to 150s
Pre-heat Temperature Range	150°C to 200°C
Pre-heat Dwell Time	60s to 120s
Maximum Ramp Rate	3 °C/s max

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■ Packaging



Item	Symbol	DO-214AB (SMC)
		Unit:mm
Carrier width	A0	6.05±0.1
Carrier length	B0	8.31±0.1
Carrier depth	K0	2.54±0.1
Sprocket hole	D0/D1	1.55±0.05
Sprocket hole position	E	1.75±0.1
Punch hole position	F	7.5±0.1
Sprocket hole pitch	P0	4±0.1
Carrier pitch	P1	8±0.1
Embossment center	P2	2±0.1
Tape thickness	t	0.3±0.02
Tape width	W	16±0.3

■ Quantity

Series Type	Reel Size (inch)	Quantity (pcs/reel)
TPSCMJ	13	3,000

■ Warehouse Storage Conditions of product

- Storage Condition:
 1. Storage Temperature: ≤25°C
 2. Relative Humidity: 50%~80%RH
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.