

SMD Type 1500 W

■ Features

1. Glass passivated chip
2. 1500W 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. Halogen free and RoHS compliant
9. AEC-Q101 qualified



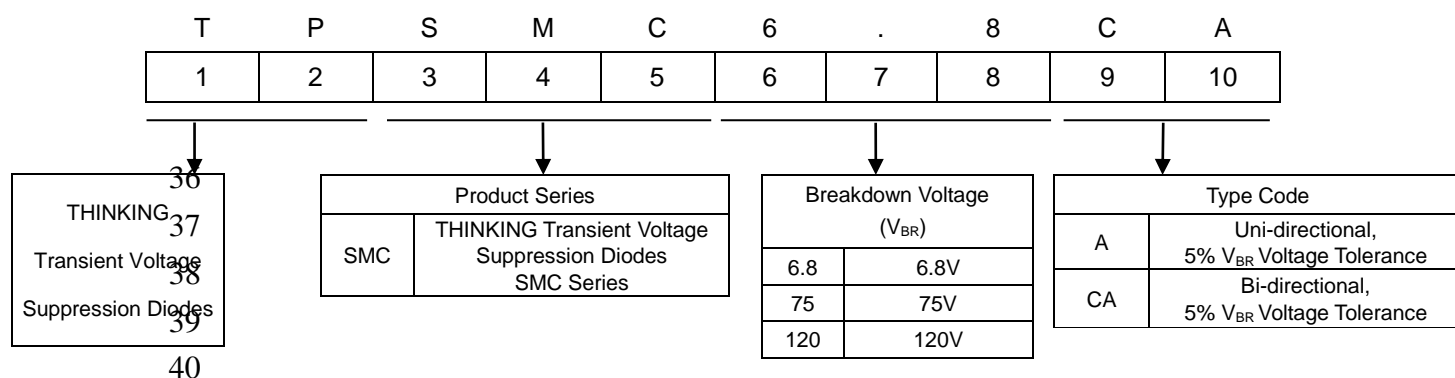
■ Recommended Applications

1. I/O interface
2. AC/DC power supply
3. Low frequency signal transmission line

■ Mechanical Data

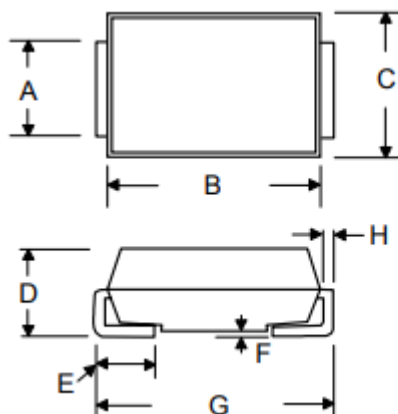
1. Case: DO-214AB (SMC), molded plastic meets
2. Epoxy : UL 94V-0 rate flame retardant
3. Terminal: Solderable per MIL-STD-750, Method 2026
4. Polarity: Color band denotes cathode end
5. Mounting Position: Any

■ Part Number Code

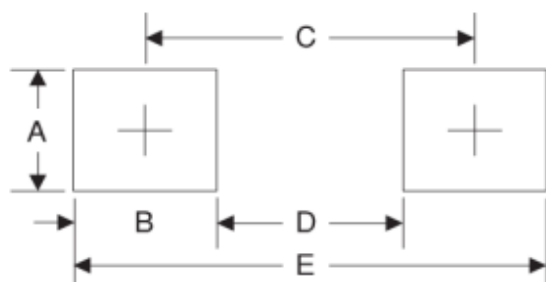


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Structures and Dimensions



Symbol	Dimensions in millimeters	
	Min	Max
A	2.90	3.20
B	6.60	7.11
C	5.59	6.22
D	2.06	2.62
E	0.76	1.52
F	-	0.20
G	7.75	8.13
H	0.15	0.31



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.80	0.268
D	4.40	0.173
E	9.40	0.370

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

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 μs waveform (Note 1,2)	P_{PPM}	1500	W
Peak pulse current with 10/1000 μs waveform (Note 1)	I_{PPM}	See next table	A
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	I_{FSM}	200	A
Power dissipation on infinite heatsink at $T_L=75^{\circ}\text{C}$	PD	6.5	W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^{\circ}\text{C} / \text{W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^{\circ}\text{C} / \text{W}$
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 copper pad area of 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



■ 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
TPSCM6.8A	TPSCM6.8CA	5.8	6.45	7.14	10	10.5	144.8	1000	6V8A	6V8C
TPSCM7.5A	TPSCM7.5CA	6.4	7.13	7.88	10	11.3	134.5	500	7V5A	7V5C
TPSCM8.2A	TPSCM8.2CA	7.02	7.79	8.61	10	12.1	125.6	200	8V2A	8V2C
TPSCM9.1A	TPSCM9.1CA	7.78	8.65	9.55	1	13.4	113.4	50	9V1A	9V1C
TPSCM10A	TPSCM10CA	8.55	9.5	10.5	1	14.5	104.8	10	10A	10C
TPSCM11A	TPSCM11CA	9.4	10.5	11.6	1	15.6	97.4	5	11A	11C
TPSCM12A	TPSCM12CA	10.2	11.4	12.6	1	16.7	91	5	12A	12C
TPSCM13A	TPSCM13CA	11.1	12.4	13.7	1	18.2	83.5	5	13A	13C
TPSCM15A	TPSCM15CA	12.8	14.3	15.8	1	21.2	71.7	1	15A	15C
TPSCM16A	TPSCM16CA	13.6	15.2	16.8	1	22.5	67.6	1	16A	16C
TPSCM18A	TPSCM18CA	15.3	17.1	18.9	1	25.2	60.3	1	18A	18C
TPSCM20A	TPSCM20CA	17.1	19	21	1	27.7	54.9	1	20A	20C
TPSCM22A	TPSCM22CA	18.8	20.9	23.1	1	30.6	49.7	1	22A	22C
TPSCM24A	TPSCM24CA	20.5	22.8	25.2	1	33.2	45.8	1	24A	24C
TPSCM27A	TPSCM27CA	23.1	25.7	28.4	1	37.5	40.5	1	27A	27C
TPSCM30A	TPSCM30CA	25.6	28.5	31.5	1	41.4	36.7	1	30A	30C
TPSCM33A	TPSCM33CA	28.2	31.4	34.7	1	45.7	33.3	1	33A	33C
TPSCM36A	TPSCM36CA	30.8	34.2	37.8	1	49.9	30.5	1	36A	36C
TPSCM39A	TPSCM39CA	33.3	37.1	41	1	53.9	28.2	1	39A	39C
TPSCM43A	TPSCM43CA	36.8	40.9	45.2	1	59.3	25.6	1	43A	43C
TPSCM47A	TPSCM47CA	40.2	44.7	49.4	1	64.8	23.5	1	47A	47C
TPSCM51A	TPSCM51CA	43.6	48.5	53.6	1	70.1	21.7	1	51A	51C
TPSCM56A	TPSCM56CA	47.8	53.2	58.8	1	77	18.7	1	56A	56C
TPSCM62A	TPSCM62CA	53	58.9	65.1	1	85	17.9	1	62A	62C
TPSCM68A	TPSCM68CA	58.1	64.6	71.4	1	92	16.5	1	68A	68C
TPSCM75A	TPSCM75CA	64.1	71.3	78.8	1	103	14.8	1	75A	75C
TPSCM82A	TPSCM82CA	70.1	77.9	86.1	1	113	13.5	1	82A	82C
TPSCM91A	TPSCM91CA	77.8	86.5	95.5	1	125	12.2	1	91A	91C
TPSCM100A	TPSCM100CA	85.5	95	105	1	137	11.1	1	100A	100C

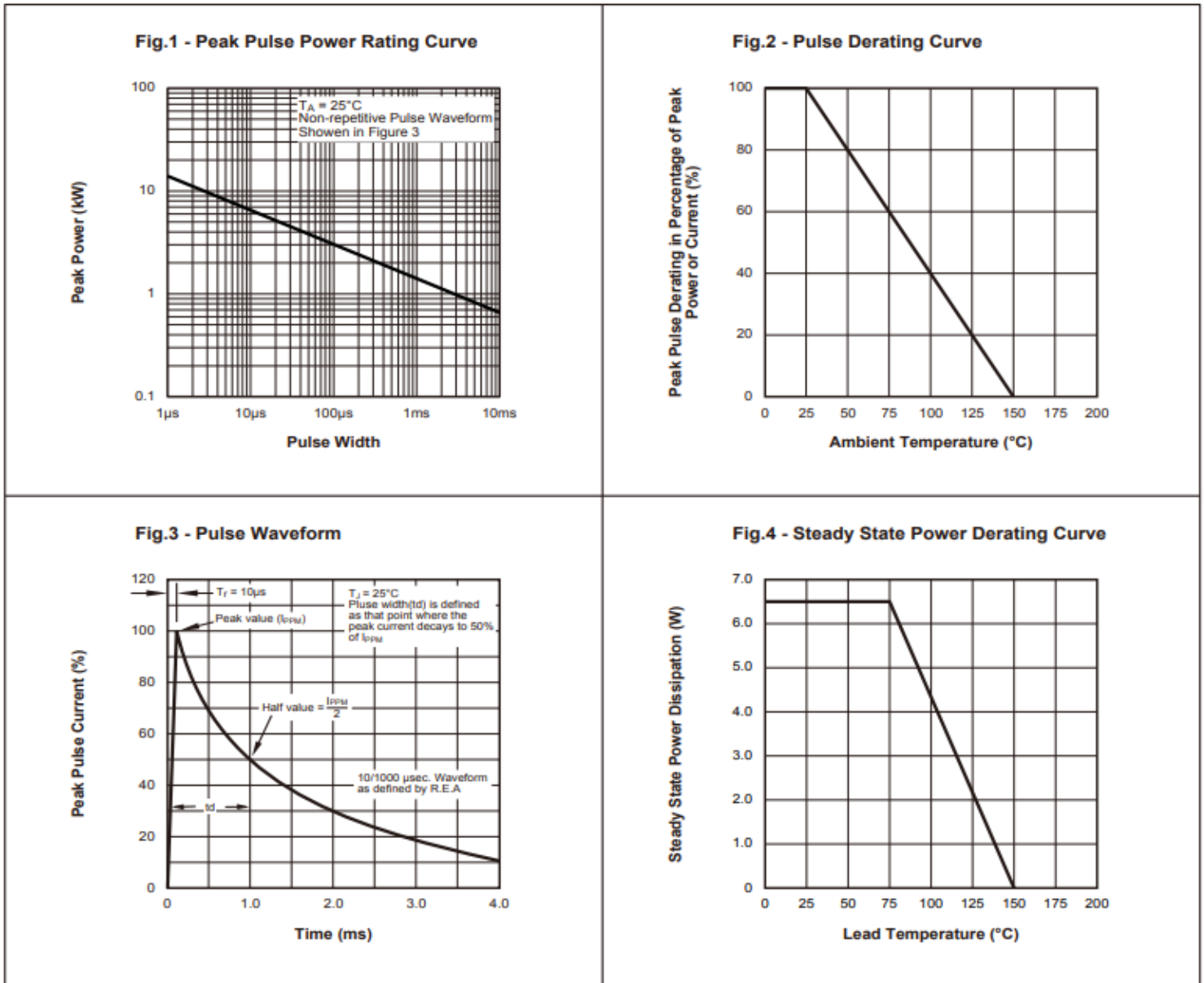


■ Electrical Characteristics (T_A=25°C unless otherwise noted)

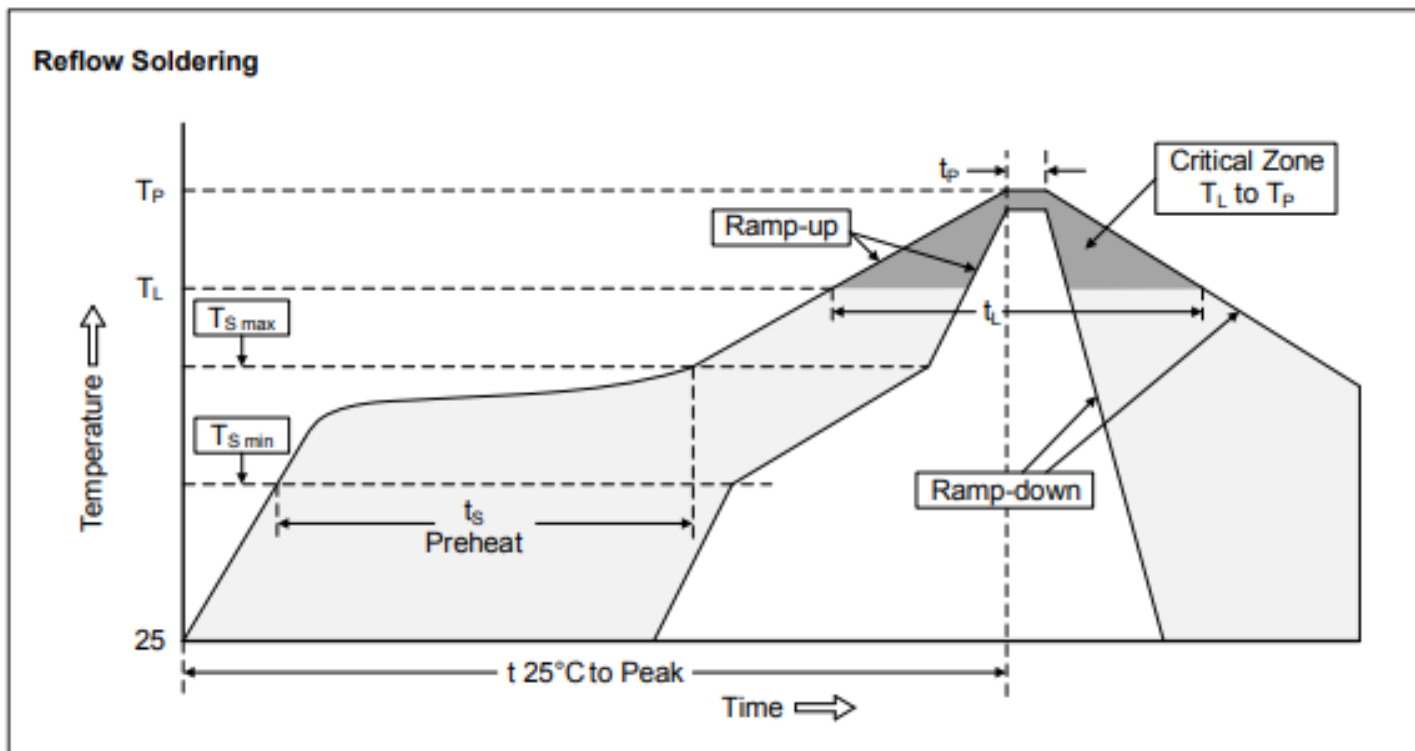
Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage VBR @ IT		Test Current	Maximum Clamping Voltage VC @ Ipp	Maximum Peak Pulse Current	Maximum Reverse Leakage IR @VRWM	Marking Code	
			VRWM (V)	Min(V)					Max(V)	IT(mA)
TPSCM110A	TPSCM110CA	94	105	116	1	152	10	1	110A	110C
TPSCM120A	TPSCM120CA	102	114	126	1	165	9.2	1	120A	120C
TPSCM130A	TPSCM130CA	111	124	137	1	179	8.5	1	130A	130C
TPSCM150A	TPSCM150CA	128	143	158	1	207	7.3	1	150A	150C
TPSCM160A	TPSCM160CA	136	152	168	1	219	6.9	1	160A	160C
TPSCM170A	TPSCM170CA	145	162	179	1	234	6.5	1	170A	170C
TPSCM180A	TPSCM180CA	154	171	189	1	246	6.2	1	180A	180C
TPSCM200A	TPSCM200CA	171	190	210	1	274	5.5	1	200A	200C
TPSCM220A	TPSCM220CA	185	209	231	1	328	4.6	1	220A	220C
TPSCM250A	TPSCM250CA	214	237	263	1	344	4.4	1	250A	250C
TPSCM300A	TPSCM300CA	256	285	315	1	414	3.7	1	300A	300C
TPSCM350A	TPSCM350CA	300	333	368	1	482	3.2	1	350A	350C
TPSCM400A	TPSCM400CA	342	380	420	1	548	2.8	1	400A	400C
TPSCM440A	TPSCM440CA	376	418	462	1	602	2.5	1	440A	440C
TPSCM480A	TPSCM480CA	408	456	504	1	658	2.3	1	480A	480C
TPSCM510A	TPSCM510CA	434	485	535	1	698	2.1	1	510A	510C
TPSCM530A	TPSCM530CA	450	503	556	1	725	2.1	1	530A	530C
TPSCM540A	TPSCM540CA	459	513	567	1	740	2	1	540A	540C



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



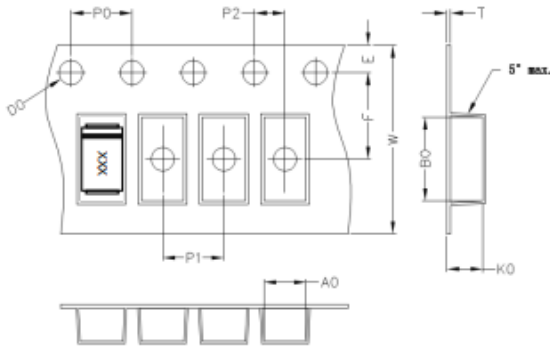
IR-reflow soldering profile



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.

■ Packaging



A0	B0	K0	D0	E	F
6.05	8.31	2.54	1.55	1.75	7.50
P0	P1	P2	T	W	Tolerance
4.0	8.0	2.0	0.25	16	0.1

■ Quantity

Series Type	Packaging option	Base quantity	Packaging specification
TPSCM	Tape and reel	3000/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.