

Features

- Peak power dissipation
1500W@10 x 1000 us Pluse
- Low incremental surge resistance
- Excellent clamping capability
- Fast response time
- Low leakage current
- Halogen free and RoHS compliant

Applications

- Personal digital assistants (PDA)
- Cellular handsets & Accessories
- Handhelds and notebooks
- Portable instrumentation

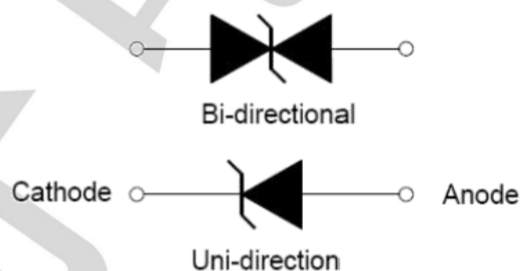
Mechanical Characteristics

- DO-214AB(SMC) surface mount package

Dimensions and Pin Configuration



DO-214AB(SMC)



Pin Configuration

Maximum Ratings& Thermal Characteristics

(Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak pulse power (tp=10/1000μs waveform)	P _{PPM}	1500	W
Steady state power dissipation at T _A =50°C	P _{M(AV)}	6.0	W
Peak Pulse Current of on 10/1000us Waveform	I _{PPM}	See Table	A
Typical thermal resistance junction to ambient	R _{θJA}	75	°C/W
Storage & operating temperature range	T _{STG} ,T _J	-55~+150	°C

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

PART NUMBER		Working Peak Reverse Voltage VRWM (V)	Breakdown Voltage VBR @IT			Maximum Clamping Voltage Vc (V) @ IPP	Maximum Reverse Surge Current IPP (A) @10 x 1000µs sinewave	Maximum Reverse Leakage IR (µA) @VRWM
UNI- POLAR	BI-POLAR		Min. (V)	Max. (V)	IT (mA)			
TPSMCJ5.0A	TPSMCJ5.0CA	5.0	6.40	7.00	10	9.2	163.0	1000
TPSMCJ6.0A	TPSMCJ6.0CA	6.0	6.67	7.37	10	10.3	145.6	1000
TPSMCJ6.5A	TPSMCJ6.5CA	6.5	7.22	7.98	10	11.2	133.9	500
TPSMCJ7.0A	TPSMCJ7.0CA	7.0	7.78	8.60	10	12.0	125.0	200
TPSMCJ7.5A	TPSMCJ7.5CA	7.5	8.33	9.21	1	12.9	116.3	100
TPSMCJ8.0A	TPSMCJ8.0CA	8.0	8.89	9.83	1	13.6	110.3	50
TPSMCJ8.5A	TPSMCJ8.5CA	8.5	9.44	10.40	1	14.4	104.2	20
TPSMCJ9.0A	TPSMCJ9.0CA	9.0	10.00	11.10	1	15.4	97.4	10
TPSMCJ10A	TPSMCJ10CA	10	11.10	12.30	1	17.0	88.2	5
TPSMCJ11A	TPSMCJ11CA	11	12.20	13.50	1	18.2	82.4	5
TPSMCJ12A	TPSMCJ12CA	12	13.30	14.70	1	19.9	75.4	5
TPSMCJ13A	TPSMCJ13CA	13	14.40	15.90	1	21.5	69.8	5
TPSMCJ14A	TPSMCJ14CA	14	15.60	17.20	1	23.2	64.7	5
TPSMCJ15A	TPSMCJ15CA	15	16.70	18.50	1	24.4	61.5	5
TPSMCJ16A	TPSMCJ16CA	16	17.80	19.70	1	26.0	57.7	5
TPSMCJ17A	TPSMCJ17CA	17	18.90	20.90	1	27.6	54.3	5
TPSMCJ18A	TPSMCJ18CA	18	20.00	22.10	1	29.2	51.4	5
TPSMCJ19A	TPSMCJ19CA	19	21.10	23.30	1	30.8	48.7	5
TPSMCJ20A	TPSMCJ20CA	20	22.20	24.50	1	32.4	46.3	5
TPSMCJ22A	TPSMCJ22CA	22	24.40	26.90	1	35.5	42.3	5
TPSMCJ24A	TPSMCJ24CA	24	26.70	29.50	1	38.9	38.6	5
TPSMCJ26A	TPSMCJ26CA	26	28.90	31.90	1	42.1	35.6	5
TPSMCJ28A	TPSMCJ28CA	28	31.10	34.40	1	45.4	33.0	5
TPSMCJ30A	TPSMCJ30CA	30	33.30	36.80	1	48.4	31.0	5
TPSMCJ33A	TPSMCJ33CA	33	36.70	40.60	1	53.3	28.1	5
TPSMCJ36A	TPSMCJ36CA	36	40.00	44.20	1	58.1	25.8	5
TPSMCJ40A	TPSMCJ40CA	40	44.40	49.10	1	64.5	23.3	5
TPSMCJ43A	TPSMCJ43CA	43	47.80	52.80	1	69.4	21.6	5
TPSMCJ45A	TPSMCJ45CA	45	50.00	55.30	1	72.7	20.6	5
TPSMCJ48A	TPSMCJ48CA	48	53.30	58.90	1	77.4	19.4	5
TPSMCJ51A	TPSMCJ51CA	51	56.70	62.70	1	82.4	18.2	5
TPSMCJ54A	TPSMCJ54CA	54	60.00	66.30	1	87.1	17.2	5

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

PART NUMBER		Working Peak Reverse Voltage V _{RWM} (V)	Breakdown Voltage V _{BR} @ I _T			Maximum Clamping Voltage V _C (V) @ I _{PP}	Maximum Reverse Surge Current I _{PP} (A) @ 10 x 1000μs sinewave	Maximum Reverse Leakage I _R (μA) @ V _{RWM}
UNI- POLAR	BI-POLAR		Min. (V)	Max. (V)	I _T (mA)			
TPSMCJ58A	TPSMCJ58CA	58	64.40	71.20	1	93.6	16.0	5
TPSMCJ60A	TPSMCJ60CA	60	66.70	73.70	1	96.8	15.5	5
TPSMCJ64A	TPSMCJ64CA	64	71.10	78.60	1	103	14.6	5
TPSMCJ70A	TPSMCJ70CA	70	77.80	86.00	1	113	13.3	5
TPSMCJ75A	TPSMCJ75CA	75	83.30	92.10	1	121	12.4	5
TPSMCJ78A	TPSMCJ78CA	78	86.70	95.80	1	126	11.9	5
TPSMCJ80A	TPSMCJ80CA	80	88.80	97.60	1	130	11.6	5
TPSMCJ85A	TPSMCJ85CA	85	94.40	104	1	137	10.9	5
TPSMCJ90A	TPSMCJ90CA	90	100	111	1	146	10.3	5
TPSMCJ120A	TPSMCJ120CA	120	133	147	1	193	7.8	5
TPSMCJ130A	TPSMCJ130CA	130	144	159	1	209	7.2	5
TPSMCJ140A	TPSMCJ140CA	140	155	171	1	227	6.6	5
TPSMCJ150A	TPSMCJ150CA	150	167	185	1	243	6.2	5
TPSMCJ160A	TPSMCJ160CA	160	178	197	1	259	5.8	5
TPSMCJ170A	TPSMCJ170CA	170	189	209	1	275	5.5	5
TPSMCJ180A	TPSMCJ180CA	180	200	220	1	291	5.1	5
TPSMCJ190A	TPSMCJ190CA	190	211	232	1	308	4.9	5
TPSMCJ200A	TPSMCJ200CA	200	224	247	1	324	4.6	5
TPSMCJ220A	TPSMCJ220CA	220	246	272	1	356	4.2	5
TPSMCJ250A	TPSMCJ250CA	250	279	309	1	405	3.7	5
TPSMCJ300A	TPSMCJ300CA	300	335	371	1	486	3.1	5
TPSMCJ350A	TPSMCJ350CA	350	391	432	1	567	2.6	5
TPSMCJ400A	TPSMCJ400CA	400	447	494	1	648	2.3	5
TPSMCJ440A	TPSMCJ440CA	440	492	543	1	713	2.1	5

For bi-directional type having V_{RWM} of 10 Volts and less, the I_R limit is double.

For parts without A, the V_{BR} is +10%.

Typical Characteristics Curves

FIG. 1 - PULSE DERATING CURVE

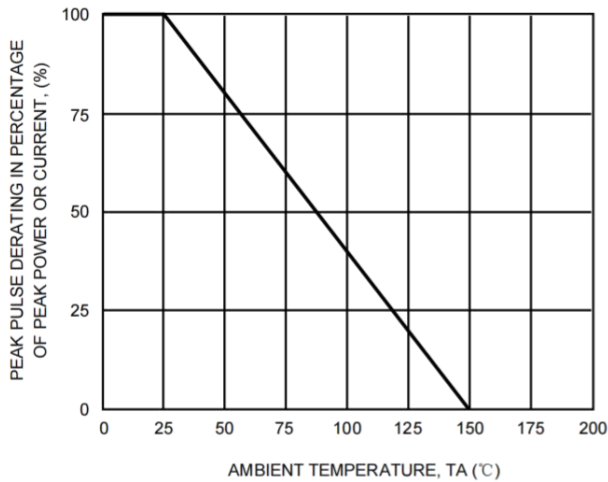


FIG. 2 - MAXIMUM NON-REPETITIVE

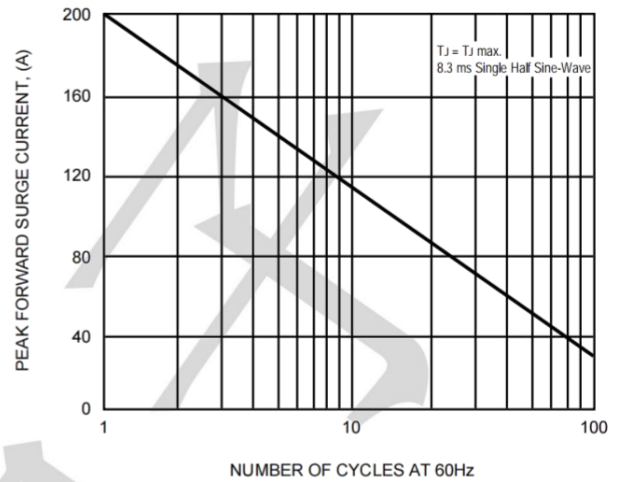


FIG. 3 - STEADY STATE POWER DERATING CURVE

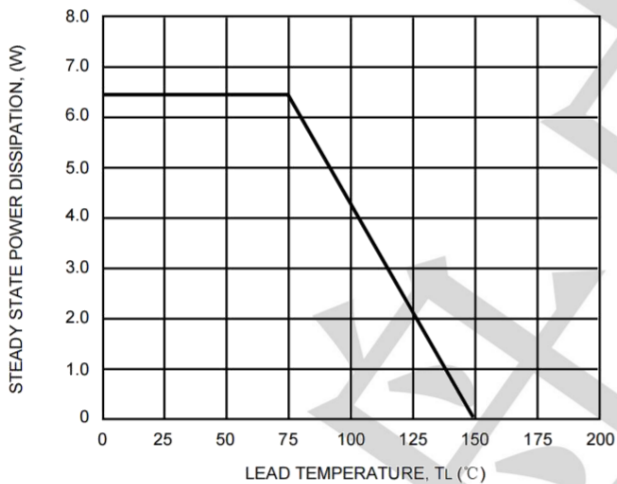


FIG. 4 - PEAK PULSE POWER RATING CURVE

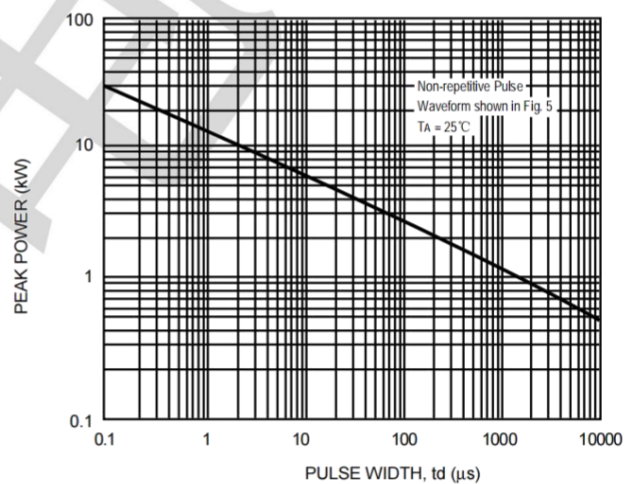
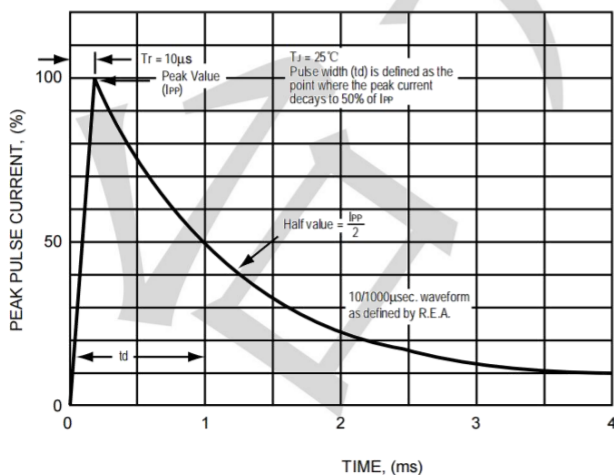
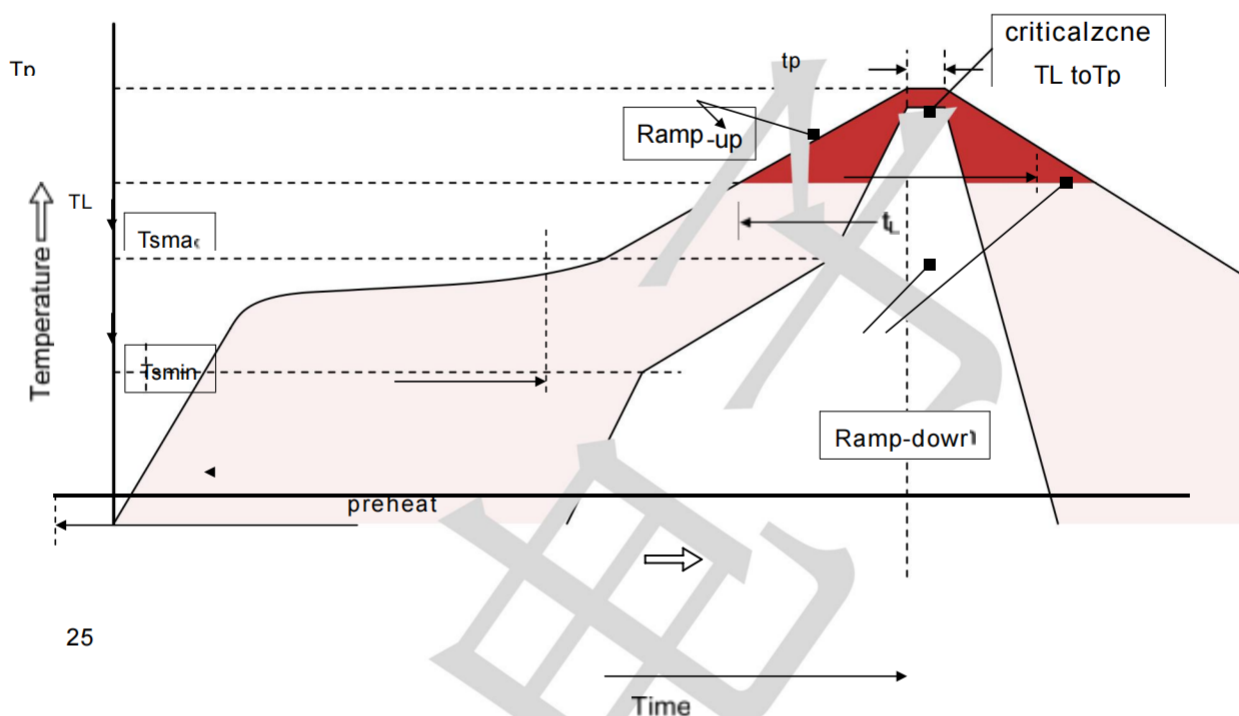


FIG. 5 - PULSE WAVEFORM



Recommended Soldering Conditions

Reflow Soldering

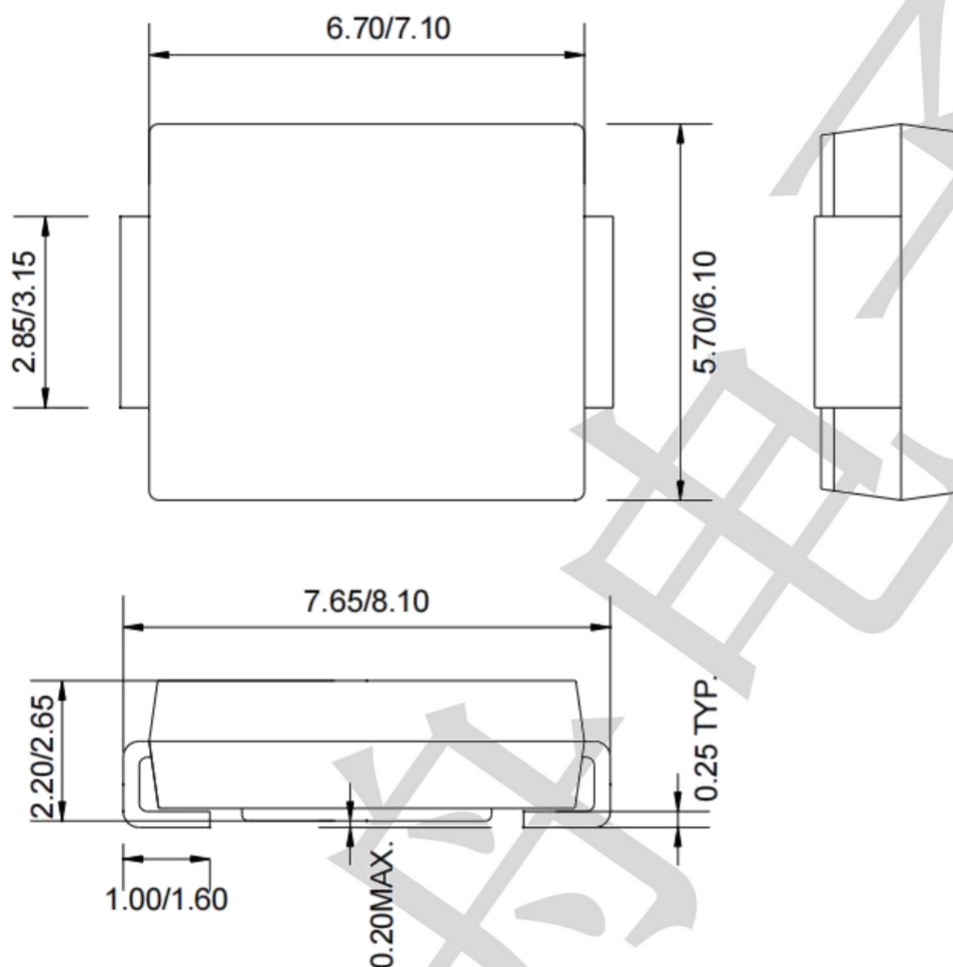


Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min (T_{Smin})	150°C
-Temperature Max (T_{Smax})	200°C
-Time (min to max) (t_s)	60-180 seconds
T_{Smax} 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.

Package Outline Dimensions (unit: mm)

SMC



Mounting Pad Layout (unit: mm)

