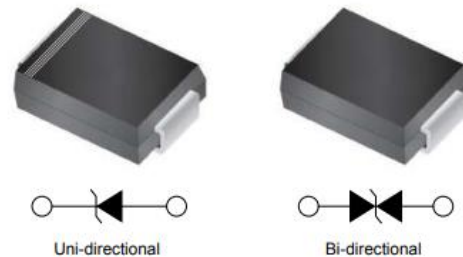


## SMD Type 1500 W

### ■ Features

1. Glass passivated chip
2. 1500W peak pulse power capability at 10/1000 $\mu$ s 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  $\pm$ 30kV(contact),  $\pm$ 30kV(air)
12. Halogen free and RoHS compliant



### ■ 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: Molded plastic, SMC / DO-214AB
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

S	M	C	J	5	.	0	C	A	Y
1	2	3	4	5	6	7	8	9	10

Product Series	
SMCJ	THINKING Transient Voltage Suppression Diodes SMCJ Series

Reverse Stand Off Voltage ( $V_{RWM}$ )	
5.0	5V
70	70V
120	120V

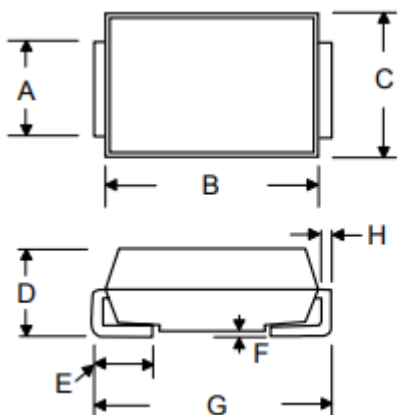
Type Code	
AY	Uni-directional, 5% $V_{BR}$ Voltage Tolerance
CAY	Bi-directional, 5% $V_{BR}$ Voltage Tolerance

# TVS Diode: SMCJ Series

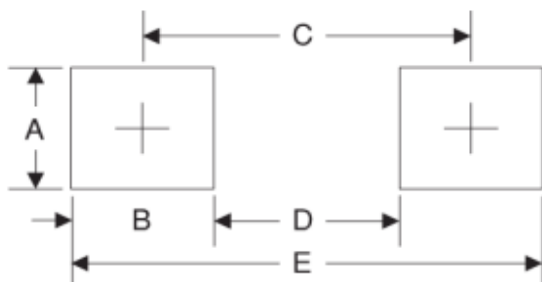
## SMD Type 1500 W



### 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 $\mu\text{s}$ waveform (Note 1,2)	$P_{PPM}$	1500	W
Peak pulse current with 10/1000 $\mu\text{s}$ 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 $T_L=75^\circ\text{C}$	$P_D$	6.5	W
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	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Note:

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Mounted on 8.0 x 8.0mm 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: SMCJ Series

## SMD Type 1500 W



### ■ Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>pp</sub>	Maximum Peak Pulse Current I <sub>pp</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @ V <sub>RWM</sub>	Marking Code	
			V <sub>RWM</sub> (V)	Min (V)					Max (V)	Uni
SMCJ5.0AY	SMCJ5.0CAY	5	6.4	7	10	9.2	163.04	800	GDE	BDE
SMCJ6.0AY	SMCJ6.0CAY	6	6.7	7.37	10	10.3	145.63	800	GDG	BDG
SMCJ6.5AY	SMCJ6.5CAY	6.5	7.2	7.98	10	11.2	133.93	500	GDK	BDK
SMCJ7.0AY	SMCJ7.0CAY	7	7.8	8.6	10	12	125	200	GDM	BDM
SMCJ7.5AY	SMCJ7.5CAY	7.5	8.3	9.21	1	12.9	116.28	100	GDP	BDP
SMCJ8.0AY	SMCJ8.0CAY	8	8.9	9.83	1	13.6	110.29	50	GDR	BDR
SMCJ8.5AY	SMCJ8.5CAY	8.5	9.4	10.4	1	14.4	104.17	20	GDT	BDT
SMCJ9.0AY	SMCJ9.0CAY	9	10	11.1	1	15.4	97.4	10	GDV	BDV
SMCJ10AY	SMCJ10CAY	10	11.1	12.3	1	17	88.24	5	GDX	BDX
SMCJ11AY	SMCJ11CAY	11	12.2	13.5	1	18.2	82.42	1	GDZ	BDZ
SMCJ12AY	SMCJ12CAY	12	13.3	14.7	1	19.9	75.38	1	GEE	BEE
SMCJ13AY	SMCJ13CAY	13	14.4	15.9	1	21.5	69.77	1	GEG	BEG
SMCJ14AY	SMCJ14CAY	14	15.6	17.2	1	23.2	64.66	1	GEK	BEK
SMCJ15AY	SMCJ15CAY	15	16.7	18.5	1	24.4	61.48	1	GEM	BEM
SMCJ16AY	SMCJ16CAY	16	17.8	19.7	1	26	57.69	1	GEP	BEP
SMCJ17AY	SMCJ17CAY	17	18.9	20.9	1	27.6	54.35	1	GER	BER
SMCJ18AY	SMCJ18CAY	18	20	22.1	1	29.2	51.37	1	GET	BET
SMCJ19AY	SMCJ19CAY	19	21.1	23.3	1	30.8	48.73	1	GEW	BEW
SMCJ20AY	SMCJ20CAY	20	22.2	24.5	1	32.4	46.3	1	GEV	BEV
SMCJ22AY	SMCJ22CAY	22	24.4	26.9	1	35.5	42.25	1	GEX	BEX
SMCJ24AY	SMCJ24CAY	24	26.7	29.5	1	38.9	38.56	1	GEZ	BEZ
SMCJ26AY	SMCJ26CAY	26	28.9	31.9	1	42.1	35.63	1	GFE	BFE
SMCJ28AY	SMCJ28CAY	28	31.1	34.4	1	45.4	33.04	1	GFG	BFG
SMCJ30AY	SMCJ30CAY	30	33.3	36.8	1	48.4	30.99	1	GFK	BFK
SMCJ33AY	SMCJ33CAY	33	36.7	40.6	1	53.3	28.14	1	GFM	BFM
SMCJ36AY	SMCJ36CAY	36	40	44.2	1	58.1	25.82	1	GFP	BFP
SMCJ40AY	SMCJ40CAY	40	44.4	49.1	1	64.5	23.26	1	GFR	BFR
SMCJ43AY	SMCJ43CAY	43	47.8	52.8	1	69.4	21.61	1	GFT	BFT
SMCJ45AY	SMCJ45CAY	45	50	55.3	1	72.7	20.63	1	GFV	BFV
SMCJ48AY	SMCJ48CAY	48	53.3	58.9	1	77.4	19.38	1	GFX	BFX

# TVS Diode: SMCJ Series

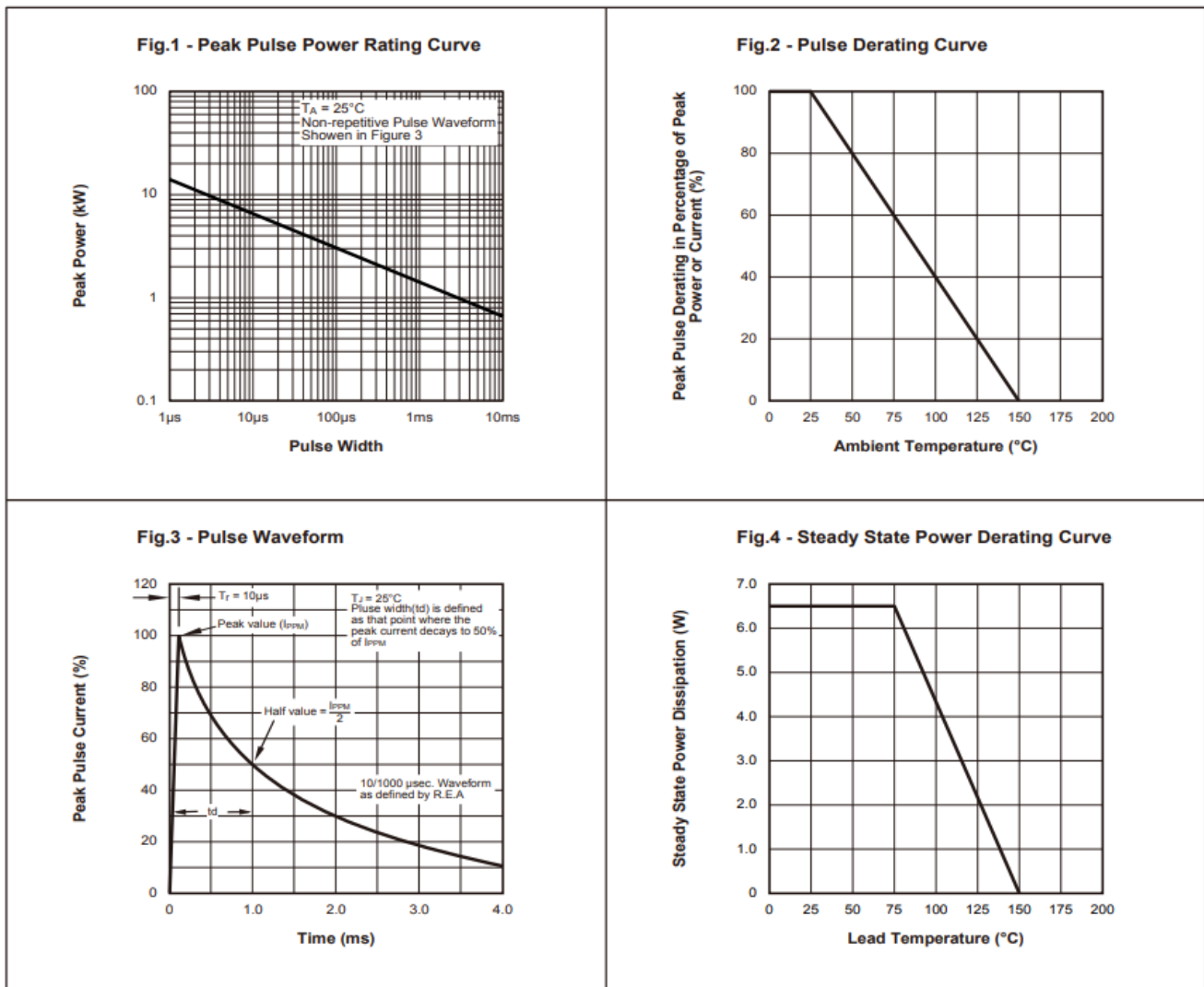
## SMD Type 1500 W



### ■ Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

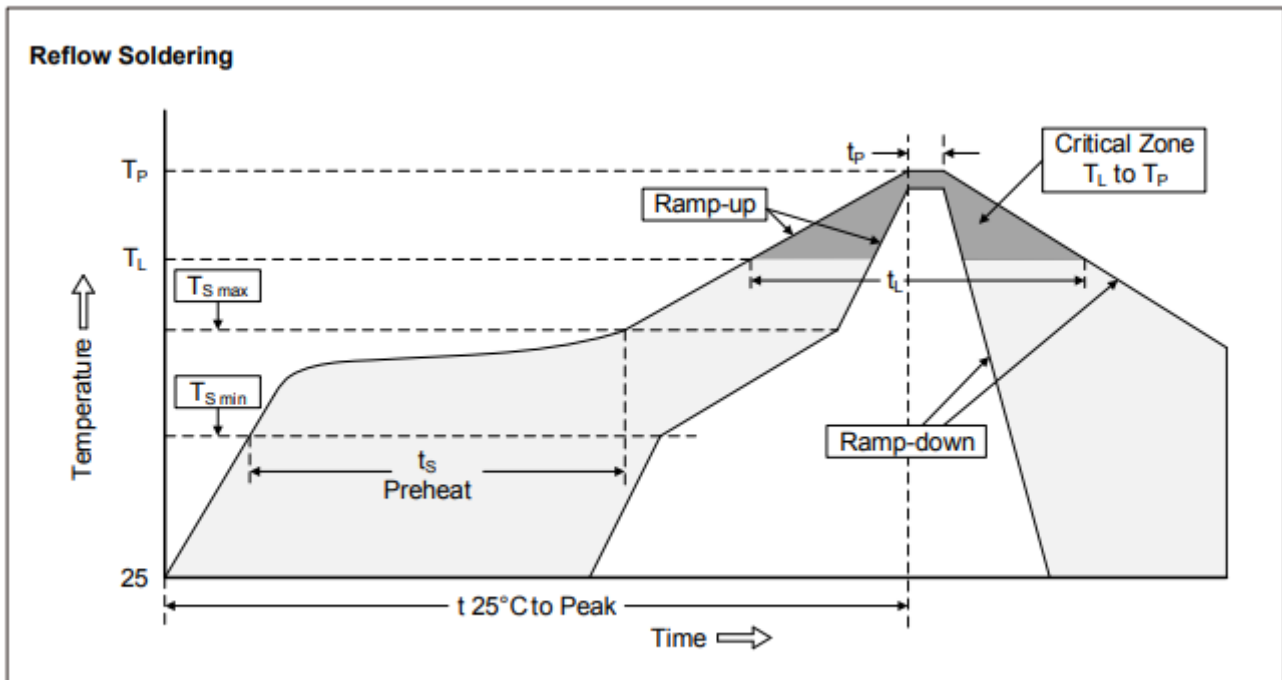
Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage V <sub>RWM</sub> ( V )	Breakage Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current I <sub>T</sub> ( mA )	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>pp</sub> V <sub>C</sub> ( V )	Maximum Peak Pulse Current I <sub>pp</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @V <sub>RWM</sub> I <sub>R</sub> (μA)	Marking Code	
			Min( V )	Max( V )					Uni	Bi
SMCJ51AY	SMCJ51CAY	51	56.7	62.7	1	82.4	18.2	1	GFZ	BFZ
SMCJ54AY	SMCJ54CAY	54	60	66.3	1	87.1	17.22	1	GGE	BGE
SMCJ58AY	SMCJ58CAY	58	64.4	71.2	1	93.6	16.03	1	GGG	BGG
SMCJ60AY	SMCJ60CAY	60	66.7	73.7	1	96.8	15.5	1	GGK	BGK
SMCJ64AY	SMCJ64CAY	64	71.1	78.6	1	103	14.56	1	GGM	BGM
SMCJ70AY	SMCJ70CAY	70	77.8	86	1	113	13.27	1	GGP	BGP
SMCJ75AY	SMCJ75CAY	75	83.3	92.1	1	121	12.4	1	GGR	BGR
SMCJ78AY	SMCJ78CAY	78	86.7	95.8	1	126	11.9	1	GGT	BGT
SMCJ80AY	SMCJ80CAY	80	88.8	97.6	1	129.6	11.57	1	GGW	BGW
SMCJ85AY	SMCJ85CAY	85	94.4	104	1	137	10.95	1	GGV	BGV
SMCJ90AY	SMCJ90CAY	90	100	111	1	146	10.27	1	GGX	BGX
SMCJ100AY	SMCJ100CAY	100	111	123	1	162	9.26	1	GGZ	BGZ
SMCJ110AY	SMCJ110CAY	110	122	135	1	177	8.47	1	GHE	BHE
SMCJ120AY	SMCJ120CAY	120	133	147	1	193	7.77	1	GHG	BHG
SMCJ130AY	SMCJ130CAY	130	144	159	1	209	7.18	1	GHK	BHK
SMCJ140AY	SMCJ140CAY	140	155	171	1	226.8	6.61	1	GHL	BHL
SMCJ150AY	SMCJ150CAY	150	167	185	1	243	6.17	1	GHM	BHM
SMCJ160AY	SMCJ160CAY	160	178	197	1	259	5.79	1	GHP	BHP
SMCJ170AY	SMCJ170CAY	170	189	209	1	275	5.45	1	GHR	BHR
SMCJ180AY	SMCJ180CAY	180	200	220	1	291.6	5.14	1	GHT	BHT
SMCJ190AY	SMCJ190CAY	190	211	232	1	307.8	4.87	1	GHW	BHW
SMCJ200AY	SMCJ200CAY	200	224	247	1	324	4.6	1	GHV	BHV
SMCJ220AY	SMCJ220CAY	220	246	272	1	356	4.2	1	GHX	BHX
SMCJ250AY	SMCJ250CAY	250	279	309	1	405	3.7	1	GHZ	BHZ
SMCJ300AY	SMCJ300CAY	300	335	371	1	486	3.1	1	GJE	BJE
SMCJ350AY	SMCJ350CAY	350	391	432	1	567	2.6	1	GJG	BJG
SMCJ400AY	SMCJ400CAY	400	447	494	1	648	2.3	1	GJK	BJK
SMCJ440AY	SMCJ440CAY	440	492	543	1	713	2.1	1	GJM	BJM

■ Typical Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)



## SMD Type 1500 W

### ■ Soldering Recommendation



### Recommended Conditions

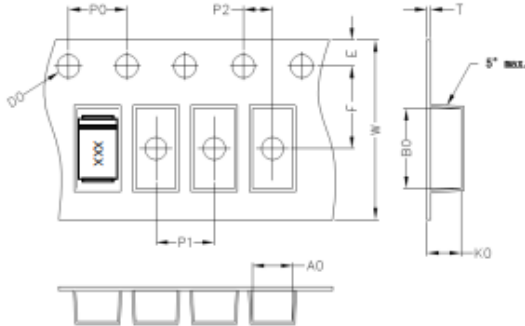
Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat	
-Temperature Min ( $T_{S\ min}$ )	150°C
-Temperature Max ( $T_{S\ max}$ )	200°C
-Time (min to max) ( $t_S$ )	60-180 seconds
$T_{S\ max}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature ( $T_L$ )	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.

# TVS Diode: SMCJ Series

## SMD Type 1500 W



### ■ 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
SMCJ	Tape and reel	3000pcs/reel	EIA STD RS-48111

109

112

### ■ Warehouse Storage Conditions of product

- Storage Condition:
  1. Storage Temperature: -10°C~+40°C
  2. Relative Humidity:  $\cong 75\%RH$
  3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.