

Features

- Glass passivated junction
- Very fast response time
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Low incremental surge resistance, excellent clamping capability
- 1500W peak pulse power capability with a 10/1000us waveform, duty cycle:0.01%
- High temperature soldering guaranteed: 260°C/10 seconds



RoHS
COMPLIANT



DO-214AB (SMC)

Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication.

Mechanical Data

- Case: JEDEC DO-214AB (SMC J-Bend) molded plastic over glass passivated junction
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: For unidirectional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation
- Weight: 0.007oz., 0.21g

Devices for Bidirectional Applications

For bi-directional devices, use suffix CA (e.g. SMCJ10CA). Electrical characteristics apply in both directions.

Maximum Ratings and Thermal Characteristics

(TA = 25 °C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10/1000 μs Waveform (Fig.1)(Note1)(Note2)	P _{PPM}	Minimum 1500	W
Peak pulse current with a 10/1000us waveform (Note1)	I _{PPM}	See Next Table	A
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note3)	I _{FSM}	200	W
Typical Thermal Resistance Junction to Lead (Note2)	R _{ΘJL}	15	°C/W
Typical Thermal Resistance Junction to Ambient (Note2)	R _{ΘJA}	75	°C/W
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on copper pad area of 0.31x0.31" (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



SMCJ5.0 thru SMCJ440CA

Surface Mount Transient Voltage Suppressors
Peak Pulse Power 1500W Stand-off Voltage 5.0 to 440V

Electrical Characteristics (TA = 25 °C unless otherwise noted)										
Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage VR (Volts)	Breakdown Voltage VBR (Volts) @ IT,(Note1)		Test Current IT (mA)	Maximum Clamping Voltage VC @ Ipp (V)	Maximum Peak Pulse Current Ipp (A),(Note2)	Maximum Reverse Leakage ID @ VR (μA),(Note3)
		UNI	BI		Min	Max				
SMCJ5.0	SMCJ5.0C	GDD	BDD	5.0	6.40	7.82	10	9.6	156.3	1000.0
SMCJ5.0A	SMCJ5.0CA	GDE	BDE	5.0	6.40	7.07 ,(Note4)	10	9.2	163.0	1000.0
SMCJ6.0	SMCJ6.0C	GDF	BDF	6.0	6.67	8.15	10	11.4	131.6	1000.0
SMCJ6.0A	SMCJ6.0CA	GDG	BDG	6.0	6.67	7.37	10	10.3	145.6	1000.0
SMCJ6.5	SMCJ6.5C	GDH	BDH	6.5	7.22	8.82	10	12.3	122.0	500.0
SMCJ6.5A	SMCJ6.5CA	GDK	BDK	6.5	7.22	7.98	10	11.2	133.9	500.0
SMCJ7.0	SMCJ7.0C	GDL	BDL	7.0	7.78	9.51	10	13.3	112.8	200.0
SMCJ7.0A	SMCJ7.0CA	GDM	BDM	7.0	7.78	9.60	10	12.0	125.0	200.0
SMCJ7.5	SMCJ7.5C	GDN	BDN	7.5	8.33	10.2	1.0	14.3	104.9	100.0
SMCJ7.5A	SMCJ7.5CA	GDP	BDP	7.5	8.33	9.21	1.0	12.9	116.3	100.0
SMCJ8.0	SMCJ8.0C	GDQ	BDQ	8.0	8.89	10.9	1.0	15.0	100.0	50.0
SMCJ8.0A	SMCJ8.0CA	GDR	BDR	8.0	8.89	9.83	1.0	13.6	110.3	50.0
SMCJ8.5	SMCJ8.5C	GDS	BDS	8.5	9.44	11.5	1.0	15.9	94.3	20.0
SMCJ8.5A	SMCJ8.5CA	GDT	BDT	8.5	9.44	10.4	1.0	14.4	104.2	20.0
SMCJ9.0	SMCJ9.0C	GDU	BDU	9.0	10.0	12.2	1.0	16.9	88.8	10.0
SMCJ9.0A	SMCJ9.0CA	GDV	BDV	9.0	10.0	11.1	1.0	15.4	97.4	10.0
SMCJ10	SMCJ10C	GDW	BDW	10	11.1	13.6	1.0	18.8	79.8	5.0
SMCJ10A	SMCJ10CA	GDX	BDX	10	11.1	12.3	1.0	17.0	88.2	5.0
SMCJ11	SMCJ11C	GDY	BDY	11	12.2	14.9	1.0	20.1	74.6	5.0
SMCJ11A	SMCJ11CA	GDZ	BDZ	11	12.2	13.5	1.0	18.2	82.4	5.0
SMCJ12	SMCJ12C	GED	BED	12	13.3	16.3	1.0	22.0	68.2	5.0
SMCJ12A	SMCJ12CA	GEE	BEE	12	13.3	14.7	1.0	19.9	75.4	5.0
SMCJ13	SMCJ13C	GEF	BEF	13	14.4	17.6	1.0	23.8	63.0	1.0
SMCJ13A	SMCJ13CA	GEG	BEG	13	14.4	15.9	1.0	21.5	69.8	1.0
SMCJ14	SMCJ14C	GEH	BEH	14	15.6	19.1	1.0	25.8	58.1	1.0
SMCJ14A	SMCJ14CA	GEK	BEK	14	15.6	17.2	1.0	23.2	64.7	1.0
SMCJ15	SMCJ15C	GEL	BEL	15	16.7	20.4	1.0	26.9	55.8	1.0
SMCJ15A	SMCJ15CA	GEM	BEM	15	16.7	18.5	1.0	24.4	61.5	1.0
SMCJ16	SMCJ16C	GEN	BEN	16	17.8	21.8	1.0	28.8	52.1	1.0
SMCJ16A	SMCJ16CA	GEP	BEP	16	17.8	19.7	1.0	26.0	57.7	1.0
SMCJ17	SMCJ17C	GEQ	BEQ	17	18.9	23.1	1.0	30.5	49.2	1.0
SMCJ17A	SMCJ17CA	GER	BER	17	18.9	20.9	1.0	27.6	54.3	1.0
SMCJ18	SMCJ18C	GES	BES	18	20.0	24.4	1.0	32.2	46.6	1.0
SMCJ18A	SMCJ18CA	GET	BET	18	20.0	22.1	1.0	29.2	51.4	1.0
SMCJ20	SMCJ20C	GEU	BEU	20	22.2	27.1	1.0	35.8	41.9	1.0
SMCJ20A	SMCJ20CA	GEV	BEV	20	22.2	24.5	1.0	32.4	46.3	1.0
SMCJ22	SMCJ22C	GEW	BEW	22	24.4	29.8	1.0	39.4	38.1	1.0
SMCJ22A	SMCJ22CA	GEX	BEX	22	24.4	26.9	1.0	35.5	42.3	1.0
SMCJ24	SMCJ24C	GEY	BEY	24	26.7	32.6	1.0	43.0	34.9	1.0
SMCJ24A	SMCJ24CA	GEZ	BEZ	24	26.7	29.5	1.0	38.9	38.6	1.0
SMCJ26	SMCJ26C	GFD	BFD	26	28.9	35.3	1.0	46.6	32.2	1.0
SMCJ26A	SMCJ26CA	GFE	BFE	26	28.9	31.9	1.0	42.1	35.6	1.0

- Notes:
- 1.VBR measured after IT applied for 10~50ms square wave pulse or equivalent
 - 2.Surge current waveform per Fig.3 and derate per Fig.2
 - 3.For bi-directional types having Vwm of 10 volts and less,the ID limit is doubled
 - 4.For the bi-directional SMCJ5.0CA,the maximum VBR is 7.25V



SMCJ5.0 thru SMCJ440CA

Surface Mount Transient Voltage Suppressors
Peak Pulse Power 1500W Stand-off Voltage 5.0 to 440V

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

Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage VR (Volts)	Breakdown Voltage VBR (Volts) @ IT,(Note1)		Test Current IT (mA)	Maximum Clamping Voltage VC @ Ipp (V)	Maximum Peak Pulse Current Ipp (A),(Note2)	Maximum Reverse Leakage IR @ VR (μA)
		UNI	BI		Min	Max				
SMCJ28	SMCJ28C	GFF	BFF	28	31.1	38.0	1.0	50.0	30.0	1.0
SMCJ28A	SMCJ28CA	GFG	BFG	28	31.1	34.4	1.0	45.4	33.0	1.0
SMCJ30	SMCJ30C	GFH	BFH	30	33.3	40.7	1.0	53.5	28.0	1.0
SMCJ30A	SMCJ30CA	GFK	BFK	30	33.3	36.8	1.0	48.4	31.0	1.0
SMCJ33	SMCJ33C	GFL	BFL	33	36.7	44.9	1.0	59.0	25.4	1.0
SMCJ33A	SMCJ33CA	GFM	BFM	33	36.7	40.6	1.0	53.3	28.1	1.0
SMCJ36	SMCJ36C	GFN	BFN	36	40.0	48.9	1.0	64.3	23.3	1.0
SMCJ36A	SMCJ36CA	GFP	BFP	36	40.0	44.4	1.0	58.1	25.8	1.0
SMCJ40	SMCJ40C	GFQ	BFQ	40	44.4	54.3	1.0	71.4	21.0	1.0
SMCJ40A	SMCJ40CA	GFR	BFR	40	44.4	49.1	1.0	64.5	23.3	1.0
SMCJ43	SMCJ43C	GFS	BFS	43	47.8	58.4	1.0	76.7	19.6	1.0
SMCJ43A	SMCJ43CA	GFT	BFT	43	47.8	52.8	1.0	69.4	21.6	1.0
SMCJ45	SMCJ45C	GFU	BFU	45	50.0	61.1	1.0	80.3	18.7	1.0
SMCJ45A	SMCJ45CA	GFV	BFV	45	50.0	55.3	1.0	72.7	20.6	1.0
SMCJ48	SMCJ48C	GFW	BFW	48	53.3	65.1	1.0	85.5	17.5	1.0
SMCJ48A	SMCJ48CA	GFX	BFX	48	53.3	58.9	1.0	77.4	19.4	1.0
SMCJ51	SMCJ51C	GFY	BFY	51	56.7	69.3	1.0	91.1	16.5	1.0
SMCJ51A	SMCJ51CA	GFZ	BFZ	51	56.7	62.7	1.0	82.4	18.2	1.0
SMCJ54	SMCJ54C	GGD	BGD	54	60.0	73.3	1.0	96.3	15.6	1.0
SMCJ54A	SMCJ54CA	GGE	BGE	54	60.0	66.3	1.0	87.1	17.2	1.0
SMCJ58	SMCJ58C	GGF	BGF	58	64.4	78.7	1.0	103.0	14.6	1.0
SMCJ58A	SMCJ58CA	GGG	BGG	58	64.4	71.2	1.0	93.0	16.0	1.0
SMCJ60	SMCJ60C	GGH	BGH	60	66.7	81.5	1.0	107.0	14.0	1.0
SMCJ60A	SMCJ60CA	GGK	BGK	60	66.7	73.7	1.0	96.0	15.5	1.0
SMCJ64	SMCJ64C	GGL	BGL	64	71.1	86.9	1.0	114	13.2	1.0
SMCJ64A	SMCJ64CA	GGM	BGM	64	71.1	78.6	1.0	103	14.6	1.0
SMCJ70	SMCJ70C	GGN	BGN	70	77.8	95.1	1.0	125	12.0	1.0
SMCJ70A	SMCJ70CA	GGP	BGP	70	77.8	96.0	1.0	113	13.3	1.0
SMCJ75	SMCJ75C	GGQ	BGQ	75	83.3	102	1.0	134	11.2	1.0
SMCJ75A	SMCJ75CA	GGR	BGR	75	83.3	92.1	1.0	121	12.4	1.0
SMCJ78	SMCJ78C	GGS	BGS	78	86.7	106	1.0	139	10.8	1.0
SMCJ78A	SMCJ78CA	GGT	BGT	78	86.7	95.8	1.0	126	11.9	1.0
SMCJ85	SMCJ85C	GGU	BGU	85	94.4	115	1.0	151	9.9	1.0
SMCJ85A	SMCJ85CA	GGV	BGV	85	94.4	104	1.0	137	10.9	1.0
SMCJ90	SMCJ90C	GGW	BGW	90	100	122	1.0	160	9.4	1.0
SMCJ90A	SMCJ90CA	GGX	BGX	90	100	111	1.0	146	10.3	1.0
SMCJ100	SMCJ100C	GGY	BGY	100	111	136	1.0	179	8.4	1.0
SMCJ100A	SMCJ100CA	GGZ	BGZ	100	111	123	1.0	162	9.3	1.0
SMCJ110	SMCJ110C	GHD	BHD	110	122	149	1.0	196	7.7	1.0
SMCJ110A	SMCJ110CA	GHE	BHE	110	122	135	1.0	177	8.5	1.0
SMCJ120	SMCJ120C	GHF	BHF	120	133	163	1.0	214	7.0	1.0
SMCJ120A	SMCJ120CA	GHG	BHG	120	133	147	1.0	193	7.8	1.0
SMCJ130	SMCJ130C	GHH	BHH	130	144	176	1.0	231	6.5	1.0
SMCJ130A	SMCJ130CA	GHK	BHK	130	144	159	1.0	209	7.2	1.0
SMCJ150	SMCJ150C	GHL	BHL	150	167	204	1.0	268	5.6	1.0

Notes:

- 1.VBR measured after IT applied for 10~50ms square wave pulse or equivalent
- 2.Surge current waveform per Fig.3 and derate per Fig.2
3. For parts without A , the VBR tolerances is $\pm 10\%$

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

Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage VR (Volts)	Breakdown Voltage VBR (Volts) @ IT,(Note1)		Test Current IT (mA)	Maximum Clamping Voltage VC @ Ipp (V)	Maximum Peak Pulse Current Ipp (A),(Note2)	Maximum Reverse Leakage IR @ VR (μA)
		UNI	BI		Min	Max				
SMCJ150A	SMCJ150CA	GHM	BHM	150	167	185	1.0	243	6.2	1.0
SMCJ160	SMCJ160C	GHN	BHN	160	178	218	1.0	287	5.2	1.0
SMCJ160A	SMCJ160CA	GHP	BHP	160	178	197	1.0	259	5.8	1.0
SMCJ170	SMCJ170C	GHQ	BHQ	170	189	231	1.0	304	4.9	1.0
SMCJ170A	SMCJ170CA	GHR	BHR	170	189	209	1.0	275	5.5	1.0
SMCJ180A	SMCJ180CA	GHT	BHT	180	201	222	1.0	292	5.0	1.0
SMCJ200A	SMCJ200CA	GHV	BHV	180	224	247	1.0	324	4.6	1.0
SMCJ220A	SMCJ220CA	GHX	BHX	220	246	272	1.0	356	4.2	1.0
SMCJ250A	SMCJ250CA	GHZ	BHZ	250	279	309	1.0	405	3.7	1.0
SMCJ300A	SMCJ300CA	GJE	BJE	300	335	371	1.0	486	3.1	1.0
SMCJ350A	SMCJ350CA	GJG	BJG	350	391	432	1.0	567	2.6	1.0
SMCJ400A	SMCJ400CA	GJK	BJK	400	447	494	1.0	648	2.3	1.0
SMCJ440A	SMCJ440CA	GJM	BJM	440	492	543	1.0	713	2.1	1.0

Notes:

- 1.VBR measured after IT applied for 10~50ms square wave pulse or equivalent
- 2.Surge current waveform per Fig.3 and derate per Fig.2
3. For parts without A , the VBR tolerances is ± 10%

Ratings and Characteristics Curves

(TA = 25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating

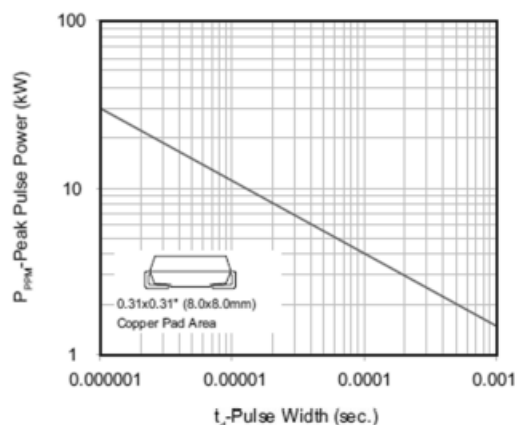


Figure 3 - Pulse Waveform

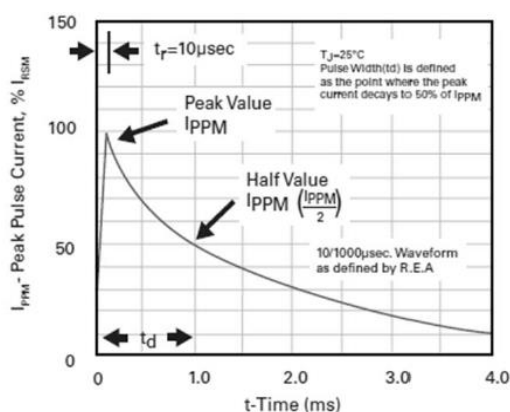


Figure 2 - Pulse Derating Curve

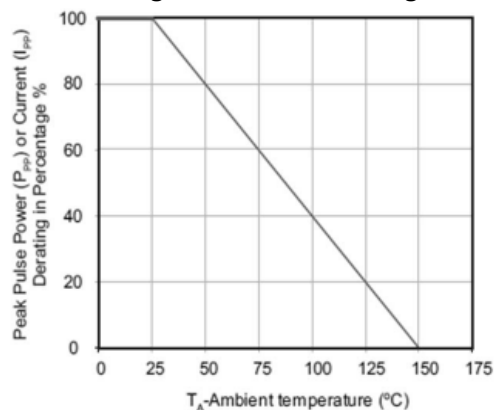
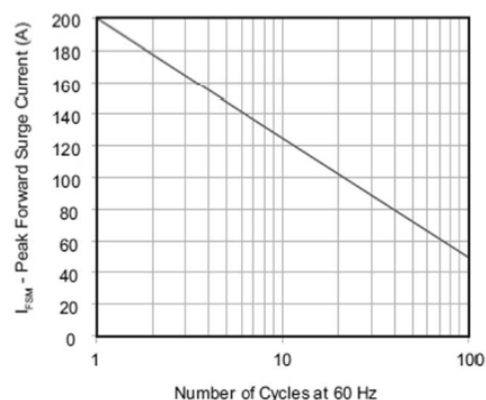
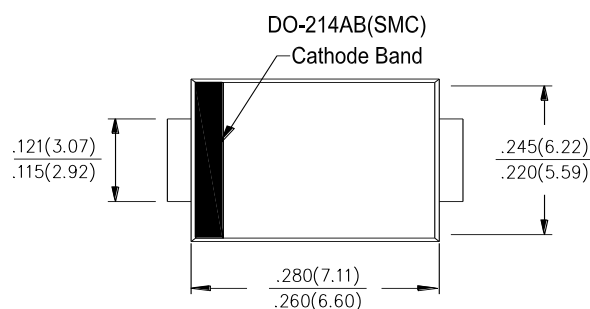


Figure 4 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

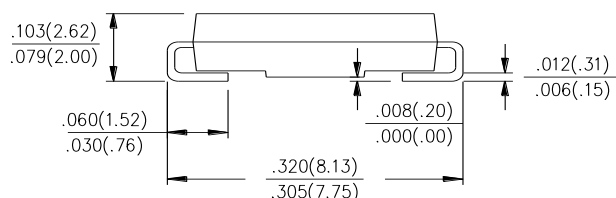
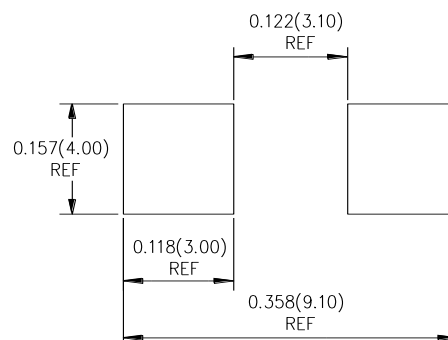


Package Outline Dimensions

in inches (millimeters)



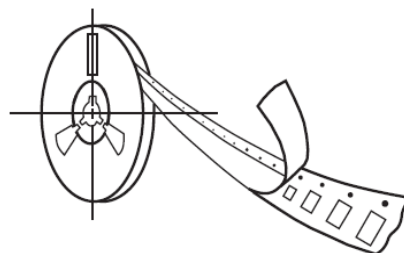
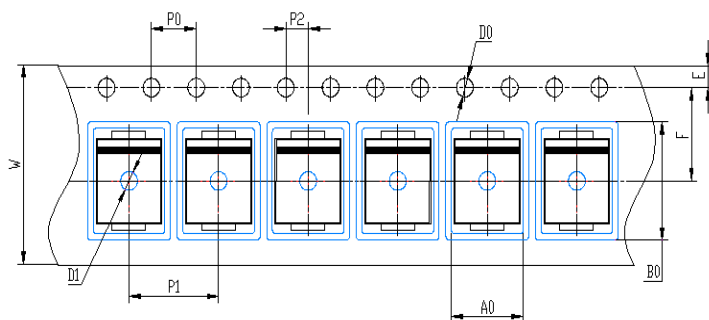
Mounting Pad Layout



Packing Information

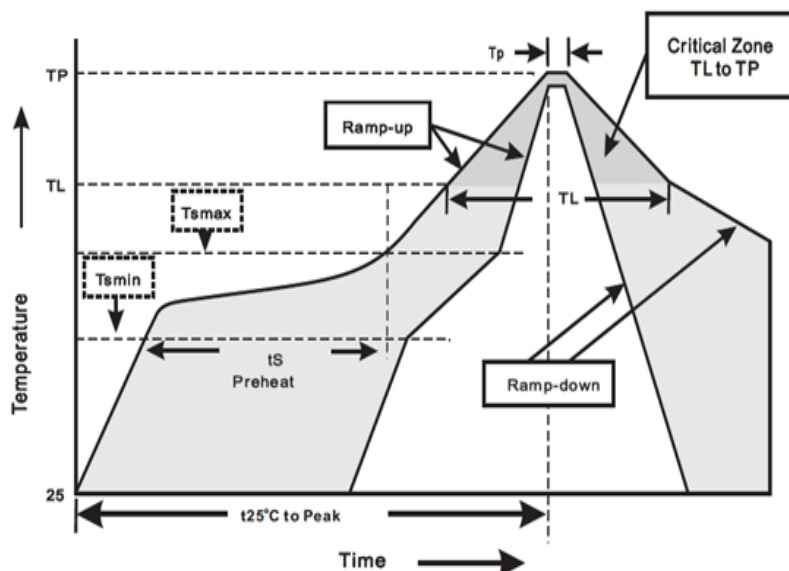
3000 pcs/Reel, 14 Reels/Box; 16mm Tape, 13" Reel

Tape & Reel Specification



Symbo	SMC (mm)
W	16 ± 0.2
E	1.75 ± 0.1
F	7.5 ± 0.05
D0	1.5 ± 0.1
D1	1.50 +0.1/-0
P0	4.0 ± 0.1
P1	8.0 ± 0.1
P2	2.0 ± 0.05
A0	6.22 ± 0.1
B0	8.31 ± 0.1

Soldering Parameters



Reflow Soldering		Sn-Pb Eutectic Assembly	Pb-Free Assembly
Pre Heat	- Temperature Min (Ts(min))	100 °C	150 °C
	- Temperature Max (Ts(max))	150 °C	200 °C
	- Time (min to max) (ts)	60 – 120 secs	60 – 180 secs
Average ramp up rate (Liquidus Temp (TL) to peak		3 °C/second max	3 °C/second max
TS(max) to TL - Ramp-up Rate		3 °C/second max	3 °C/second max
Reflow	- Temperature (TL) (Liquidus)	183 °C	217 °C
	- Time (min to max) (ts)	60 – 150 seconds	60 – 150 seconds
Peak Temperature (TP)		240+0/-5 °C	260+0/-5 °C
Time within 5 °C of actual peak Temperature (tp)		10 –30 seconds	20 – 40 seconds
Ramp-down Rate		6 °C/second max	6 °C/second max
Time 25 °C to peak Temperature (TP)		6 minutes Max.	8 minutes Max.
Do not exceed		240 °C	260 °C

Wave Soldering	
Peak Temperature :	265+0/-5 °C
Dipping Time :	10 seconds
Soldering :	1 time



SMCJ5.0 thru SMCJ440CA

Surface Mount Transient Voltage Suppressors
Peak Pulse Power 1500W Stand-off Voltage 5.0 to 440V

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