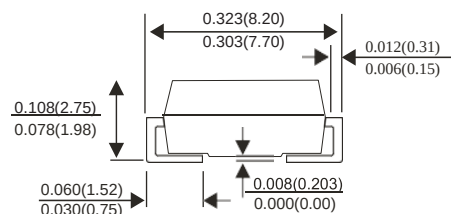
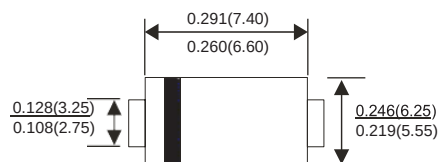




SMC/DO-214AB



Dimensions in inches and (millimeter)

Features

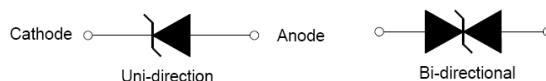
- Glass passivated chip.
- 5000W peak pulse power capability with a 10/1000μs waveform, repetitive rate (duty cycle):0.01%.
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.

Mechanical Data

- Case: DO-214AB/SMC molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denoted cathode end except bipolar.
- Weight: 0.260 gram (approx.)
- RoHS Compliant

Circuit Diagram

- Terminal Connections: See Diagram Right



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T_J / T_{STG}	-55 to +150	$^{\circ}\text{C}$
Steady state power dissipation at $T_L=75^{\circ}\text{C}$	$P_{M(AV)}$	6.5	W
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	5000	W
Maximum instantaneous forward voltage at 100A for unidirectional only	V_F	5.0	V
Peak forward surge current, 8.3ms single half sine wave (Note 1)	I_{FSM}	300	A
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^{\circ}\text{C/W}$
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^{\circ}\text{C/W}$

Notes:

1. 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 Number		Marking Code		Breakdown Voltage		Test Current	Reverse Stand off Voltage	Maximum Reverse Leakage	Maximum Clamping Voltage	Maximum Peak Pulse Current
				V _{BR} @I _T		I _T	V _{RWM}	I _R @V _R	V _C @I _{PP}	I _{PP} ①
Uni-Polar	Bi-Polar	Uni	Bi	min(V)	max(V)	mA	V	μA	max(V)	A
5.0SMDJ11A	5.0SMDJ11CA	5PEN	5BEN	12.2	13.5	10	11	5	18.2	275
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	13.3	14.7	10	12	5	19.9	252
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	14.4	15.9	10	13	5	21.5	233
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	15.6	17.2	10	14	5	23.2	216
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	16.7	18.5	1	15	5	24.4	205
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	17.8	19.7	1	16	5	26	193
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	18.9	20.9	1	17	5	27.6	181
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	20	22.1	1	18	5	29.2	172
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	22.2	24.5	1	20	5	32.4	155
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	24.4	26.9	1	22	2	35.5	141
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	26.7	29.5	1	24	2	38.9	129
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	28.9	31.9	1	26	2	42.1	119
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	31.1	34.4	1	28	2	45.4	110
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	33.3	36.8	1	30	2	48.4	103
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	36.7	40.6	1	33	2	53.3	93.9
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	40	44.2	1	36	2	58.1	86.1
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	44.4	49.1	1	40	2	64.5	77.6
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	47.8	52.8	1	43	2	69.4	72.1
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	50	55.3	1	45	2	72.7	68.8
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	53.3	58.9	1	48	2	77.4	64.7
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	56.7	62.7	1	51	2	82.4	60.7
5.0SMDJ54A	5.0SMDJ54CA	5PGE	5BGE	60	66.3	1	54	2	87.1	57.5
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	64.4	71.2	1	58	2	93.6	53.5
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	66.7	73.7	1	60	2	96.8	51.7
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	71.1	78.6	1	64	2	103	48.6
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	77.8	86	1	70	2	113	44.3
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	83.3	92.1	1	75	2	121	41.4
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	86.7	95.8	1	78	2	126	39.7
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	94.4	104	1	85	2	137	36.5

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

Part Number		Marking Code		Breakdown Voltage		Test Current	Reverse Stand off Voltage	Maximum Reverse Leakage	Maximum Clamping Voltage	Maximum Peak Pulse Current
				V _{BR} @I _T		I _T	V _{RWM}	I _R @V _R	V _C @I _{PP}	I _{PP} ①
Uni-Polar	Bi-Polar	Uni	Bi	min(V)	max(V)	mA	V	μA	max(V)	A
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	100	111	1	90	2	146	34.3
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	111	123	1	100	2	162	30.9
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	122	135	1	110	2	177	28.3
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	133	147	1	120	2	193	26
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	144	159	1	130	2	209	24
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	167	185	1	150	2	243	20.6
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHP	178	197	1	160	2	259	19.3
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	189	209	1	170	2	275	18.2
5.0SMDJ180A	5.0SMDJ180CA	5PHT	5BHT	200	220	1	180	2	291.6	17.15
5.0SMDJ200A	5.0SMDJ200CA	5PHV	5BHV	224	247	1	200	2	324	15.43
5.0SMDJ220A	5.0SMDJ220CA	5PHX	5BHX	246	272	1	220	2	356	14.04
5.0SMDJ250A	5.0SMDJ250CA	5PHZ	5BHZ	279	309	1	250	2	405	12.35
5.0SMDJ350A	5.0SMDJ350CA	5PVV	5BVV	391	432	1	350	2	567	8.82
5.0SMDJ400A	5.0SMDJ400CA	5PVW	5BVW	447	494	1	400	2	648	7.72
5.0SMDJ440A	5.0SMDJ440CA	5PVB	5BVB	492	543	1	440	2	713	7.01

① Surge waveform: 10/1000μs

V_R: Stand-off voltage -- maximum voltage that can be applied

V_{BR}: Breakdown voltage

V_C: Clamping voltage -- peak voltage measured across the suppressor at a specified I_{PP}

I_R: Reverse leakage current

Typical Performance Characteristics (TA=25°C unless otherwise Specified)

Fig.1 - Pulse Derating Curve

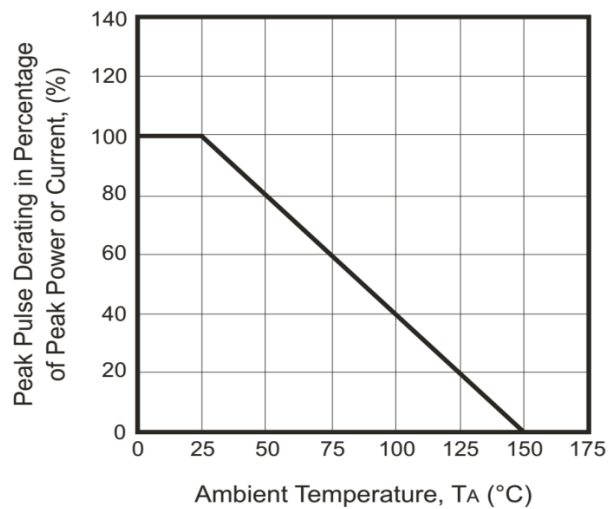


Fig.2 - Maximum Non-Repetitive Surge Current

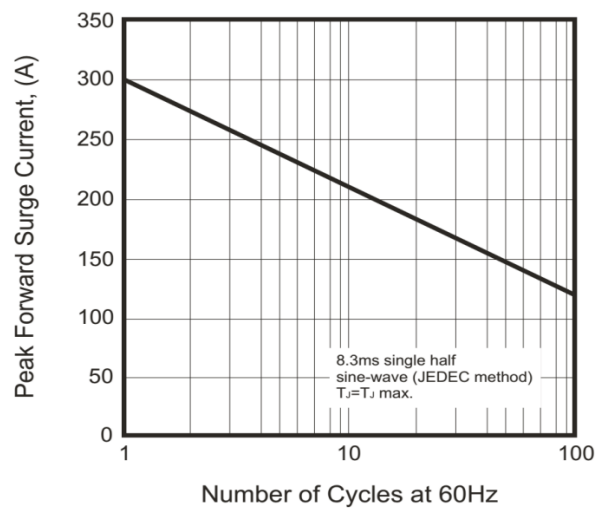


Fig.3 - Steady State Power Derating Curve

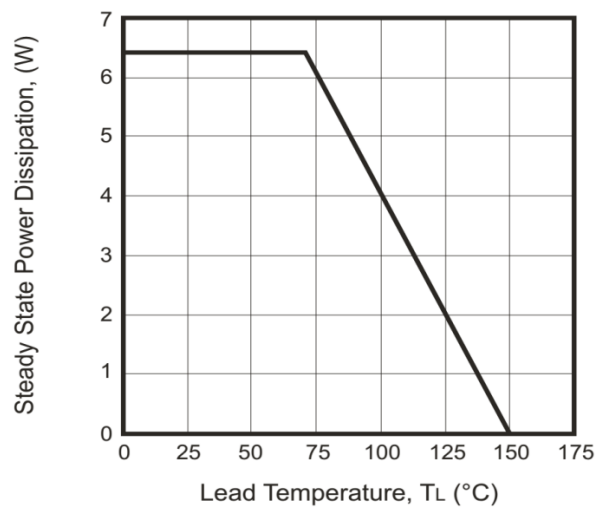


Fig.4 - Peak Pulse Power Rating Curve

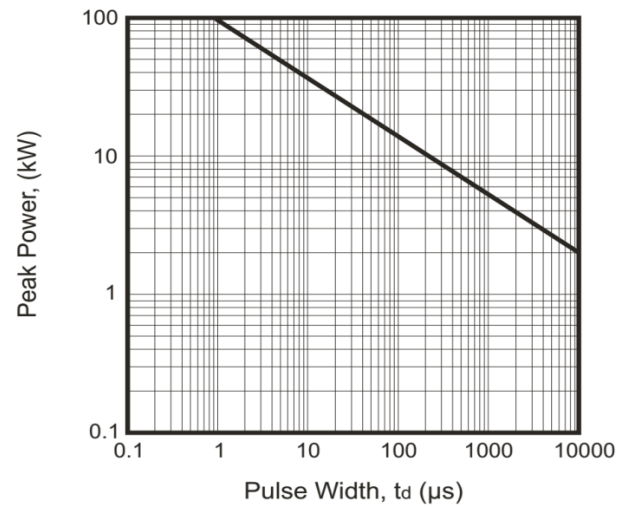


Fig.5 - Pulse Waveforem

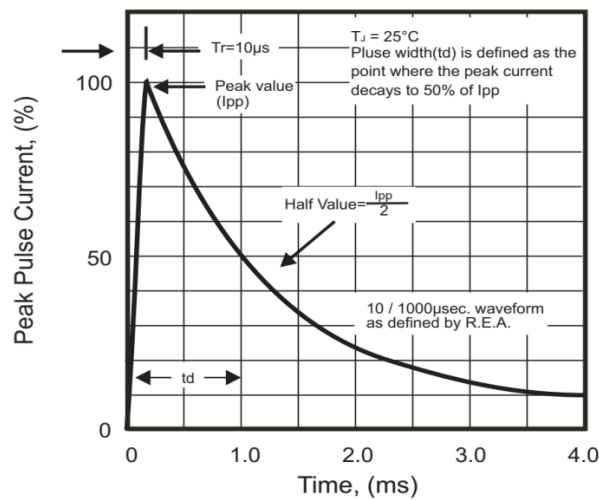
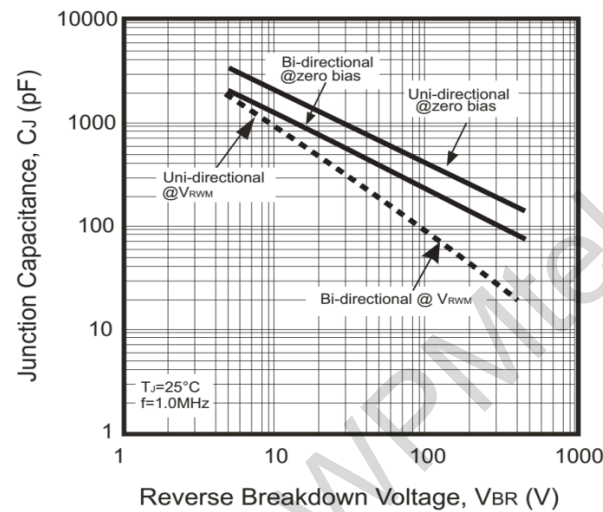
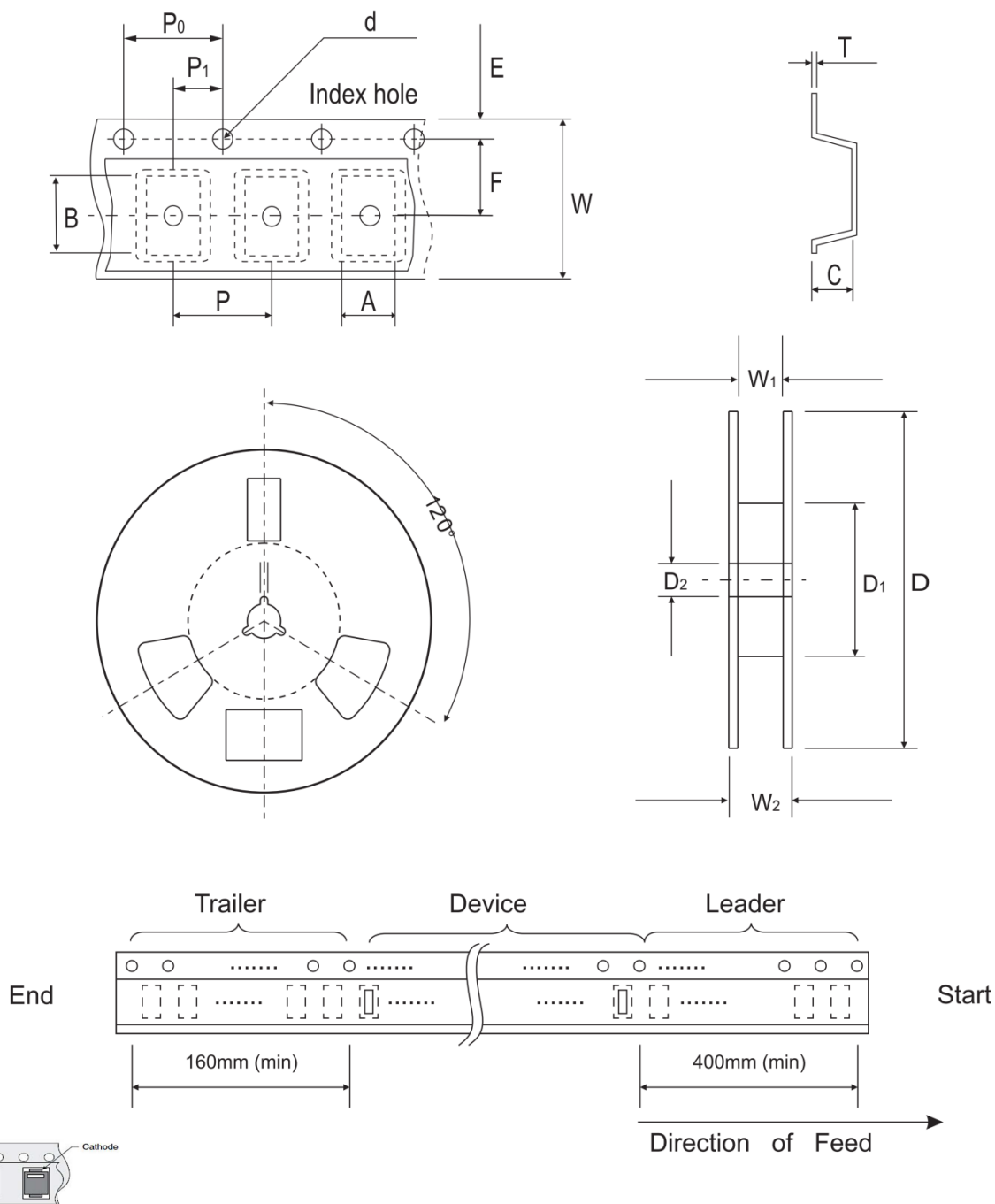


Fig.6 - Typical Junction Capacitance



Reel Taping Specification

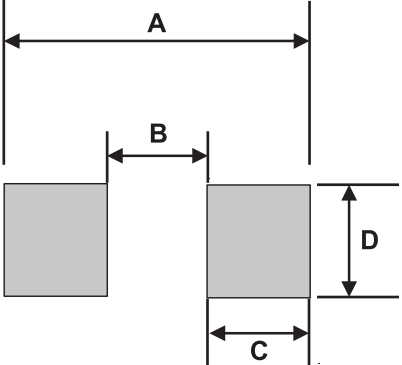


DO-214AB (SMC)	SYMBOL	A	B	C	d	T	D	D1	D2
	(mm)	See Note 1			1.55 ± 0.05	0.40 (Max.)	330	50.00 (Min.)	13.00 + 0.50 - 0.20
	(inch)				0.061 ± 0.002	0.016 (Max.)	13	1.969 (Min.)	0.512 + 0.020 - 0.008
	SYMBOL	E	F	P	P0	P1	W	W1	W2
	(mm)	1.75 ± 0.10	7.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	16.00 ± 0.10	16.40 + 2.00 - 0.00	22.40 (Max.)
	(inch)	0.069±0.004	0.295±0.002	0.315±0.004	0.157±0.004	0.079±0.002	0.630±0.004	0.646 + 0.079 - 0.000	0.882 (Max.)

Notes: 1. A, B, and C the clearance between the component and the cavity must be within 0.5 mm max. for 8 mm tape and 12 mm tape, 1.0 mm max. for 16mm tape and 24 mm tape.

Suggested PAD Layout

SIZE	DO-214AB(SMC)	
	(mm)	(inch)
A	8.13	0.320
B	4.69 MAX	0.185 MAX
C	1.52 MIN	0.06 MIN
D	3.20 MIN	0.126 MIN



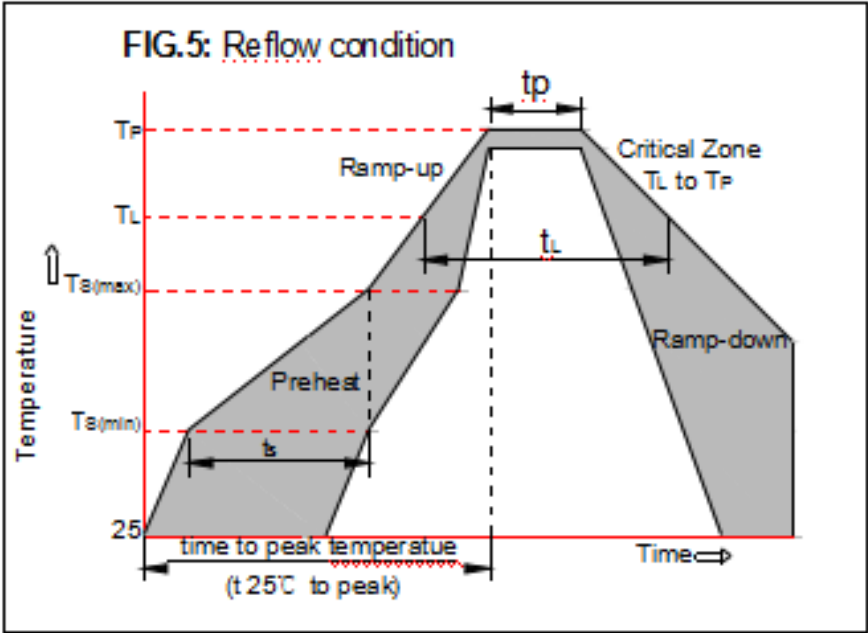
Marking Code

Part Number	
5.0SMDJ11A(CA) Thru. 5.0SMDJ440A(CA)	
Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.) 5PEN/5BEN:Marking code XXXX:Date code	

Ordering information

Part Number	Package	Weight	Base qty	Reel Size	Delivery mode
		grams(approx.)	(pcs)	(inch)	
5.0SMDJ11A(CA) Thru. 5.0SMDJ440A(CA)	DO-214AB (SMC)	0.260	3000	13	Tape and reel

Soldering Parameters



Reflow Condition		Pb-Free assembly
Pre Hea	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

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