

MOV S 2825

Surface mount metal oxide varistor



Product features

- Surface mount metal oxide varistor (MOV)
- 2825 (7264 metric) package size
- High transient current capability
- Plastic package meets UL 94 V-0
- Meets UL1449 4th edition
- Moisture sensitivity level (MSL): 1

Applications

- Power supply
- Home appliance
- Industrial equipment
- Telecommunication or telephone system
- Vac driven & COB LED lighting

Agency information

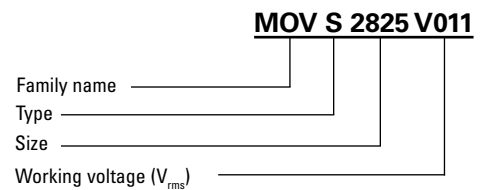
- cURus recognized:
File: E340782, Guide VZCA2 and VZCA8



Environmental compliance



Ordering part number

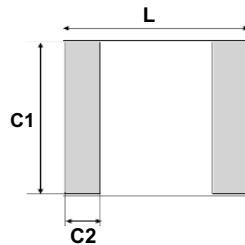
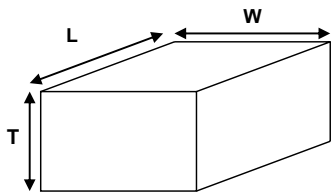


Electrical characteristics (+25 °C)

Part number	Working voltage		Varistor voltage @ 1 mAdc V_V (V) typical	Leakage current @ V_V * 80% (at initial state) IL (μ A) maximum	Clamping voltage 8/20 μ s V_C (V) maximum	Peak current 8/20 μ s i_{max} (A) maximum	Maximum energy (J) 10/1000 μ s	Rated power (W)	Typical capaci- tance (pF) 1.0 kHz	Component thickness T (mm) ± 0.3
	V_{RMS} (V) maximum	V_{DC} (V) maximum								
MOV2825V011	11	14	16.2-19.8	50	40 (1 A)	150	0.4	0.01	2100	3.2
MOV2825V014	14	18	19.8-24.2	50	48 (1 A)	150	0.5	0.01	1700	3.2
MOV2825V017	17	22	24.3-29.7	50	60 (1 A)	150	0.6	0.01	1400	3.2
MOV2825V020	20	26	29.7-36.3	50	73 (1 A)	150	0.8	0.01	1200	4.2
MOV2825V025	25	31	35.1-42.9	50	80 (1 A)	150	0.9	0.01	550	4.2
MOV2825V030	30	38	42.3-51.7	50	104 (1 A)	150	1.1	0.01	640	4.2
MOV2825V035	35	45	50.4-61.6	50	123 (1 A)	150	1.3	0.01	420	4.2
MOV2825V040	40	56	61.2-74.8	50	145 (1 A)	150	1.6	0.01	350	4.2
MOV2825V050	50	66	73.8-90.2	50	150 (5 A)	400	2.5	0.1	260	3.2
MOV2825V060	60	85	90-110	50	175 (5 A)	400	3.0	0.1	240	3.2
MOV2825V075	75	102	108-132	50	210 (5 A)	400	4.0	0.1	185	4.2
MOV2825V095	95	127	135-165	50	260 (5 A)	400	4.1	0.1	175	4.2
MOV2825V120	120	160	170-207	50	320 (5 A)	400	4.9	0.1	95	4.2
MOV2825V130	130	175	185-225	50	355 (5 A)	400	6.5	0.1	90	4.2
MOV2825V140	140	180	198-242	50	380 (5 A)	400	7.5	0.1	85	4.2
MOV2825V150	150	200	216-264	50	415 (5 A)	400	8.0	0.1	80	4.2
MOV2825V180	180	230	255-311	50	475 (5 A)	400	8.5	0.1	70	4.2
MOV2825V195	195	250	270-330	50	520 (5 A)	400	9	0.1	65	4.2
MOV2825V210	210	275	297-363	50	570 (5 A)	400	9.5	0.1	65	4.2
MOV2825V230	230	300	324-396	50	620 (5 A)	400	10	0.1	60	4.2
MOV2825V250	250	330	351-429	50	675 (5 A)	400	12	0.1	55	4.2
MOV2825V275	275	370	387-473	50	745 (5 A)	400	13	0.1	50	5.6
MOV2825V300	300	385	423-517	50	810 (5 A)	400	15	0.1	45	5.6
MOV2825V320	320	420	459-561	50	845 (5 A)	400	16	0.1	45	5.6
MOV2825V360	360	470	522-638	50	920 (5 A)	400	16.5	0.1	40	5.6
MOV2825V390	390	505	558-682	50	1025 (5 A)	400	21	0.1	40	5.6
MOV2825V420	420	560	612-748	50	1120 (5 A)	400	22	0.1	35	5.6

V_{RMS}/V_{DC} – Maximum operating voltage the varistor can maintain
 V_V – Voltage across the device measured at 1 mA DC current. Equivalent to V_b , "Breakdown Voltage".
 V_C – Maximum peak voltage across the varistor measured at 8/20 us waveform.
 i_{max} – Maximum peak current which may be applied with 8/20 us waveform without device failure

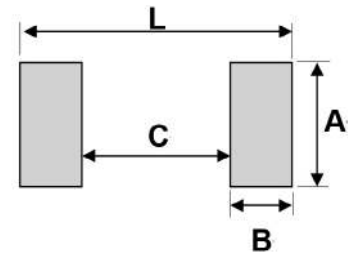
Dimensions- mm
Drawing not to scale



Bottom view

Dimension	Value	Note
L	7.2 ± 0.2	
W	6.4 ± 0.2	
T	3.2 ± 0.3 4.2 ± 0.3 5.6 ± 0.3	Refer to Electrical specifications table on pg 2
C1	5.8 ± 0.3	
C2	1.1 ± 0.3	

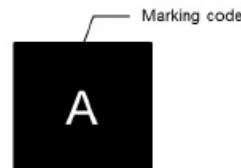
Recommended pad layout



Dimension	Value
A	6.8
B	1.5
C	4.6
L	7.6

Part marking

Part number	Marking	Part number	Marking
MOVS2825V011	A	MOVS2825V140	O
MOVS2825V014	B	MOVS2825V150	P
MOVS2825V017	C	MOVS2825V180	Q
MOVS2825V020	D	MOVS2825V195	R
MOVS2825V025	E	MOVS2825V210	S
MOVS2825V030	F	MOVS2825V230	T
MOVS2825V035	G	MOVS2825V250	U
MOVS2825V040	H	MOVS2825V275	V
MOVS2825V050	I	MOVS2825V300	W
MOVS2825V060	J	MOVS2825V320	X
MOVS2825V075	K	MOVS2825V360	Y
MOVS2825V095	L	MOVS2825V390	Z
MOVS2825V120	M	MOVS2825V420	2
MOVS2825V130	N		



General specifications

Operating temperature: -40 °C to +85 °C

Storage temperature (on board): -40 °C to +85 °C

Solderability: +245 ± 5 °C, 3 ± 1 second

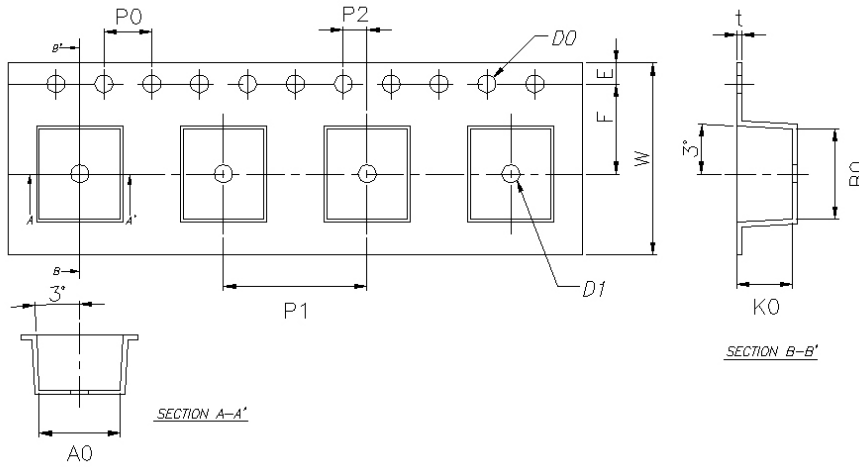
Solder leach resistance: +260 ± 5 °C, 10 ± 1 second

Packaging information - mm

900 pieces per reel for MOVS2825, T = 5.6 mm

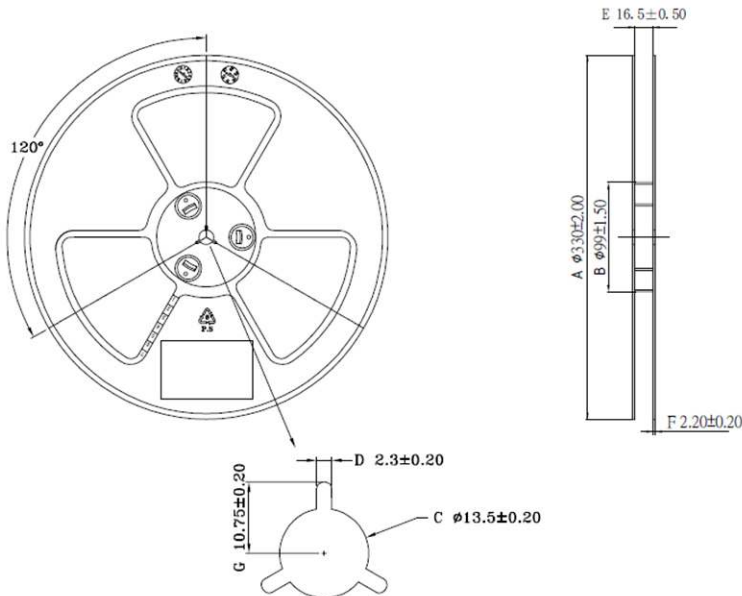
1100 pieces per reel for MOVS2825, T = 4.2 mm

1400 pieces per reel for MOVS2825, T = 3.2 mm



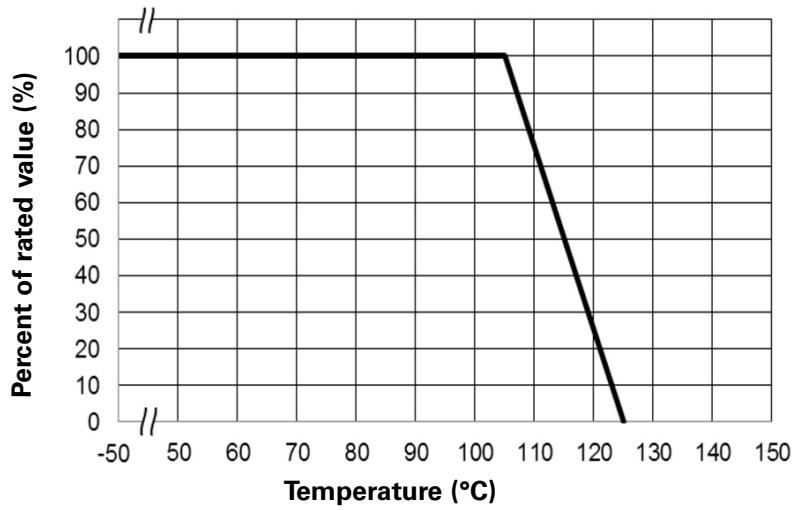
Dimension	Value
W	16.00 ± 0.30
E	1.75 ± 0.10
F	7.50 ± 0.15
D0	1.50 ± 0.10/-0.00
D1	1.50 ± 0.10/-0.00
P0	4.00 ± 0.10
P0 x10	40.0 ± 0.20
t	0.50 ± 0.05
A0	6.75 ± 0.15/-0.05
B0	7.55 ± 0.15/-0.05
K0	6.20 maximum
P1	12.00 ± 0.10
P2	2.00 ± 0.15

Reel dimension - mm

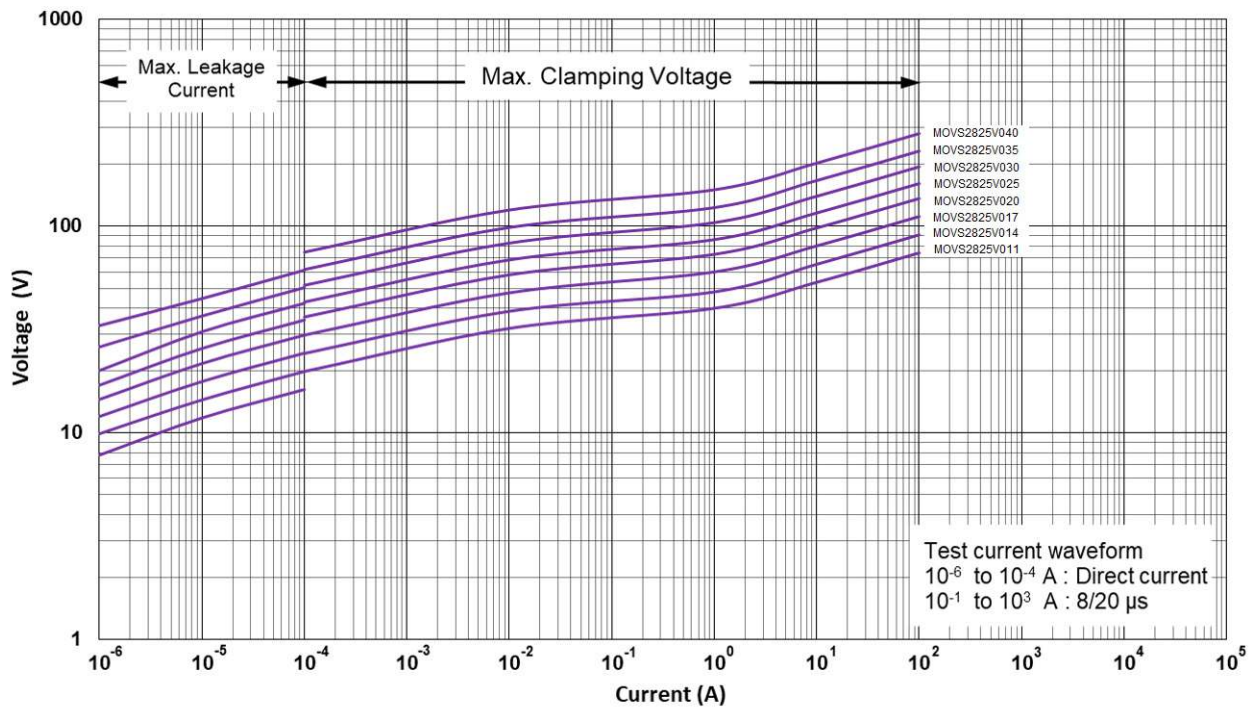


Dimension	Value
A	330 ± 2.00
B	99 ± 1.50
C	13.50 ± 0.20
D	2.30 ± 0.20
E	16.50 ± 0.50
F	2.20 ± 0.20
G	10.75 ± 0.20

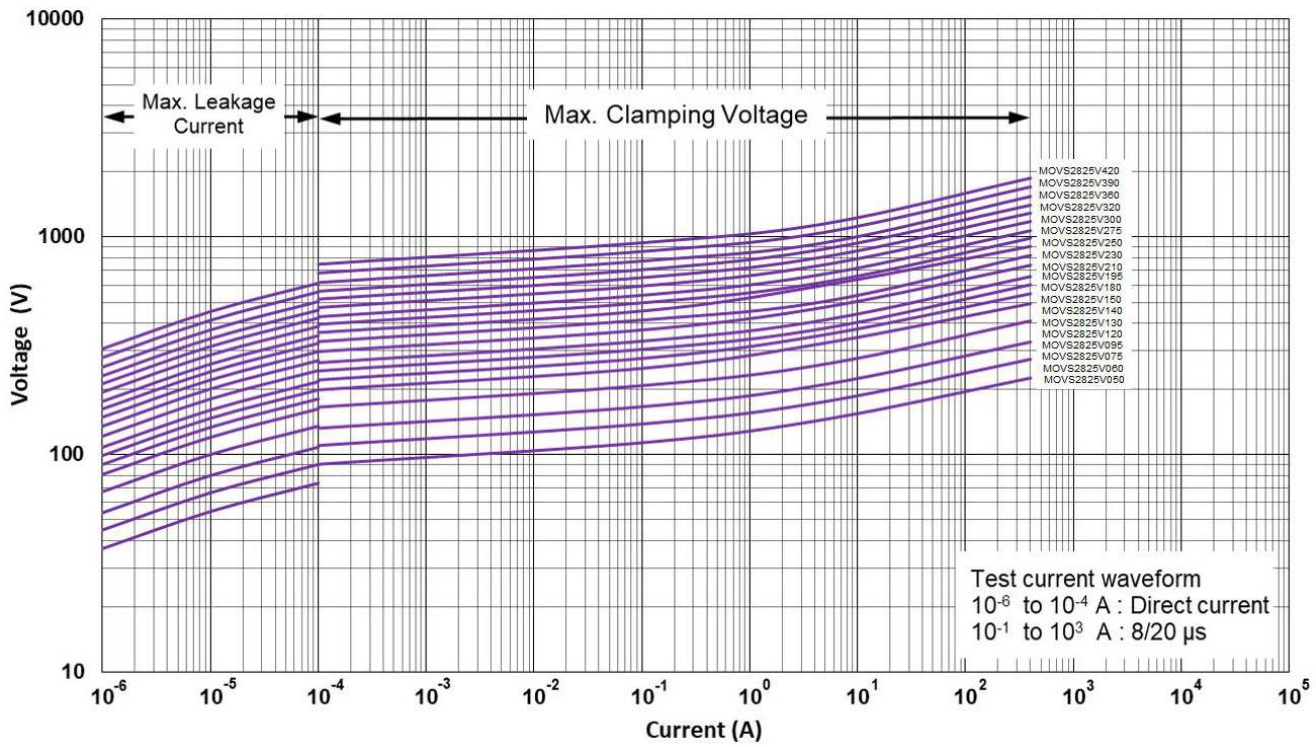
Peak current, energy and power derating curve



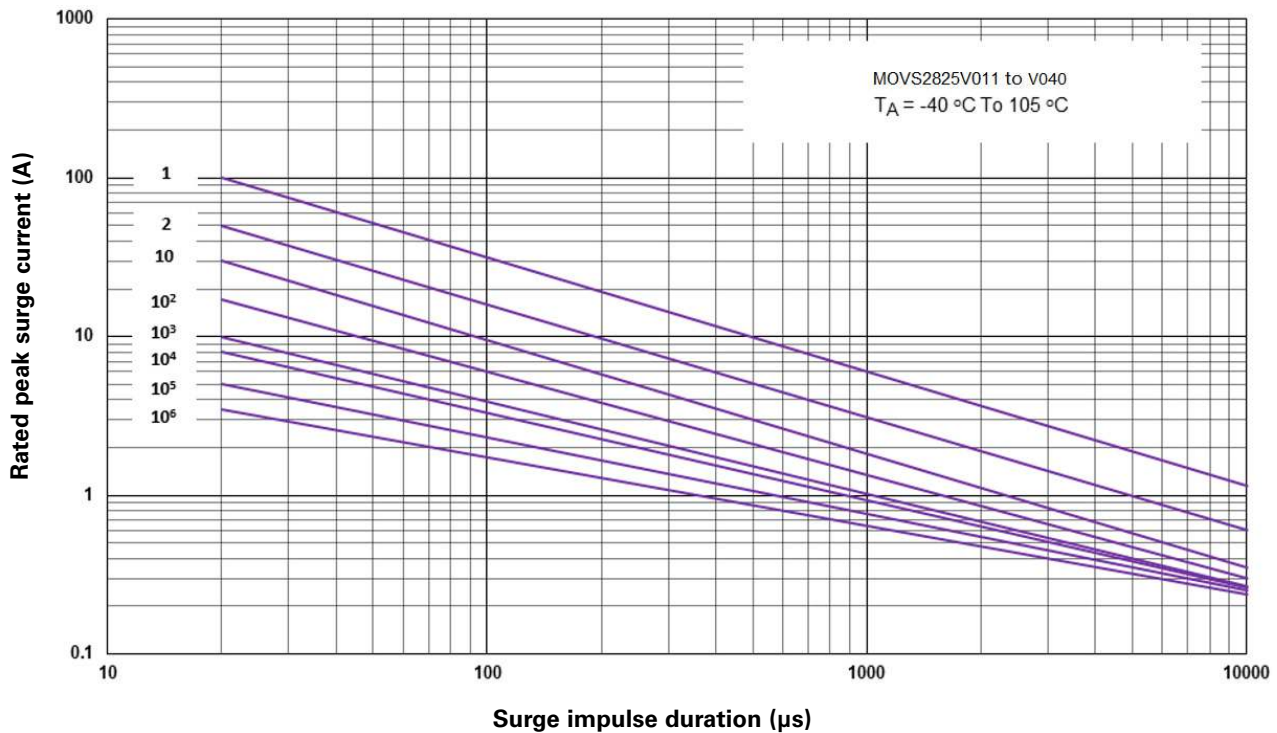
Voltage vs current (V-I) curves



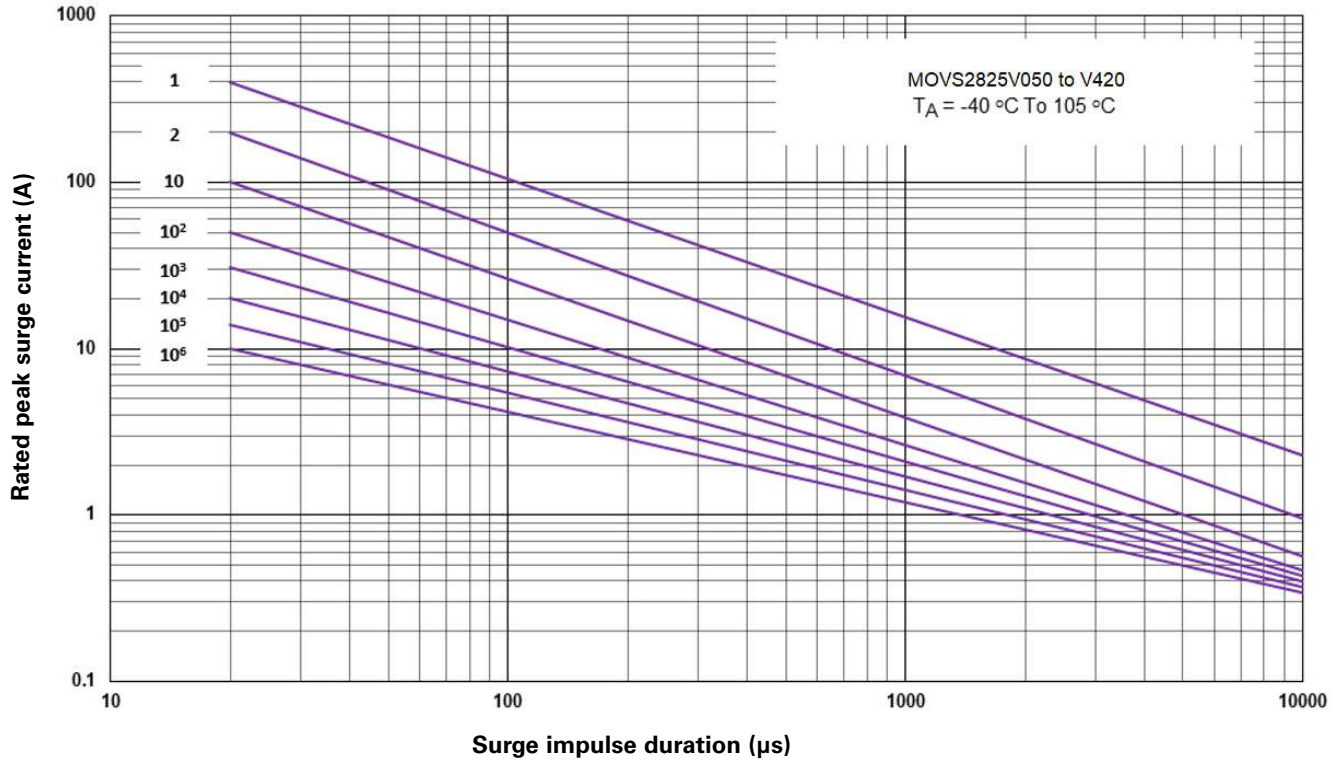
Voltage vs current (V-I) curves (continued)



Pulse rating curve



Pulse rating curve (continued)



Solder reflow profile

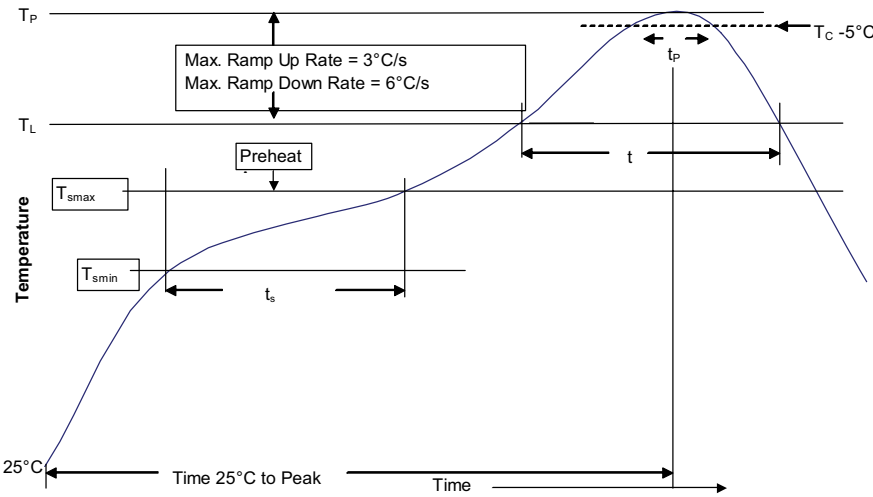


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak	<ul style="list-style-type: none"> Temperature min. (T_{smin}) Temperature max. (T_{smax}) Time (T_{smin} to T_{smax}) (t_s) 	<ul style="list-style-type: none"> 100 °C 150 °C 60-120 seconds
Ramp up rate T _L to T _p	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T _L)	183 °C	217 °C
Time (t _L) maintained above T _L	60-150 seconds	60-150 seconds
Peak package body temperature (T _p)*	Table 1	Table 2
Time (t _p)* within 5 °C of the specified classification temperature (T _C)	20 seconds*	30 seconds*
Ramp-down rate (T _p to T _L)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

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