

1025HC

Fast-acting, high current, surface mount ceramic tube fuses



Product description

- Fast-acting high current fuse
- Compact design utilizes less board space
- 20 A to 50 A current ratings
- Ceramic tube, silver plated brass end cap construction
- Halogen free and RoHS compliant

Applications

Primary and secondary circuit protection:

- Server and desktop power supplies
- Gaming console systems
- Voltage Regulator Module (VRM)
- Storage system power
- Base station power supplies
- Basic power supplies
- LED and general lighting
- Test equipment

Agency information

- cURus Recognition file number: E19180, Guide JDYX2/JDYX8
- PSE: JET 7042-31007-1002 (20 A to 30 A)

Ordering

- Use ordering number (see page 7 for details)

Packaging suffixes

- -TR (20 A to 30 A: 1500 parts per 13" diameter reel, tape width 24 mm)
(40 A to 50 A: 1000 parts per 13" diameter reel, tape width 24 mm)

Electrical characteristics

% of Amp Rating	Opening Time
100	4 hours minimum
200	60 s maximum

Product specifications

Part number ⁴	Current rating (A)	Voltage rating (V _{AC})	Voltage rating (V _{DC})	Interrupting rating at rated voltage (A _{AC})	Interrupting rating at rated voltage ¹ (A _{DC})	Typical DC cold resistance ² (mΩ)	Typical melting I ² t (A ² s)	Part marking	cURus	PSE
1025HC20-R	20	250	72	100	500	3.1	25	<PS> E JET BUSS 20A	x	x
1025HC25-R	25	250	72	100	500	2.6	50	<PS> E JET BUSS 25A	x	x
1025HC30-R	30	250	72	100	500	1.7	112	<PS> E JET BUSS 30A	x	x
1025HC40-R	40	250	72	300	500	1.3	400	BUSS 40A	x	
1025HC50-R	50	250	60	300	600	1.1	600	BUSS 50A	x	

1 DC interrupting rating measured at rated voltage, time constant of less than 1.0 microseconds, battery source

2 Typical DC cold resistance measured at <10% of rated current at an ambient temperature of 20 °C (reference only)

3. Typical melting I²t value is measured at 10I_n rated current

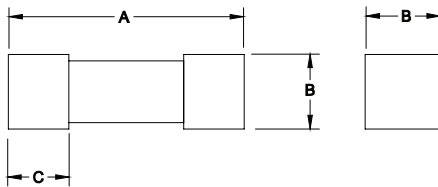
4. Part number definition: 1025HCxx-R

1025HC= Product code and size

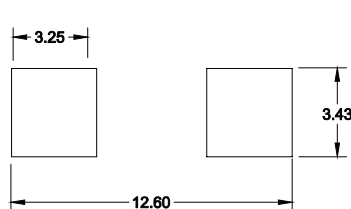
xx= Ampere rating

-R= Rohs compliant

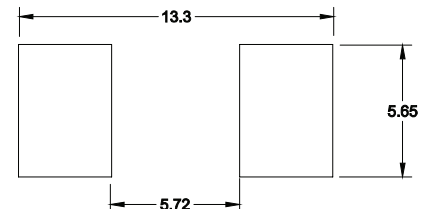
Dimensions (mm)



Recommended pad layout (mm)



20 A to 30 A



40 A to 50 A

Rating	A	B	C
20 A to 30 A	10.0 ±0.50	3.15 ±0.15	1.70 ±0.15
40 A to 50 A	12.4 ±0.50	4.50 ±0.15	2.70 ±0.15

Recommended trace thickness is 3 oz.

Recommended min-trace width is 10 mm (20 A to 30 A) and 15 mm (40 A to 50 A)

	Ao	Bo	Ko
20 A to 30 A	3.50	10.4	3.5
40 A to 50 A	4.90	12.7	4.5

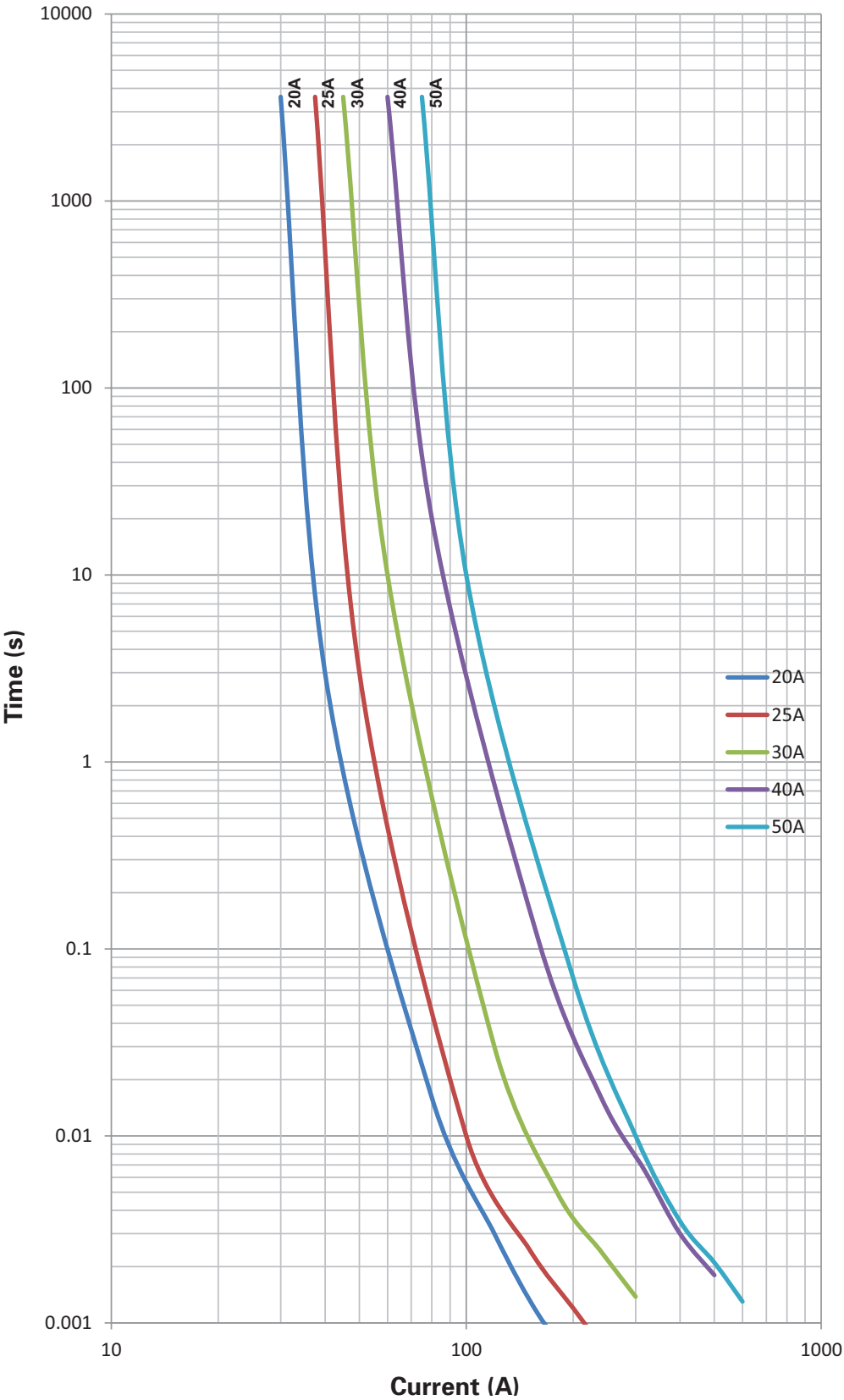
Section A-A

User Direction of Feed →

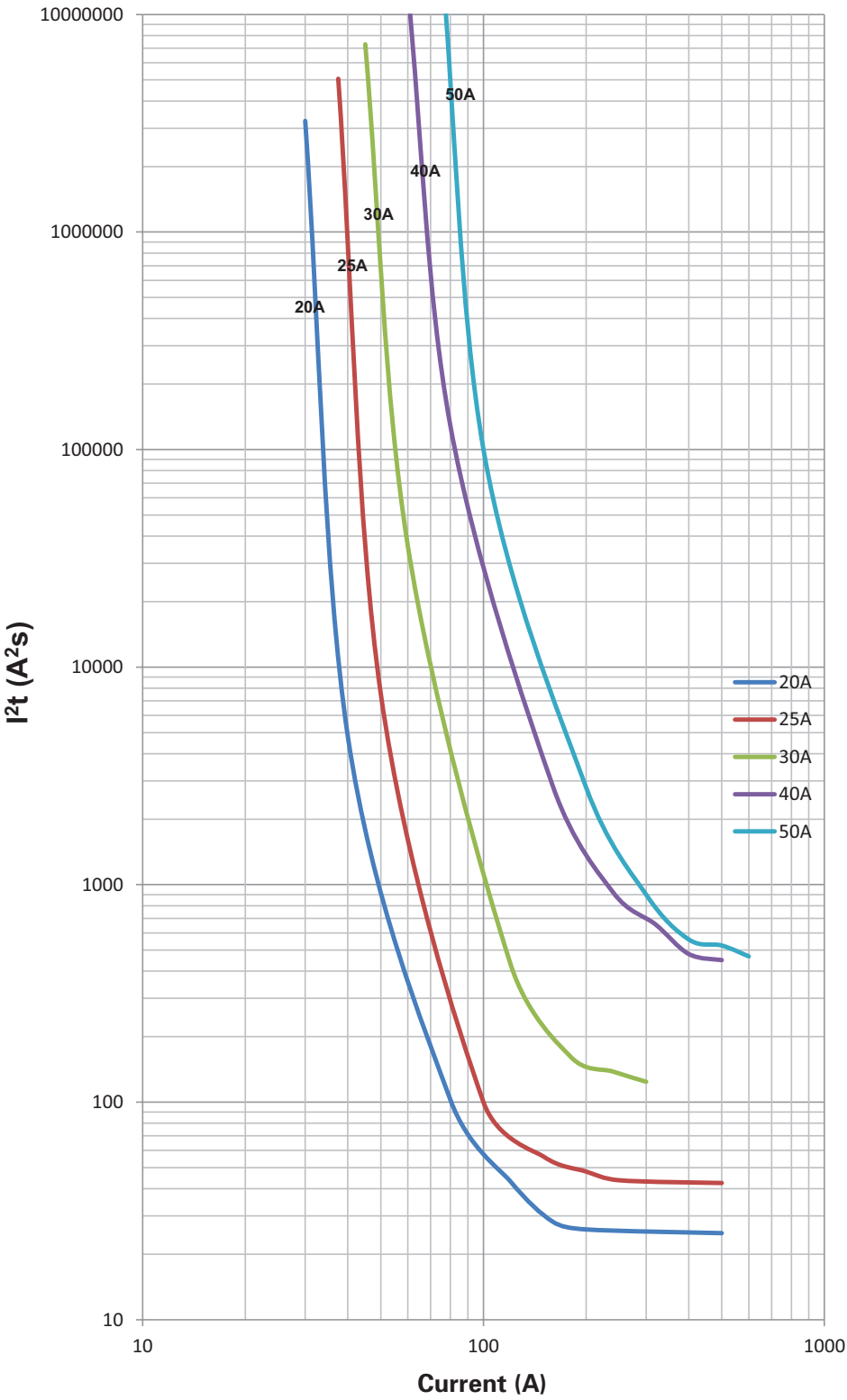
A line graph showing the Derating Factor (Y-axis) versus Temperature (°C) (X-axis). The Y-axis ranges from 0 to 1.2 with major grid lines every 0.2 units. The X-axis ranges from -55 to 125 with major grid lines every 20 units. A single blue line represents the derating factor, which starts at 1.1 at -55°C and decreases linearly to approximately 0.86 at 125°C.

Temperature (°C)	Derating Factor
-55	1.1
-35	1.08
-15	1.06
5	1.04
25	1.0
45	0.96
65	0.94
85	0.91
105	0.89
125	0.86

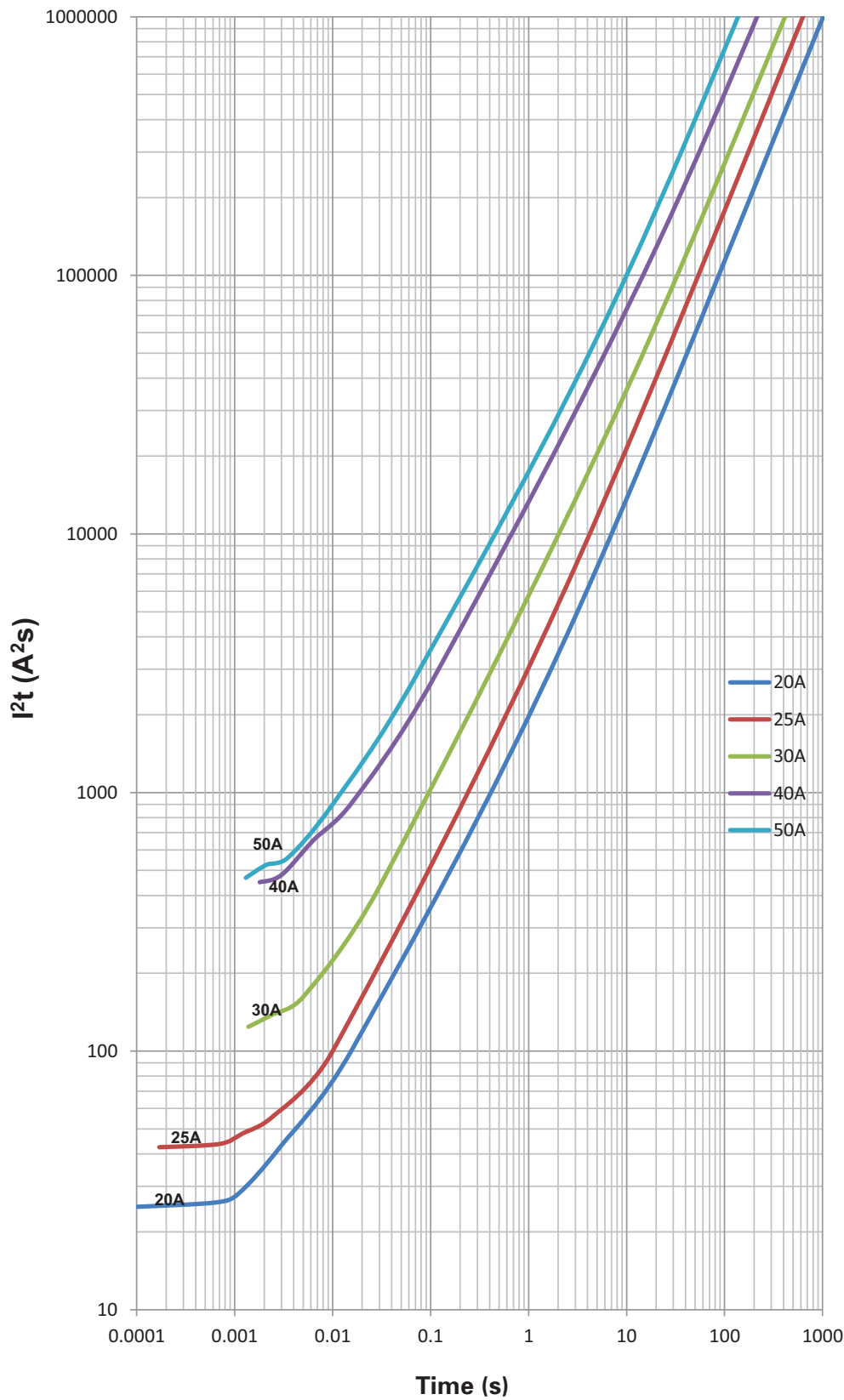
Time vs. current curve



I²t vs. current curve



I²t vs. time curve



Environmental data

Operating temperature: - 55 °C to 125 °C (with derating)

Thermal cycling: (100 cycles - 55 °C to 125 °C)

Vibration: (20 g's, 10 Hz - 2000 Hz)

Board flex: 60 s, 2 mm

Mechanical shock: 3000 g, 0.3 ms

Termination strength: 1.8 kg, 60 s

Solderability test: J-STD- 002, Method B1, G1 and D

Ordering codes

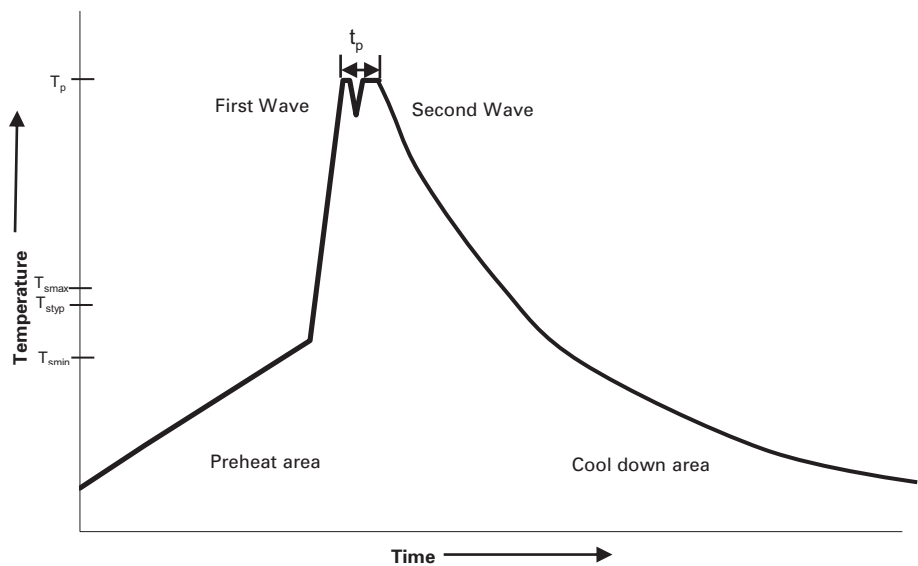
The ordering code is the part number adding the packaging suffix.

Part number	Ordering codes
	-TR option
1025HC20-R	1025HC20-RTR
1025HC25-R	1025HC25-RTR
1025HC30-R	1025HC30-RTR
1025HC40-R	1025HC40-RTR
1025HC50-R	1025HC50-RTR

Packaging suffixes

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Wave solder profile



Reference EN 61760-1:2006

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat		
• Temperature min. (T_{smin})	100 °C	100 °C
• Temperature typ. (T_{styp})	120 °C	120 °C
• Temperature max. (T_{smax})	130 °C	130 °C
• Time (T_{smin} to T_{smax}) (t_s)	70 seconds	70 seconds
Δ preheat to max Temperature	150 °C max.	150 °C max.
Peak temperature (T_p)*	235 °C – 260 °C	250 °C – 260 °C
Time at peak temperature (t_p)	10 seconds max 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate	~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~5 K/s max
Time 25 °C to 25 °C	4 minutes	4 minutes

Manual solder

350 °C, 4-5 seconds (by soldering iron), generally manual, hand soldering is not recommended.

Solder reflow profile

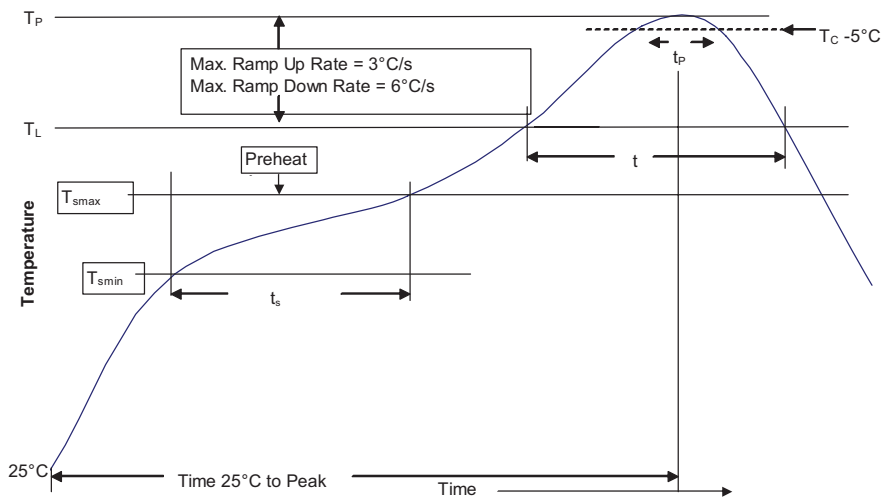


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5mm)	235 °C	220 °C
≥2.5mm	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
<1.6mm	260 °C	260 °C	260 °C
1.6 – 2.5mm	260 °C	250 °C	245 °C
>2.5mm	250 °C	245 °C	245 °C

Reference JEDEC J-STD-020D

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak		
• Temperature min. (T_{smin})	100 °C	150 °C
• Temperature max. (T_{smax})	150 °C	200 °C
• Time (T_{smin} to T_{smax}) (t_s)	60-120 Seconds	60-120 Seconds
Average ramp up rate T_{smax} to T_P	3 °C/ Second Max.	3 °C/ Second Max.
Liquidous temperature (T_L)	183 °C	217 °C
Time at liquidous (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**
Average ramp-down rate (T_P to T_{smax})	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.

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

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