

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

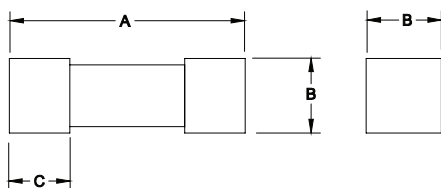
4. Part number definition: 1025HCxx-R

1025HC= Product code and size

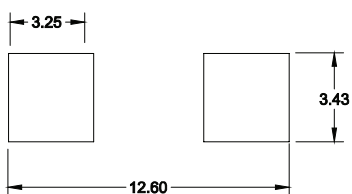
xx= Ampere rating

-R= Rohs compliant

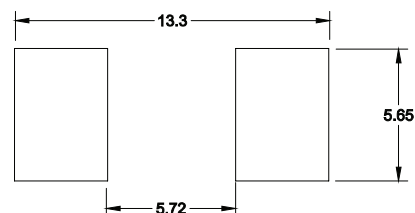
Dimensions (mm)



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)

The technical drawing illustrates a 10-lane conveyor system. The top view shows a rectangular layout with a total width of 24 units and a total length of 11.5 units. The lanes are defined by vertical dividers, with a width of 8.0 units between the centerlines of adjacent lanes. The side view shows the profile of the conveyor, with a height of 11.5 units and a width of 24 units. The drawing includes dimensions for the lane width (8.0), the distance between the centerlines of adjacent lanes (11.5), and the distance between the centerlines of the outermost lanes (24). The drawing also includes a table of lane specifications.

	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

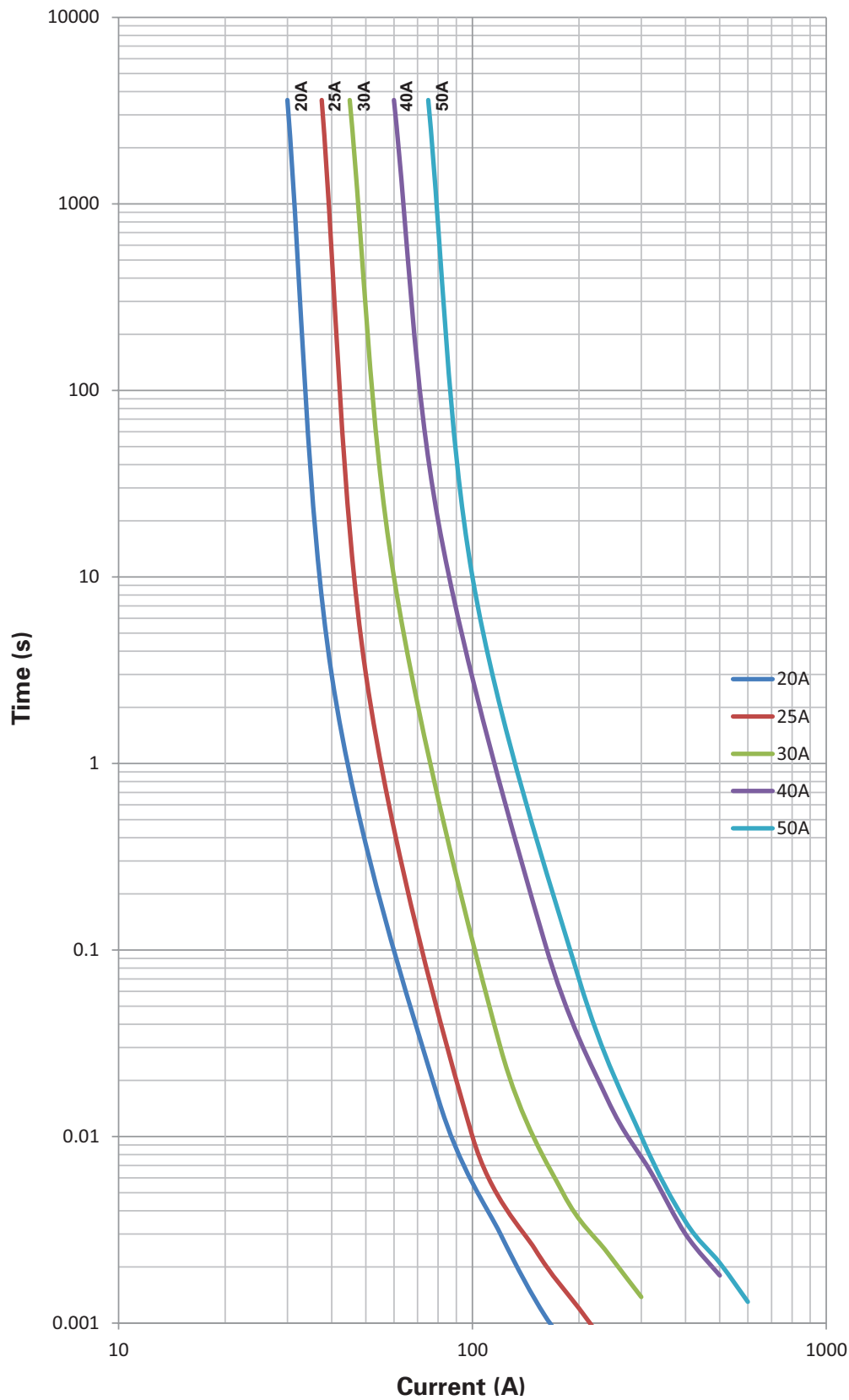
Section A-A

User Direction of Feed →

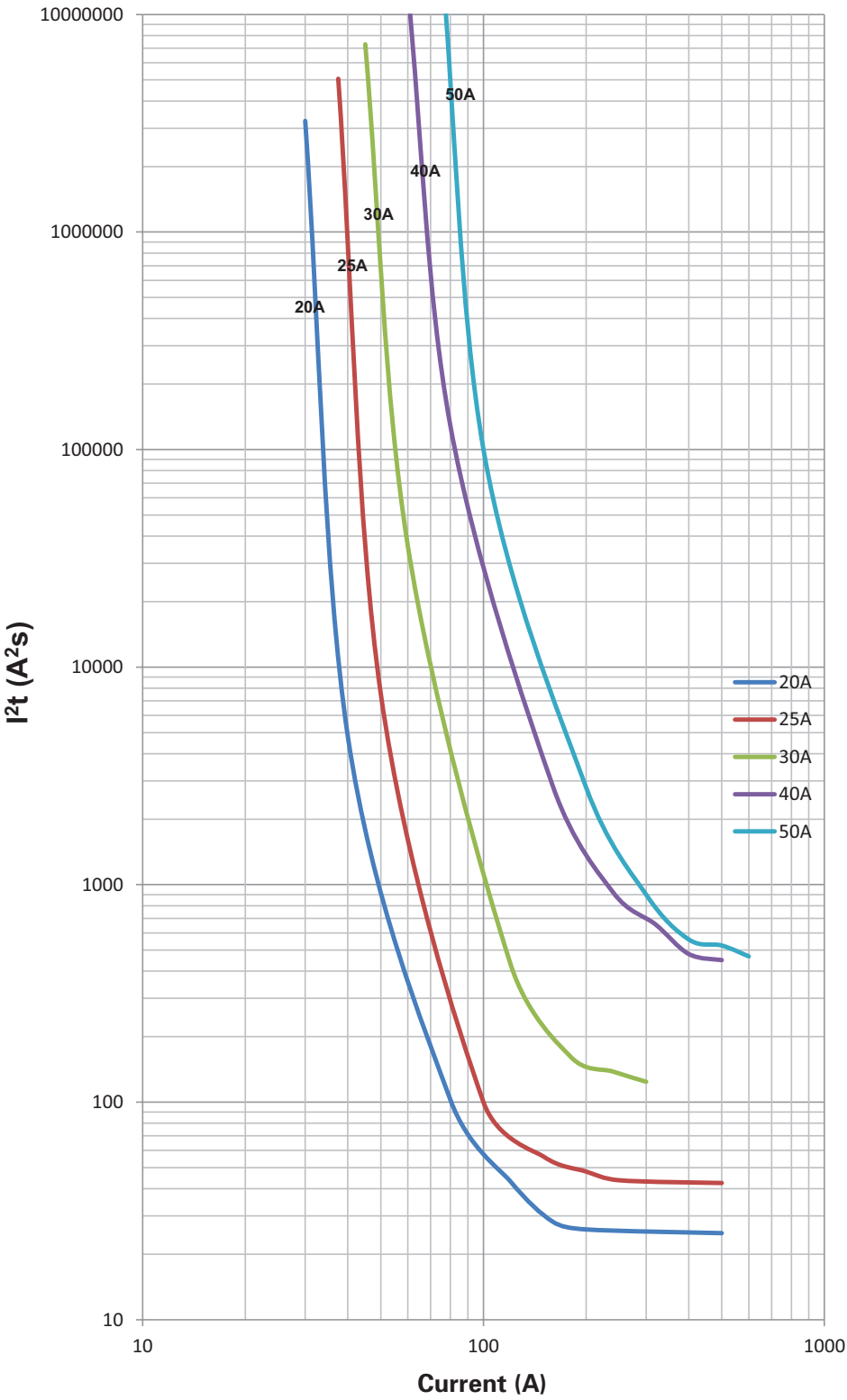
The graph illustrates the derating factor as a function of temperature. The y-axis, labeled 'Derating Factor', ranges from 0 to 1.2 with major grid lines every 0.2 units. The x-axis, labeled 'Temperature (°C)', ranges from -55 to 125 with major grid lines every 20 units. A single blue line represents 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	1.07
-15	1.04
5	1.01
25	0.98
45	0.95
65	0.92
85	0.89
105	0.87
125	0.86

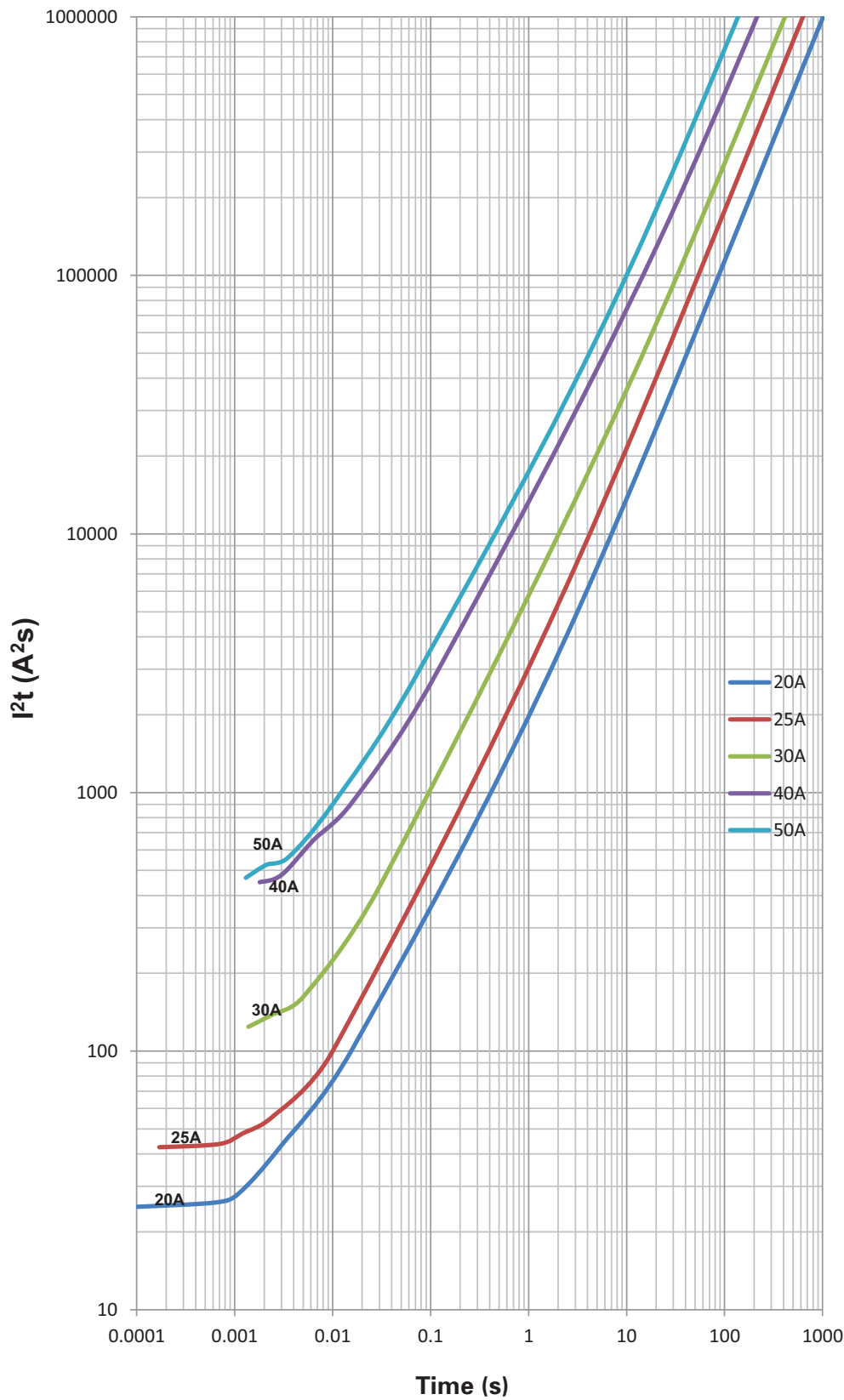
Time vs. current curve



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

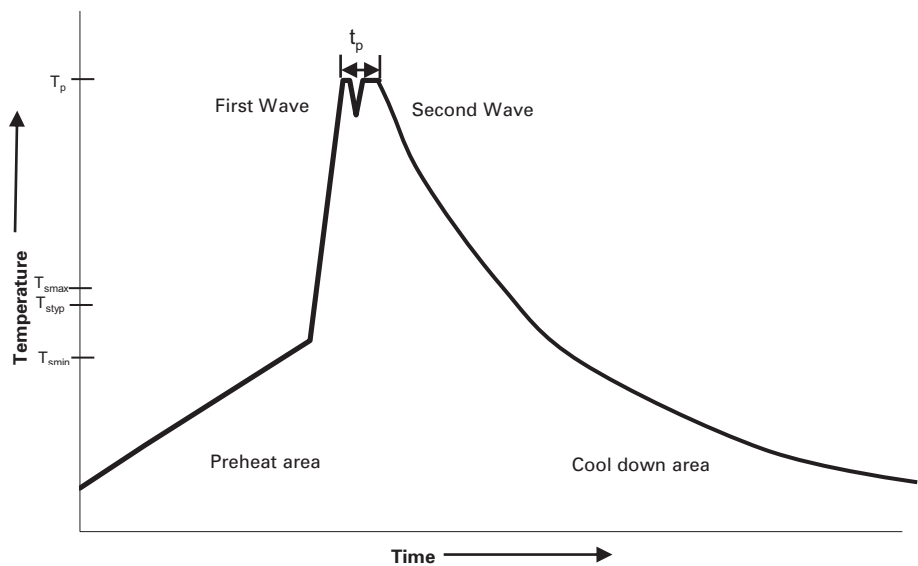
The ordering code is the part number adding the packaging suffix.

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

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

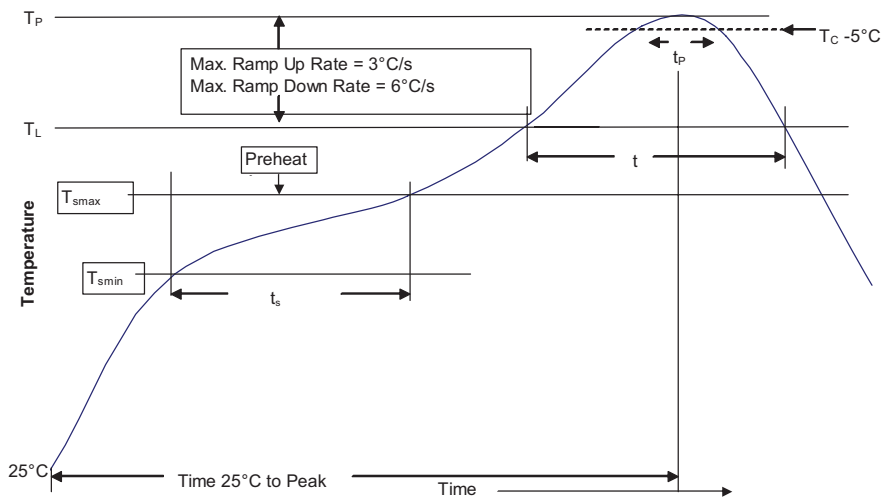


Table 1 - Standard SnPb Solder (T_C)

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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Publication No. 10572 EE-PCN17028
June 2017

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