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

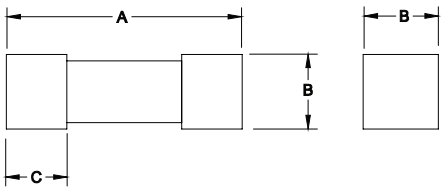
% of Amp Rating	Opening Time
100	4 hours minimum
200	60 s maximum

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[3] I^2t (A^2s)	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	

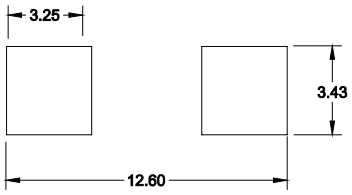
1 DC interrupting rating measured at rated voltage, time constant of less than 1.0 microseconds, battery source
2 Typical DC cold resistance measured at <10% of rated current at an ambient temperature of 20 °C (reference only)
3. Typical melting I^2t value is measured at 10In rated current
4. Part number definition: 1025HCxx-R
1025HC= Product code and size
xx= Ampere rating
-R= Rohs compliant

Dimensions (mm)

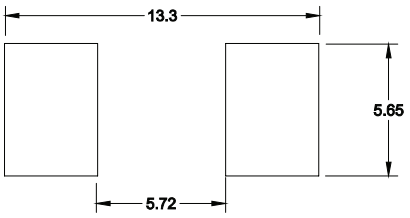


Rating	A	B	C
20 A to 30 A	10.0 ±0.50	3.15 ±0.15	1.70 ±0.15
40 A to 50 A	12.4 ±0.50	4.50 ±0.15	2.70 ±0.15

Recommended pad layout (mm)



20 A to 30 A

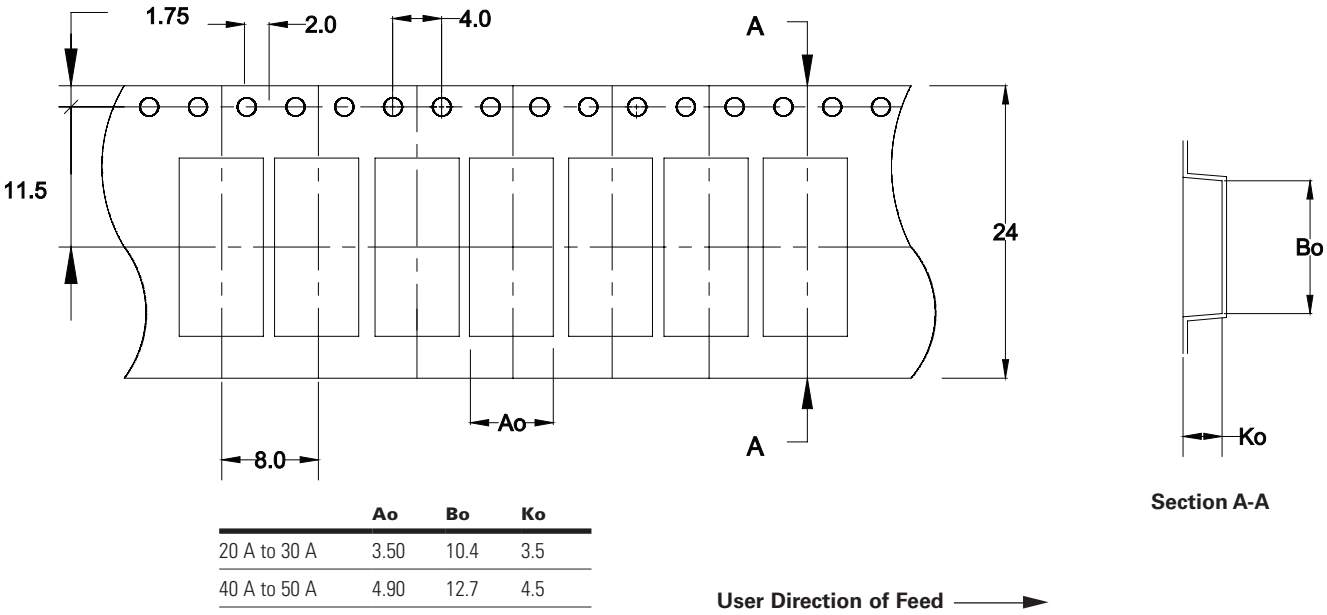


40 A to 50 A

Recommended trace thickness is 3 oz.

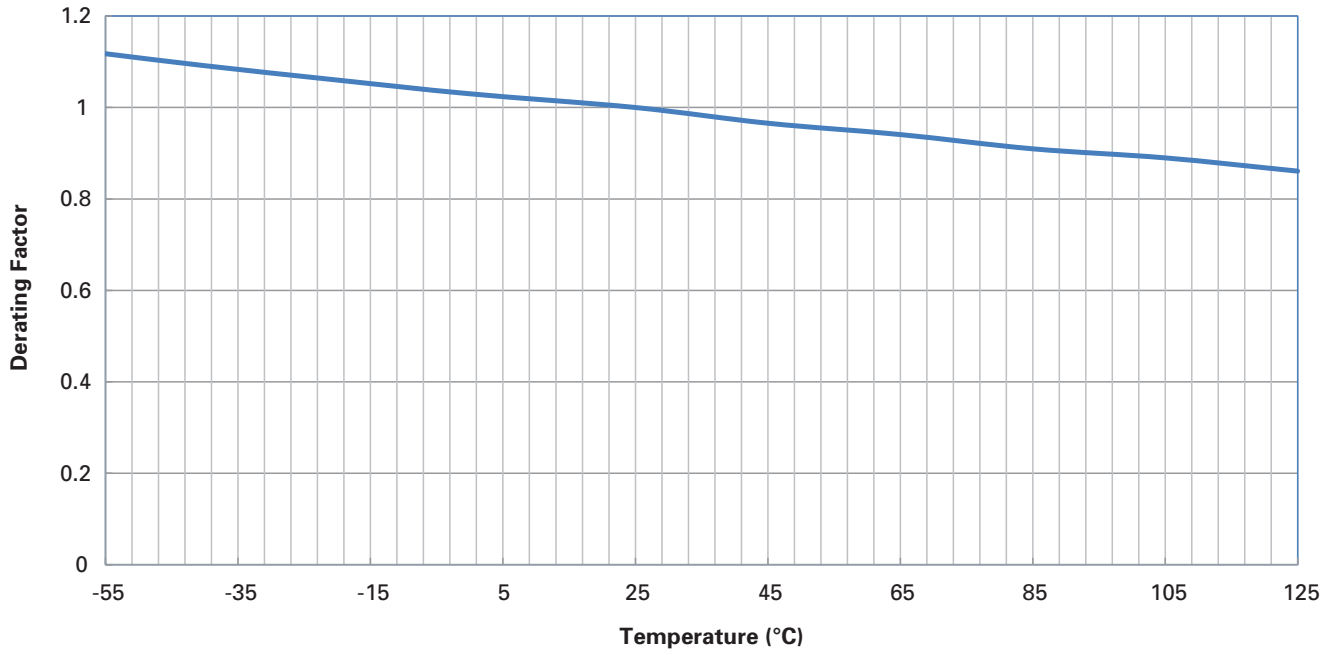
Recommended min-trace width is 10 mm (20 A to 30 A) and 15 mm (40 A to 50 A)

Packaging information (mm)

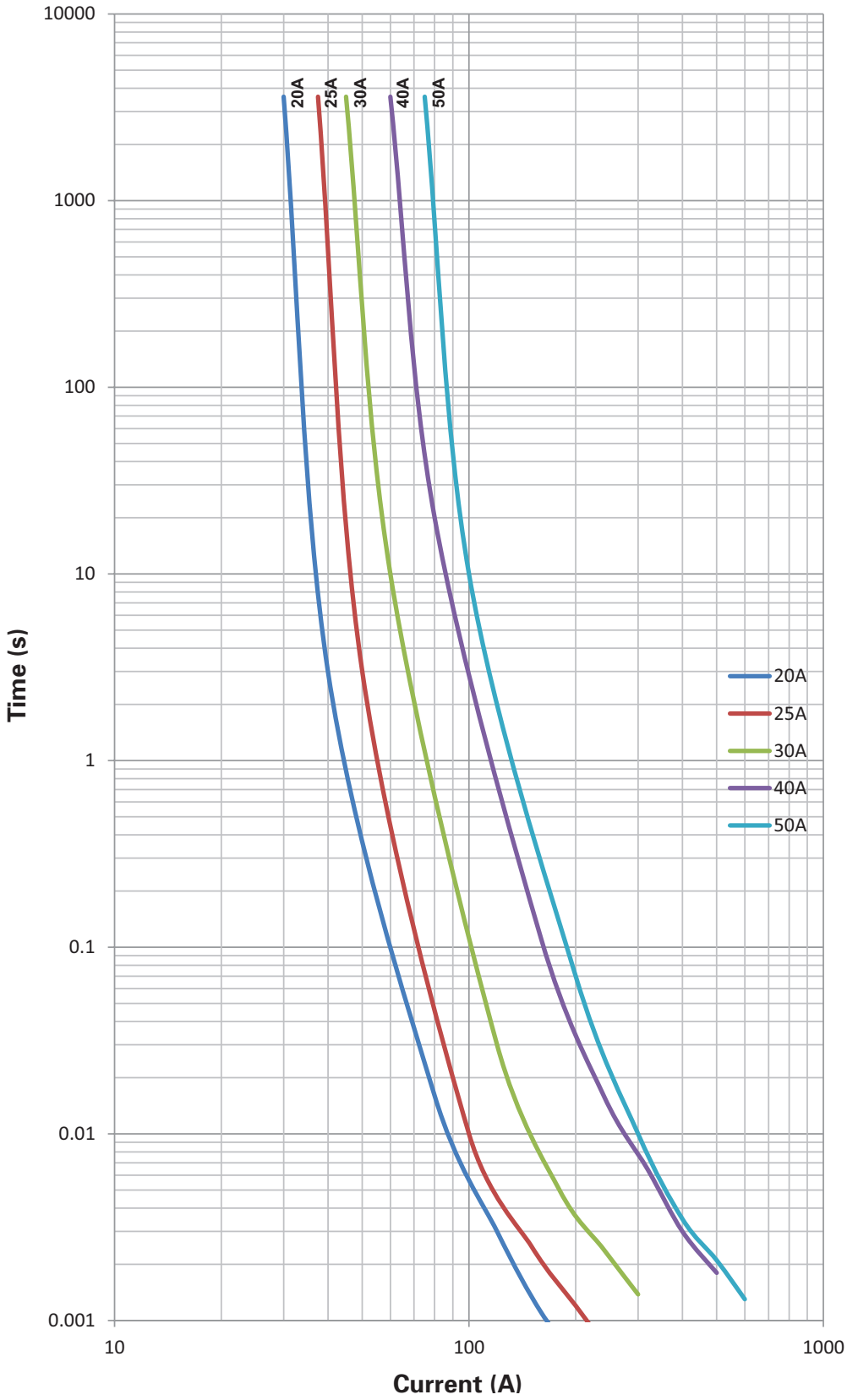


	Ao	Bo	Ko
20 A to 30 A	3.50	10.4	3.5
40 A to 50 A	4.90	12.7	4.5

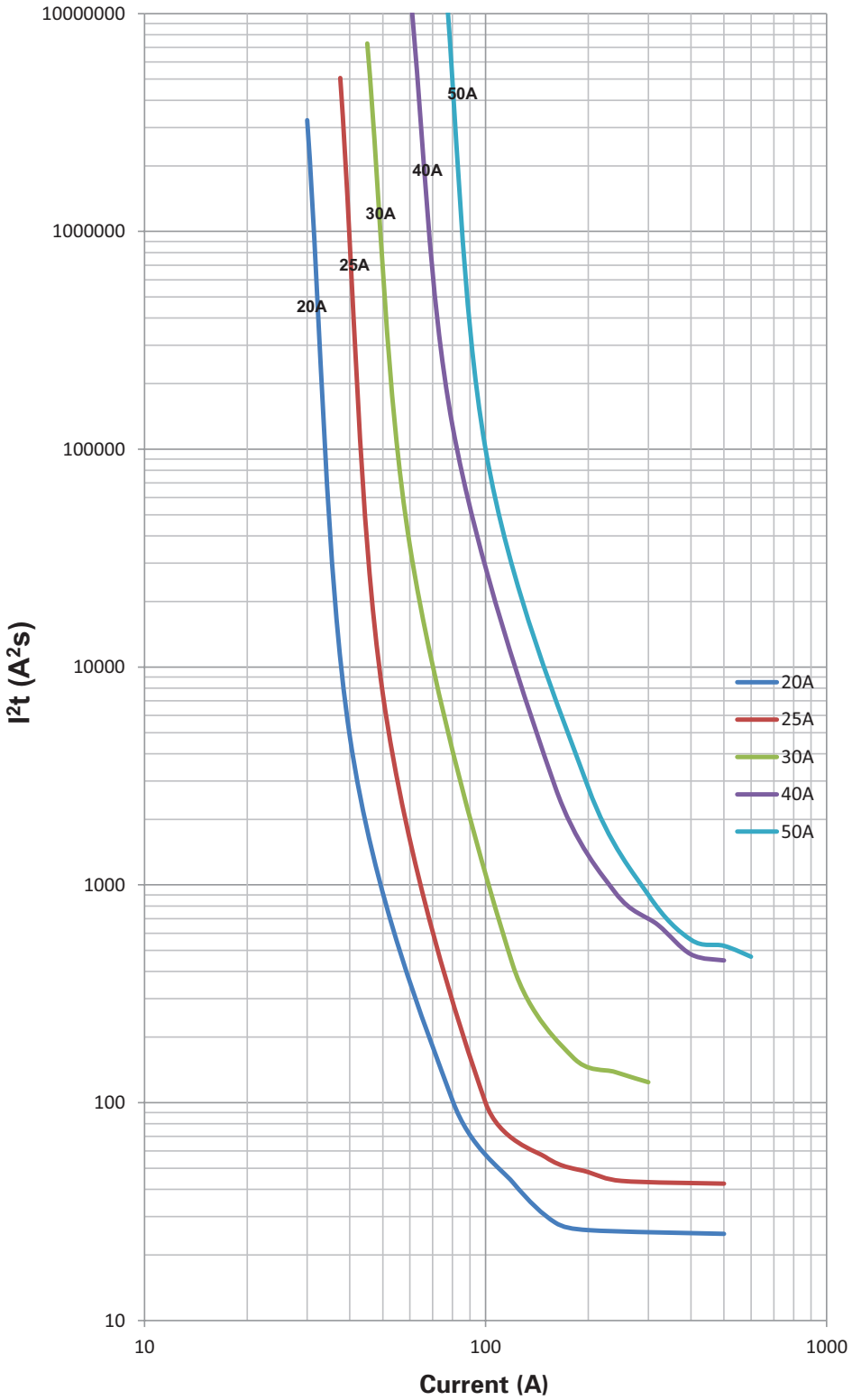
Temperature derating curve



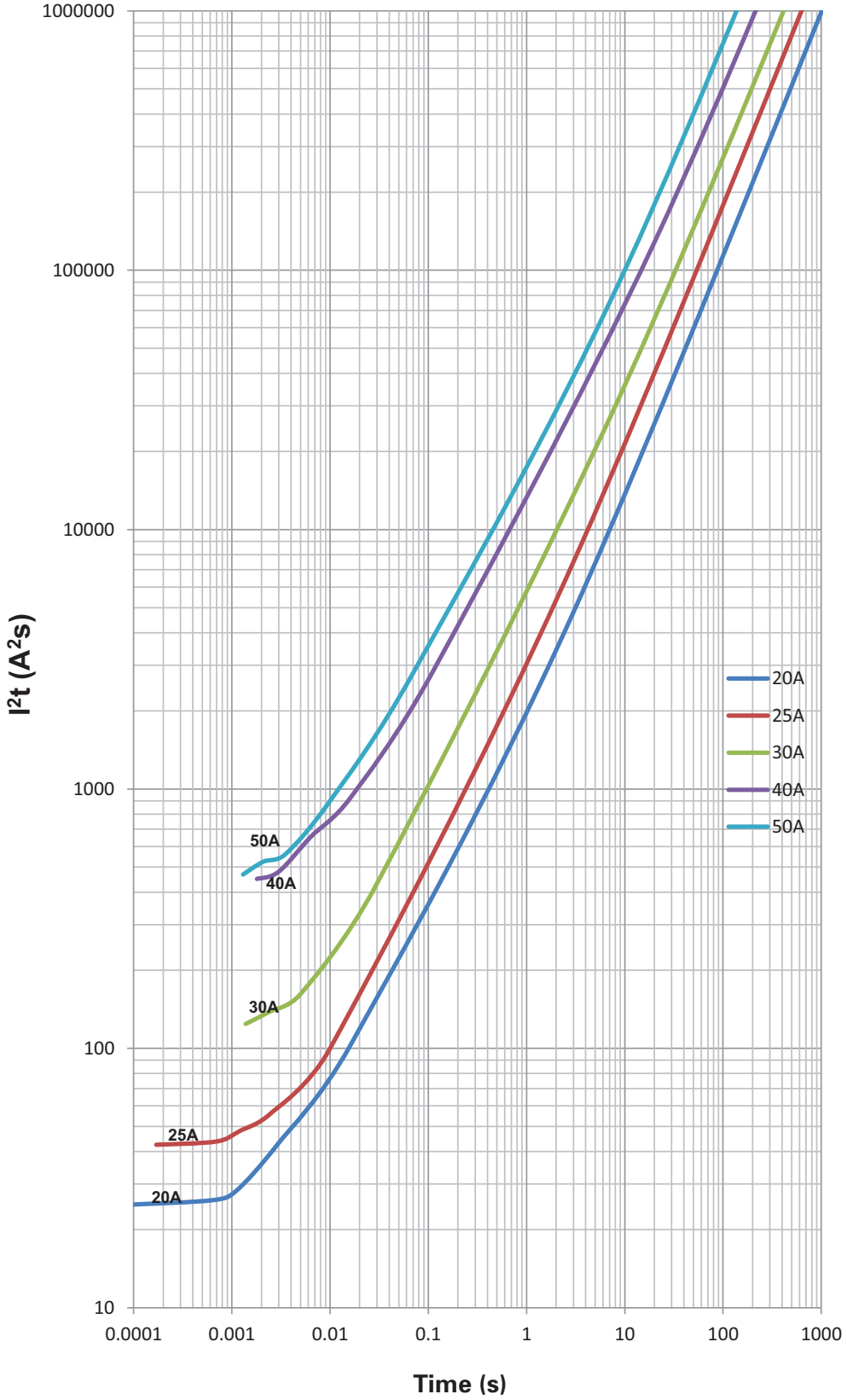
Time vs. current curve



I^2t 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

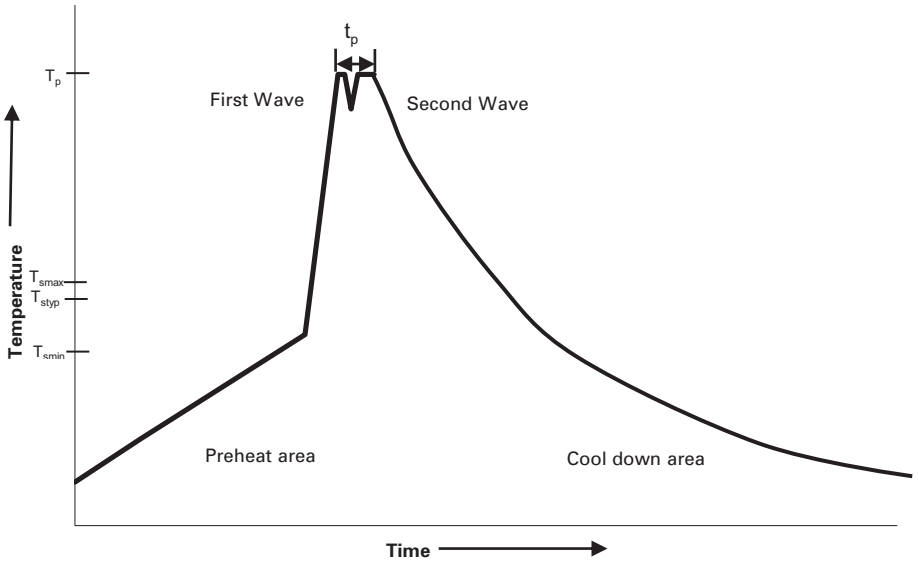
The ordering code is the part number adding the packaging suffix.

	Ordering codes
Part number	**-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

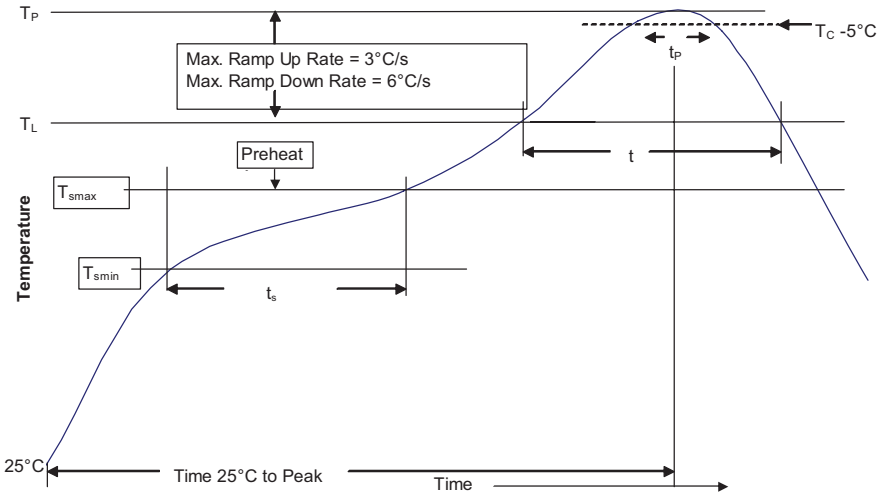


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm3 <350	Volume mm3 ≥350
<2.5mm)	235 °C	220 °C
≥2.5mm	220 °C	220 °C

Table 2 - Lead (Pb) Free Solder (T_C)

Package Thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >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 JDEC 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) Time at liquidous (t_L)		183 °C 60-150 Seconds	217 °C 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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