

# 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 7042-31007-1001 (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)



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**Electrical characteristics**

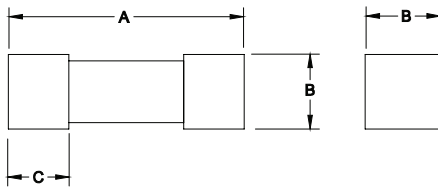
% of Amp Rating	Opening Time
100	4 hours minimum
200	60 s maximum

**Product specifications**

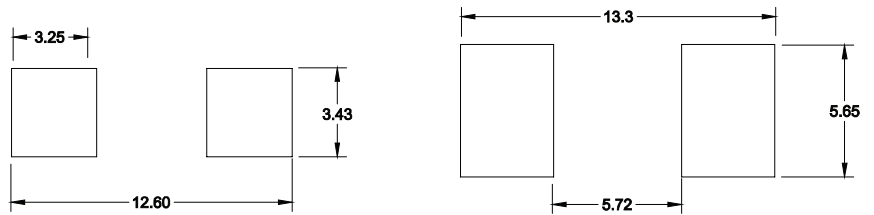
Part number <sup>4</sup>	Current rating (A)	Voltage rating (V <sub>AC</sub> )	Voltage rating (V <sub>DC</sub> )	Interrupting rating at rated voltage (A <sub>AC</sub> )	Interrupting rating at rated voltage <sup>1</sup> (A <sub>DC</sub> )	Typical DC cold resistance <sup>2</sup> (mΩ)	Typical melting <sup>3</sup> I <sup>2</sup> t (A <sup>2</sup> s)	cURus	PSE
1025HC20-R	20	125	72	100	500	3.1	25	x	x
1025HC25-R	25	125	72	100	500	2.6	50	x	x
1025HC30-R	30	125	72	100	500	1.7	112	x	x
1025HC40-R	40	125	72	100	500	1.3	400	x	
1025HC50-R	50	NA	60	NA	600	1.1	600	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<sup>2</sup>t 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)**



**Recommended pad layout (mm)**



20 A to 30 A

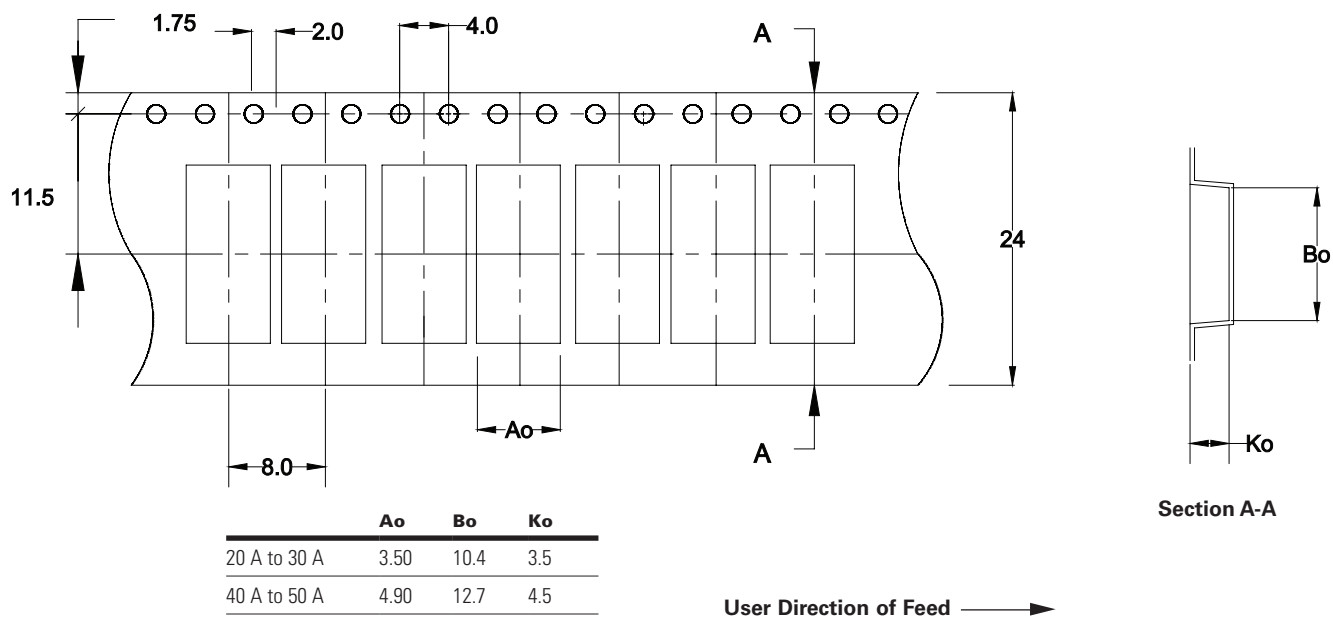
40 A to 50 A

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

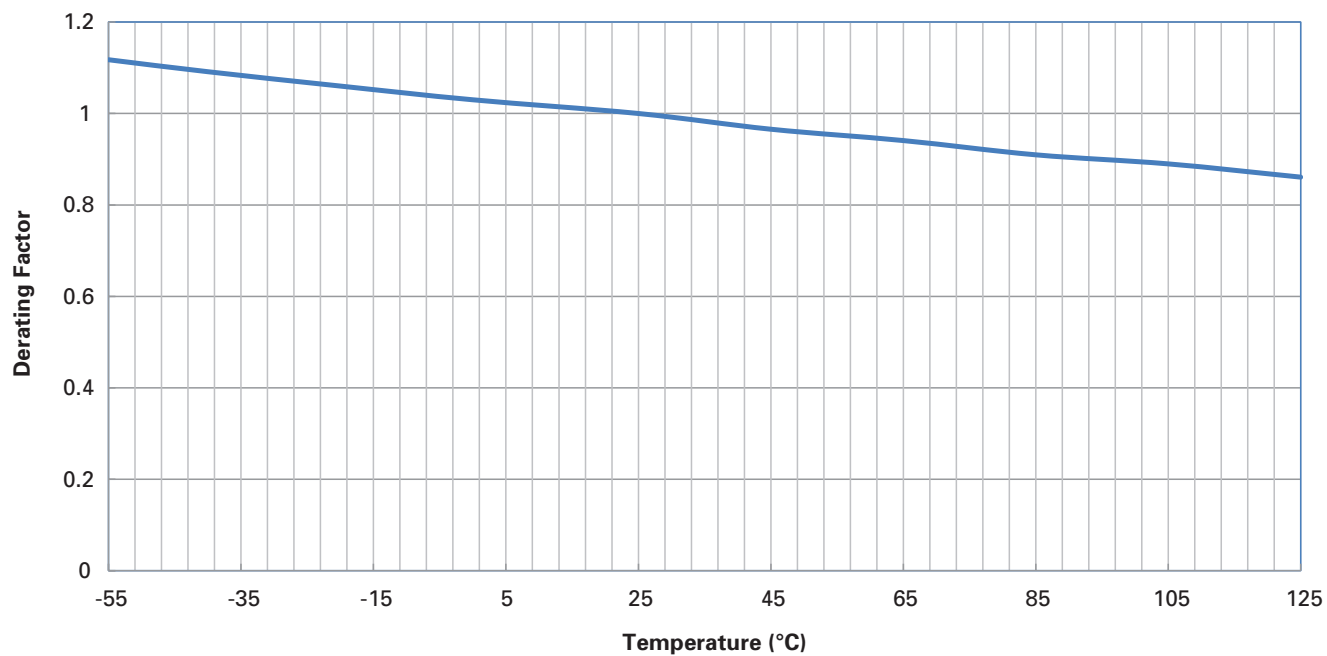
Recommended trace thickness is 3 oz.

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

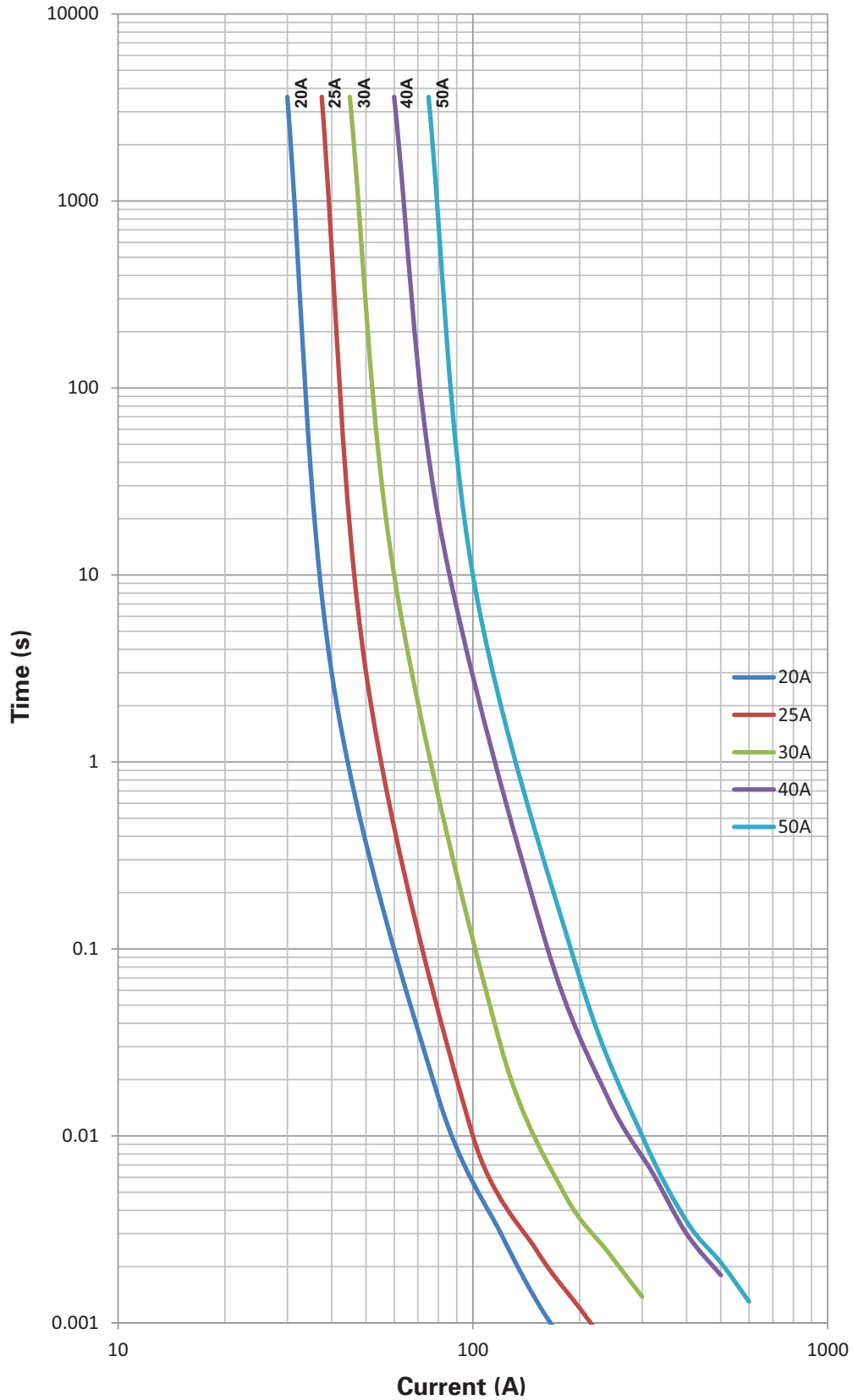
Packaging information (mm)



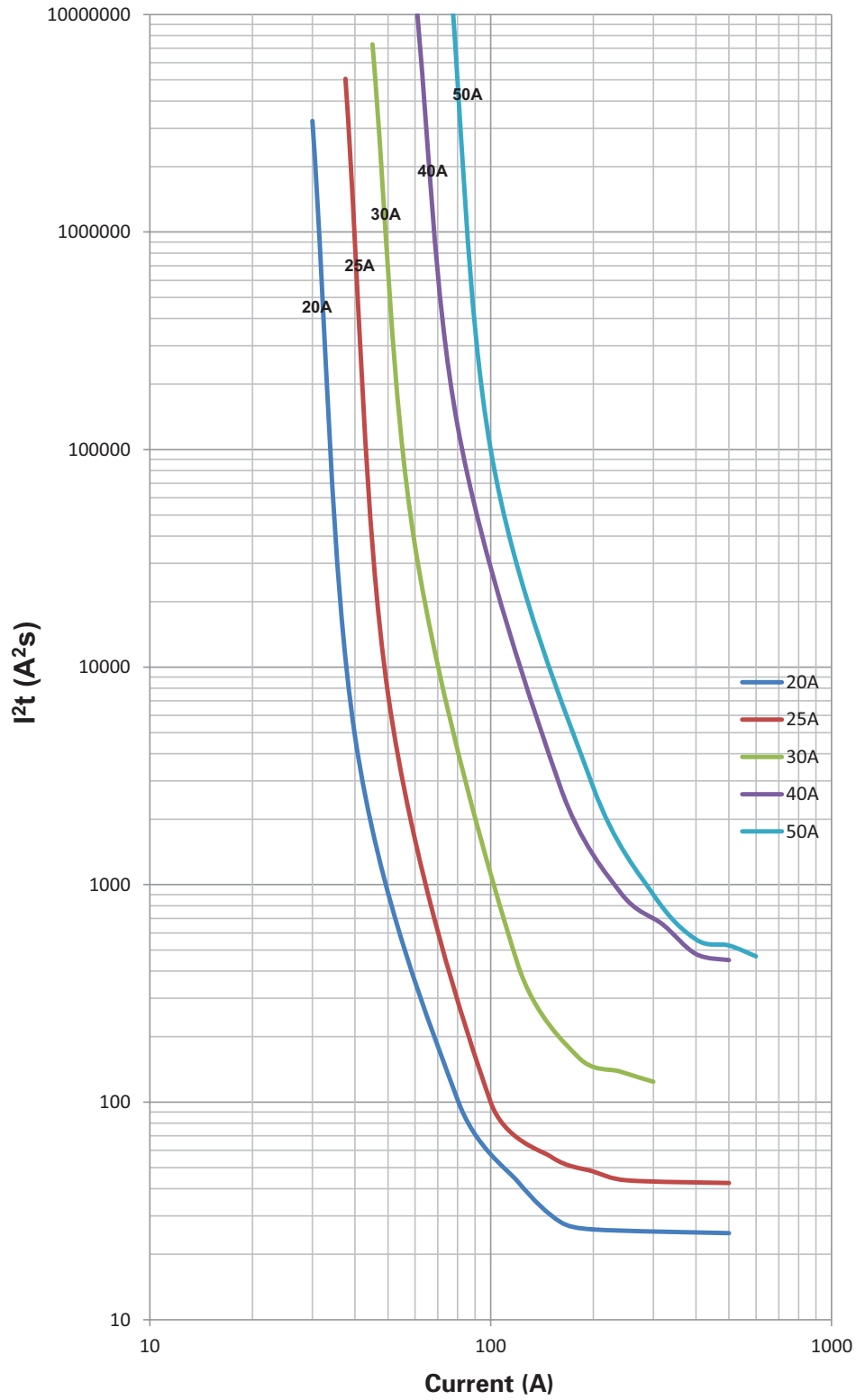
Temperature derating curve



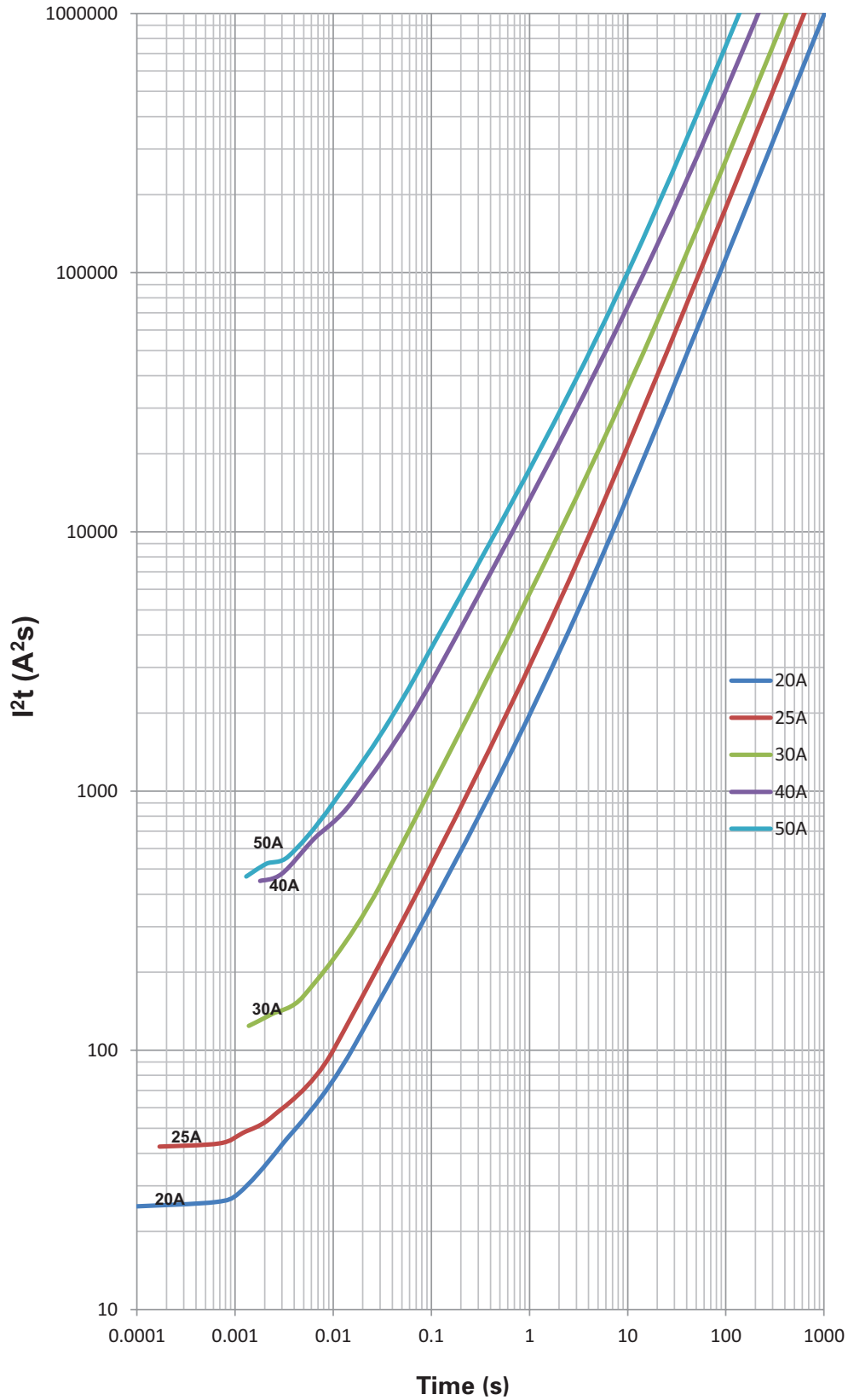
Time vs. current curve



I<sup>2</sup>t vs. current curve



I<sup>2</sup>t vs. time curve



### Environmental data

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

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

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

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Board flex: 60 s, 2 mm

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Mechanical shock: 3000 g, 0.3 ms

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Termination strength: 1.8 kg, 60 s

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

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### Ordering codes

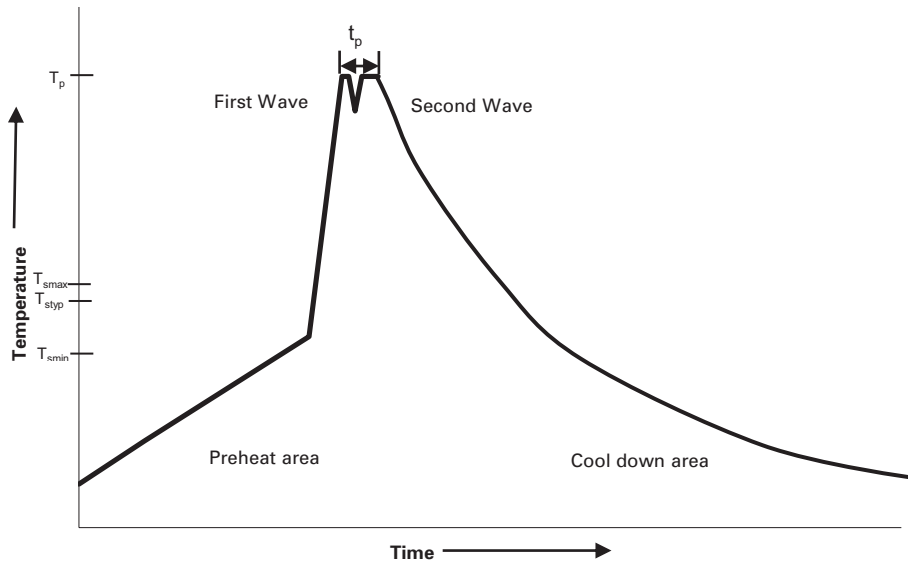
The ordering code is the part number adding the packaging suffix.

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**

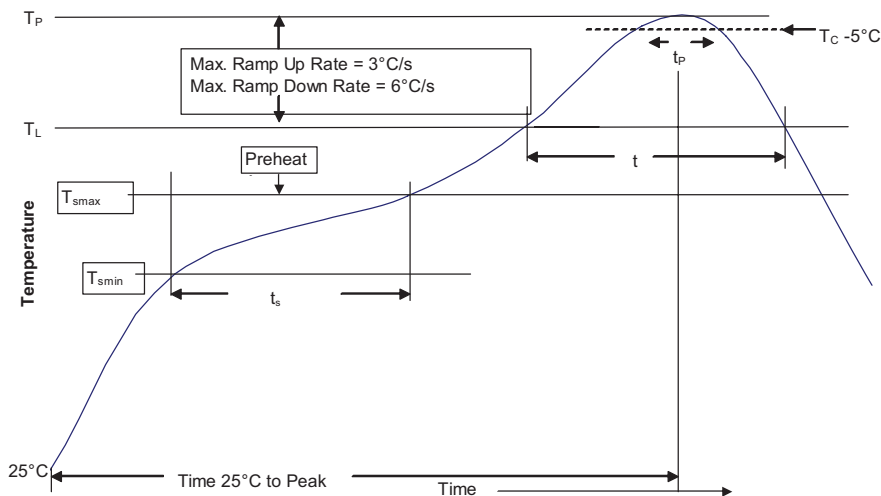
Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat		
• Temperature min. ( $T_{smin}$ )	100 °C	100 °C
• Temperature typ. ( $T_{styp}$ )	120 °C	120 °C
• Temperature max. ( $T_{smax}$ )	130 °C	130 °C
• Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	70 seconds	70 seconds
$\Delta$ preheat to 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 <sup>3</sup> <350	Volume mm <sup>3</sup> ≥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 <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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.