

# 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**

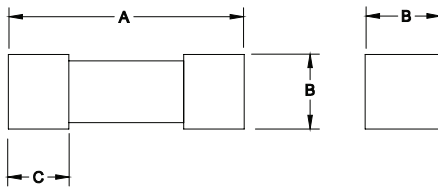
% of Amp Rating	Opening Time
100	4 hours minimum
200	60 s maximum

**Product specifications**

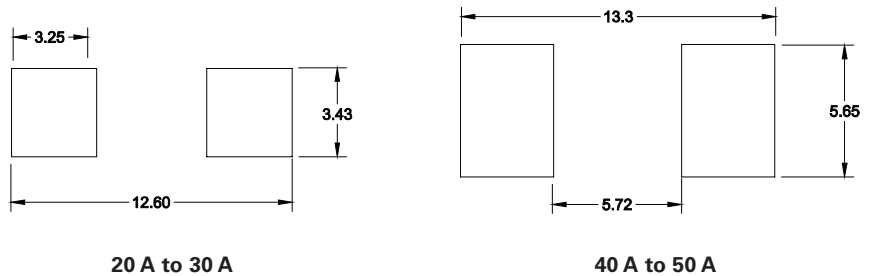
Part number <sup>4</sup>	Current rating (A)	Voltage rating (V <sub>AC</sub> )	Voltage rating (V <sub>DC</sub> )	Interrupting rating at rated voltage (A <sub>AC</sub> )	Interrupting rating at rated voltage <sup>1</sup> (A <sub>DC</sub> )	Typical DC cold resistance <sup>2</sup> (mΩ)	Typical melting <sup>3</sup> I <sup>2</sup> t (A <sup>2</sup> s)	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<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)**



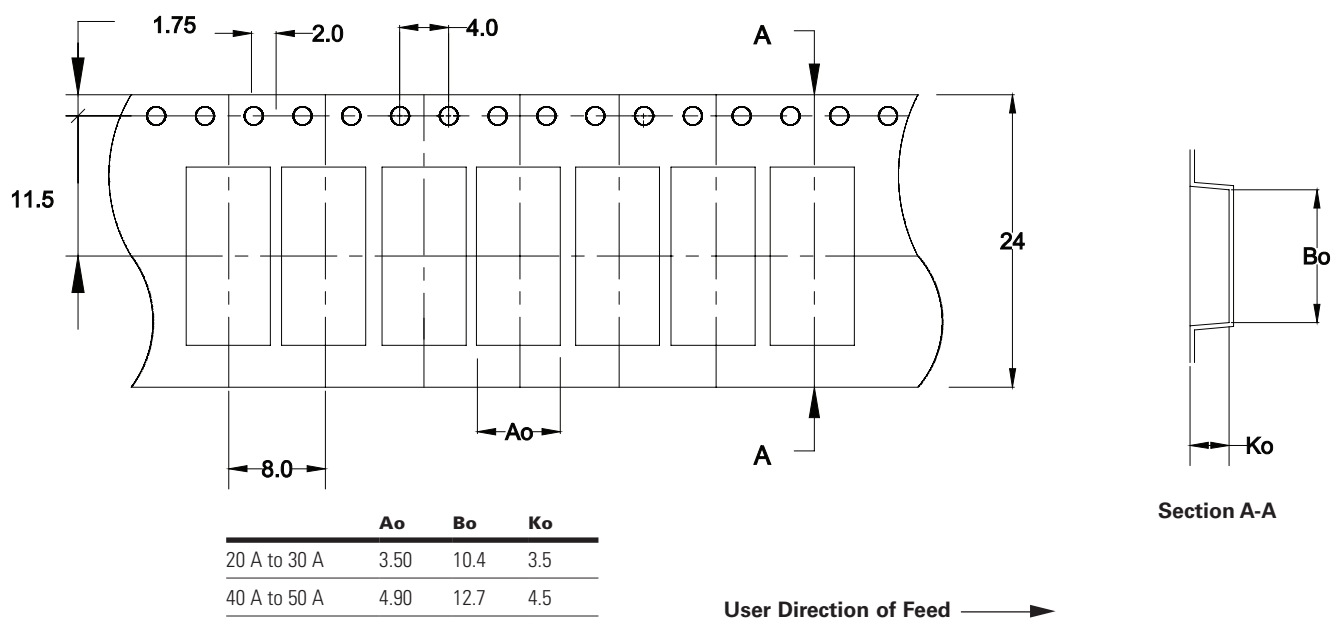
**Recommended pad layout (mm)**



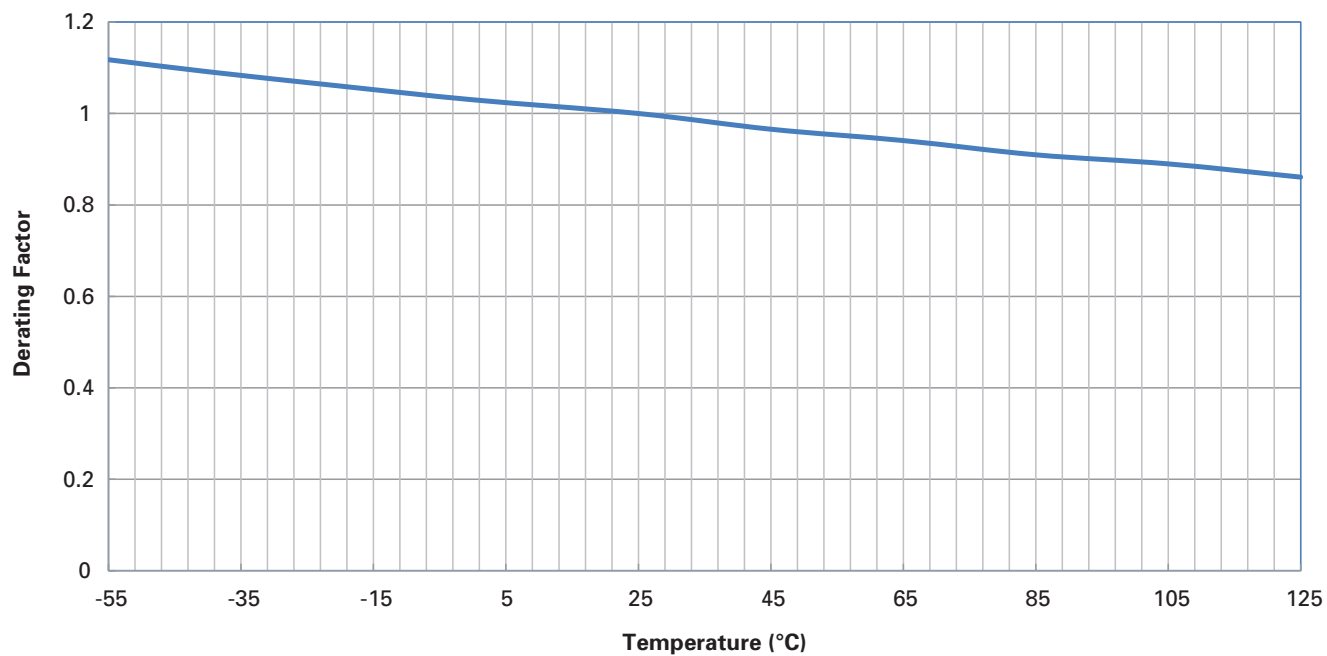
Rating	A	B	C
20 A to 30 A	10.0 ±0.50	3.15 ±0.15	1.70 ±0.15
40 A to 50 A	12.4 ±0.50	4.50 ±0.15	2.70 ±0.15

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)

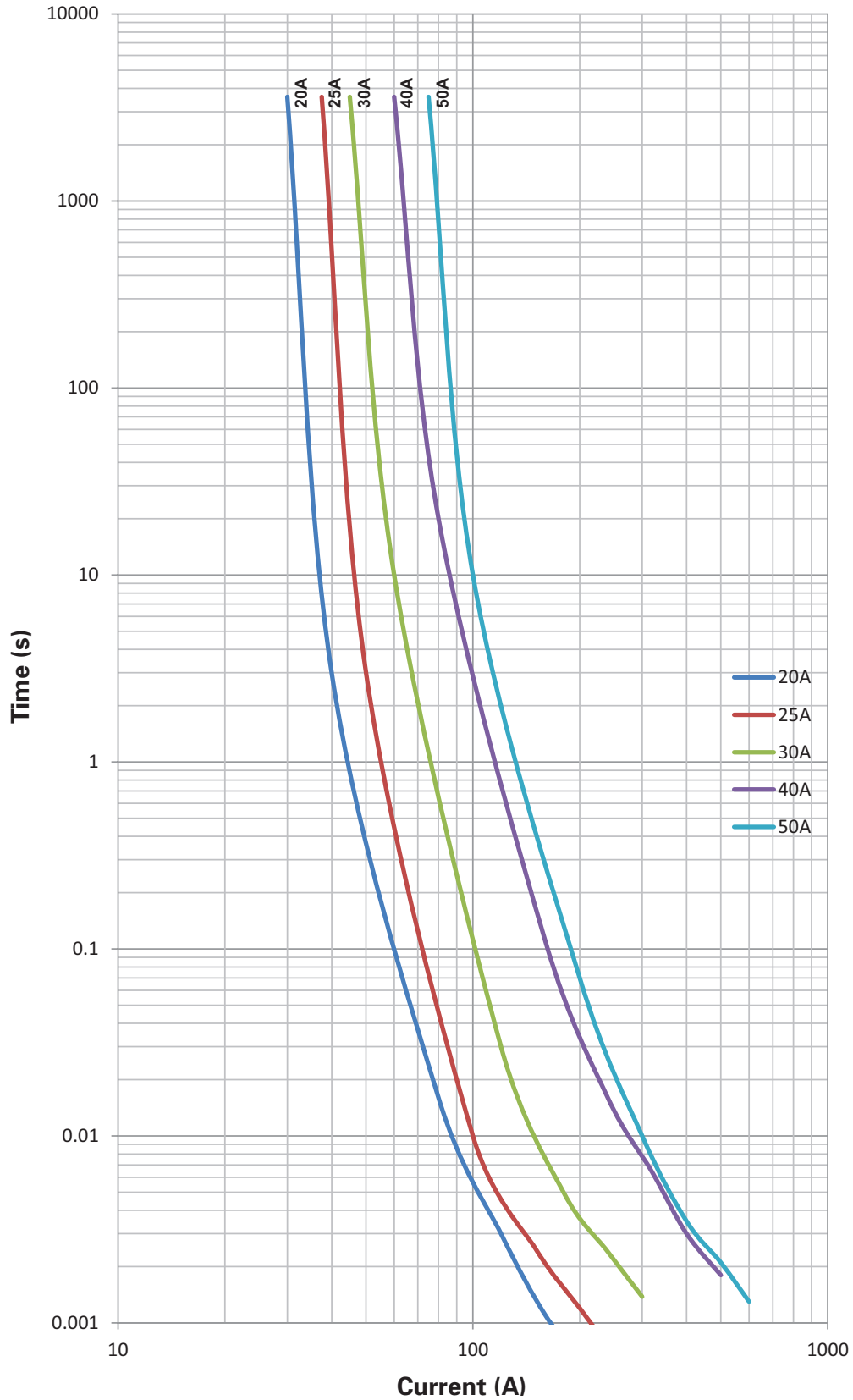
Packaging information (mm)



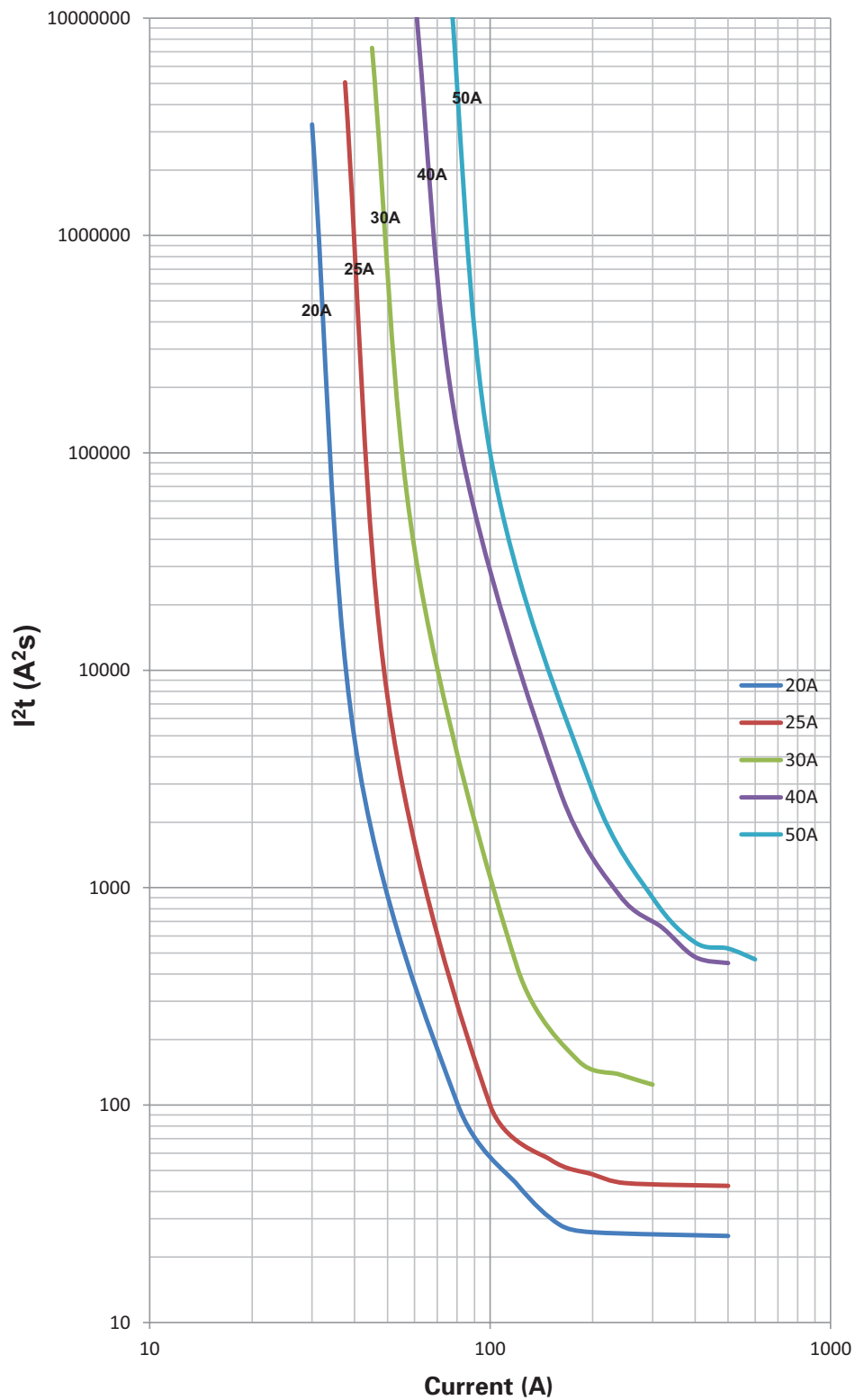
Temperature derating curve



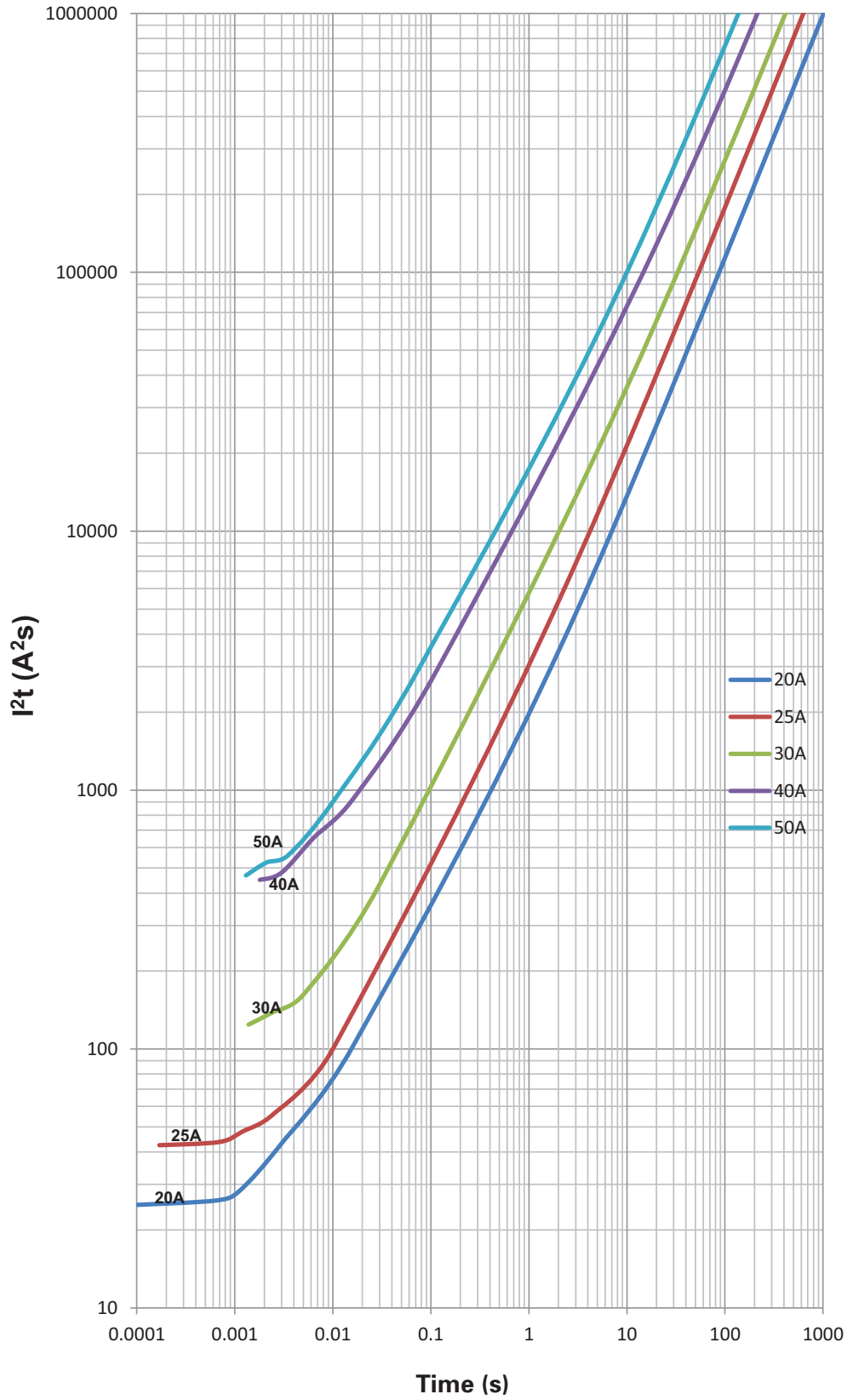
Time vs. current curve



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



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



### Environmental data

---

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

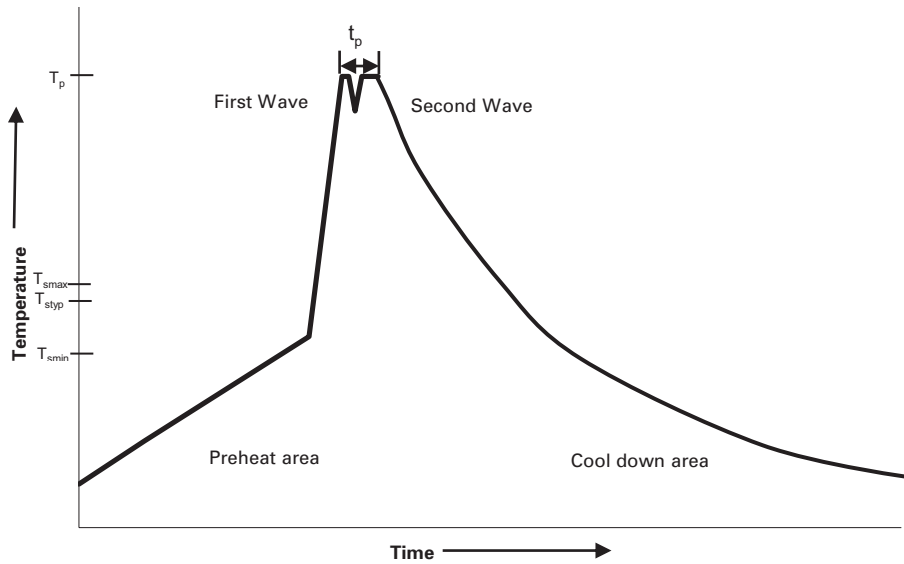
The ordering code is the part number adding the packaging suffix.

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)  
(40 A to 50 A: 1000 parts per 13" diameter reel, tape width 24 mm)

**Wave solder profile**



**Reference EN 61760-1:2006**

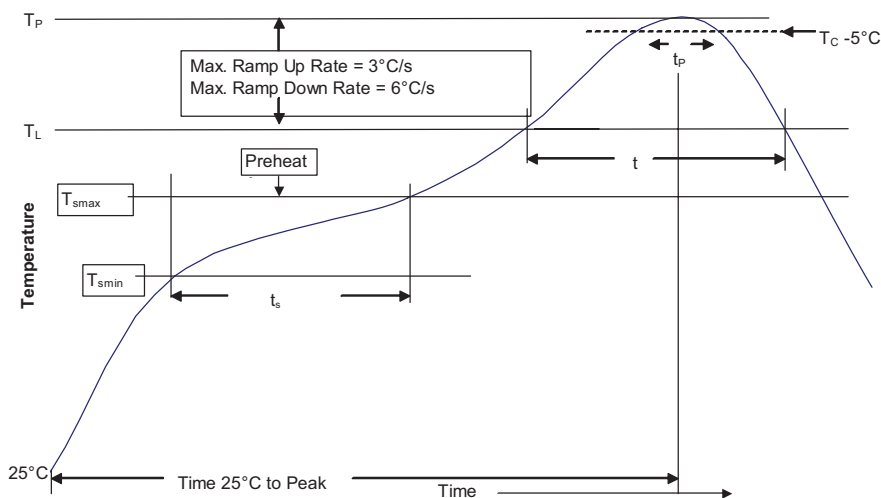
Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat	• Temperature min. ( $T_{smin}$ )	100 °C
	• Temperature typ. ( $T_{styp}$ )	120 °C
	• Temperature max. ( $T_{smax}$ )	130 °C
	• Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	70 seconds
$\Delta$ preheat to max Temperature	150 °C max.	150 °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<sub>C</sub>)**

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<sub>C</sub>)**

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 <sub>smin</sub> )	100 °C	150 °C
• Temperature max. (T <sub>smax</sub> )	150 °C	200 °C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 Seconds	60-120 Seconds
Average ramp up rate T <sub>smax</sub> to T <sub>p</sub>	3 °C/ Second Max.	3 °C/ Second Max.
Liquidous temperature (T <sub>L</sub> )	183 °C	217 °C
Time at liquidous (t <sub>L</sub> )	60-150 Seconds	60-150 Seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )** within 5 °C of the specified classification temperature (T <sub>C</sub> )	20 Seconds**	30 Seconds**
Average ramp-down rate (T <sub>p</sub> to T <sub>smax</sub> )	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<sub>p</sub>) is defined as a supplier minimum and a user maximum.  
 \*\* Tolerance for time at peak profile temperature (t<sub>p</sub>) is defined as a supplier minimum and a user maximum.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

**Eaton**  
**Electronics Division**  
 1000 Eaton Boulevard  
 Cleveland, OH 44122  
 United States  
[www.eaton.com/electronics](http://www.eaton.com/electronics)



© 2017 Eaton  
 All Rights Reserved  
 Publication No. 10572 EE-PCN17028  
 June 2017

Eaton is a registered trademark.

All other trademarks are property of their respective owners.