

# CC06H

## High I<sup>2</sup>t Chip™ 0603 size fuses



### Product feature:

- 0603 (1608 metric) compact design utilizes less board space
- Halogen free, lead free and RoHS compliant
- High inrush withstand capability
- Fast-acting performance
- Ampacity alpha mark on fuse for easy identification
- Standard termination design for easy solderability
- Compatible with standard lead-free solder reflow and wave soldering processes
- Excellent environmental integrity

### Applications

For secondary circuit protection in space constrained applications:

- LCD Backlight inverters
- Digital cameras
- DVD Players
- Bluetooth headsets
- Battery packs

### Agency information

- cULus Recognized Guide and Card JDXY2/JDXY8, File E19180

### Packaging

- TR - Packaging code suffix for tape-and-reel (8 mm wide tape on 178mm diameter reel - specification EIA 481-1)
- Quantity = 5000 fuses

## Electrical characteristics

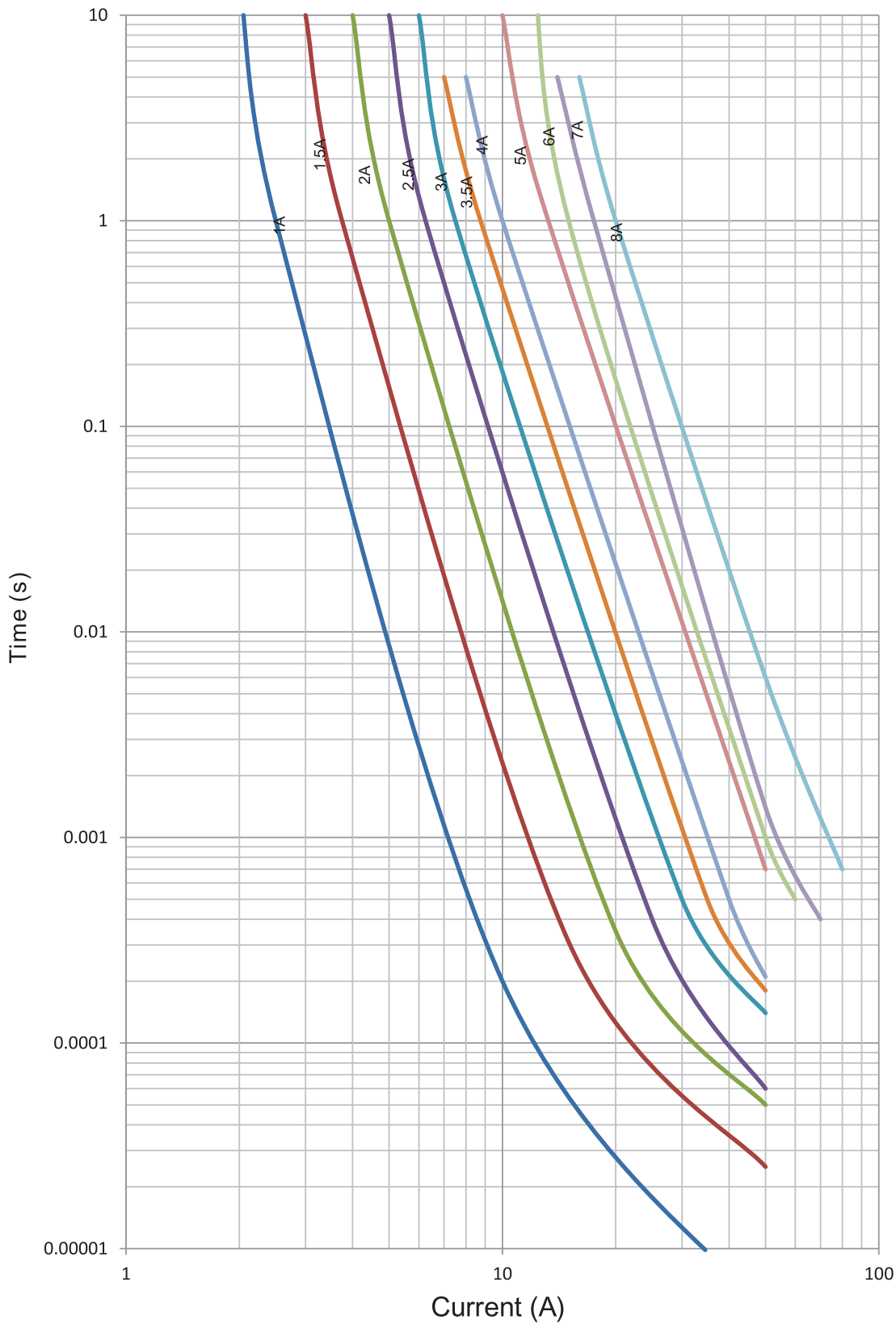
| Amp Rating | % of Amp Rating | Opening Time  |
|------------|-----------------|---------------|
| 1-8 A      | 100             | 4 Hours       |
| 1-7 A      | 200             | 1-60 Seconds  |
| 1-8 A      | 250             | 5 Seconds Max |

## Specifications

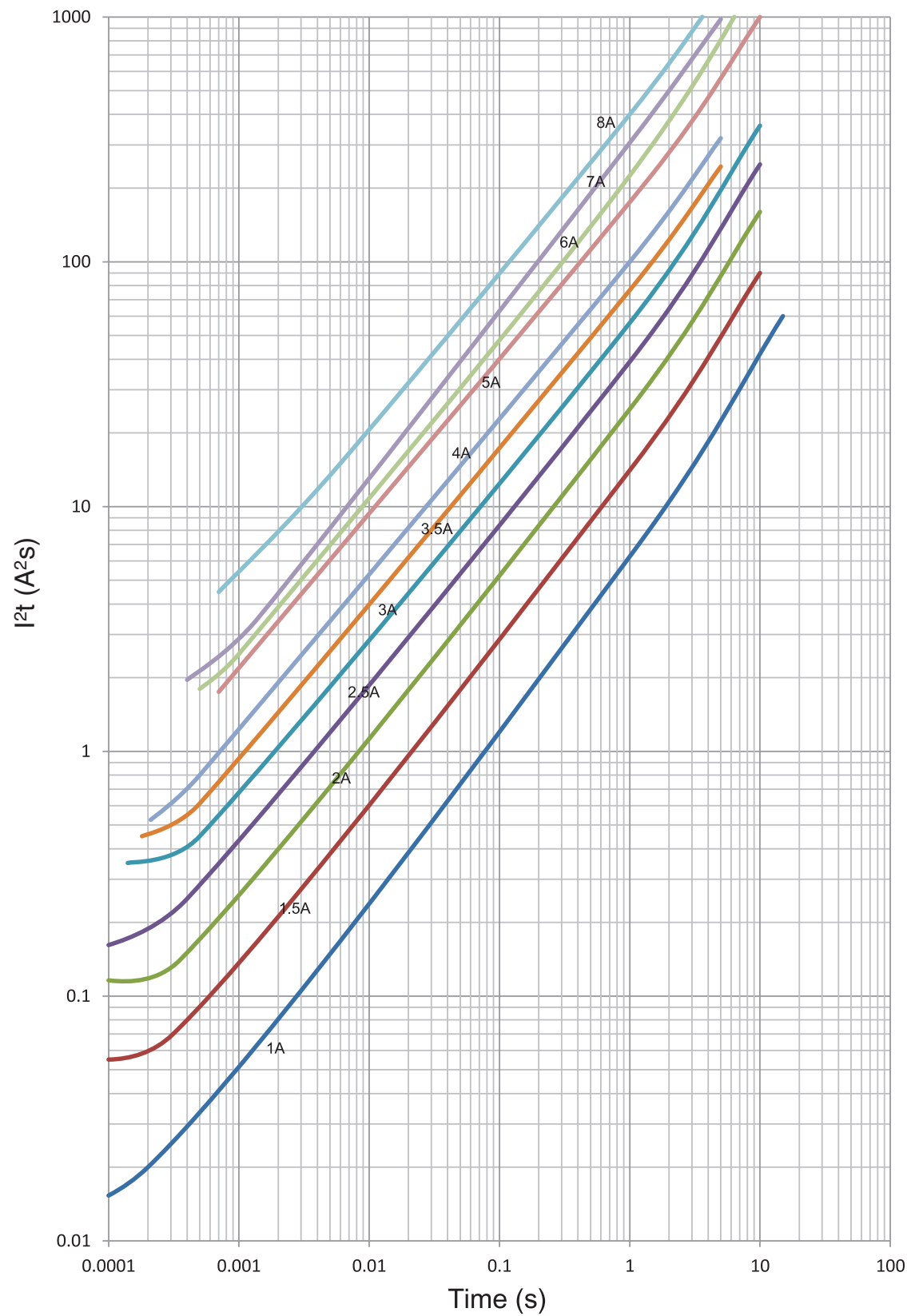
| Part Number | Amp Rating <sup>5</sup> | Voltage Rating (Vdc) | Interrupting Rating <sup>1, 4</sup> (A) | Typical Cold Resistance <sup>2</sup> (Ω) | Typical Pre-Arcing <sup>3</sup> (I <sup>2</sup> t) | Typical Voltage Drop (mV) | Typical Power Dissipation (W) | Alpha Marking | Agency Information (cURus) |
|-------------|-------------------------|----------------------|-----------------------------------------|------------------------------------------|----------------------------------------------------|---------------------------|-------------------------------|---------------|----------------------------|
| CC06H1A     | 1                       | 32                   | 50                                      | 0.25                                     | 0.02                                               | 310                       | 0.32                          | B             | x                          |
| CC06H1.5A   | 1.5                     | 32                   | 50                                      | 0.13                                     | 0.07                                               | 250                       | 0.38                          | H             | x                          |
| CC06H2A     | 2                       | 32                   | 50                                      | 0.068                                    | 0.14                                               | 170                       | 0.38                          | K             | x                          |
| CC06H2.5A   | 2.5                     | 32                   | 50                                      | 0.05                                     | 0.25                                               | 155                       | 0.38                          | L             | x                          |
| CC06H3A     | 3                       | 32                   | 50                                      | 0.035                                    | 0.30                                               | 130                       | 0.38                          | O             | x                          |
| CC06H3.5A   | 3.5                     | 32                   | 50                                      | 0.023                                    | 0.50                                               | 100                       | 0.35                          | R             | x                          |
| CC06H4A     | 4                       | 32                   | 50                                      | 0.02                                     | 0.8                                                | 110                       | 0.45                          | S             | x                          |
| CC06H5A     | 5                       | 32                   | 50                                      | 0.013                                    | 1.6                                                | 95                        | 0.48                          | T             | x                          |
| CC06H6A     | 6                       | 32                   | 50                                      | 0.0076                                   | 2.6                                                | 80                        | 0.48                          | V             | x                          |
| CC06H7A     | 7                       | 32                   | 50                                      | 0.0056                                   | 3.3                                                | 80                        | 0.56                          | X             | x                          |
| CC06H8A     | 8                       | 32/24                | 50/80                                   | 0.0040                                   | 4.5                                                | 75                        | 0.60                          | Z             | x                          |

1. DC Interrupting Rating (measured at rated voltage, time constant of less than 50 microseconds, battery source).
2. DC Cold Resistance are measured at <10% of rated current in ambient temperature of 20 °C -  
FOR REFERENCE ONLY - CONTROLLED VALUES HELD BY PLANT AND SUBJECT TO CHANGE WITHOUT NOTICE.
3. Typical Pre-arcing I<sup>2</sup>t are measured at rated DC voltage, 10I<sub>n</sub> current (not to exceed interrupting rating).
4. The insulation resistance after breaking capacity test is higher than 0.1 MΩ when measured by 2X rated voltage.
5. Device designed to carry rated current for 4 hours minimum. An operating current 80% or less of rated current is recommended, with further design derating required at elevated ambient temperature. See Temperature Derating Curve on next page.

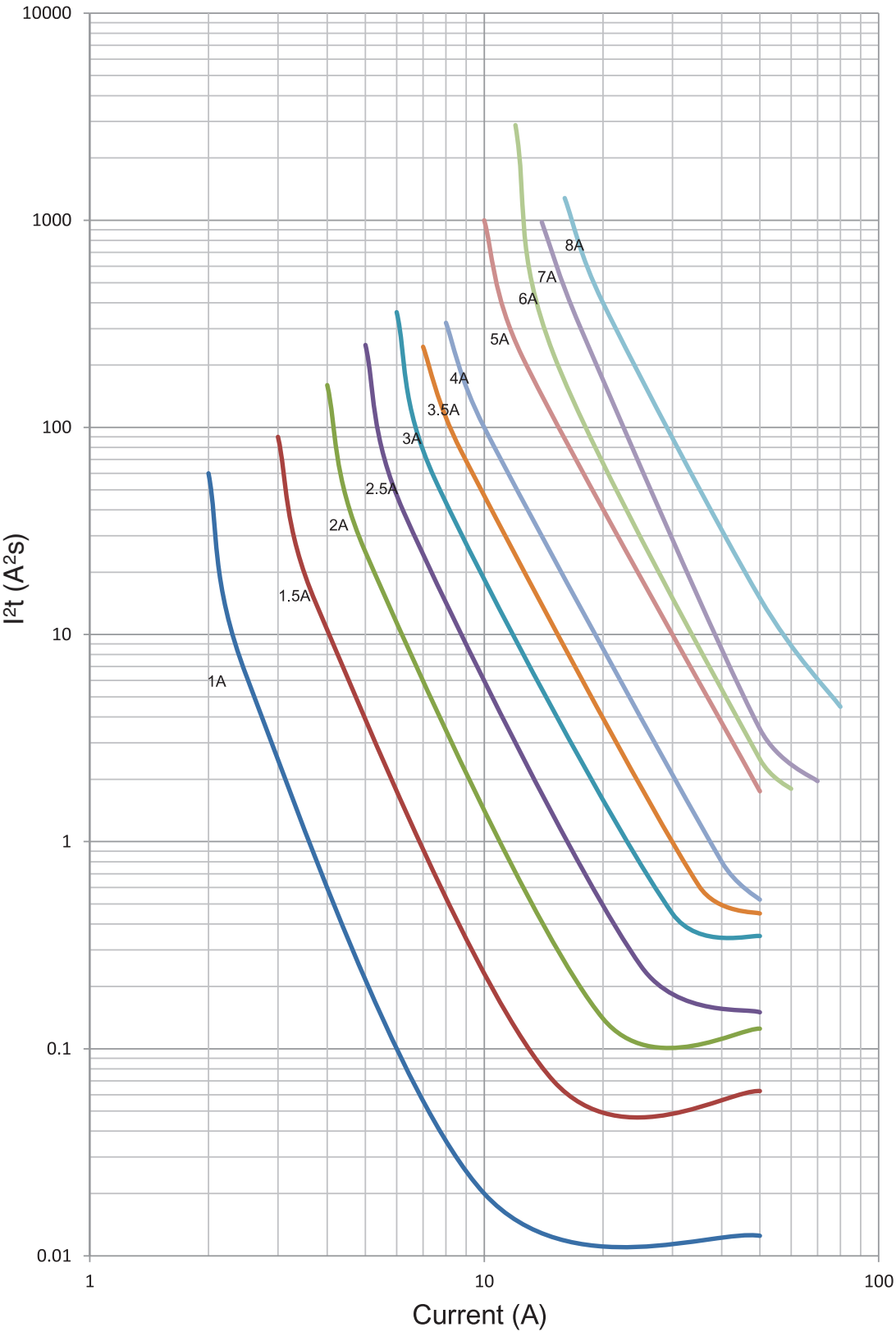
Time-current curves — average melt



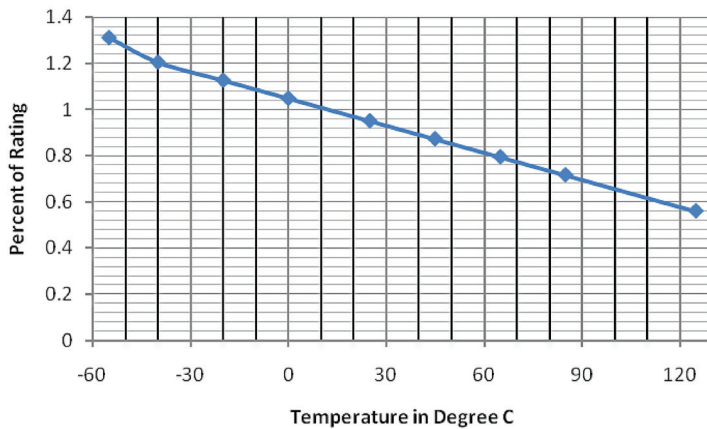
I<sup>2</sup>t vs. time curves



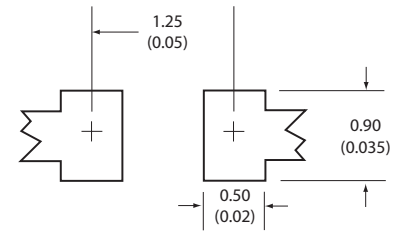
I<sup>2</sup>t vs. current curves



### Temperature derating curve

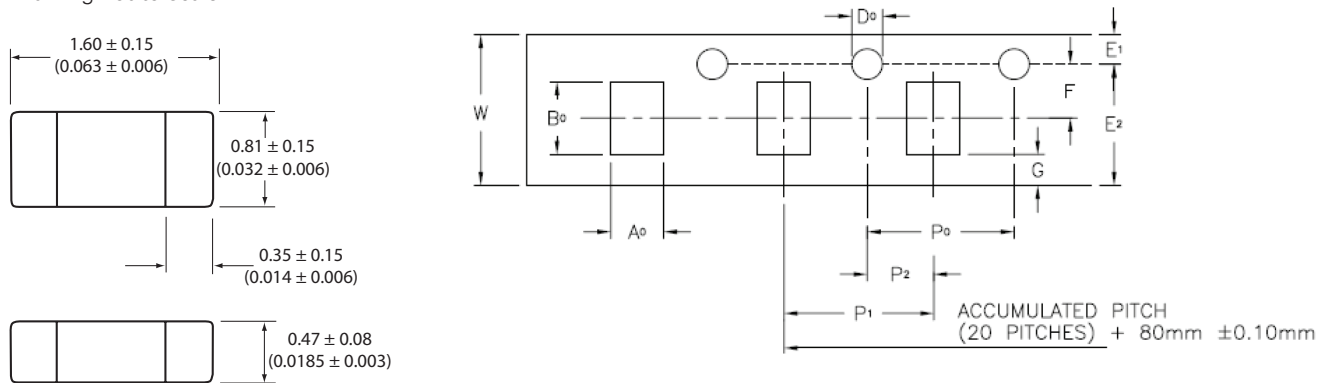


### Pad layout



### Dimensions - mm (in)

Drawing not to scale.



| A <sub>0</sub> | B <sub>0</sub> | D <sub>0</sub>         | E <sub>1</sub> | E <sub>2</sub> | F             | G            | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | T              | W             |
|----------------|----------------|------------------------|----------------|----------------|---------------|--------------|----------------|----------------|----------------|----------------|---------------|
| 0.95<br>±0.05  | 1.80<br>±0.05  | 1.50<br>+0.10,<br>-0.0 | 1.75<br>±0.10  | 6.25<br>±0.30  | 3.50<br>±0.05 | 0.75<br>min. | 4.00<br>±0.10  | 4.00<br>±0.10  | 2.00<br>±0.05  | 0.060<br>±0.05 | 8.00<br>±0.20 |

### Product characteristics

|                              |                                                                                                                                              |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Operating temperature        | -40 °C to +85 °C , with proper derating factor applied                                                                                       |
| Storage temperature          | -40 °C to +85 °C                                                                                                                             |
| Load humidity                | MIL-STD-202G, Method 103B (1000 hr @ +85 °C / 85% RH & 10% rated current)                                                                    |
| Moisture resistance          | MIL-STD-202, Method 106E (50 cycles)                                                                                                         |
| Thermal shock                | MIL-STD-202, Method 107D (-65 °C to +125 °C, 100 cycles)                                                                                     |
| Vibration test               | MIL-STD-202, Method 204D, Test Condition D (10-2,000 Hz)                                                                                     |
| Mechanical shock resistance  | MIL-STD-202, Method 213B (3000 G / 0.3 ms)                                                                                                   |
| Salt spray resistance        | MIL-STD-202, Method 101, Test Condition B (48 hour exposure)                                                                                 |
| Insulation resistance        | The insulation resistance after breaking capacity test is higher than 0.1MΩ when measured by 2X rated voltage                                |
| Solderability                | J-STD-002C Method B1 (Dip and Look Test), Method G1 (Wetting Balance Test), Method D (Resistance to Dissolution / Dewetting of Metalization) |
| Resistance to soldering heat | MIL-STD-202, Method 210F (Solder dip +260 °C, 60 seconds / Solder Iron +350 °C, 3-5 seconds)                                                 |
| High temperature life test   | MIL-STD-202G, Method 108A (1000 Hours @ +70 °C & 60% rated current)                                                                          |
| Resistance to solvents       | MIL-STD-202, Method 215K                                                                                                                     |

## Solder reflow profile

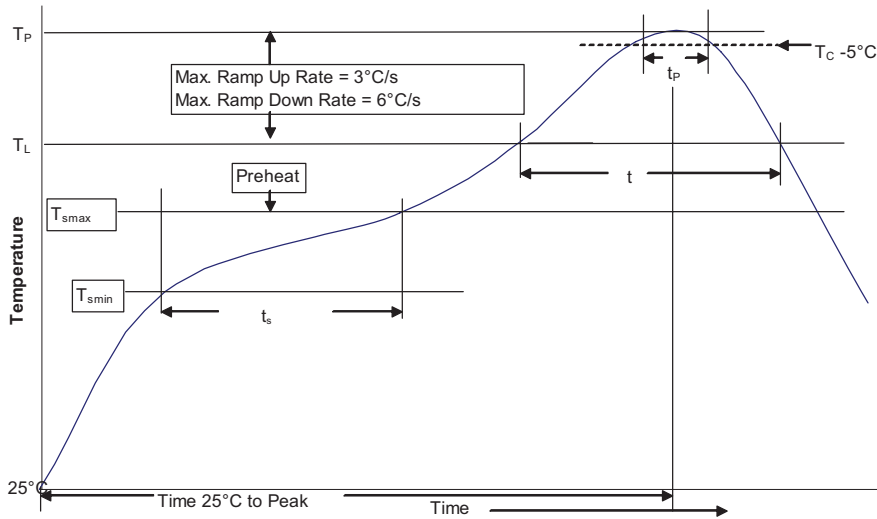


Table 1 - Standard SnPb Solder ( $T_c$ )

| 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-020

| 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.

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

© 2017 Eaton  
All Rights Reserved  
Printed in USA  
Publication No. 4346 BU-SB14476  
June 2017