

# Type C2Q

## Surface Mount Very Fast-Acting Chip Fuse

0603 Size  
RoHS 6 Compliant



### C2Q Series Fuse



#### Features

- Fast Acting
- Small size, 0603 SMD
- Current rating from 250mA to 5A
- Wide operating temperature range from -55°C to 125°C
- Tape and Reel for automatic SMD placement
- Compatible with reflow and wave soldering
- RoHS 6 compliant (MSL = 1)
- Halogen Free
- Leadfree

#### Electrical Characteristics (UL STD.248-14)

| Testing Current | Blow Time |         |
|-----------------|-----------|---------|
|                 | Minimum   | Maximum |
| 100%            | 4 Hrs.    | N/A     |
| 200%            | N/A       | 5 Sec   |
| 300%            | N/A       | 0.2 Sec |

#### Safety Agency Approvals

| SAFETY AGENCY | SAFETY AGENCY CERTIFICATE | AMPERE RANGE / VOLT @ I.R.ABILITY                                    |
|---------------|---------------------------|----------------------------------------------------------------------|
|               | E20624                    | 250mA - 4A / 32V AC @ 35A and 63V DC @ 50A                           |
|               |                           | 5A / 32V AC & DC @ 50A                                               |
|               |                           | 250mA - 4A / 32V AC @ 35A and 63V DC @ 50A<br>5A / 32V AC & DC @ 50A |

#### Applications

- Notebook
- LCD monitor
- PC computer
- Office electronic equipment
- Industrial equipment
- Medical equipment
- POE, POE+
- LCD / LED monitor
- Power supply
- LCD / LED TV
- DC-DC Converter

HALOGEN FREE =

LEAD FREE =

#### Environmental Specifications

|                            |                                                                                                                                                   |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Shock Resistance           | MIL-STD-202G, Method 213B, Test Condition I (100 G's peak for 6 milliseconds; Sawtooth Waveform)                                                  |
| Vibration Resistance       | MIL-STD-202G, Method 201A (10-55 Hz, 0.06 inch, total excursion).                                                                                 |
| Salt Spray Resistance      | MIL-STD-202G, Method 101E, Test condition B (48 hrs).                                                                                             |
| Insulation Resistance      | MIL-STD-202G, Method 302, Test Condition A (After Opening) 10,000 ohms minimum.                                                                   |
| Solderability              | MIL-STD-202G, Method 208H                                                                                                                         |
| Resistance to solder Heat  | MIL-STD-202G Method 210F, Test Condition C. Top Side (260 °C, 20 sec)<br>MIL-STD-202G Method 210F, Test Condition D. Bottom Side (260 °C, 10 sec) |
| Thermal Shock              | MIL-STD-202G, Method 107G, Test Condition B (-65 °C to +125 °C).                                                                                  |
| Operating Temperature      | -55 °C to +125 °C                                                                                                                                 |
| Moisture Sensitivity Level | 1 (According to IPC J-Std-020)                                                                                                                    |

Specifications Subject to change without notice.

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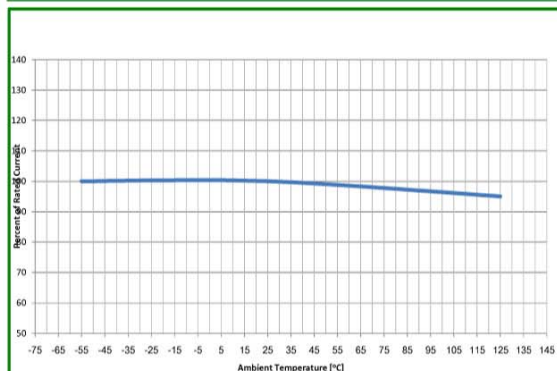
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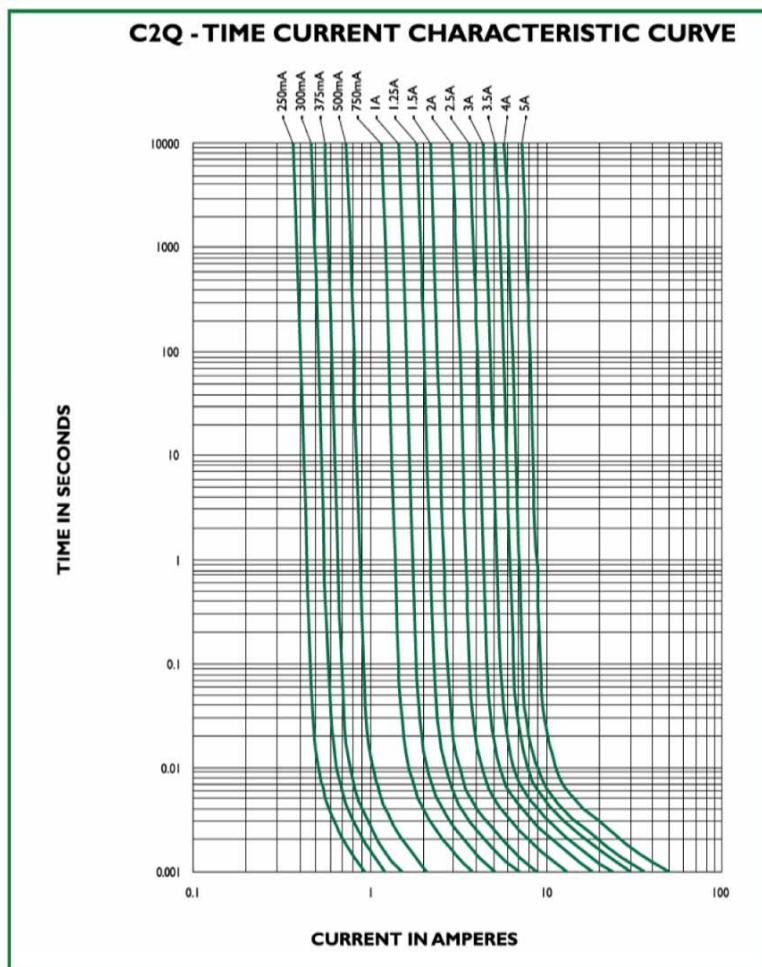
### Electrical Specifications

| Catalog Number | Ampere Rating (A) | Nominal Cold Resistance (ohm) | Nominal Volt-drop @100% In (volt) | Interrupting Rating                        | Voltage Rating (V) | Nominal Melting I <sup>2</sup> T <10 m Sec (A <sup>2</sup> Sec) | Nominal Melting I <sup>2</sup> T @ 10 In (A <sup>2</sup> Sec) | Nominal Power Dissipation @100% In (W) | Agency Approvals                                                                    |                                                                                     |
|----------------|-------------------|-------------------------------|-----------------------------------|--------------------------------------------|--------------------|-----------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                |                   |                               |                                   |                                            |                    |                                                                 |                                                               |                                        |  |  |
| C2Q 250        | 250mA             | 0.77                          | 0.243                             | 250mA - 4A / 32V AC @ 35A and 63V DC @ 50A | 63                 | 0.002                                                           | 0.0001                                                        | 0.06                                   | Y                                                                                   | Y                                                                                   |
| C2Q 300        | 300mA             | 0.54                          | 0.217                             |                                            | 63                 | 0.003                                                           | 0.0001                                                        | 0.07                                   | Y                                                                                   | Y                                                                                   |
| C2Q 375        | 375mA             | 0.42                          | 0.196                             |                                            | 63                 | 0.005                                                           | 0.0002                                                        | 0.07                                   | Y                                                                                   | Y                                                                                   |
| C2Q 500        | 500mA             | 0.28                          | 0.171                             |                                            | 63                 | 0.009                                                           | 0.0004                                                        | 0.09                                   | Y                                                                                   | Y                                                                                   |
| C2Q 750        | 750mA             | 0.17                          | 0.159                             |                                            | 63                 | 0.020                                                           | 0.0011                                                        | 0.12                                   | Y                                                                                   | Y                                                                                   |
| C2Q 1          | 1A                | 0.122                         | 0.154                             |                                            | 63                 | 0.036                                                           | 0.002                                                         | 0.15                                   | Y                                                                                   | Y                                                                                   |
| C2Q 1.25       | 1.25A             | 0.092                         | 0.144                             |                                            | 63                 | 0.058                                                           | 0.004                                                         | 0.18                                   | Y                                                                                   | Y                                                                                   |
| C2Q 1.5        | 1.5A              | 0.073                         | 0.138                             |                                            | 63                 | 0.084                                                           | 0.006                                                         | 0.21                                   | Y                                                                                   | Y                                                                                   |
| C2Q 2          | 2A                | 0.053                         | 0.133                             |                                            | 63                 | 0.15                                                            | 0.011                                                         | 0.27                                   | Y                                                                                   | Y                                                                                   |
| C2Q 2.5        | 2.5A              | 0.042                         | 0.130                             |                                            | 63                 | 0.24                                                            | 0.019                                                         | 0.33                                   | Y                                                                                   | Y                                                                                   |
| C2Q 3          | 3A                | 0.034                         | 0.130                             |                                            | 63                 | 0.36                                                            | 0.030                                                         | 0.39                                   | Y                                                                                   | Y                                                                                   |
| C2Q 3.5        | 3.5A              | 0.028                         | 0.131                             |                                            | 63                 | 0.50                                                            | 0.044                                                         | 0.46                                   | Y                                                                                   | Y                                                                                   |
| C2Q 4          | 4A                | 0.023                         | 0.131                             |                                            | 63                 | 0.63                                                            | 0.059                                                         | 0.52                                   | Y                                                                                   | Y                                                                                   |
| C2Q 5          | 5A                | 0.019                         | 0.131                             | 5A / 32V AC & DC @ 50A                     | 32                 | 1.05                                                            | 0.103                                                         | 0.66                                   | Y                                                                                   | Y                                                                                   |

Temperature Derating Curve



Average Time Current Curve



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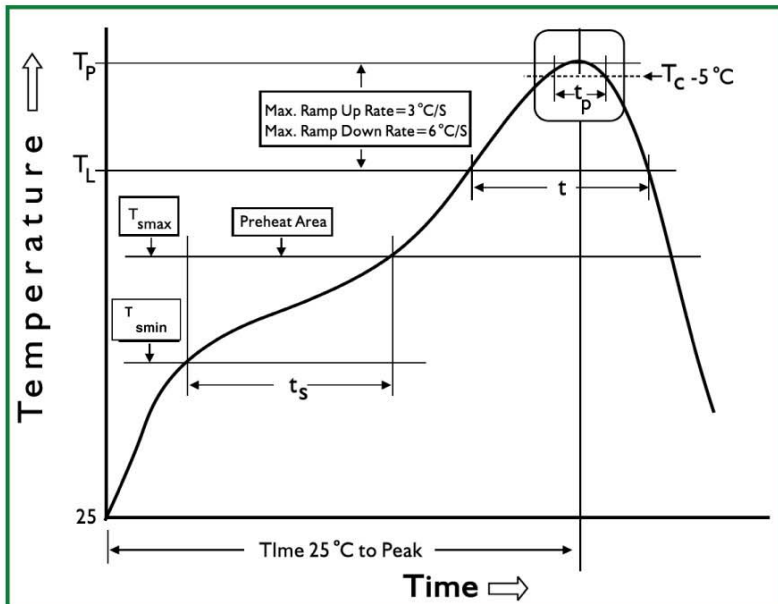
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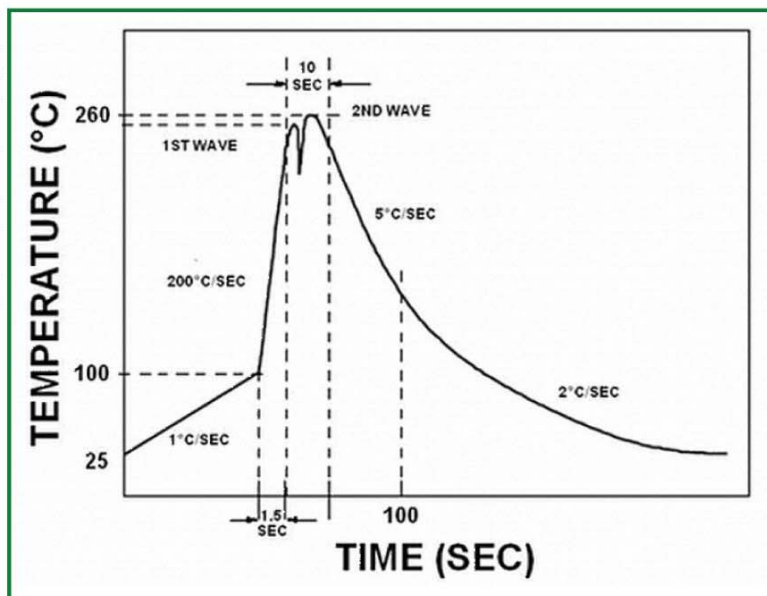


### Soldering Parameters

| Lead-Free IR Reflow Profile (IPC/JEDEC J-STD-020D) |                       |
|----------------------------------------------------|-----------------------|
| Reflow Parameter                                   |                       |
| Minimum preheat temperature (TsMIN)                | 150 °C                |
| Maximum preheat temperature (TsMAX)                | 200 °C                |
| Preheat Time                                       | 60-180 seconds        |
| TsMAX to TL ramp-up rate                           | 3 °C/second max.      |
| Time above temperature TL (tL)                     | 217 °C 60-120 seconds |
| Peak Temperature (TP)                              | 260 °C max.           |
| Time within 5° of Peak TP                          | 20-40 seconds         |
| Ramp-down rate                                     | 6 °C/second max.      |



| Lead-free Wave Soldering Profile                    |                                               |
|-----------------------------------------------------|-----------------------------------------------|
| Wave Soldering Parameter                            |                                               |
| Average ramp-up rate                                | 200°C / second                                |
| Heating rate during preheat                         | typical 1 - 2 °C / second<br>Max. 4°C/ second |
| Final preheat temperature                           | within 125°C of soldering temperature         |
| Peak temperature (TP)                               | 260°C                                         |
| Time within +0 °C / -5°C of actual peak temperature | 10 seconds                                    |
| Ramp-down rate                                      | 5 °C / second max.                            |



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### Physical Specifications

|           |                                                                                                                                                                                                                            |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Materials | Body : Ceramic Substrate                                                                                                                                                                                                   |
|           | Terminations: Ag / Ni / Sn (100% Lead -free)                                                                                                                                                                               |
|           | Element Cover Coating : Lead-free Glass                                                                                                                                                                                    |
| Marking   | On Fuse:                                                                                                                                                                                                                   |
|           | None                                                                                                                                                                                                                       |
|           | On label:                                                                                                                                                                                                                  |
|           | "bel" , "C2Q" , "Current Rating" , "Voltage Rating" , "Interrupting Rating" , "Appropriate Safety Logos" and "  " (China RoHS compliant). |

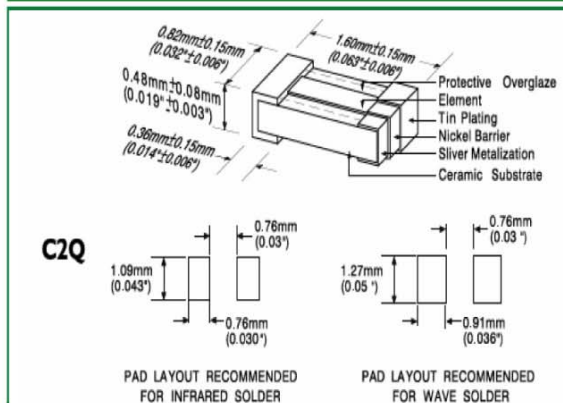
### Fuse FGNO Explanation

06XX-XXXX-XX, [XXXX]=Ampere Rating

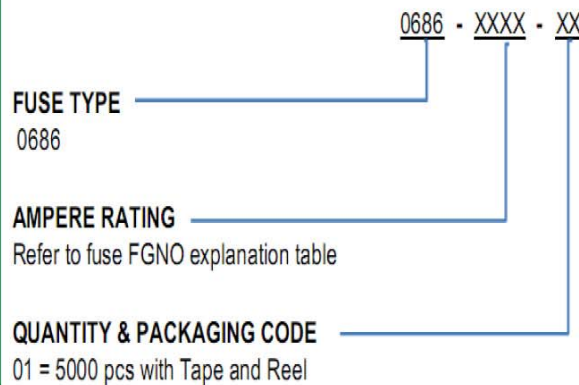
| Fraction | Decimal | Milliamps | Bel FGNO[XXXX] |
|----------|---------|-----------|----------------|
| 1/32     | .032    | 32        | 0032           |
| 1/25     | .040    | 40        | 0040           |
| 1/20     | .050    | 50        | 0050           |
| 1/16     | .063    | 63        | 0063           |
| 8/100    | .080    | 80        | 0080           |
| 1/10     | .100    | 100       | 0100           |
| 1/8      | .125    | 125       | 0125           |
| 15/100   | .150    | 150       | 0150           |
|          | .160    | 160       | 0160           |
| 2/10     | .200    | 200       | 0200           |
| 1/4      | .250    | 250       | 0250           |
| 3/10     | .300    | 300       | 0300           |
|          | .315    | 315       | 0315           |
| 3/8      | .375    | 375       | 0375           |
| 4/10     | .400    | 400       | 0400           |
| 1/2      | .500    | 500       | 0500           |
| 6/10     | .600    | 600       | 0600           |
|          | .630    | 630       | 0630           |
| 7/10     | .700    | 700       | 0700           |
| 3/4      | .750    | 750       | 0750           |
| 8/10     | .800    | 800       | 0800           |

| Fraction | Decimal | Amps | Bel FGNO[XXXX] |
|----------|---------|------|----------------|
|          | 1.0     | 1    | 1000           |
| 1-1/4    | 1.25    | 1.25 | 1250           |
| 1-1/2    | 1.50    | 1.5  | 1500           |
|          | 1.60    | 1.6  | 1600           |
|          | 2.0     | 2    | 2000           |
| 2-1/4    | 2.25    | 2.25 | 2250           |
| 2-1/2    | 2.5     | 2.5  | 2500           |
|          | 3.0     | 3    | 3000           |
|          | 3.15    | 3.15 | 3150           |
| 3-1/2    | 3.5     | 3.5  | 3500           |
|          | 4.0     | 4    | 4000           |
|          | 5.0     | 5    | 5000           |
|          | 6.0     | 6    | 6000           |
|          | 6.3     | 6.3  | 6300           |
|          | 7.0     | 7    | 7000           |
| 7-1/2    | 7.5     | 7.5  | 7500           |
|          | 8.0     | 8    | 8000           |
|          |         | 10   | 9100           |
|          |         | 12   | 9120           |
|          |         | 15   | 9150           |
|          |         | 20   | 9200           |
|          |         | 25   | 9250           |
|          |         | 30   | 9300           |

### Mechanical Dimensions



### Ordering Information



### Packaging

| Packaging Tape & Reel                      | Packaging Specification | Quantity | Quantity & Packaging Code |
|--------------------------------------------|-------------------------|----------|---------------------------|
| 8 mm wide tape with 7 inches Diameter reel | EIA Standard 481-D      | 5000     | 0686-XXXX-01              |

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