

Type 0680L

Square Ceramic Surface Mount Slow Blow Fuse

HF 0680L Series – 2410 Size

RoHS Compliant

Features

- Slow Blow, 2410 SMD
- Compatible with 260°C, IR Pb-free solder process
- Wide range of current rating from 375mA to 12A
- Wide operating temperature range, -55°C to 125°C
- Tape & Reel for auto-insert SMD process
- AEC-Q Compliant
- RoHS compliant with exemption 7(a)
- Halogen Free, (MSL = 1)
- Meets Bel automotive qualification*
- * - Largely based on internal AEC-Q test plan



AEC-Q Compliant

Applications

- Notebook
- LCD monitor
- PC computer
- Office electronic equipment
- Industrial equipment
- Medical equipment
- POE, POE+
- LCD / LED monitor
- Power supply
- LCD / LED TV
- Storage system
- Telecom system
- Wireless basestation
- White goods
- Game console
- Battery charging circuit protection

HALOGEN FREE = **HF**

Electrical Characteristics

(UL/CSA/STD.248-14)

| Testing Current | Blow Time | |
|-----------------|-----------|---------|
| | Minimum | Maximum |
| 100% | 4 Hrs. | N/A |
| 200% | N/A | 120 Sec |
| 300% | 0.15 Sec | 3 Sec |
| 800% | 0.01 Sec | 0.1 Sec |

Safety Agency Approvals

| Safety Agency | Safety Agency Certificate | Voltage Rating (V) | Ampere Range / Volt @ I.R. ability* |
|---------------|--|---|--|
| | E506667 | 375mA-7A/125V AC 125V DC >7A-12A/50V AC 75V DC | 375mA-7A/125V AC @50A 125V DC @100A 75V DC @500A >7A-12A/50V AC @100A 75V DC @500A |
| | 50268578 EN 60127-1: 2006+A1+A2 EN 60127-4: 2005+A1+A2 | 375mA-7A/125V AC 125V DC >7A-12A/50V AC 75V DC | 375mA-7A/125V AC @50A 125V DC @100A 75V DC @500A >7A-12A/50V AC @100A 75V DC @500A |

*I.R.= Interrupting Rating = Short Circuit Rating(Amps)

Physical Specifications

| | |
|-----------|--|
| Materials | Body : Ceramic |
| | Terminations : Silver Plated Caps /Gold Plated Caps/Palladium Plated Caps |
| Marking | On Fuse : |
| | "Current Rating", "T", "L"—laser marked on ceramic tube, "bel" stamped in end caps. |
| | On Label : |
| | "bel", "0680L", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and "", "" (China RoHS compliant). |

Specifications subject to change without notice

Environmental Specifications

| | | | |
|----------------------------|--|------------------------------|--|
| Shock Resistance | MIL-STD-202G Method 213, Test condition A (50G's peak for 11 milliseconds : Half-sine waveform) | High temperature storage | MIL-STD-202 Method 108 |
| Vibration Resistance | MIL-STD-202G, Method 201A (10-55 Hz, 0.06 inch, total excursion). | Temperature cycling | JESD22 Method JA-104, Test Condition B |
| Salt Spray Resistance | MIL-STD-202G, Method 101E, Test Condition B (48 hrs.). | Biased humidity | MIL-STD-202 Method 103, 85C/85% RH with 10% operating power for 1000 hrs. |
| Insulation Resistance | MIL-STD-202G, Method 302, Test Condition A (After Opening) 10,000 ohms minimum. | Operational life | MIL-STD-202 Method 108, Test Condition D |
| Thermal Shock | MIL-STD-202G, Method 107G, Test Condition B (-65°C to +125°C). | Resistance to solvents | MIL-STD-202 Method 215 |
| Operating Temperature | -55°C to +125°C | Mechanical shock | MIL-STD-202 Method 213, Test Condition C |
| Moisture Sensitivity Level | 1 (According to IPC J-Std-020) | Vibration | MIL-STD-202G Method 204 Test condition D (10-2k HZ ,20G's for 20minutes) |
| | | Resistance to soldering heat | MIL-STD-202 Method 210, Test condition B |
| | | Thermal shock | MIL-STD-202 Method 107 |
| | | Solderability | J-STD-002 Test B |
| | | Board flex(SMD) | AEC-Q200-005 |
| | | Terminal strength | AEC-Q200-006 |
| | | Electrical characterization | 3 Temperature Electrical |

Electrical Specifications

| Part Number | Ampere Rating | Typical Cold Resistance (ohms) | Volt-drop @100% In (Volt) max. | Voltage and Interrupting Ratings | Melting I ² T @10 In (A ² Sec) | Melting I ² T <10ms (A ² Sec) | Maximum Power Dissipation (W) | Agency Approvals | |
|--------------|---------------|--------------------------------|--------------------------------|---|--|---|-------------------------------|------------------|-----|
| | | | | | | | | UL | TUV |
| 0680L0375-XX | 375mA | 0.93 | 1.20 | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 0.14 | 0.10 | 0.45 | Y | Y |
| 0680L0500-XX | 500mA | 0.58 | 0.90 | | 0.27 | 0.35 | 0.45 | Y | Y |
| 0680L0630-XX | 630mA | 0.41 | 0.80 | | 0.43 | 0.42 | 0.50 | Y | Y |
| 0680L0750-XX | 750mA | 0.33 | 0.75 | | 0.62 | 0.61 | 0.56 | Y | Y |
| 0680L1000-XX | 1A | 0.175 | 0.60 | | 1.5 | 1.3 | 0.60 | Y | Y |
| 0680L1500-XX | 1.5A | 0.095 | 0.40 | | 3.3 | 3.2 | 0.60 | Y | Y |
| 0680L2000-XX | 2A | 0.068 | 0.35 | | 6 | 5 | 0.70 | Y | Y |
| 0680L2500-XX | 2.5A | 0.048 | 0.34 | | 9 | 7 | 0.85 | Y | Y |
| 0680L3000-XX | 3A | 0.037 | 0.27 | | 13 | 12 | 0.81 | Y | Y |
| 0680L3500-XX | 3.5A | 0.030 | 0.26 | | 18 | 17 | 0.91 | Y | Y |
| 0680L4000-XX | 4A | 0.026 | 0.25 | | 24 | 22 | 1.00 | Y | Y |
| 0680L5000-XX | 5A | 0.019 | 0.23 | | 37 | 36 | 1.15 | Y | Y |
| 0680L6300-XX | 6.3A | 0.015 | 0.22 | | 43 | 50 | 1.39 | Y | Y |
| 0680L7000-XX | 7A | 0.012 | 0.21 | | 68 | 77 | 1.47 | Y | Y |
| 0680L8000-XX | 8A | 0.0099 | 0.20 | | 108 | 105 | 1.60 | Y | Y |
| 0680L9100-XX | 10A | 0.0084 | 0.19 | | 170 | 150 | 1.90 | Y | Y |
| 0680L9120-XX | 12A | 0.0063 | 0.18 | | 244 | 180 | 2.16 | Y | Y |

Consult manufacturer for other ratings
XX - Packaging code (see "ordering information")

NOTES 1:

All tests were conducted with the fuses soldered to a printed circuit boards with a nominal thickness of 1.6 mm. The copper test circuit trace was a printed circuit with an overall length of 100 mm, copper thickness/width as described below. The printed circuit boards were mounted by screws to a test fixture having brass blocks for connection of the test leads. All samples were soldered to the test boards by the manufacturer.

| Fuse rating | Test Board Trace Dimensions |
|-------------|-----------------------------|
| 375mA-5A | 1 oz. copper, 5.0mm wide. |
| 6A-12A | 3 oz. copper, 10mm wide. |

NOTES 2:

Conventional (Ambient Pressure) Reflow Process is recommended for this device. The sale and use of product is subject to bel terms and condition of sale, unless otherwise agreed. User should independently evaluate the suitability of and test each product selected for their own application. product are not designed for , and may not be used in, all applications.

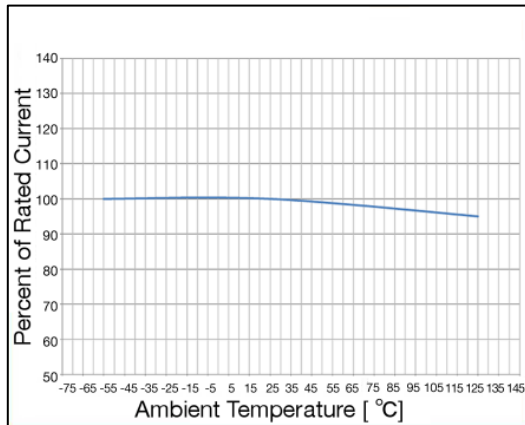


Specifications subject to change without notice

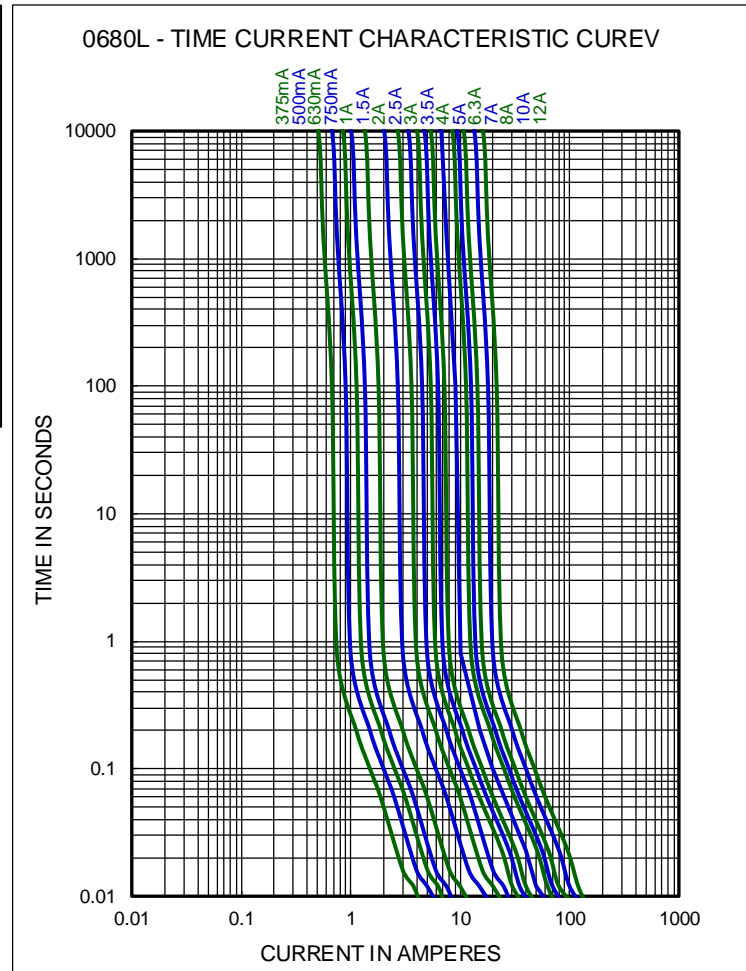
Bel Fuse Inc.
206 Van Vorst Street
Jersey City, NJ 07302 USA

+1 201.432.0463
Bel.US.CS@belf.com
belfuse.com/circuit-protection

Temperature Derating Curve

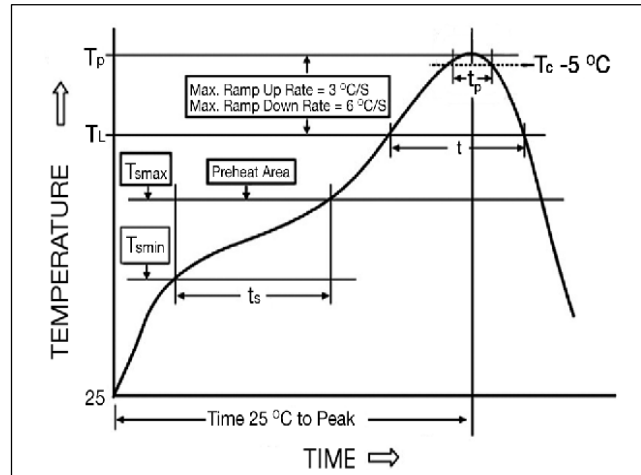


Average Time Current Curve



Soldering Parameters

| IR Reflow Profile (IPC/JEDEC J-STD-020D) | |
|---|-----------------|
| Preheat & Soak | |
| Temperature min (T_{smin}) | 150°C |
| Temperature max (T_{smax}) | 200°C |
| Time (T_{smin} to T_{smax}) (t_s) | 60-120 seconds |
| Average ramp-up rate (T_{smax} to T_p) | 3°C/second max. |
| Liquidous temperature (T_L) | 217°C |
| Time at liquidous (t_L) | 60-150 seconds |
| Peak temperature (T_p) | 260°C max |
| Time (t_p) within 5°C of the specified classification temperature (T_c) | 30 seconds |
| Average ramp-down rate (T_p to T_{smax}) | 6°C/second max. |
| Time 25°C to peak temperature | 8 minutes max. |



Fuse FGNO Explanation

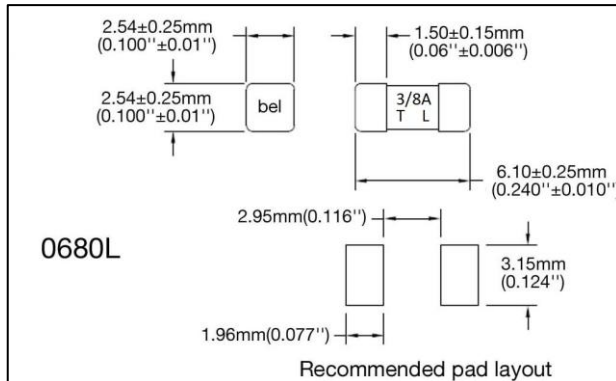
0680 L [XXXX] -XX

0680L=0680L; [XXXX]=Ampere Rating; XX=See Ordering Information as below

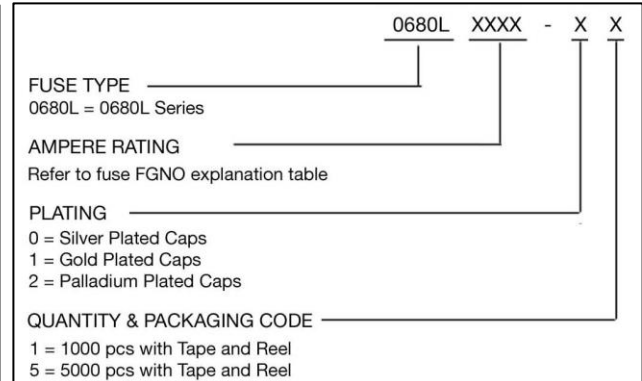
| Fraction | Decimal | Milliamps | Bel FGNO[XXXX] |
|----------|---------|-----------|----------------|
| 3/8 | 0.375 | 375 | 0375 |
| 1/2 | .500 | 500 | 0500 |
| | .630 | 630 | 0630 |
| 3/4 | .750 | 750 | 0750 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Fraction | Decimal | Amps | Bel FGNO[XXXX] |
|----------|---------|------|----------------|
| | 1.0 | 1 | 1000 |
| 1-1/2 | 1.5 | 1.5 | 1500 |
| | 2.0 | 2 | 2000 |
| 2-1/2 | 2.5 | 2.5 | 2500 |
| | 3.0 | 3 | 3000 |
| 3-1/2 | 3.5 | 3.5 | 3500 |
| | 4.0 | 4 | 4000 |
| | 5.0 | 5 | 5000 |
| | 6.3 | 6.3 | 6300 |
| | 7.0 | 7 | 7000 |
| | 8.0 | 8 | 8000 |
| | | 10 | 9100 |
| | | 12 | 9120 |

Mechanical Dimensions



Ordering Information



Packaging

| Packaging Tape & Reel | Packaging Specification | Quantity | Quantity & Packaging Code |
|--|-------------------------|----------|---------------------------|
| 12 mm wide tape with 13 inches Diameter reel | EIA Standard 481-E | 5000 | 5 |
| 12 mm wide tape with 7 inches Diameter reel | EIA Standard 481-E | 1000 | 1 |



Specifications subject to change without notice

Bel Fuse Inc.
206 Van Vorst Street
Jersey City, NJ 07302 USA

+1 201.432.0463
Bel.US.CS@belf.com
belfuse.com/circuit-protection

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А