

Type 0679H

Square Ceramic Surface Mount Quick Acting Fuse

HF 0679H Series – 2410 Size

RoHS Compliant

Features

- Quick Acting, 2410 SMD
- Compatible with 260°C, IR Pb-free solder process
- Wide range of current rating from 250mA to 15A
- Wide operating temperature range, -55°C to 125°C
- Tape & Reel for auto-insert SMD process
- AEC-Q Compliant
- Fully compliance with EU Directive 2011/65/EU and amending directive 2015/863, 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

HALOGEN FREE = **HF**

Safety Agency Approvals

| Safety Agency | Safety Agency Certificate | Ampere Rating/ Voltage Rating | Ampere Range / Volt @ I.R. ability* |
|---------------|---|--|---|
| UL | E20624 | 250mA–3A/350V AC 72V DC 3.5A-15A/350V AC 60V DC | 250mA-3A/350V @ 50A AC 72V @100A DC 3.5A-5A/350V @50A AC 60V @150A DC 6.3A-15A/350V @50A-AC 60V @100A DC |
| TÜV | R 50368185 Tested according to IEC 60127-1:2006+A1+A2 IEC 60127-7:2015 | 250mA–3A/350V AC 72V DC 3.5A-15A/350V AC 60V DC | 250mA-3A/350V @ 50A AC 72V @100A DC 3.5A-5A/350V @50A AC 60V @150A DC 6.3A-15A/350V @50A-AC 60V @100A DC |



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

Electrical Characteristics

(UL/CSA/STD. 248-14)

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

Physical Specifications

| | |
|-----------|--|
| Materials | Body : Ceramic |
| | Terminations : Silver Plated Caps |
| Marking | On Fuse : |
| | "Current Rating", "Q", "H"—laser marked on ceramic tube, "bel" stamped in end caps. |
| | On Label : |
| | "bel", "0679H", "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 213B, Test Condition 1 (100 G's peak for 6 milliseconds; Sawtooth 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 |
| Solderability | MIL-STD-202G, Method 208H | Resistance to solvents | MIL-STD-202 Method 215 |
| Resistance to solder Heat | MIL-STD-202G, Method 210F, Test Condition C. Top Side (260°C, 20 sec) MIL-STD-202G, Method 210F, Test Condition D. Bottom Side (260°C, 10 sec) | Mechanical shock | MIL-STD-202 Method 213, Test Condition C |
| Thermal Shock | MIL-STD-202G, Method 107G, Test Condition B (-65°C to +125°C). | Vibration | MIL-STD-202 Method 204 |
| Operating Temperature | -55°C to +125°C | Resistance to soldering heat | MIL-STD-202 Method 210, Test condition B |
| Moisture Sensitivity Level | 1 (According to IPC J-Std-020) | Thermal shock | MIL-STD-202 Method 107 |
| | | Solderability | J-STD-002 |
| | | Board flex(SMD) | AEC-Q200-005 |
| | | Terminal strength | AEC-Q200-006 |
| | | Electrical characterization | 3 temperature electrical |

Electrical Specifications

| Part Number | Ampere Rating (A) | Typical Cold Resistance (ohms) | Volt-drop @100% In (Volt) max. | Voltage and Interrupting Ratings | Melting PT <10m Sec (A² Sec) | Melting PT @10 In (A² Sec) | Maximum Power Dissipation (W) | Agency Approvals | |
|--------------|-------------------|--------------------------------|--------------------------------|---|------------------------------|----------------------------|-------------------------------|---|---|
| | | | | | | | |  |  |
| 0679H0250-XX | 250mA | 0.55 | 0.530 | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 0.01 | 0.02 | 0.13 | Y | Y |
| 0679H0375-XX | 375mA | 0.32 | 0.480 | | 0.04 | 0.04 | 0.18 | Y | Y |
| 0679H0500-XX | 500mA | 0.22 | 0.470 | | 0.08 | 0.08 | 0.24 | Y | Y |
| 0679H0630-XX | 630mA | 0.17 | 0.410 | | 0.15 | 0.15 | 0.26 | Y | Y |
| 0679H0750-XX | 750mA | 0.14 | 0.380 | | 0.24 | 0.26 | 0.29 | Y | Y |
| 0679H1000-XX | 1A | 0.09 | 0.280 | | 0.51 | 0.54 | 0.28 | Y | Y |
| 0679H1250-XX | 1.25A | 0.068 | 0.250 | | 0.21 | 0.22 | 0.31 | Y | Y |
| 0679H1500-XX | 1.5A | 0.053 | 0.250 | | 0.32 | 0.29 | 0.38 | Y | Y |
| 0679H2000-XX | 2A | 0.035 | 0.240 | | 0.62 | 0.68 | 0.48 | Y | Y |
| 0679H2500-XX | 2.5A | 0.028 | 0.240 | | 0.96 | 1.13 | 0.60 | Y | Y |
| 0679H3000-XX | 3A | 0.022 | 0.220 | | 1.6 | 1.8 | 0.66 | Y | Y |
| 0679H3500-XX | 3.5A | 0.019 | 0.220 | | 2.0 | 2.2 | 0.77 | Y | Y |
| 0679H4000-XX | 4A | 0.018 | 0.220 | | 3.1 | 3.5 | 0.88 | Y | Y |
| 0679H5000-XX | 5A | 0.014 | 0.200 | | 5.3 | 5.5 | 1.00 | Y | Y |
| 0679H6300-XX | 6.3A | 0.011 | 0.190 | | 8.7 | 8.3 | 1.20 | Y | Y |
| 0679H7000-XX | 7A | 0.010 | 0.175 | | 11.1 | 10.8 | 1.23 | Y | Y |
| 0679H8000-XX | 8A | 0.0085 | 0.170 | | 14.8 | 14.1 | 1.36 | Y | Y |
| 0679H9100-XX | 10A | 0.0064 | 0.150 | | 25.7 | 25.7 | 1.50 | Y | Y |
| 0679H9120-XX | 12A | 0.0054 | 0.140 | | 41.0 | 38.9 | 1.68 | Y | Y |
| 0679H9150-XX | 15A | 0.0038 | 0.130 | | 76.7 | 103.5 | 1.95 | Y | Y |

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

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 |
|-------------|-----------------------------|
| 250mA-5A | 1 oz. copper, 5.0mm wide. |
| 6.3A-15A | 3 oz. copper, 10mm wide. |



Specifications subject to change without notice

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Temperature Derating Curve

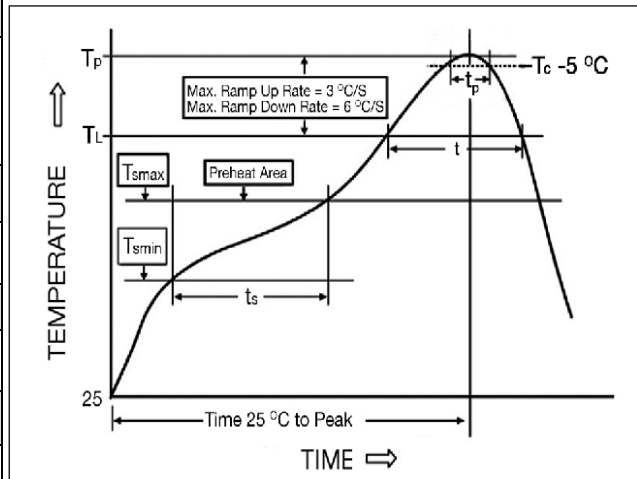


Average Time Current Curve



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

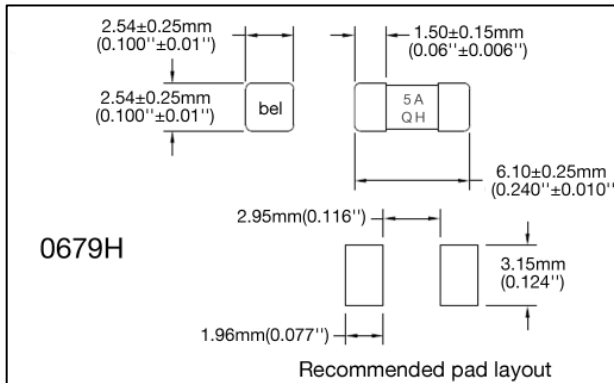
0679 H [XXXX] -XX

0679H=0679H; [XXXX]=Ampere Rating; XX=See Ordering Information as below

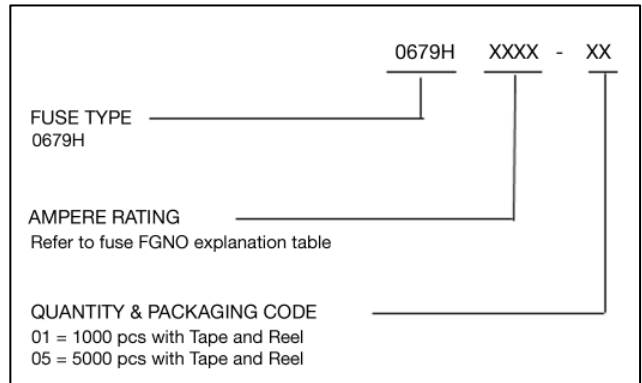
| Fraction | Decimal | Milliamps | Bel FGNO[XXXX] |
|----------|---------|-----------|----------------|
| 1/4 | 0.250 | 250 | 0250 |
| 3/8 | .375 | 375 | 0375 |
| 1/2 | .500 | 500 | 0500 |
| | .630 | 630 | 0630 |
| 3/4 | .750 | 750 | 0750 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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| | | | |
| | | | |

| 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 |
| | 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 |
| | | 15 | 9150 |

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 | 05 |
| 12 mm wide tape with 7 inches Diameter reel | EIA Standard 481-E | 1000 | 01 |



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