

Type 0697H

Slow Blow Lead Micro Fuse Series

HF  0697H Series

RoHS Compliant

Description

Subminiature, radial lead, High I²t, time-lag design, rated 350VAC, 72 DC, up to 20A, Approved and complied with UL 248-14.



Features

- High I²t, High amp ratings to 20A
- Time lag (350 VAC, 72 VDC)
- Meet UL 248-14
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- AEC-Q Compliant
- Full compliance with EU Directive 2011/65/EU and amending directive 2015/863
- Halogen Free and Lead Free
- Meets Bel automotive qualification*
- Largely based on internal AEC-Q test plan





Applications

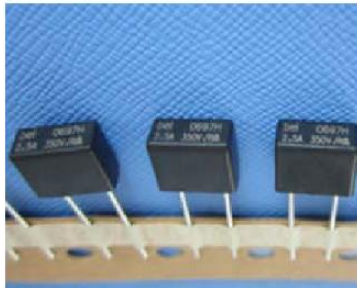
Provide individual protection for components or internal circuits.

- Power supplies
- Battery chargers
- Consumer Electronics
- Adapter
- Industrial Controllers

LEAD FREE = 
HALOGEN FREE = 

Physical Specifications

| | |
|-----------|---|
| Materials | Base and Cover : Black thermoplastic, UL 94-V0 |
| | Pins : 100% Matte Tin Plated Copper |
| Marking | On Fuse : |
| | "bel", "0697H", "Current Rating", "350V" & "  " |
| | On Label : |
| | "bel", "0697H", "Current Rating", "Voltage Rating", "Interrupting Rating", "  and "  , "  " (China RoHS compliant). |





  
AEC-Q Compliant

Electrical Characteristics (UL 248-14)

| Testing Current | Blow Time | |
|-----------------|-----------|---------|
| | Minimum | Maximum |
| 100% | 4 Hrs. | N/A |
| 200% | N/A | 60 Sec. |

Safety Agency Approvals



| Safety Agency | Safety Agency Certificate | Ampere Rating/ Voltage Rating | Ampere Range / Volt @ I.R. ability* |
|---|---|---|---|
|  | E20624 | 250mA-3A/350V ac 100V dc | 250mA-3A/350V ac @ 100A 277V ac @ 150A 100V dc @ 65A 72V dc @ 200A |
| | | 3.15A-20A/350V ac 72V dc | 3.15A-20A/350V ac @ 150A 72V dc @ 200A |
|  | R 50404484 IEC 60127-1: 2006+A1+A2 IEC 60127-7: 2016 | 10A/350V ac 20A/250V ac 10A or 20A/72V dc | 10A/350V ac @ 150A 20A/250V ac @ 100A 10A or 20A/72V dc @ 200A |
| *I.R.= Interrupting Rating = Short Circuit Rating(Amps) | | | |

Environmental Specifications

| | |
|---------------------------|--|
| Shock Resistance | MIL-STD-202G, Method 213B, Test Condition 1 (100 G's peak for 6 milliseconds; Sawtooth waveform) |
| Vibration Resistance | MIL-STD-202G, Method 201A (10-55 Hz X 3 axis / no load). |
| Salt Spray Resistance | MIL-STD-202G, Method 101E, Test Condition B (48 hrs.). |
| Solderability | MIL-STD-202G, Method 208H |
| Resistance to solder Heat | MIL-STD-202G, Method 210F, Test Condition C. Top Side. (260°C, 20 sec) |
| Moisture Resistance | MIL-STD-202G, Method 202G, Method 106G |
| Operating Temperature | -55°C to +125°C |

| | |
|------------------------------|--|
| High temperature storage | MIL-STD-202 Method 108 |
| Temperature cycling | JESD22 Method JA-104, Test Condition B |
| Biased humidity | MIL-STD-202 Method 103, 85°C/85% RH with 10% operating power for 1000 hrs. |
| Operational life | MIL-STD-202 Method 108, Test Condition D |
| Resistance to solvents | MIL-STD-202 Method 215 |
| Mechanical shock | MIL-STD-202 Method 213, Test Condition C |
| Vibration | MIL-STD-202 Method 204 |
| Resistance to soldering heat | MIL-STD-202 Method 210, Test condition B |
| 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 | Typical Cold Resistance (ohms) | Volt-drop @100% In (Volt) max. | Voltage and Interrupting Ratings | Nominal Melting I ² T <10 mSec (A ² Sec) | Nominal Melting I ² T @ 10 In (A ² Sec) | Maximum Power Dissipation (W) | Agency Approvals | |
|--------------|---------------|--------------------------------|--------------------------------|---|--|---|-------------------------------|---|---|
| | | | | | | | |  |  |
| 0697H0250-XX | 250mA | 0.810 | 0.280 | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 0.17 | 0.28 | 0.070 | Y | |
| 0697H0315-XX | 315mA | 0.550 | 0.260 | | 0.25 | 0.36 | 0.082 | Y | |
| 0697H0400-XX | 400mA | 0.360 | 0.220 | | 0.52 | 0.85 | 0.088 | Y | |
| 0697H0500-XX | 500mA | 0.260 | 0.200 | | 1.0 | 1.3 | 0.10 | Y | |
| 0697H0630-XX | 630mA | 0.190 | 0.170 | | 1.4 | 2.0 | 0.11 | Y | |
| 0697H0800-XX | 800mA | 0.130 | 0.150 | | 2.3 | 3.1 | 0.12 | Y | |
| 0697H1000-XX | 1A | 0.085 | 0.130 | | 5.9 | 7.3 | 0.13 | Y | |
| 0697H1250-XX | 1.25A | 0.070 | 0.120 | | 9 | 10 | 0.15 | Y | |
| 0697H1600-XX | 1.6A | 0.050 | 0.100 | | 12 | 14 | 0.16 | Y | |
| 0697H2000-XX | 2A | 0.036 | 0.090 | | 23 | 27 | 0.18 | Y | |
| 0697H2500-XX | 2.5A | 0.027 | 0.090 | | 38 | 43 | 0.23 | Y | |
| 0697H3000-XX | 3A | 0.022 | 0.090 | | 55 | 63 | 0.27 | Y | |
| 0697H3150-XX | 3.15A | 0.021 | 0.090 | | 55 | 63 | 0.28 | Y | |
| 0697H4000-XX | 4A | 0.016 | 0.080 | | 81 | 92 | 0.32 | Y | |
| 0697H5000-XX | 5A | 0.013 | 0.080 | | 122 | 133 | 0.40 | Y | |
| 0697H6300-XX | 6.3A | 0.010 | 0.080 | | 169 | 187 | 0.50 | Y | |
| 0697H8000-XX | 8A | 0.007 | 0.080 | | 273 | 303 | 0.64 | Y | |
| 0697H9100-XX | 10A | 0.0055 | 0.080 | | 398 | 458 | 0.80 | Y | Y |
| 0697H9120-XX | 12A | 0.0047 | 0.090 | | 303 | 457 | 1.08 | Y | |
| 0697H9150-XX | 15A | 0.0035 | 0.090 | | 382 | 464 | 1.35 | Y | |
| 0697H9160-XX | 16A | 0.0033 | 0.090 | 545 | 627 | 1.44 | Y | | |
| 0697H9200-XX | 20A | 0.0026 | 0.090 | 937 | 1048 | 1.80 | Y | Y | |

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

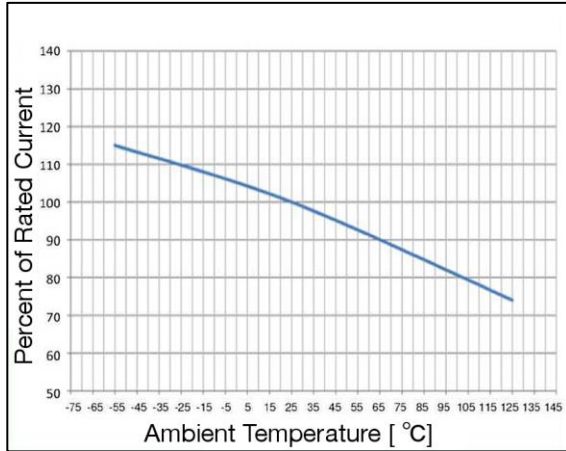


Specifications subject to change without notice

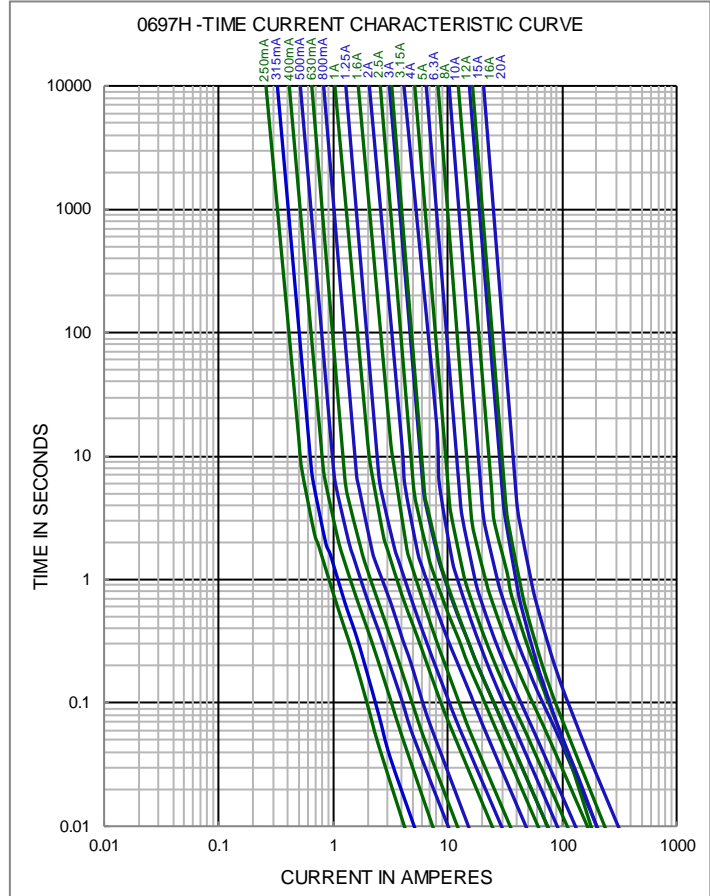
Bel Fuse Inc.
206 Van Vorst Street
Jersey City, NJ 07302 USA

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

Temperature Derating Curve

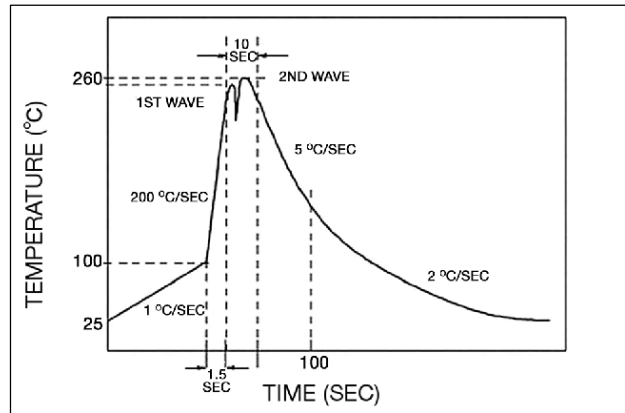


Average Time Current Curve



Soldering Parameters

| Lead-free Wave Soldering Profile | |
|--|--|
| Wave Soldering Parameter | |
| Average ramp-up rate | 200°C / second |
| Heating rate during preheat | typical 1 - 2°C / second 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. |



Fuse FGNO Explanation

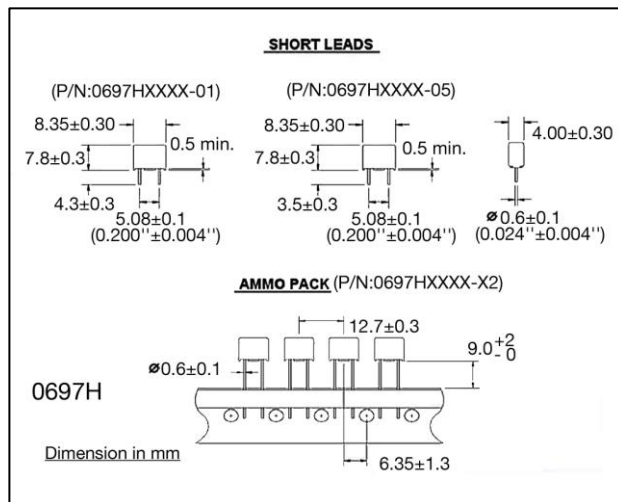
0697 H [XXXX] X XX

0697H=0697H; [XXXX]=Ampere Rating; XX=See Ordering Information as below

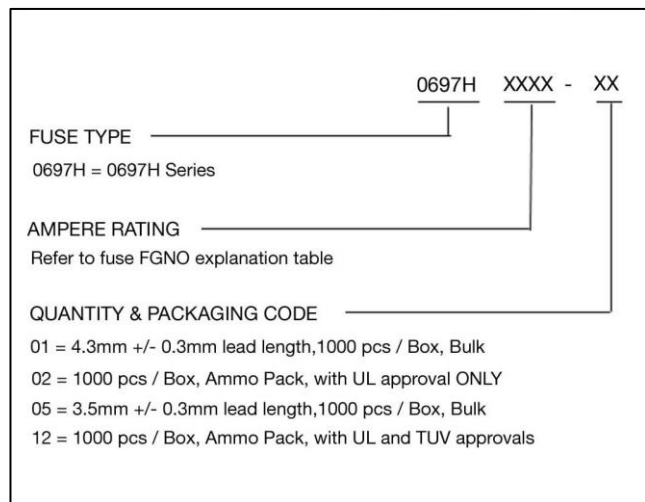
| Fraction | Decimal | Milliamps | Bel FGNO[XXXX] |
|----------|---------|-----------|----------------|
| 1/4 | 0.250 | 250 | 0250 |
| | .315 | 315 | 0315 |
| 4/10 | .400 | 400 | 0400 |
| 1/2 | .500 | 500 | 0500 |
| | .630 | 630 | 0630 |
| 8/10 | .800 | 800 | 0800 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Fraction | Decimal | Amps | Bel FGNO[XXXX] |
|----------|---------|------|----------------|
| | 1.0 | 1 | 1000 |
| 1-1/4 | 1.25 | 1.25 | 1250 |
| | 1.60 | 1.6 | 1600 |
| | 2.0 | 2 | 2000 |
| 2-1/2 | 2.5 | 2.5 | 2500 |
| | 3.0 | 3 | 3000 |
| | 3.15 | 3.15 | 3150 |
| | 4.0 | 4 | 4000 |
| | 5.0 | 5 | 5000 |
| | 6.3 | 6.3 | 6300 |
| | 8.0 | 8 | 8000 |
| | | 10 | 9100 |
| | | 12 | 9120 |
| | | 15 | 9150 |
| | | 16 | 9160 |
| | | 20 | 9200 |

Mechanical Dimensions



Ordering Information



Packaging

| Packaging Option | Packaging Specification | Quantity | Packaging Code |
|------------------------------|-------------------------|----------|----------------|
| Bulk / bag, 1000 / box | N/A | 1000 | 01 , 05 |
| 12.7 mm pitch, On Tape / box | IEC-286-2 | 1000 | 02 , 12 |



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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

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