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# Type 0HAAL

## Time Lag Radial Lead Micro Fuse Series

HF Pb 0HAAL Series

RoHS Compliant

### Description

Sub-miniature, Time-lag Type, 250 VAC rated fuses designed, approved and complied with IEC 60127-3, standard sheet 4.

### Features

- Time-lag, 250 VAC
- Meet IEC standard 60127-3, sheet 4
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- Full compliance with EU Directive 2011/65/EU and amending directive 2015/863
- Halogen Free and Lead Free

### 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", "0HAAL", "T", "Current Rating", "250V" & "Appropriate Safety Logos"                                                                                                                                                                                                                                                  |
|           | On Label :                                                                                                                                                                                                                                                                                                                  |
|           | "bel", "0HAAL", "T", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and "  ", "  " (China RoHS compliant). |



### Electrical Characteristics (IEC-127-3 STANDARD SHEET 4) Safety Agency Approvals

| Rated Current        | 1.5In |      | 2.1In |     | 2.75In |     | 4In |     | 10In |     |
|----------------------|-------|------|-------|-----|--------|-----|-----|-----|------|-----|
|                      | Min   | Max  | Min   | Max | Min    | Max | Min | Max | Min  | Max |
| 1A to 6.3A inclusive | 1     | 2    | 400   | 10  | 150    | 3   | 20  | 150 |      |     |
|                      | hour  | min. | ms    | sec | ms     | sec | ms  | ms  |      |     |

| Safety Agency                                                                       | Safety Agency Certificate | Ampere Rating/<br>Voltage Rating                 | Ampere Range /<br>Volt@ I.R.<br>ability*                 |
|-------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------|----------------------------------------------------------|
|  | E506667                   | 1A-6.3A/250Vac                                   | 1A-6.3A/250V ac<br>@ 35A or 10In<br>whichever is greater |
|  | 40057591                  | 1A/250Vac<br>1.6A-3.15A/250Vac<br>5A-6.3A/250Vac |                                                          |
|  | 2023960207000004          | 1A/250Vac<br>1.6A-3.15A/250Vac<br>5A-6.3A/250Vac |                                                          |
| *I.R.= Interrupting Rating = Short Circuit Rating (Amps)                            |                           |                                                  |                                                          |

## Environmental Specifications

|                           |                                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------------------------|
| Shock Resistance          | MIL-STD-202G, Method 213B, Test Condition 1<br>(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<br>(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)                              |
| Thermal Shock             | MIL-STD-202G, Method 107G, Test Condition B (-65°C to +125°C).                                      |
| Moisture Resistance       | MIL-STD-202G, Method 202G, Method 106G                                                              |
| Operating Temperature     | -55°C to +125°C                                                                                     |

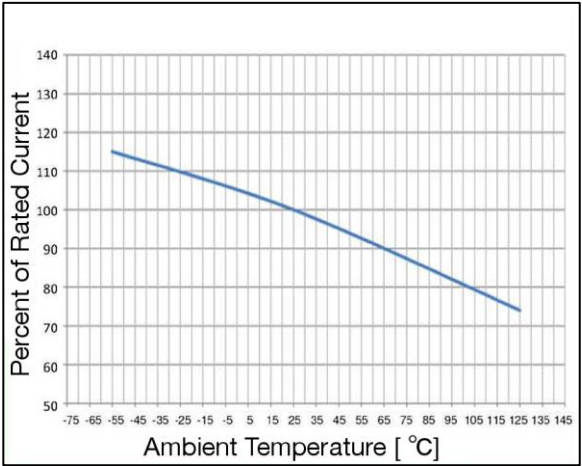
## Electrical Specifications

| Part Number  | Ampere Rating | Typical Cold Resistance (ohms) | Volt-drop @100% In (Volt) max. | Voltage and Interrupting Ratings                                                        | Nominal Melting I²T <10 mSec (A² Sec) | Nominal Melting I²T @10 In (A² Sec) | Maximum Power Dissipation (W) | Agency Approvals                                                                      |                                                                                       |                                                                                       |
|--------------|---------------|--------------------------------|--------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|              |               |                                |                                |                                                                                         |                                       |                                     |                               |  |  |  |
| 0HAAL1000-XX | 1A            | 0.080                          | 0.14                           | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 4.6                                   | 6.2                                 | 0.50                          | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0HAAL1250-XX | 1.25A         | 0.060                          | 0.13                           |                                                                                         | 8.7                                   | 10.9                                | 0.60                          | Y                                                                                     |                                                                                       |                                                                                       |
| 0HAAL1600-XX | 1.6A          | 0.044                          | 0.12                           |                                                                                         | 11                                    | 14                                  | 0.73                          | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0HAAL2000-XX | 2A            | 0.033                          | 0.10                           |                                                                                         | 23                                    | 28.8                                | 0.87                          | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0HAAL2500-XX | 2.5A          | 0.024                          | 0.10                           |                                                                                         | 30                                    | 35                                  | 1.00                          | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0HAAL3150-XX | 3.15A         | 0.018                          | 0.10                           |                                                                                         | 57                                    | 68                                  | 1.20                          | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0HAAL4000-XX | 4A            | 0.014                          | 0.10                           |                                                                                         | 96                                    | 98                                  | 1.40                          | Y                                                                                     |                                                                                       |                                                                                       |
| 0HAAL5000-XX | 5A            | 0.010                          | 0.10                           |                                                                                         | 98                                    | 100                                 | 1.50                          | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0HAAL6300-XX | 6.3A          | 0.008                          | 0.10                           |                                                                                         | 133                                   | 162                                 | 1.65                          | Y                                                                                     | Y                                                                                     | Y                                                                                     |

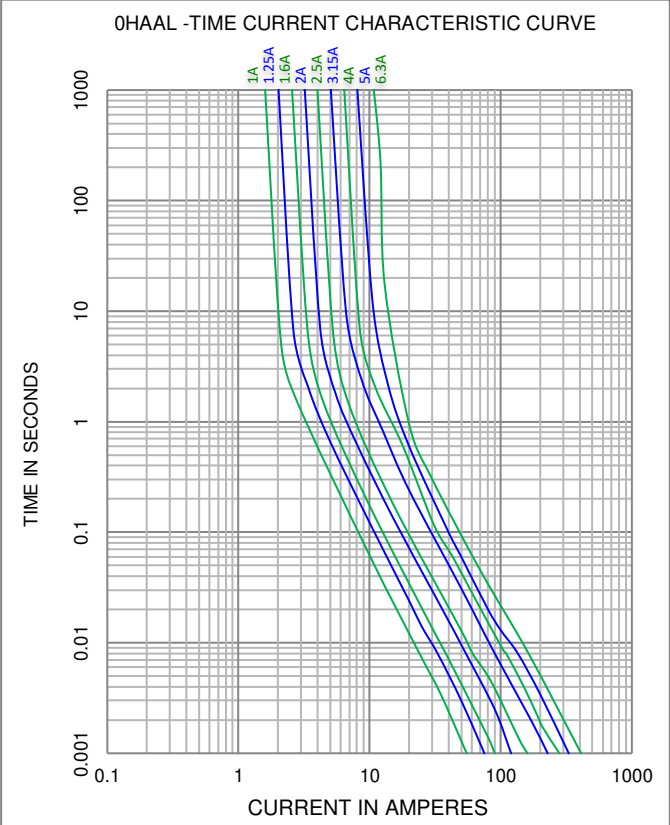
Consult manufacturer for other ratings.

XX - Packaging code (see "ordering information")

Temperature Derating Curve

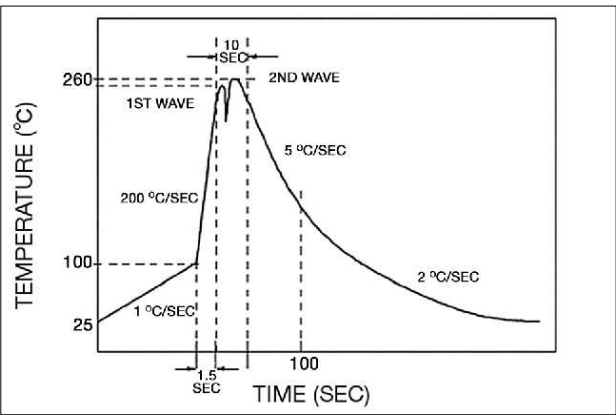


Average Time Current Curve



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<br>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.                            |

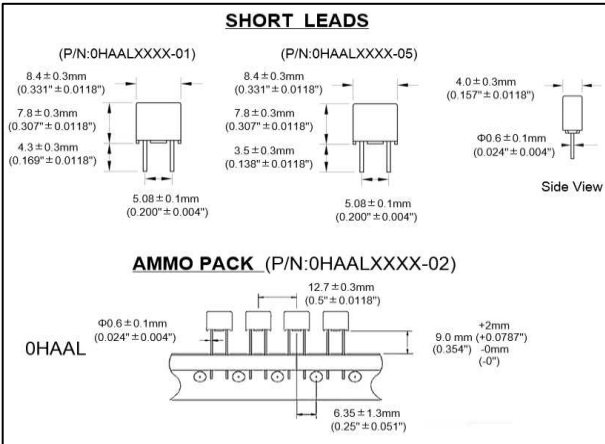


# Type 0HAAL

Fuse FGNO Explanation  
0HAA L [XXXX] X XX  
0HAAL=0HAAL; [XXXX]=Ampere Rating; XX=See Ordering Information as below

| Decimal | Amps | Bel FGNO[XXXX] |
|---------|------|----------------|
| 1.0     | 1    | 1000           |
| 1.25    | 1.25 | 1250           |
| 1.60    | 1.6  | 1600           |
| 2.0     | 2    | 2000           |
| 2.5     | 2.5  | 2500           |
| 3.15    | 3.15 | 3150           |
| 4.0     | 4    | 4000           |
| 5.0     | 5    | 5000           |
| 6.3     | 6.3  | 6300           |

## Mechanical Dimensions



## Ordering Information

**0HAAL** **XXXX - XX**

FUSE TYPE \_\_\_\_\_  
0HAAL=0HAAL Series

AMPERE RATING \_\_\_\_\_  
Refer to fuse FGNO explanation table

PACKAGING/QUANTITY CODE \_\_\_\_\_  
01=4.3+/-0.3mm lead length,2000pcs/box, Bulk  
02=1000pcs/Box,Ammo Pack  
05=3.5+/-0.3mm lead length,2000pcs/box, Bulk

## Packaging

| Packaging Option             | Packaging Specification | Quantity | Packaging Code |
|------------------------------|-------------------------|----------|----------------|
| Bulk / bag, 2000 / box       | N/A                     | 2000     | 01, 05         |
| 12.7 mm pitch, On Tape / box | IEC-286-2               | 1000     | 02             |