

# Type 0697W

## Time Lag Radial Lead Micro Fuse Series

HF  0697W Series

RoHS 2 Compliant

### Description

Sub-miniature, time lag type, 350VAC, 72VDC rated fuses designed, approved and complied with IEC 60127-3, standard sheet 4.

### Features

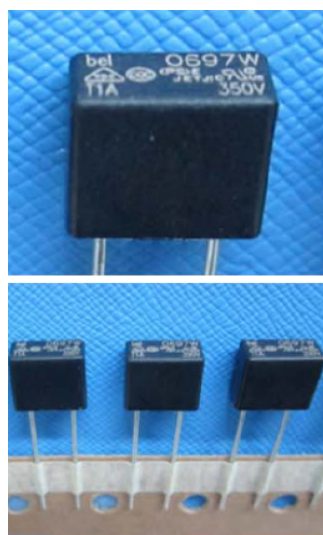
- Time lag (350 VAC, 72 VDC)
- Meet IEC standard 60127-3, sheet 4
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- AEC-Q Compliant
- RoHS 2 compliant
- Halogen Free and Lead Free
- Meets Bel automotive qualification\*
- \* - Largely based on internal AEC-Q test plan

### Applications

Provide individual protection for components or internal circuits.

- Power supplies
- Battery chargers
- Consumer electronics
- Adapter
- Industrial controllers

LEAD FREE =   
HALOGEN FREE = 



**AEC-Q Compliant**

### Physical Specifications

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

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

| 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  | sec | ms   | ms  |

### Safety Agency Approvals

| Safety Agency                                                                       | Safety Agency Certificate  | Voltage Rating (V)      | Ampere Range / Volt @ I.R. ability*                                                              |
|-------------------------------------------------------------------------------------|----------------------------|-------------------------|--------------------------------------------------------------------------------------------------|
|  | 40039412                   | 1A-6.3A/350Vac<br>72Vdc | 1A-1.6A/350V ac @ 50A<br>2A-6.3A/350V ac @ 65A<br>1A-6.3A/250V ac @ 65A<br>1A-6.3A/72V dc @ 100A |
|  | PSE14020757<br>PSE14020758 |                         | 1A-2A/350V ac @ 50A<br>2.5A-6.3A/350V ac @ 100A<br>1A-6.3A/72V dc @ 100A                         |
|  | E20624                     |                         | 1A-2A/350V ac @ 65A<br>2.5A-6.3A/350V ac @ 100A<br>1A-1.6A/72V dc @ 65A<br>2A-6.3A/72V dc @ 100A |
|  | CQC140121053677            |                         | 1A-2A/350V ac @ 50A<br>2.5A-6.3A/350V ac @ 100A<br>1A-6.3A/72V dc @ 100A                         |
| *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, 85C/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                                                  |

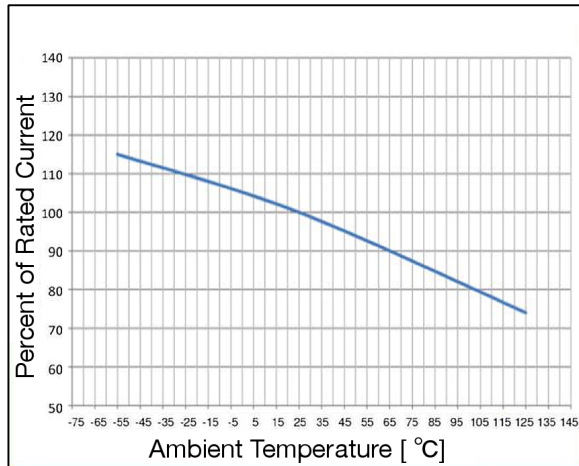
## Electrical Specifications

| Part Number  | Ampere Rating | Typical Cold Resistance (ohms) | Volt-drop @100% In (Volt) max. | Voltage and Interrupting Ratings                                                        | Melting I <sup>2</sup> T <10 mSec (A <sup>2</sup> Sec) | Melting I <sup>2</sup> T @10 In (A <sup>2</sup> Sec) | Maximum Power Dissipation (W) | Agency Approvals                                                                      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|--------------|---------------|--------------------------------|--------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|              |               |                                |                                |                                                                                         |                                                        |                                                      |                               |  |  |  |  |  |
| 0697W1000-XX | 1A            | 0.082                          | 0.115                          | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 6.6                                                    | 9.2                                                  | 0.44                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0697W1250-XX | 1.25A         | 0.064                          | 0.110                          |                                                                                         | 10.5                                                   | 12.0                                                 | 0.56                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0697W1600-XX | 1.6A          | 0.044                          | 0.100                          |                                                                                         | 16                                                     | 18                                                   | 0.60                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0697W2000-XX | 2A            | 0.032                          | 0.090                          |                                                                                         | 26                                                     | 30                                                   | 0.63                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0697W2500-XX | 2.5A          | 0.025                          | 0.087                          |                                                                                         | 45                                                     | 51                                                   | 0.70                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0697W3150-XX | 3.15A         | 0.018                          | 0.083                          |                                                                                         | 66                                                     | 75                                                   | 0.88                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0697W4000-XX | 4A            | 0.014                          | 0.080                          |                                                                                         | 101                                                    | 118                                                  | 0.92                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0697W5000-XX | 5A            | 0.009                          | 0.075                          |                                                                                         | 111                                                    | 117                                                  | 0.70                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |
| 0697W6300-XX | 6.3A          | 0.007                          | 0.075                          |                                                                                         | 104                                                    | 115                                                  | 0.98                          | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     | Y                                                                                     |

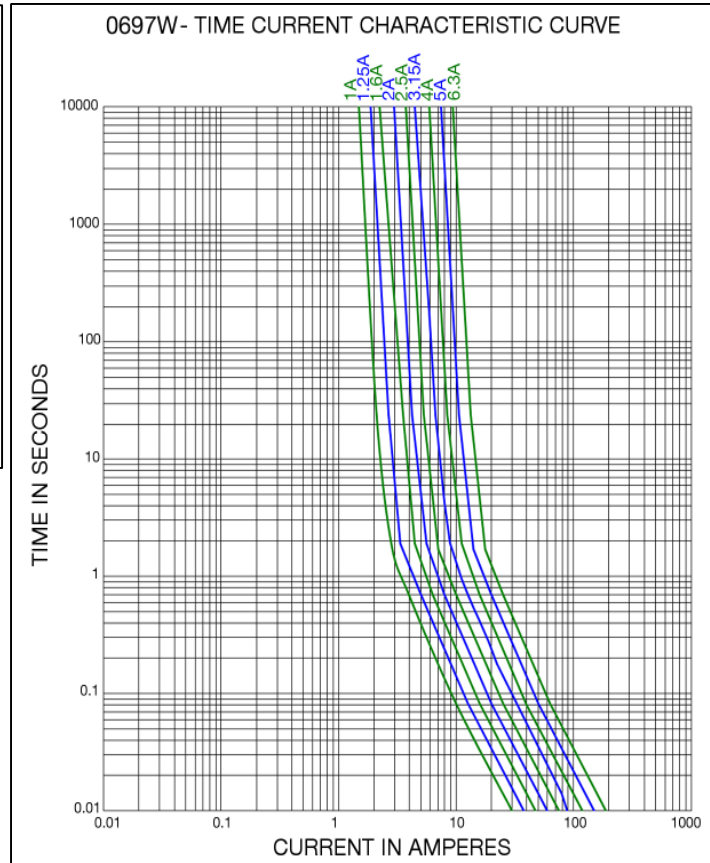
Consult manufacturer for other ratings

XX - Packaging code (see "ordering information")

## Temperature Derating Curve

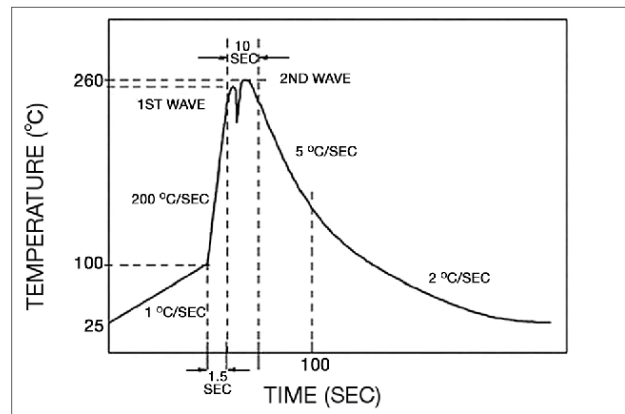


## Average Time Current Curve



## 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<br>Max 4°C / second |
| Final preheat temperature                          | within 125°C of soldering temperature        |
| Peak temperature T <sub>p</sub>                    | 260°C                                        |
| Time within +0°C / -5°C of actual peak temperature | 10 seconds                                   |
| Ramp-down rate                                     | 5°C / second max.                            |



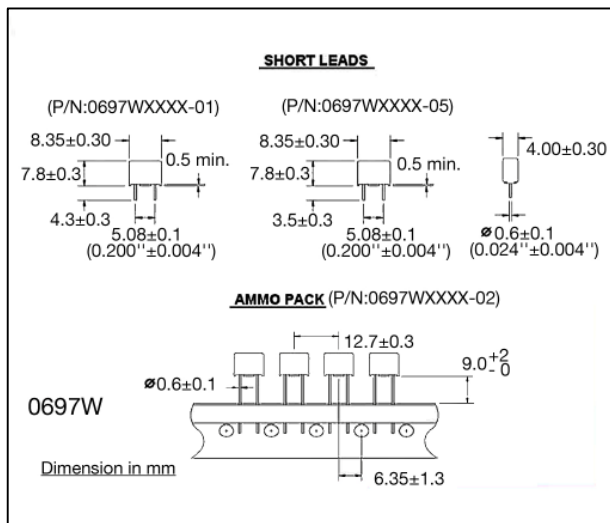
## Fuse FGNO Explanation

0697 W [XXXX] X XX

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

| 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           |
|          | 3.15    | 3.15 | 3150           |
|          | 4.0     | 4    | 4000           |
|          | 5.0     | 5    | 5000           |
|          | 6.3     | 6.3  | 6300           |

## Mechanical Dimensions



## Ordering Information

0697W XXXX - XX

FUSE TYPE \_\_\_\_\_  
0697W = 0697W Series

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

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

## 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             |