

# Type RSTA

## Time Lag Radial Lead Micro Fuse Series

HF  RSTA Series

RoHS 2 Compliant

### Description

Sub-miniature, time lag type, 63 VDC, 250 VAC (UL rated 277 VAC) rated fuses designed, approved and complied with IEC 60127-3, standard sheet 4.

### Features

- Time lag, 63 VDC, 250 VAC (UL rated 277 VAC)
- 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", "RSTA", "T", "Current Rating", "250V" & "Appropriate Safety Logos"   |
|           | On Label :  |
|           | "bel", "RSTA", "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 |      |     |
| Above 6.3A           | 1     | 5    | 1000  | 20  | 150    | 3   | 20  | 150 |      |     |
|                      | hour  | min. | ms    | sec | ms     | sec | ms  | ms  |      |     |

### Safety Agency Approvals

| Safety Agency   | Safety Agency Certificate  | Voltage Rating (V)     | Ampere Range / Volt @ I.R. ability*                                      |
|---|----------------------------|------------------------|--|
|  | 40039089                   | 1A-10A/250Vac<br>63Vdc | 1A-10A/250V ac @ 100A<br>1A-10A/63V dc @ 10In                            |
|  | PSE14020746<br>PSE14020745 |                        | 1A-5A/250V ac @ 100A<br>6.3A/250V ac @ 100A                              |
|  | E20624                     |                        | 1A-6.3A/277V ac @ 100A<br>1A-2A/63V dc @ 65A<br>2.5A-6.3A/63V dc @ 100A  |
|  | CQC1401210575              |                        | 1A-6.3A/250V ac @ 100A<br>1A-6.3A/63V dc @ 10In<br>8A-10A/250V ac @ 10In |
| *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  | 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  |   |   |   |   |
|--------------|---------------|--------------------------------|--------------------------------|---|--|--|-------------------------------|---|---|---|---|---|
|              |               |                                |                                |   |  |  |                               |  |  |  |  |  |
| 0697A1000-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   |   |
| 0697A1250-XX | 1.25A         | 0.064                          | 0.110                          |   | 10.5   | 12.0   | 0.56                          | Y   | Y   | Y   | Y   |   |
| 0697A1600-XX | 1.6A          | 0.044                          | 0.100                          |   | 16   | 18   | 0.60                          | Y   | Y   | Y   | Y   |   |
| 0697A2000-XX | 2A            | 0.032                          | 0.090                          |   | 26   | 30   | 0.63                          | Y   | Y   | Y   | Y   |   |
| 0697A2500-XX | 2.5A          | 0.025                          | 0.087                          |   | 45   | 51   | 0.70                          | Y   | Y   | Y   | Y   |   |
| 0697A3150-XX | 3.15A         | 0.018                          | 0.083                          |   | 66   | 75   | 0.88                          | Y   | Y   | Y   | Y   |   |
| 0697A4000-XX | 4A            | 0.014                          | 0.080                          |   | 101  | 118  | 0.92                          | Y   | Y   | Y   | Y   |   |
| 0697A5000-XX | 5A            | 0.009                          | 0.075                          |   | 111  | 117  | 0.70                          | Y   | Y   | Y   | Y   |   |
| 0697A6300-XX | 6.3A          | 0.007                          | 0.075                          |   | 104  | 115  | 0.98                          | Y   | Y   | Y   | Y   |   |
| 0697A8000-XX | 8A            | 0.006                          | 0.073                          |   | 280  | 350  | 2.4                           |   | Y   |   | Y   |   |
| 0697A9100-XX | 10A           | 0.0042                         | 0.070                          |   | 300  | 400  | 1.6                           |   | Y   |   | Y   |   |

Consult manufacturer for other ratings

XX - Packaging code (see " ordering information")



Specifications subject to change without notice

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## 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 A [XXXX] X XX

0697A=RSTA; [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           |
|          | 8.0     | 8    | 8000           |
|          |         | 10   | 9100           |

## 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             |