RoHS

bel

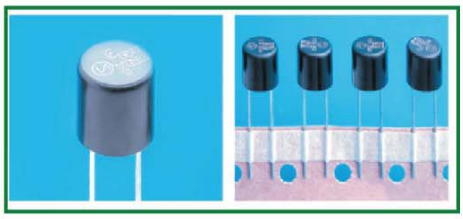
MRF Apr2013D

# Type MRT

*RoHS 6 Compliant*

## *Time Lag Radial Lead Micro Fuse Series*

HF Pb **MRT Series**



### *Description*

**Sub-miniature,time lag type, 250V rated fuses designed, approved and complied with IEC 60127-3, standard sheet 4.**

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

| Rated Current | 1.5 In | | 2.1 In | | 2.75 In | | 4 In | | 10 In | |
|---|---|---|---|---|---|---|---|---|---|---|
| | MIN | | MAX | | MIN | MAX | MIN | MAX | MIN | MAX |
| 80mA to 6.3A inclusive | 1 | hr. | 2 | min. | 400 ms | 10 sec | 150 ms | 3 sec | 20 ms | 150 ms |

*In clause 9.2,the test voltage for MRT ratings from 80mA to 6.3A is 64VDC.*

### *Features*

- Time lag (250VAC)
- Meet IEC standard 60127-3,Sheet 4
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- RoHS6 compliant
- Halogen Free
- Leadfree

### *Applications*

**Provide individual protection for components or internal circuits.**

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

LEAD FREE = Pb

HALOGEN FREE = HF

### *Safety Agency Approvals*

| SAFETY AGENCY | SAFETY AGENCY CERTIFICATE NUMBER | AMPERE RANGE / VOLT @ I.R.ABILITY |
|---|---|---|
| | 910555;917227;910556 | 80mA - 6.3A / 250V AC @ 35A or 10 In whichever is greater |
| | 139937;40001000 | |
| | LR39772 | 80mA - 6.3A / 250V AC @50A |
| | E20624 | 80mA - 6.3A / 277V AC @100A |
| | JET 1037-31007-1001 | 1A - 5A / 250V AC @100A |
| | 2002010207021532 | 80mA - 6.3A / 250V AC @ 35A or 10 In whichever is greater |
| CE | | 80mA - 6.3A / 277V AC @100A |

*Specifications Subject to change without notice.*

### *Physical Specifications*

| | |
|---|---|
| **Materials** | Base and Cover : Black thermoplastic,UL 94-V0 |
| | Pins: 100% Matte Tin Plated Copper Alloy |
| **Marking** | On Fuse: |
| | "bel" , "T ," Current Rating", "250V", & "Appropriate Safety Logos" |
| | On label: |
| | "bel" , "MRT","Current Rating","Voltage Rating","Interrupting Rating", "Appropriate Safety Logos" and "","(China RoHS compliant). |

# Type MRT

## *Time Lag Radial Lead Micro Fuse Series*

*RoHS 6 Compliant*

HF Pb

*MRT Apr2013D*

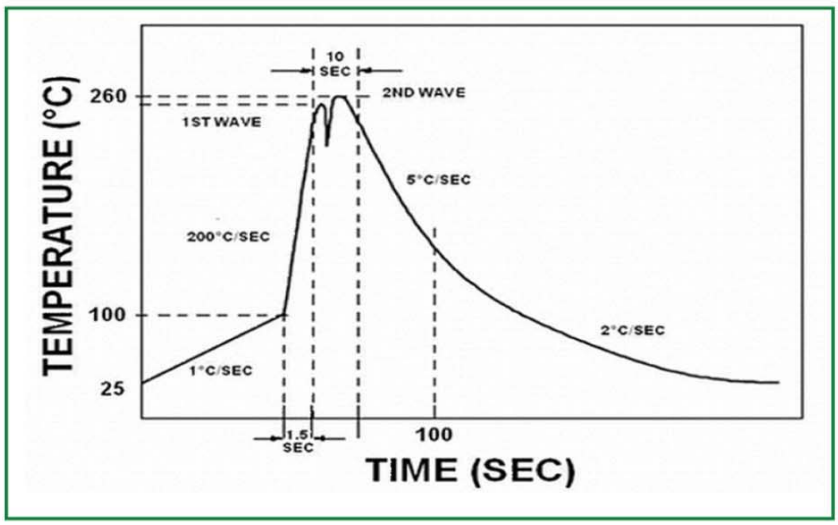
### *Electrical Specifications*

| Catalog Number | Ampere Rating | Typical Cold Resistance (ohm) | Volt-drop @100% In (Volt) Max. | Voltage Rating (V) | Interrupting Rating | Melting I2T <10 m Sec (A2 Sec) | Melting I2T @ 10 In (A2 Sec) | Maximum Power Dissipation (W) | Agency Approvals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | cULus | SP | S | VDE | CCC | PSE | CE |
| MRT 80 | 80mA | 3.5 | 0.398 | 250 | 80mA - 6.3A / 250V AC @ 35A or 10 In whichever is greater | 0.01 | 0.01 | 0.10 | Y | Y | Y | Y | Y | | Y |
| MRT 100 | 100mA | 2.3 | 0.329 | 250 | | 0.02 | 0.02 | 0.11 | Y | Y | Y | Y | Y | | Y |
| MRT 125 | 125mA | 1.6 | 0.295 | 250 | | 0.04 | 0.04 | 0.13 | Y | Y | Y | Y | Y | | Y |
| MRT 160 | 160mA | 1.1 | 0.252 | 250 | | 0.07 | 0.06 | 0.15 | Y | Y | Y | Y | Y | | Y |
| MRT 200 | 200mA | 0.73 | 0.200 | 250 | | 0.12 | 0.11 | 0.17 | Y | Y | Y | Y | Y | | Y |
| MRT 250 | 250mA | 0.55 | 0.188 | 250 | | 0.38 | 0.41 | 0.19 | Y | Y | Y | Y | Y | | Y |
| MRT 315 | 315mA | 0.36 | 0.152 | 250 | | 0.6 | 0.66 | 0.22 | Y | Y | Y | Y | Y | | Y |
| MRT 400 | 400mA | 0.25 | 0.129 | 250 | | 0.9 | 1.0 | 0.25 | Y | Y | Y | Y | Y | | Y |
| MRT 500 | 500mA | 0.18 | 0.114 | 250 | | 1.5 | 1.7 | 0.29 | Y | Y | Y | Y | Y | | Y |
| MRT 630 | 630mA | 0.13 | 0.109 | 250 | | 2.4 | 2.6 | 0.33 | Y | Y | Y | Y | Y | | Y |
| MRT 800 | 800mA | 0.095 | 0.103 | 250 | | 3.7 | 4.2 | 0.38 | Y | Y | Y | Y | Y | | Y |
| MRT 1 | 1A | 0.070 | 0.090 | 250 | | 6 | 7 | 0.44 | Y | Y | Y | Y | Y | Y | Y |
| MRT 1.25 | 1.25A | 0.053 | 0.087 | 250 | | 9 | 11 | 0.51 | Y | Y | Y | Y | Y | Y | Y |
| MRT 1.6 | 1.6A | 0.038 | 0.085 | 250 | | 15 | 17 | 0.58 | Y | Y | Y | Y | Y | Y | Y |
| MRT 2 | 2A | 0.029 | 0.084 | 250 | | 23 | 27 | 0.67 | Y | Y | Y | Y | Y | Y | Y |
| MRT 2.5 | 2.5A | 0.022 | 0.084 | 250 | | 37 | 43 | 0.77 | Y | Y | Y | Y | Y | Y | Y |
| MRT 3.15 | 3.15A | 0.017 | 0.074 | 250 | | 58 | 69 | 0.88 | Y | Y | Y | Y | Y | Y | Y |
| MRT 4 | 4A | 0.013 | 0.073 | 250 | | 92 | 110 | 1.02 | Y | Y | Y | Y | Y | Y | Y |
| MRT 5 | 5A | 0.010 | 0.073 | 250 | | 145 | 175 | 1.17 | Y | Y | Y | Y | Y | Y | Y |
| MRT 6.3 | 6.3A | 0.008 | 0.072 | 250 | | 230 | 281 | 1.34 | Y | Y | Y | Y | Y | | Y |

***Consult manufacturer for other ratings***

### *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 Tp | 260°C |
| Time within +0 °C / -5°C of actual peak temperature | 10 seconds |
| Ramp-down rate | 5 °C / second max. |





**CORPORATE OFFICE**
**Bel Fuse Inc.**
206 Van Vorst Street
Jersey City, NJ 07302
Tel 201-432-0463
Fax 201-432-9542
E-Mail: belfuse@belf.com
Website: www. belfuse.com

**FAR EAST OFFICE**
**Bel Fuse Ltd.**
8/F Luk Hop Industrial Building
8 Luk Hop Street
San Po Kong
Kowloon, Hong Kong
Tel 852-2328-5515
Fax 852-2352-3706

**EUROPE OFFICE**
**Bel Fuse Europe Ltd.**
Preston Technology Management Centre
Marsh Lane, Suite F15
Preston, Lancashire, PR1 8UQ
United Kingdom
Tel 44-1772-556601
Fax 44-1772-561008

**EUROPE**
**Bel Stewart GmbH**
Industriestrasse 20
61381 Friedrichsdorf
Germany
Tel 49-6172-9552-0
Fax 49-6172-9552-40

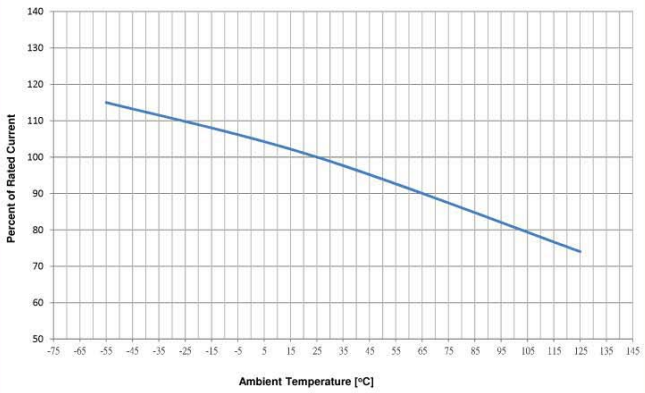
# Type MRT

***Time Lag Radial Lead Fuse Series***

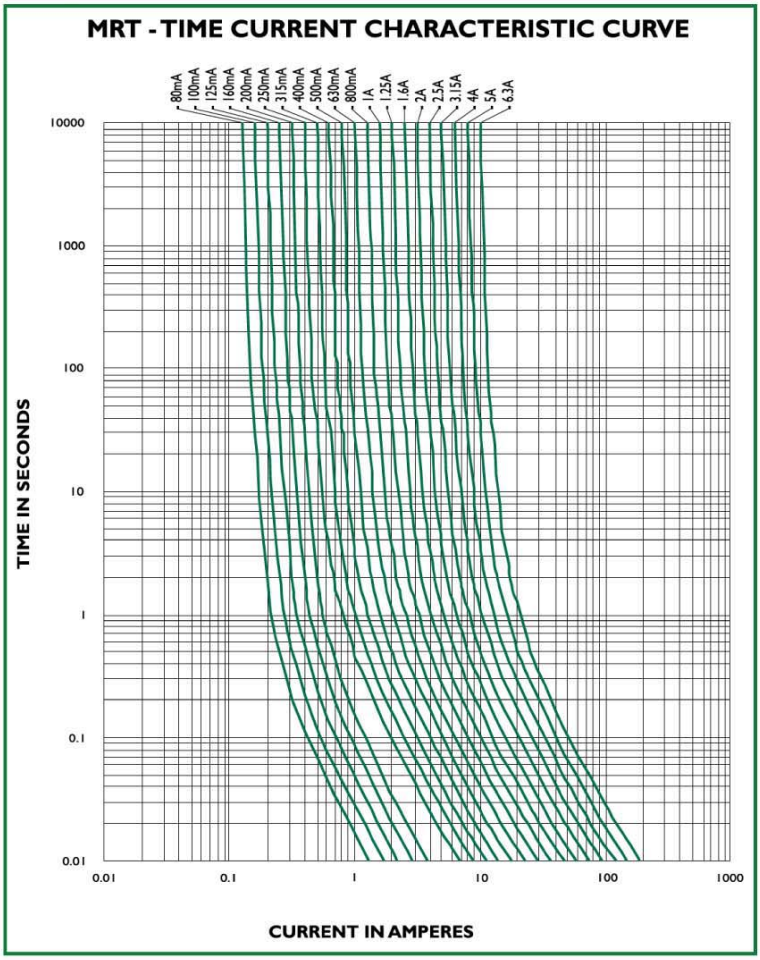
*RoHS 6 Compliant*

*MRT Apr2013C*

## *Temperature Derating Curve*




## *Average Time Current Curve*




## *Environmental Specifications*

| | |
|---|---|
| **Shock Resistance** | MIL-STD-202G, Method 213B, Test Condition I<br>(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 |

# Type MRT

## *Time Lag Radial Lead Micro Fuse Series*

*RoHS 6 Compliant*

HF Pb

*MRT Apr2013D*

### *Fuse FGNO Explanation*

*06XX-[XXXX]-XX, [XXXX]=Ampere Rating*

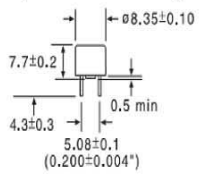
| Fraction | Decimal | Milliamps | Bel FGNO[XXXX] |
|---|---|---|---|
| 1/32 | 0.032 | 32 | 0032 |
| 1/25 | .040 | 40 | 0040 |
| 1/20 | .050 | 50 | 0050 |
| 1/16 | .063 | 63 | 0063 |
| 8/100 | .080 | 80 | 0080 |
| 1/10 | .100 | 100 | 0100 |
| 1/8 | .125 | 125 | 0125 |
| 15/100 | .150 | 150 | 0150 |
| | .160 | 160 | 0160 |
| 2/10 | .200 | 200 | 0200 |
| 1/4 | .250 | 250 | 0250 |
| 3/10 | .300 | 300 | 0300 |
| | .315 | 315 | 0315 |
| 3/8 | .375 | 375 | 0375 |
| 4/10 | .400 | 400 | 0400 |
| 1/2 | .500 | 500 | 0500 |
| 6/10 | .600 | 600 | 0600 |
| | .630 | 630 | 0630 |
| 7/10 | .700 | 700 | 0700 |
| 3/4 | .750 | 750 | 0750 |
| 8/10 | .800 | 800 | 0800 |
| | | | |
| | | | |

| 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 |
| | 1.60 | 1.6 | 1600 |
| | 2.0 | 2 | 2000 |
| 2-1/4 | 2.25 | 2.25 | 2250 |
| 2-1/2 | 2.5 | 2.5 | 2500 |
| | 3.0 | 3 | 3000 |
| | 3.15 | 3.15 | 3150 |
| 3-1/2 | 3.5 | 3.5 | 3500 |
| | 4.0 | 4 | 4000 |
| | 5.0 | 5 | 5000 |
| | 6.0 | 6 | 6000 |
| | 6.3 | 6.3 | 6300 |
| | 7.0 | 7 | 7000 |
| 7-1/2 | 7.5 | 7.5 | 7500 |
| | 8.0 | 8 | 8000 |
| | | 10 | 9100 |
| | | 12 | 9120 |
| | | 15 | 9150 |
| | | 20 | 9200 |
| | | 25 | 9250 |
| | | 30 | 9300 |

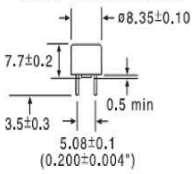
### *Mechanical Dimensions*

BULK / SHORT LEADS

(P/N : 0692-XXXX-01)

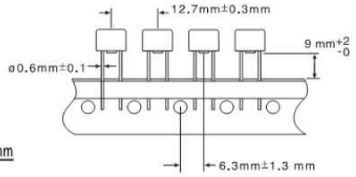



(P/N : 0692-XXXX-05)




MRT

AMMO PACK / LONG LEADS




Dimension in mm

### *Ordering Information*

0692 XXXX – XX

FUSE TYPE
0692

AMPERE RATING
Refer to fuse FGNO explanation table

QUANTITY & PACKAGING CODE
01 = 4.3mm +/- 0.3mm leads lengthLead,1000 pcs / Box, Bulk
02 = 1000 pcs / Box, Ammo Pack
05 = 3.5mm +/- 0.3mm leads lengthLead,1000 pcs / Box, Bulk

*Specifications subject to change without notice.*

### *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 |


**CORPORATE OFFICE**
**Bel Fuse Inc.**
206 Van Vorst Street
Jersey City, NJ 07302
Tel 201-432-0463
Fax 201-432-9542
E-Mail: belfuse@belf.com
Website: www. belfuse.com

**FAR EAST OFFICE**
**Bel Fuse Ltd.**
8/F Luk Hop Industrial Building
8 Luk Hop Street
San Po Kong
Kowloon, Hong Kong
Tel 852-2328-5515
Fax 852-2352-3706

**EUROPE OFFICE**
**Bel Fuse Europe Ltd.**
Preston Technology Management Centre
Marsh Lane, Suite F15
Preston, Lancashire, PR1 8UQ
United Kingdom
Tel 44-1772-556601
Fax 44-1772-561008

**EUROPE**
**Bel Stewart GmbH**
Industriestrasse 20
61381 Friedrichsdorf
Germany
Tel 49-6172-9552-0
Fax 49-6172-9552-40