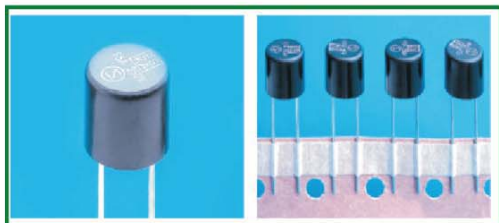


Type MRF

Fast Acting Radial Lead Micro Fuse Series

RoHS 6 Compliant

HF (Pb) MRF Series



Description

Sub-miniature, fast-acting type, 250V rated fuses designed, approved and complied with IEC 60127-3, standard sheet 3.

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

Rated Current	1.5 In		2.1 In		2.75 In		4 In		10 In
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MAX
50mA to 6.3A inclusive	1 hr.	30 min.	10 ms	3 sec	3 ms	300 ms	20 ms		

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

Features

- Fast Acting (250V AC @50A)
- Meet IEC standard 60127-3, Sheet 3
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- RoHS6 compliant
- Halogen Free
- Leadfree

Safety Agency Approvals

SAFETY AGENCY	SAFETY AGENCY CERTIFICATE NUMBER	AMPERE RANGE / VOLT @ I.R.ABILITY
	1026142;1026141;1026139;1111865	50mA - 5A / 250V AC @ 35A or 10 In whichever is greater
	40017420;40028500	
	LR39772	50mA - 6.3A / 250V AC @ 50A
	E20624	50mA - 6.3A / 350V AC @100A
	JET 1037-31007-1001	1A - 5A / 250V AC @100A
		50mA - 6.3A / 350V AC @100A

Specifications Subject to change without notice.

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 Alloy
Marking	On Fuse:
	"bel", "F", "Current Rating", "250V", & "Appropriate Safety Logos"
	On label:
	"bel", "MRF", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and "  " (China RoHS compliant).

Type MRF

Fast Acting Radial Lead Micro Fuse Series

RoHS 6 Compliant



bel

MRF Apr2013D

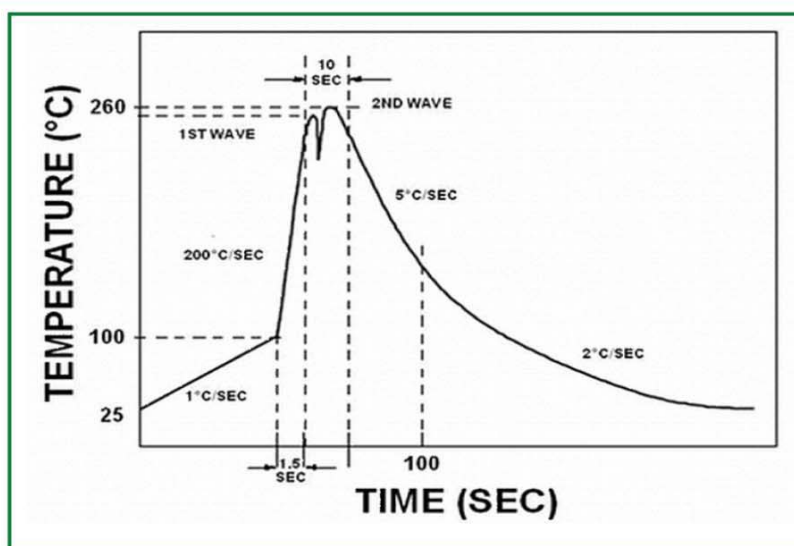
Electrical Specifications

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					
									UL	SP	S	UL	PS E	CE
MRF 50	50mA	11.9	0.73	250	(50mA - 6.3A / 35A @ 250VAC or 10 In) whichever is greater)	0.001	0.001	0.09	Y	Y	Y	Y		Y
MRF 63	63mA	8.5	0.66	250		0.001	0.001	0.10	Y	Y	Y	Y		Y
MRF 80	80mA	6.3	0.64	250		0.002	0.002	0.11	Y	Y	Y	Y		Y
MRF 100	100mA	4.0	0.49	250		0.003	0.003	0.11	Y	Y	Y	Y		Y
MRF 125	125mA	3.1	0.50	250		0.007	0.007	0.13	Y	Y	Y	Y		Y
MRF 160	160mA	2.3	0.46	250		0.016	0.016	0.21	Y	Y	Y	Y		Y
MRF 200	200mA	1.7	0.41	250		0.027	0.027	0.19	Y	Y	Y	Y		Y
MRF 250	250mA	0.42	0.17	250		0.023	0.023	0.23	Y	Y	Y	Y		Y
MRF 315	315mA	0.29	0.15	250		0.044	0.044	0.22	Y	Y	Y	Y		Y
MRF 400	400mA	0.21	0.14	250		0.073	0.072	0.28	Y	Y	Y	Y		Y
MRF 500	500mA	0.17	0.15	250		0.20	0.18	0.42	Y	Y	Y	Y		Y
MRF 630	630mA	0.10	0.08	250		0.15	0.14	0.16	Y	Y	Y	Y		Y
MRF 800	800mA	0.071	0.08	250		0.4	0.4	0.20	Y	Y	Y	Y		Y
MRF 1	1A	0.057	0.08	250		0.7	0.6	0.38	Y	Y	Y	Y	Y	Y
MRF 1.25	1.25A	0.047	0.081	250		1.3	1.2	0.69	Y	Y	Y	Y	Y	Y
MRF 1.6	1.6A	0.035	0.077	250		1.4	1.3	0.62	Y	Y	Y	Y	Y	Y
MRF 2	2A	0.028	0.075	250		2.1	2.0	0.72	Y	Y	Y	Y	Y	Y
MRF 2.5	2.5A	0.022	0.071	250		4	3	0.92	Y	Y	Y	Y	Y	Y
MRF 3.15	3.15A	0.016	0.064	250		6	4	0.82	Y	Y	Y	Y	Y	Y
MRF 4	4A	0.011	0.059	250		8	6	0.65	Y	Y	Y	Y	Y	Y
MRF 5	5A	0.010	0.056	250		15	11.8	0.91	Y	Y	Y	Y	Y	Y
MRF 6.3	6.3A	0.008	0.054	250		25	19.8	1.05	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 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.



Type MRF

Fast Acting Radial Lead Fuse Series

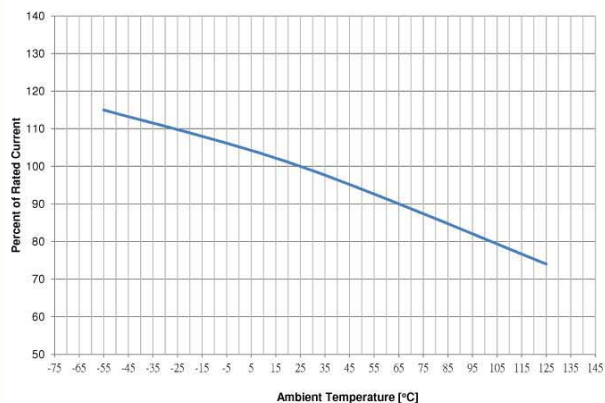
RoHS 6 Compliant



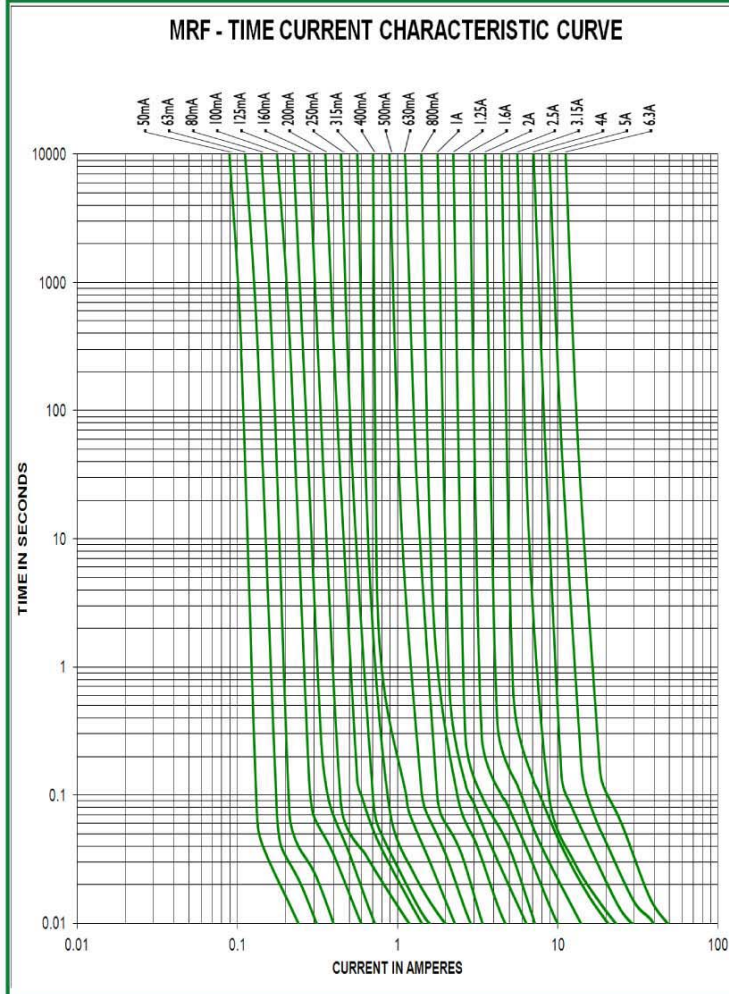
bel

MRF Apr2013C

Temperature Derating Curve



Average Time Current Curve



Environmental Specifications

Shock Resistance	MIL-STD-202G, Method 213B, Test Condition I (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 MRF

Fast Acting Radial Lead Micro Fuse Series

RoHS 6 Compliant



bel

MRF Apr2013D

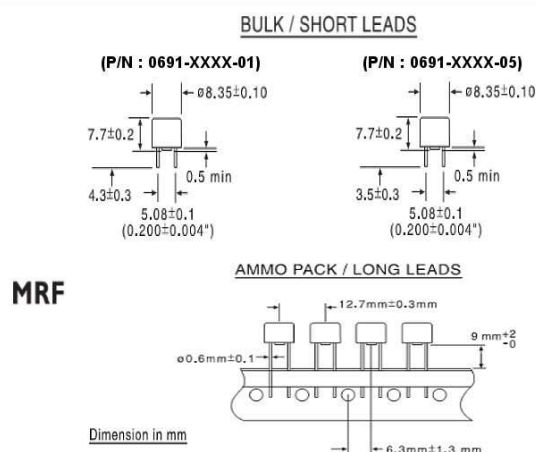
Fuse FGNO Explanation

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



Specifications subject to change without notice.

Ordering Information

FUSE TYPE
0691

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

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