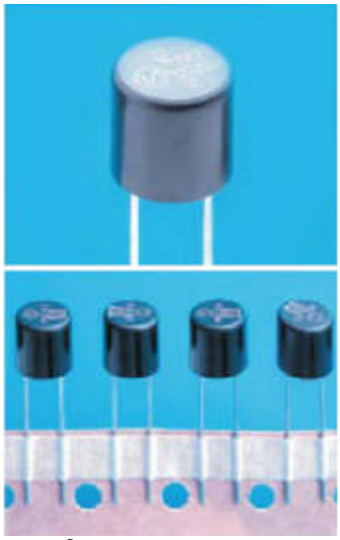
Type MRT

Time Lag Radial Lead Micro Fuse Series

HF Pb MRT Series — RoHS 2 Compliant



AEC-Q Compliant

Description

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

Features

- Time lag (250V AC)
- 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
- 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 = Pb
HALOGEN FREE = HF

Physical Specifications

Materials	Base and Cover : Black thermoplastic, UL 94-V0
	Pins : 100% Matte Tin Plated Copper
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 " RoHS ", " e "(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
80mA to 6.3A inclusive	1	hour	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.

Safety Agency Approvals

Safety Agency	Safety Agency Certificate	Voltage Rating (V)	Ampere Range / Volt @ I.R. ability*
	1812914	80mA-6.3A/ 250V ac	80mA-6.3A/250V ac@35A or 10 In whichever is greater
	139937		80mA-800mA/250V ac@35A 1A-4A/250V ac@100A
	40001000		5A-6.3A/250V ac@100A
	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

*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℃,20 sec)
Moisture Resistance	MIL-STD-202G, Method 202G, Method 106G
Operating Temperature	-55℃ to +125℃

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

Catalog Number	Ampere Rating	Typical Cold Resistance (ohms)	Volt-drop @100% In (Volt) max.	Voltage and Interrupting Ratings	Melting I²T <10 mSec (A² Sec)	Melting I²T @10 In (A² Sec)	Maximum Power Dissipation (W)	Agency Approvals						
MRT 80	80mA	3.5	0.398	See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings	0.01	0.01	0.10	Y	Y	Y	Y		Y	
MRT 100	100mA	2.3	0.329		0.02	0.02	0.11	Y	Y	Y	Y		Y	
MRT 125	125mA	1.6	0.295		0.04	0.04	0.13	Y	Y	Y	Y		Y	
MRT 160	160mA	1.1	0.252		0.07	0.06	0.15	Y	Y	Y	Y		Y	
MRT 200	200mA	0.73	0.200		0.12	0.11	0.17	Y	Y	Y	Y		Y	
MRT 250	250mA	0.55	0.188		0.38	0.41	0.19	Y	Y	Y	Y		Y	
MRT 315	315mA	0.36	0.152		0.60	0.66	0.22	Y	Y	Y	Y		Y	
MRT 400	400mA	0.25	0.129		0.90	1.0	0.25	Y	Y	Y	Y		Y	
MRT 500	500mA	0.18	0.114		1.5	1.7	0.29	Y	Y	Y	Y		Y	
MRT 630	630mA	0.13	0.109		2.4	2.6	0.33	Y	Y	Y	Y		Y	
MRT 800	800mA	0.095	0.103		3.7	4.2	0.38	Y	Y	Y	Y		Y	
MRT 1	1A	0.070	0.090		6	7	0.44	Y	Y	Y	Y		Y	Y
MRT 1.25	1.25A	0.053	0.087		9	11	0.51	Y	Y	Y	Y		Y	Y
MRT 1.6	1.6A	0.038	0.085		15	17	0.58	Y	Y	Y	Y		Y	Y
MRT 2	2A	0.029	0.084		23	27	0.67	Y	Y	Y	Y		Y	Y
MRT 2.5	2.5A	0.022	0.084		37	43	0.77	Y	Y	Y	Y		Y	Y
MRT 3.15	3.15A	0.017	0.074		58	69	0.88	Y	Y	Y	Y		Y	Y
MRT 4	4A	0.013	0.073		92	110	1.02	Y	Y	Y	Y		Y	Y
MRT 5	5A	0.010	0.073		145	175	1.17	Y	Y	Y		Y	Y	Y
MRT 6.3	6.3A	0.008	0.072		230	281	1.34	Y	Y	Y		Y	Y	

Consult manufacturer for other ratings

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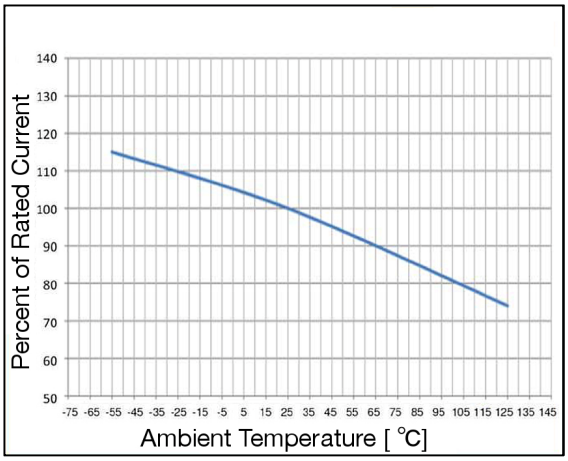
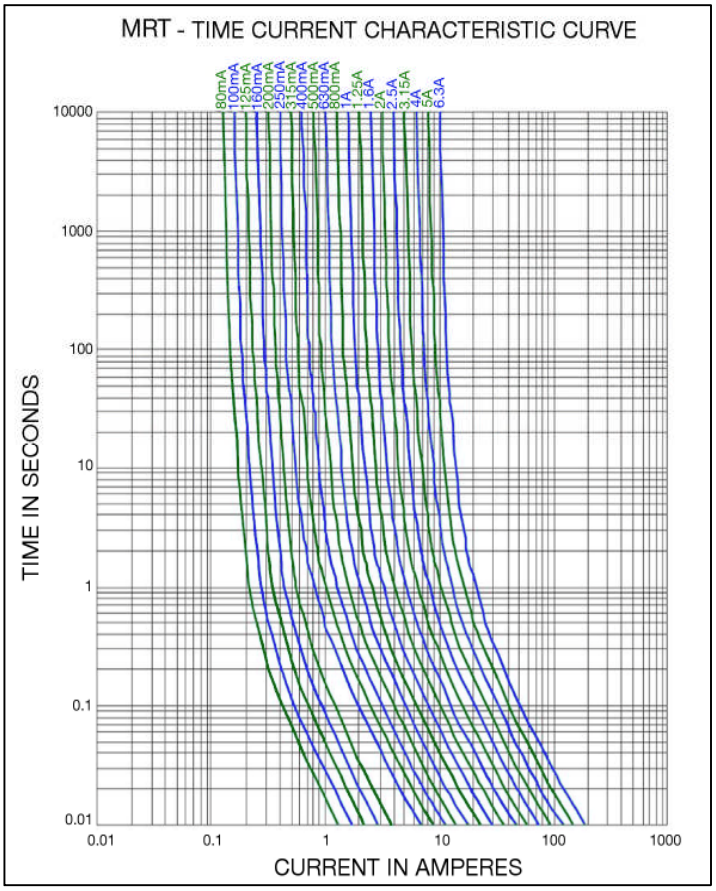
Temperature Derating Curve

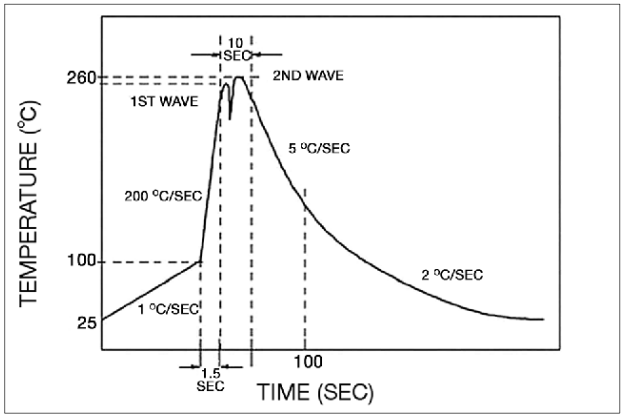


Average Time Current Curve



Soldering Parameters

Lead-free Wave Soldering Profile	
Wave Soldering Parameter	
Average ramp-up rate	200℃ / second
Heating rate during preheat	typical 1 - 2℃ / second Max 4℃ / second
Final preheat temperature	within 125℃ of soldering temperature
Peak temperature Tp	260℃
Time within +0℃ / -5℃ of actual peak temperature	10 seconds
Ramp-down rate	5℃ / second max.



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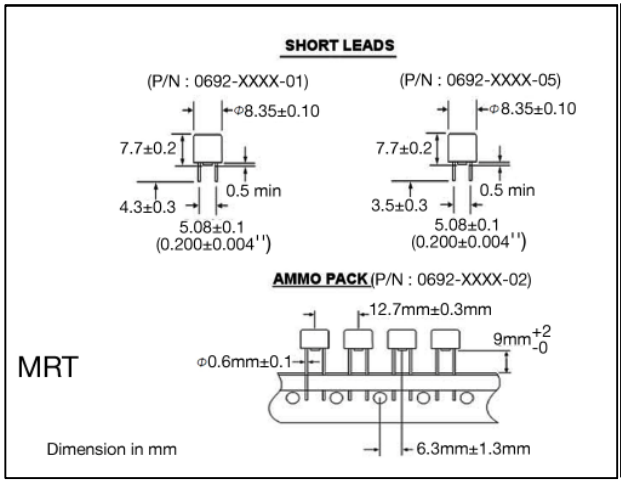
Fuse FGNO Explanation
0692 - [XXXX] X XX
0692=MRT; [XXXX]=Ampere Rating; XX=See Ordering Information as below

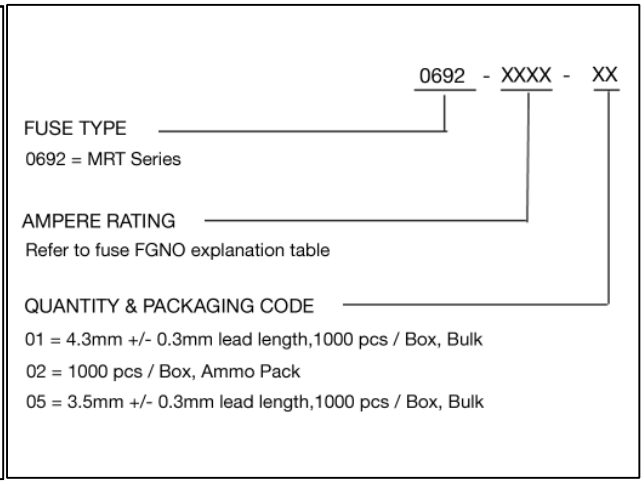
Fraction	Decimal	Milliamps	Bel FGNO[XXXX]
8/100	0.080	80	0080
1/10	.100	100	0100
1/8	.125	125	0125
	.160	160	0160
2/10	.200	200	0200
1/4	.250	250	0250
	.315	315	0315
4/10	.400	400	0400
1/2	.500	500	0500
	.630	630	0630
8/10	.800	800	0800

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



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

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