

# MDA

## 1/4" x 1-1/4" time delay ceramic fuse



Photo is representative

### Product features

- Ceramic tube time delay fuse
- 250 Vac/125 Vdc, 0.25 A to 30 A
- Compact 3AB footprint:  
1/4" x 1 1/4" (6.3 x 32 mm)
- Cartridge and axial lead versions available
- Fuse accessories (cartridge version):

<u>1Axxxx</u>	<u>HBH-I</u>	<u>HTB</u>	<u>HK</u>
<u>HKP</u>	<u>HBV-I</u>	<u>HGA</u>	<u>HTJ</u>
<u>HRK</u>	<u>HHB</u>	<u>HFA</u>	<u>HHK</u>
<u>HHN</u>	<u>HFB</u>	<u>HHJ</u>	<u>S-4000</u>

### Agency information

- UL Listed Card: MDA 1/4 A - 20 A (Guide JDYX, File E19180)
- UL Recognized Card: MDA 25 A - 30 A (Guide JDYX2, File E19180)
- CSA Certification Card: MDA 1/4 A - 20 A (Class No. 1422-01)
- CSA Component Acceptance: MDA 25 A - 30 A (Class No. 1422-30)



### Applications

Primary circuit protection:

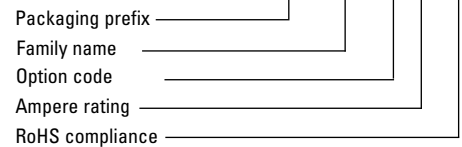
- LED and general lighting
- LED/LCD televisions
- Appliances and white goods
- Printers and peripherals
- Test equipment
- Uninterruptible power supplies (UPS)

### Environmental compliance



### Ordering part number

**BK-MDA-BV-30-R**



### Packaging prefix

#### Blank-

MDA-XXX-R: 5 pieces in tin tray.  
MDA-V-XXX-R, MDA-BV-XXX-R : 4 pieces in tin tray.

#### BK-

MDA-XXX-R, MDA-V-XXX-R, MDA-BV-XXX-R:  
100 pieces in a box.

#### TR-

MDA-V-XXX-R: 500 pieces on reel.

### Option code

#### -B

Board washable

#### -V

Axial leads



Powering Business Worldwide

### Electrical characteristics

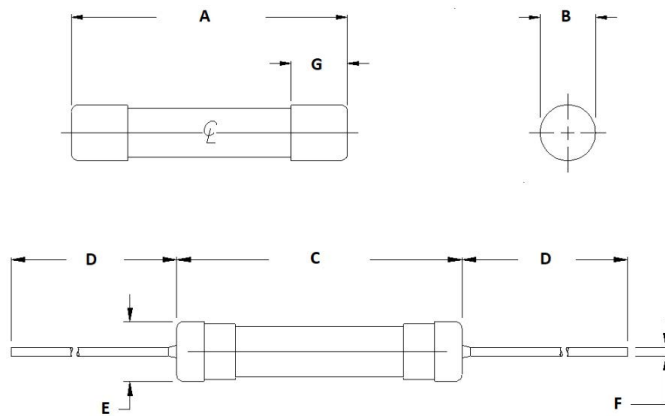
Rating	% Amp rating	Opening time
250 mA to 30 A	100%	4 hours
250 mA to 30 A	135%	60 minutes maximum
250 mA to 30 A	200%	120 seconds maximum

### Product specifications

Part number	Current rating (A)	Voltage rating (Vac)	Voltage rating (Vdc)	Interrupting rating @ rated voltage <sup>1</sup>	Typical resistance <sup>2</sup> (mΩ)	Typical voltage drop <sup>3</sup> (mV)	Typical melting <sup>4</sup> I <sup>2</sup> t (A <sup>2</sup> sec)
MDA-1/4-R	0.25	250	-	200 A @ 250 Vac, 10000 A @ 125 Vac	9100	2900	0.28
MDA-1/2-R	0.50	250	-	200 A @ 250 Vac, 10000 A @ 125 Vac	2600	1650	1.2
MDA-3/4-R	0.75	250	-	200 A @ 250 Vac, 10000 A @ 125 Vac	520	495	0.42
MDA-1-R	1.0	250	-	200 A @ 250 Vac, 10000 A @ 125 Vac	380	470	0.90
MDA-1-1/2-R	1.5	250	-	200 A @ 250 Vac, 10000 A @ 125 Vac	190	370	3.4
MDA-2-R	2.0	250	-	200 A @ 250 Vac, 10000 A @ 125 Vac	120	295	8.8
MDA-2-1/2-R	2.5	250	125	200 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	66	246	7.2
MDA-3-R	3.0	250	125	200 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	48	215	15.9
MDA-4-R	4.0	250	125	200 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	31	176	37.2
MDA-5-R	5.0	250	125	200 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	23	173	65
MDA-6-R	6.0	250	125	200 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	18	166	98.1
MDA-7-R	7.0	250	125	200 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	15	158	135
MDA-8-R	8.0	250	125	200 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	13	162	188
MDA-10-R	10	250	125	200 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	9.5	142	332
MDA-12-R	12	250	125	750 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	7.6	128	125.2
MDA-15-R	15	250	125	750 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	5.7	107	336.8
MDA-20-R	20	250	125	1500 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	4.1	95	483.5
MDA-25-R	25	250	125	1500 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	3.1	105	734.7
MDA-30-R	30	250	125	1500 A @ 250 Vac, 10000 A @ 125 Vac 10000 A @ 125 Vdc	2.5	110	1096.7

1. Interrupting ratings measured at 70% ~ 80% power factor on AC, (20 A and 30 A, 90% - 100% over factor on AC).
2. Typical resistance measured at <10% of rated current at +25 °C
3. Typical voltage drop measured at +25 °C and rated current
4. Typical melting: (< 10 A, I<sup>2</sup>t measured at 10 x rated current), (> 12 A, I<sup>2</sup>t measured at interrupting rating and rated voltage)

**Dimensions- mm**  
Drawing not to scale



**Cartridge**

Dimensions	Size
A	31.75 ± 0.79
B	6.35 ± 0.1
G	4.8 ref for 10 A and below 6.48 ref for above 10 A

**Axial lead**

Dimensions	Size
C	32.82 ± 0.79
D	38.1mm ref
E	6.76 ref
F	0.81 ± 0.05 for 15 A and below 1.02 ± 0.05 for 20 A and above

**General specifications**

Operating temperature: -55 °C to +125 °C with proper derating factor applied.

Mechanical shock test 1/4 A to 10 A: MIL-STD 202 method 213. Condition C

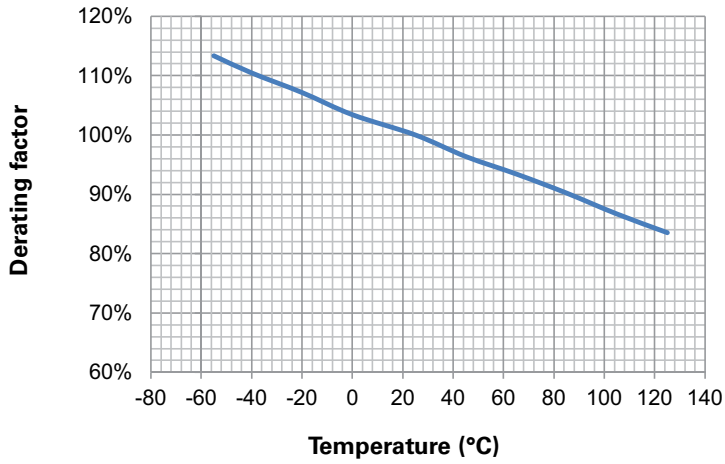
Mechanical shock test 12 A to 30 A: MIL-STD 202G method 213. Condition J

Vibration test 1/4 A to 30 A: MIL-STD-202 method 204, test condition C

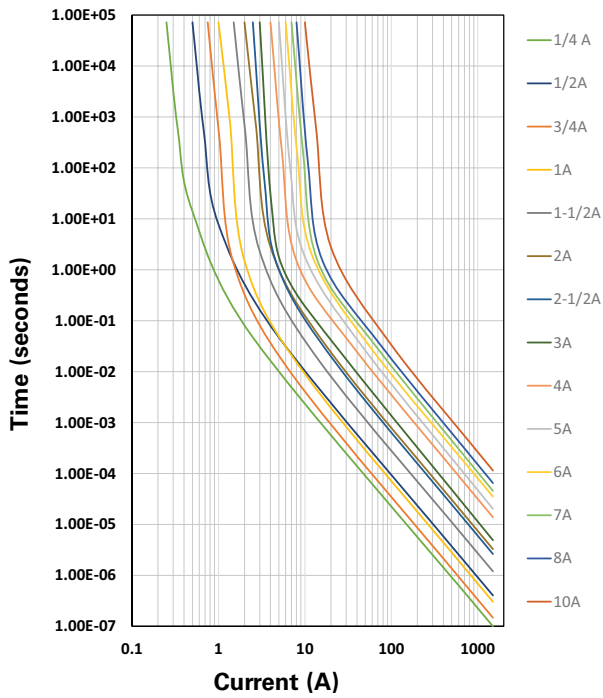
**Packaging information**

Packaging prefix	Description
Blank	MDA-XXX-R: 5 pieces in tin tray.
	MDA-V-XXX-R, MDA-BV-XXX-R: 4 pieces in tin tray.
BK-	MDA-XXX-R, MDA-V-XXX-R, MDP-BV-XXX-R: 100 pieces in a box.
TR-	MDA-V-XXX-R: 500 pieces on reel.

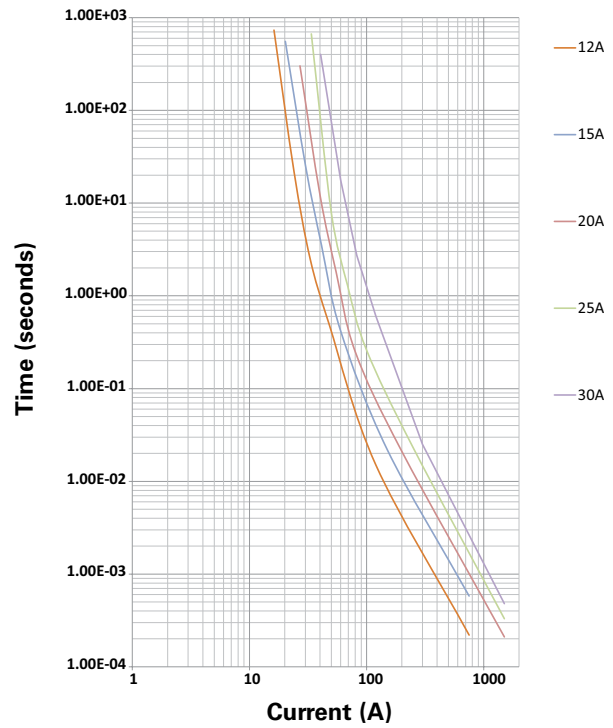
**Temperature derating curve**



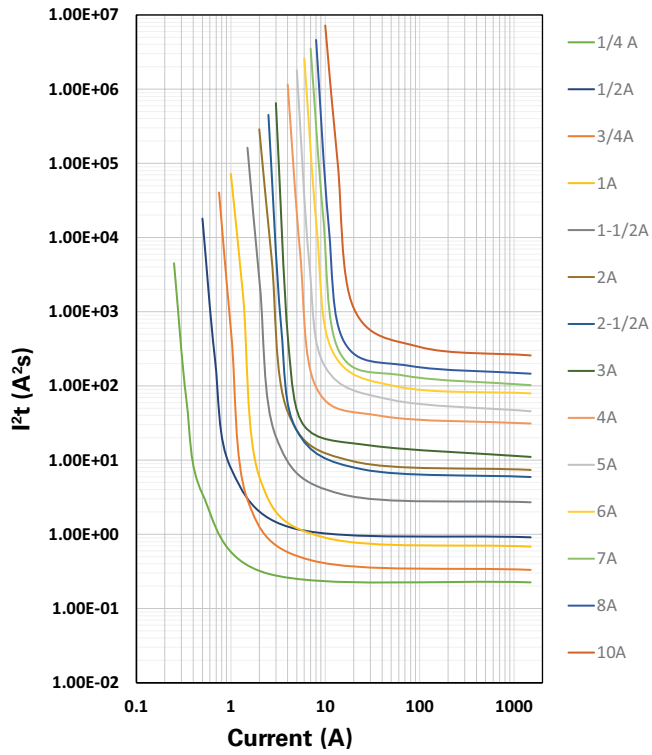
**Current vs. time curve**



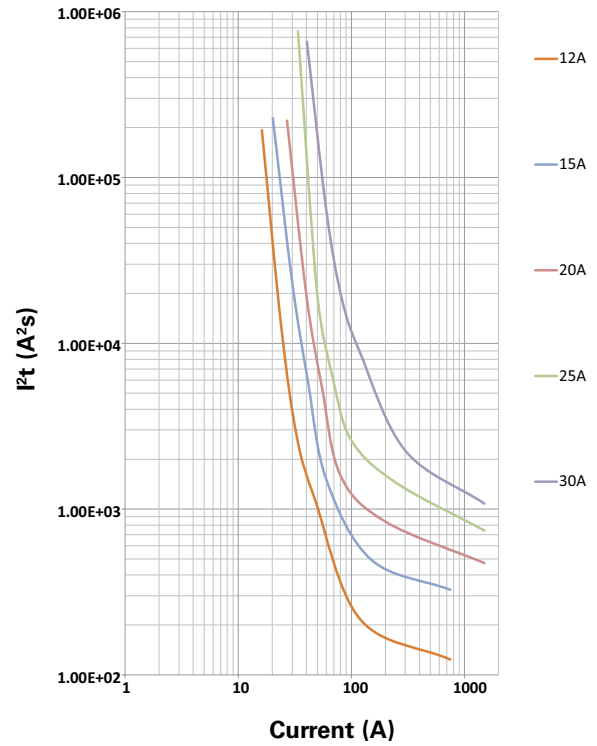
**Current vs. time curve**



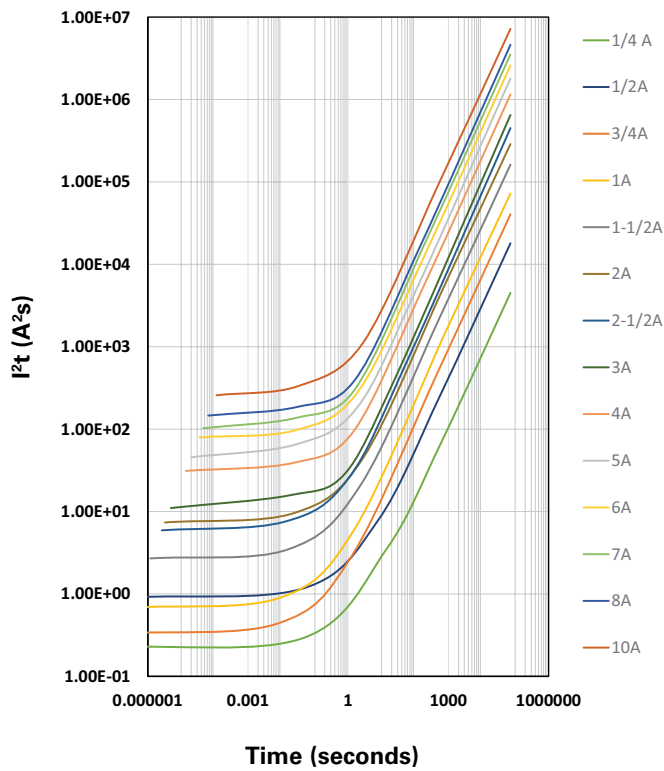
I<sup>2</sup>t vs. current curve



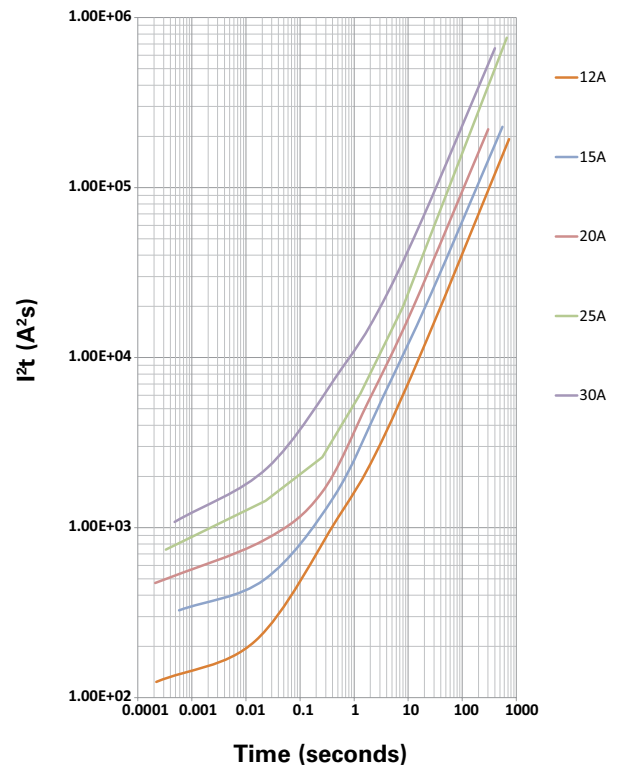
I<sup>2</sup>t vs current curve



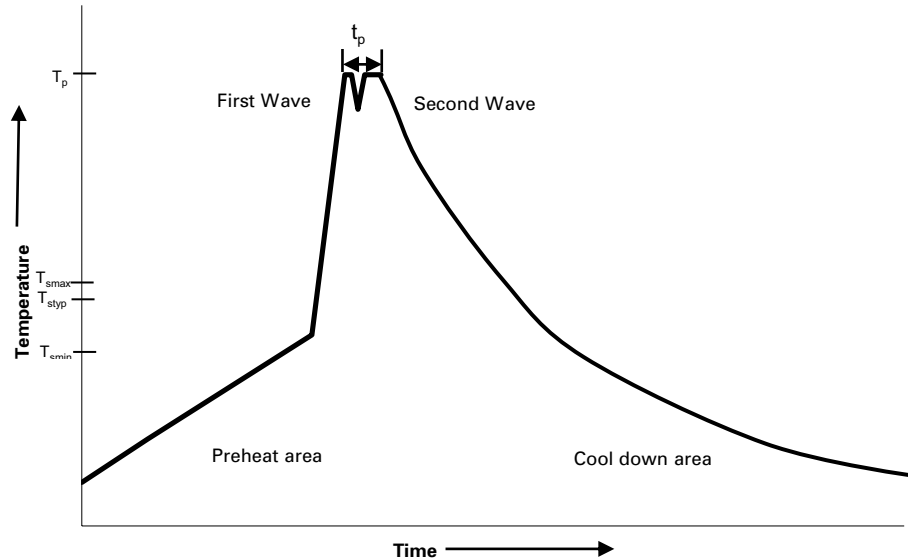
I<sup>2</sup>t vs. time curve



I<sup>2</sup>t vs time curve



**Wave solder profile--(axial lead version only)**



**Reference EN 61760-1:2006**

Profile feature		Standard SnPb solder	Lead (Pb) free solder
Preheat	• Temperature min. ( $T_{smin}$ )	100 °C	100 °C
	• Temperature typ. ( $T_{styp}$ )	120 °C	120 °C
	• Temperature max. ( $T_{smax}$ )	130 °C	130 °C
	• Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	70 seconds	70 seconds
$\Delta$ preheat to max Temperature		150 °C max.	150 °C max.
Peak temperature ( $T_p$ )*		235 °C – 260 °C	250 °C – 260 °C
Time at peak temperature ( $t_p$ )		10 seconds max 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate		~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~5 K/s max
Time 25 °C to 25 °C		4 minutes	4 minutes

**Manual solder**

+350 °C (4-5 seconds by soldering iron), generally manual/hand soldering is not recommended

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