

S520

5 mm x 20 mm Fast-acting ceramic tube fuses



Product features

- 5 mm x 20 mm physical size
- Fast-acting ceramic tube
- 420 Vac rating
- Nickel/silver plated brass end construction
- Available in cartridge and axial lead

Environmental compliance



Applications

- Data center server power supplies
- Intelligent commercial buildings
- Telecom power supplies
- High-energy and power efficient applications (3-phase power supplies, inverters, and ballasts)

Agency information

- UR Recognition (Pending)
- TUV (Pending)

Catalog symbol

- See page 4 for ordering codes

	<u>BK/</u>	<u>S520-</u>	<u>V-</u>	<u>12-5 -</u>	<u>R</u>
Packaging prefix	_____	_____	_____	_____	_____
Product code	_____	_____	_____	_____	_____
Option code	_____	_____	_____	_____	_____
Ampere rating	_____	_____	_____	_____	_____
RoHS compliant	_____	_____	_____	_____	_____

Packaging prefix

- Blank 5 pieces in one case (5 in tin, only for cartridge version)
- BK/ 100 pieces packed into a cardboard carton
- BK1/ 1000 pieces packed into a polybag (only cartridge version)
- TR2/ 1500pcs in one reel (only for axial lead version)

Option code

- -V- (Axial leads - copper tinned wire with nickel-plated brass end caps)

Electrical characteristics

I_n	$1.0I_n$ min hours	$2.1I_n$ max minutes	$2.75I_n$ min seconds	$2.75I_n$ max seconds	$4.0I_n$ min seconds	$4.0I_n$ max seconds	$10I_n$ max ms
8 A to 20 A	1	30	0.04	20	0.01	1	30

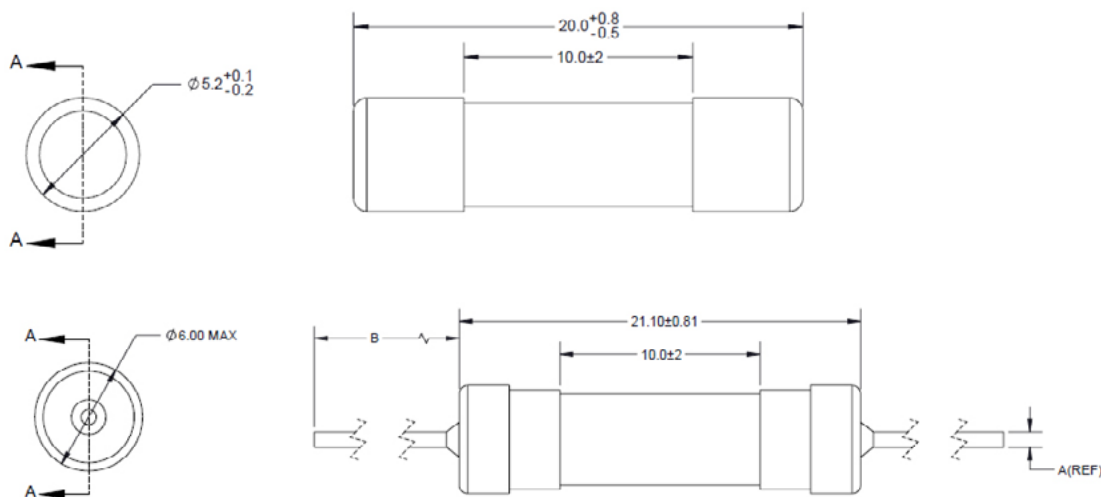
Product specifications

Part number ⁵ Cartridge	Axial lead	Current rating (A)	Voltage rating (Vac)	Interrupting rating ⁴ at 420/250 Vac (A)	Typical DC cold resistance ¹ (mΩ)	Typical melting ² I^2t (A ² s)	Typical voltage drop ³ (mV)
S520-8-R	S520-V-8-R	8	420	200/1500	9	104	102
S520-10-R	S520-V-10-R	10	420	200/1500	8	155	111
S520-12-5-R	S520-V-12-5-R	12.5	420	300/1500	8.1	160	180
S520-15-R	S520-V-15-R	15	420	300/1500	6.8	220	195
S520-16-R	S520-V-16-R	16	420	300/1500	6.1	280	200
S520-20-R	S520-V-20-R	20	420	300/1500	5	420	205

1. Typical DC cold resistance measured at <10% of rated current
2. Typical I^2t measured at $10I_n$ and rated voltage
3. Typical voltage drop measured at +20 °C at rated current
4. PF=1 for 420 Vac, PF= 0.7 to 0.8 for 250 Vac

5. Part Number Definition: S520--x-xxx-R
S520 = Product code
x= Use "V" code for axial lead, leave blank for cartridge
xxx = Ampere rating
-R suffix = RoHS compliant

Dimensions--mm



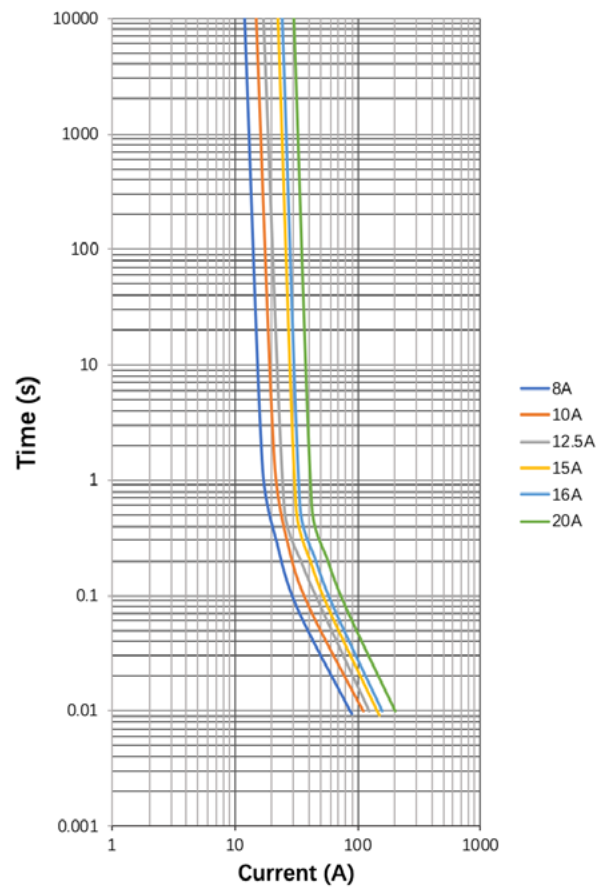
Dimension A (ref):

0.80 mm for 8 A to 10 A
1.00 mm for 12.5 A to 16 A
1.20 mm for 20 A

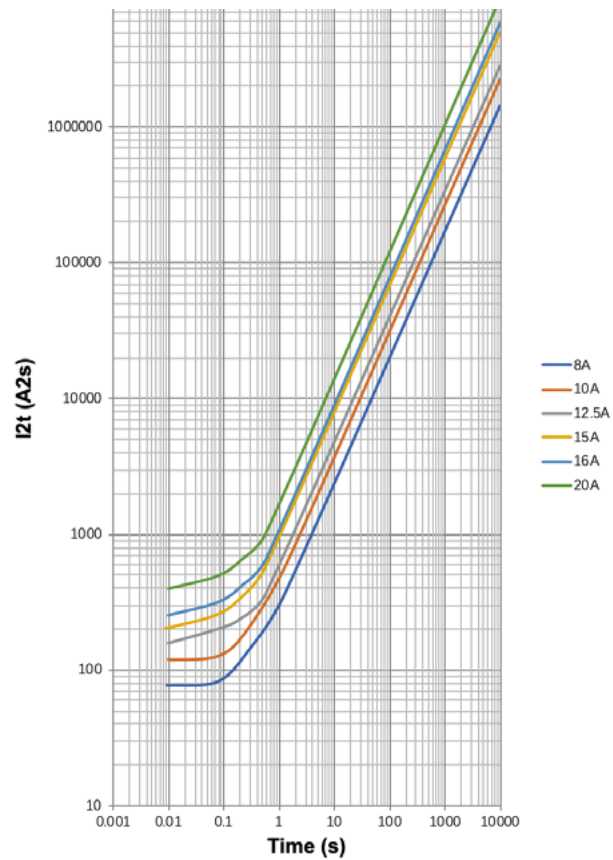
Dimension B:

(BK) packaging- 38.1 ± 0.38 mm
(TR2) packaging- 15.8 ± 2 mm

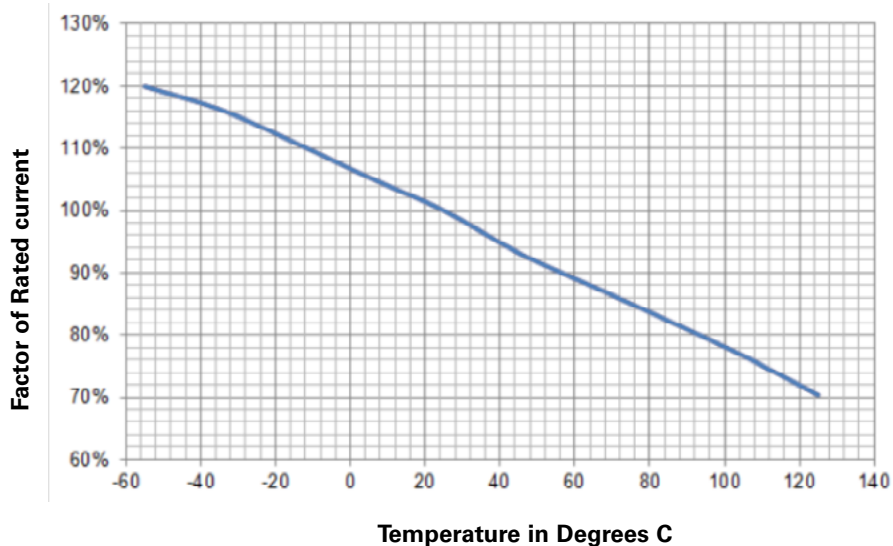
Time vs. current curve



I²t vs. time curve



Temperature derating curve



General specifications

Operating temperature: -55 °C to +125 °C (with derating)

Storage temperature: -55 °C to +125 °C

Humidity Test: MIL-STD-202G Method 103B, 85% ±2% relative humidity @ +85 ±2 °C, 72 hours

Thermal shock: MIL-STD-202G Method 107G air-to-air, -55 °C -125 °C, 100 cycles

Mechanical shock: MIL-STD-202G Method 213 A, 50 g, 11 ms

Vibration: MIL-STD-202, Method 204D, condition D, 20 g, 10 - 500 Hz

Solderability: J-STD-002, Method A1

Resistance to solder: MIL-STD-202, Method 210, +260 °C, 10 s

Terminal strength: 10 N

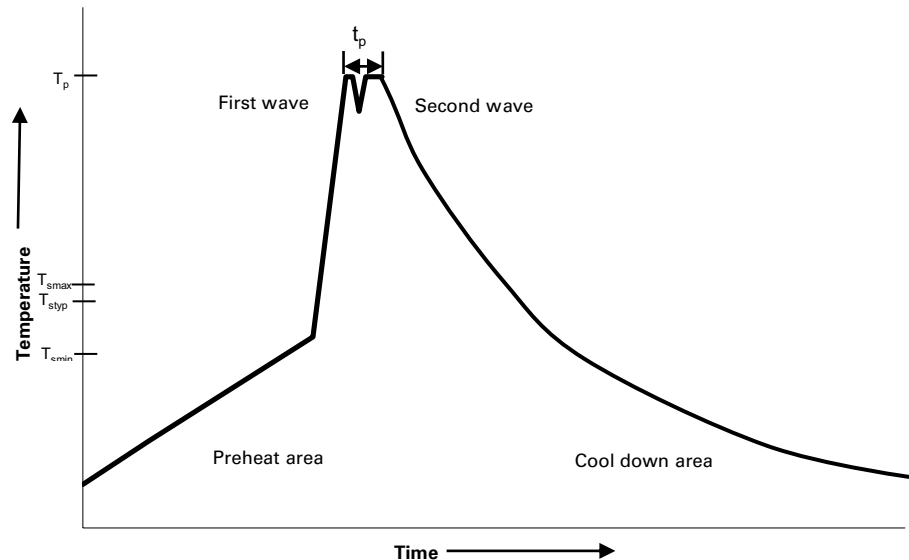
Ordering Codes

The ordering code is the Catalog part number replacing the "/" and "." with a "-"

When using the -V option code, the parentheses "(" ")" are not used.

Catalog part number	Order part number	Catalog part number	Order part number
BK/S520(-V)-8-R	BK-S520(-V)-8-R	S520-8-R	S520-8-R
BK/S520(-V)-10-R	BK-S520(-V)-10-R	S520-10-R	S520-10-R
BK/S520(-V)-12.5-R	BK-S520(-V)-12.5-R	S520-12.5-R	S520-12.5-R
BK/S520(-V)-15-R	BK-S520(-V)-15-R	S520-15-R	S520-15-R
BK/S520(-V)-16-R	BK-S520(-V)-16-R	S520-16-R	S520-16-R
BK/S520(-V)-20-R	BK-S520(-V)-20-R	S520-20-R	S520-20-R
BK1/S520(-V)-8-R	BK1-S520(-V)-8-R	TR2/S520-V-8-R	TR2-S520-V-8-R
BK1/S520(-V)-10-R	BK1-S520(-V)-10-R	TR2/S520-V-10-R	TR2-S520-V-10-R
BK1/S520(-V)-12.5-R	BK1-S520(-V)-12.5-R	TR2/S520-V-12.5-R	TR2-S520-V-12.5-R
BK1/S520(-V)-15-R	BK1-S520(-V)-15-R	TR2/S520-V-15-R	TR2-S520-V-15-R
BK1/S520(-V)-16-R	BK1-S520(-V)-16-R	TR2/S520-V-16-R	TR2-S520-V-16-R
BK1/S520(-V)-20-R	BK1-S520(-V)-20-R	TR2/S520-V-20-R	TR2-S520-V-20-R

Wave solder profile (Axial lead 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
Δ 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

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics

© 2020 Eaton
All Rights Reserved
Printed in USA
Publication No. 10707 BU-MC17042
October 2020

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Follow us on social media to get the latest product and support information.

