

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: File: E19180, Guide: JDYX2
- TUV: T 50484820 02

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

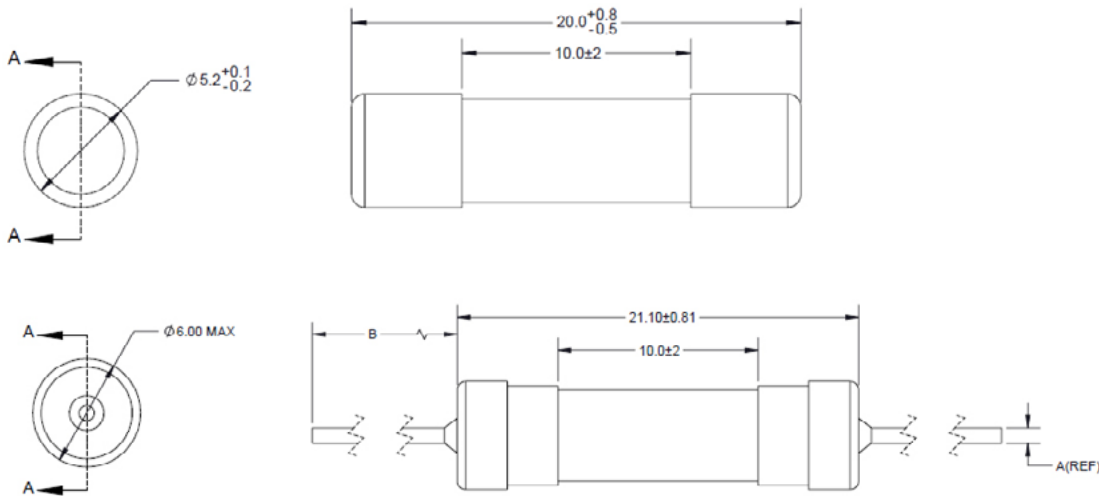
Product specifications

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



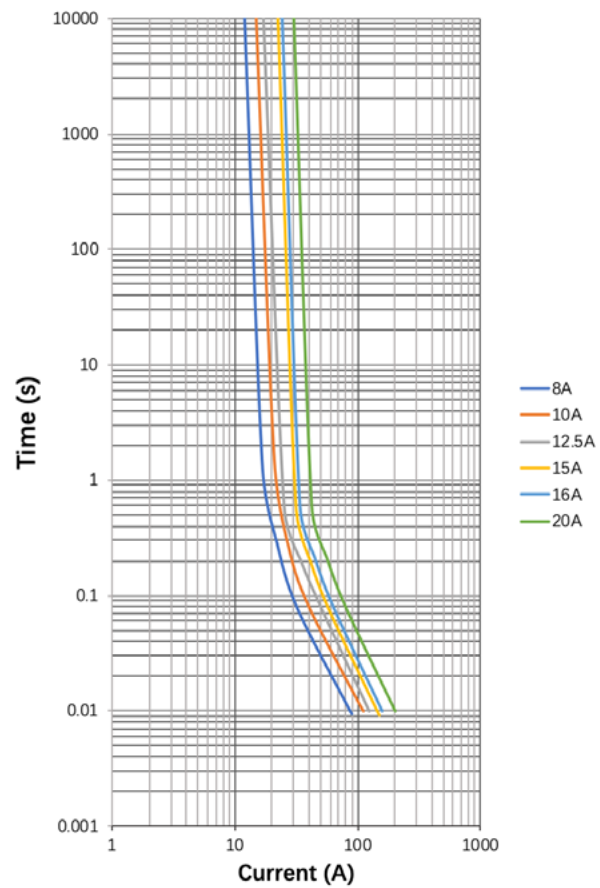
Dimension A (ref):

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

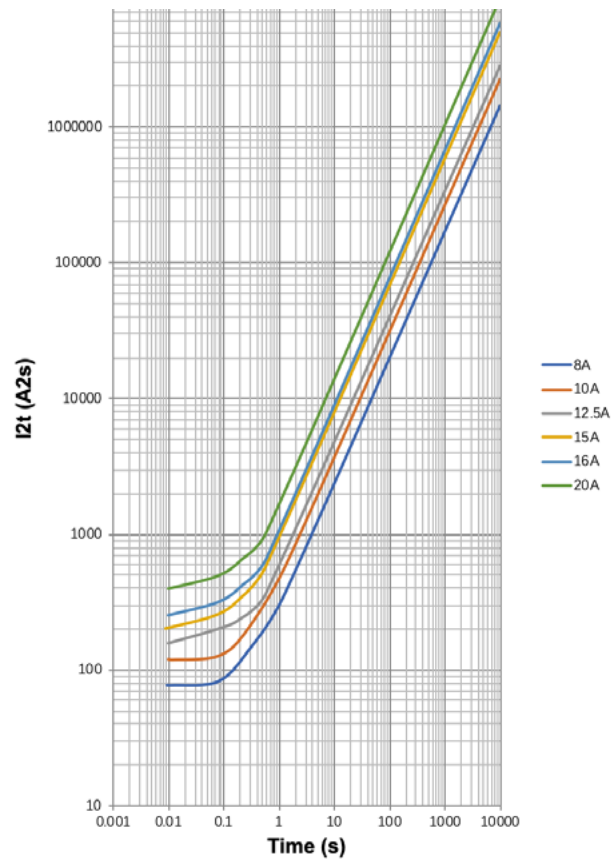
Dimension B:

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

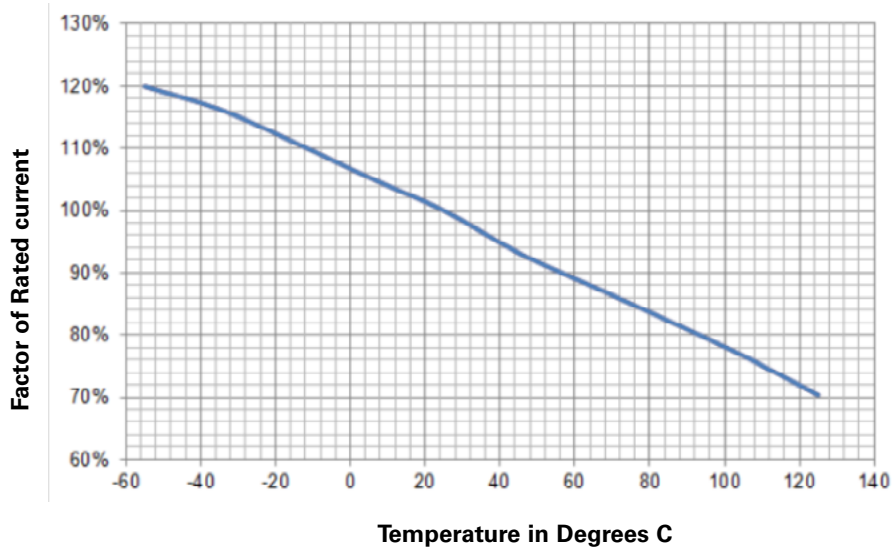
Time vs. current curve



I^2t vs. time curve



Temperature derating curve



General specifications

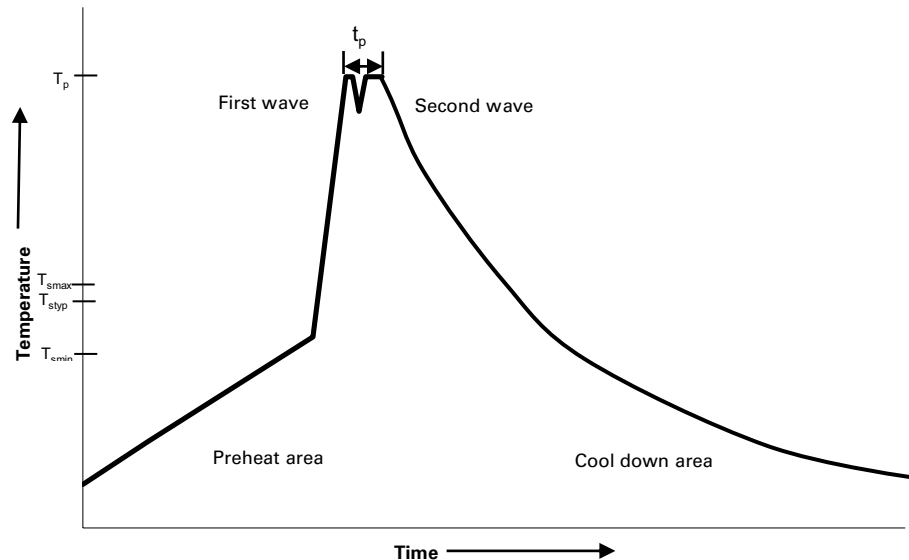
Operating temperature: -55 °C to +125 °C (with derating)
Storage temperature: -55 °C to +125 °C
Humidity Test: MIL-STD-202G Method 103B, 85% ±2% relative humidity @ +85 ±2 °C, 72 hours
Thermal shock: MIL-STD-202G Method 107G air-to-air, -55 °C -125 °C, 100 cycles
Mechanical shock: MIL-STD-202G Method 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

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