



贝特卫士®

更好的电路安全卫士!
You build electronics, We safeguard them!

承 认 书

APPROVAL SHEET

编 号 No.	5211500200-C/1-B
日期 Date	2022.11.16

客 户 Customer	
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品 名 Product	5*20 Miniature Cartridge Fuse
系 列 Series	521 Series

料号 Part No.	规格描述 Specification	备注 Remark
贝特电子 Betterfuse	Φ5.2*20mm Glass tube, Low BC, Fast-Acting current fuse 250VAC	
客 户 Customer		

环保特别提示 Special instructions for environmental protection
本产品:

供应商-贝特电子 Supplier-Betterfuse	零件承认章 Approval Signet	客 户 Customer	零件承认章 Approval Signet
制 作 Make			
审 核 Check			
确 认 Approval			

联络 Contact			
业务 Sales	电话 Telephone	手机 Cellphone	邮箱 E-mail
零件承认后敬请回签一份给我司留存, 或将承认后的封面传真 (0769-8352 1857) 至我司, 谢谢!			



Document Record

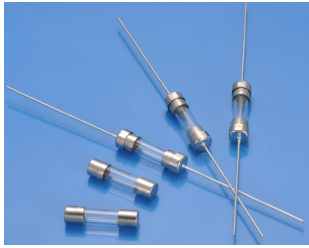
NO.	Date	Modified Content	Page	Edition	Prepared/modified by	Checked by
1	2012.10.25	Draft	8	A/0	Runsong Zhong	Lianghua Guo
2	2014.07.25	Release Edition	8	A/1	Kings Luo	Wenhua Yan
3	2015.05.05	Lead standard length:38mm change as 30mm	4	A/2	Kings Luo	Wenhua Yan
4	2015.06.25	Add UR certification	7	A/3	Jeffery	Gem Guo
5	2015.07.30	Update UR certification		A/4	Jeffery	Gem Guo
6	2015.12.12	Update the PSE certification and add the packaging code for 15.	5	A/5	Jeffery	Lin Gao
7	2016.05.17	Add the 12.5A、16A current and CQC certification	4,5,7,8	B/0	Jeffery	Wenhua Yan
8	2016.08.11	Update the VDE certification		B/1	Jeffery	Helge
9	2017.01.05	Update CCC certification		B/2	J.Q.	Fei Gao
10	2018.12.26	Add 400mA、1.25A、1.5A、3A、7A IT Curve	6	B/3	Xiong Xiang	Fei Gao
11	2020.02.20	Update content		B/4	YaLan Wang	Fei Gao
12	2020.07.30	Update content		B/5	YaLan Wang	Fei Gao
13	2021.05.21	Correct approval of PSE	3	C/0	Wenshan Chen	Fei Gao
14	2022.11.16	Update PSE certification No.	3	C/1	Wenshan Chen	Fei Gao
15						

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1. SCOPE AND DESCRIPTION



Following electronic product specifications apply to fuses of the 521 series. The 521 series is a Cartridge Fuse-link for over-current protection.

With its low breaking capacity, the 521 series is ideal for supplementary protection in electrical appliances and equipment to provide excellent protection for components or circuits.

2. GENERAL INFORMATION

General Description

521 series fast-acting fuse with low breaking capacity for use with printed circuit boards is used in a large variety of applications. This $\Phi 5\text{mm} \times 20\text{mm}$ device is constructed of a glass tube with electro-plated brass end caps. The 521 series with 250 VAC rating and 100 Ampere breaking capacity, offers excellent quality and is 100% tested for cold resistance and precise length.

Detailed Features

- Miniature fuse with fast-acting, low breaking capacity
- $\Phi 5\text{mm} \times 20\text{mm}$ physical dimensions
- Glass tube, encapsulated design with nickel - plated brass end caps
- Protection against harmful over-currents in primary and secondary applications
- Lead-free, Halogen-free, RoHS compliant
- Designed compliant to IEC 60127-2/ II

3. AGENCY APPROVALS

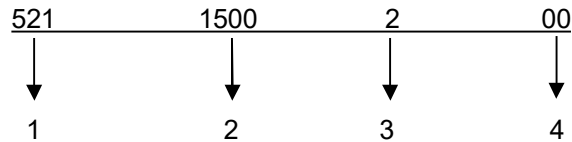
Agency	Agency File Number	Voltage / Current Rating
	E300003	125V AC/250V AC:315mA~10A
	40022236	250V AC:315mA;500mA;630mA;;800mA;1A;1.25A;1.6A;2A;2.5A;3.15A;4A;5A;6.3A;8A;10A 125V AC:8A;10A
	CQC07012021314 CQC16012142391	250V AC:8A;10A 250V AC:12.5A;16A
	2020970207000031 2020970207000053	250V AC:400mA 250V AC:315mA;500mA;630mA;800mA;1A;1.25A;1.6A;2A;2.5A;3.15A;4A;5A;6.3A
	PSE22022275 PSE22022273 PSE20021671 PSE22022274	250V AC:1A;1.25A;1.6A;2A;2.5A;3.15A;4A;5A 250V AC:6.3A 250V AC:8A;10A 125V AC:8A;10A



4. PART NUMBERING SYSTEM

4.1 Part Number

Example: 5211500200



1 Product Series 521
2 Ampere Rating 5A (see table 4.3 below)
3 Max. Voltage Rating 2 – 250V
4 Supplementary Code See table 4.2 below

4.2 Supplementary Code Table

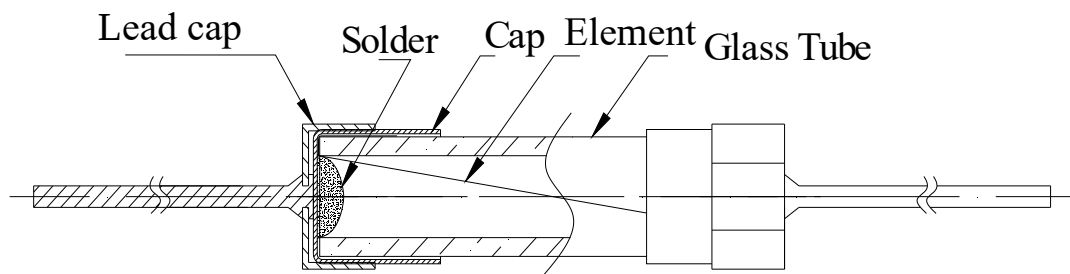
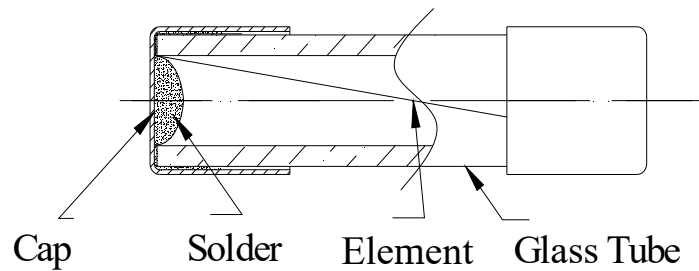
CODE	DESIGNATION
00	Normal product
01	Octangular cap $\Phi 0.65\text{mm}$
02	Round Cap $\Phi 0.65\text{mm}$
03	Octangular cap $\Phi 0.8\text{mm}$
04	Round Cap $\Phi 0.8\text{mm}$
05	Octangular cap $\Phi 1.0\text{mm}$
06	Round Cap $\Phi 1.0\text{mm}$
15	Special requirements to use winding production

4.3. Current / Voltage Rating Table

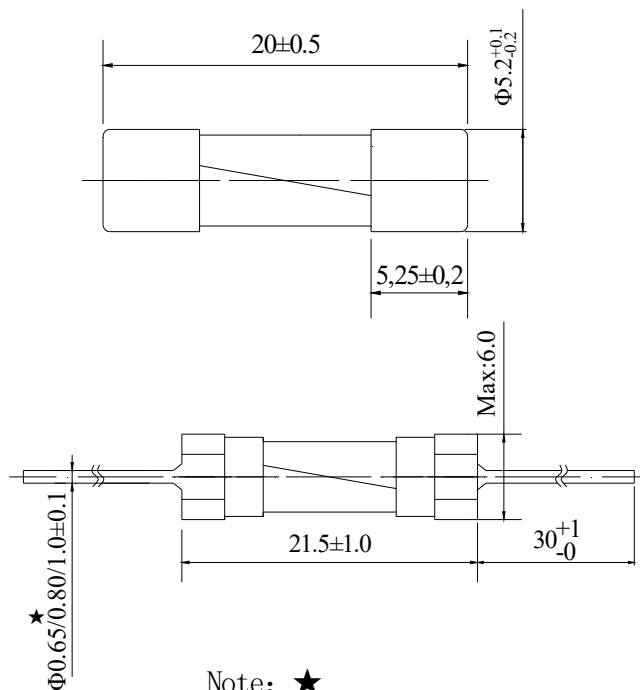
AMP CODE	CURRENT RATING	VOLTAGE RATING
0250	250mA	125 / 250V AC
0315	315mA	125 / 250V AC
0400	400mA	125 / 250V AC
0500	500mA	125 / 250V AC
0630	630mA	125 / 250V AC
0800	800mA	125 / 250V AC
1100	1.00A	125 / 250V AC
1125	1.25A	125 / 250V AC
1150	1.50A	125 / 250V AC
1160	1.60A	125 / 250V AC
1200	2.00A	125 / 250V AC
1250	2.50A	125 / 250V AC
1300	3.00A	125 / 250V AC
1315	3.15A	125 / 250V AC
1400	4.00A	125 / 250V AC
1500	5.00A	125 / 250V AC
1630	6.30A	125 / 250V AC
1700	7.00A	125 / 250V AC
1800	8.00A	125 / 250V AC
2100	10.00A	125 / 250V AC
2125	12.50A	125 / 250V AC
2160	16.00A	125 / 250V AC



5. MECHANICAL SPECIFICATIONS



Dimensions (unit: mm)



Note: ★

250mA~7.00A: Φ 0.65mm

8.00A~12.50A: Φ 0.80mm

16.00A: Φ 1.00mm

Operating Temperature:

-55°C to +125°C

Storage Conditions:

+10°C to +60°C

Relative humidity: ≤ 75% yearly average
without dew, maximum 30 days at 95%

Vibration Resistance:

120 cycles in 1 direction at 1 min. each

10-55Hz, 3 directions(X, Y, Z) in total

According to MIL-STD-202 Method 201A



6. ELECTRICAL SPECIFICATIONS

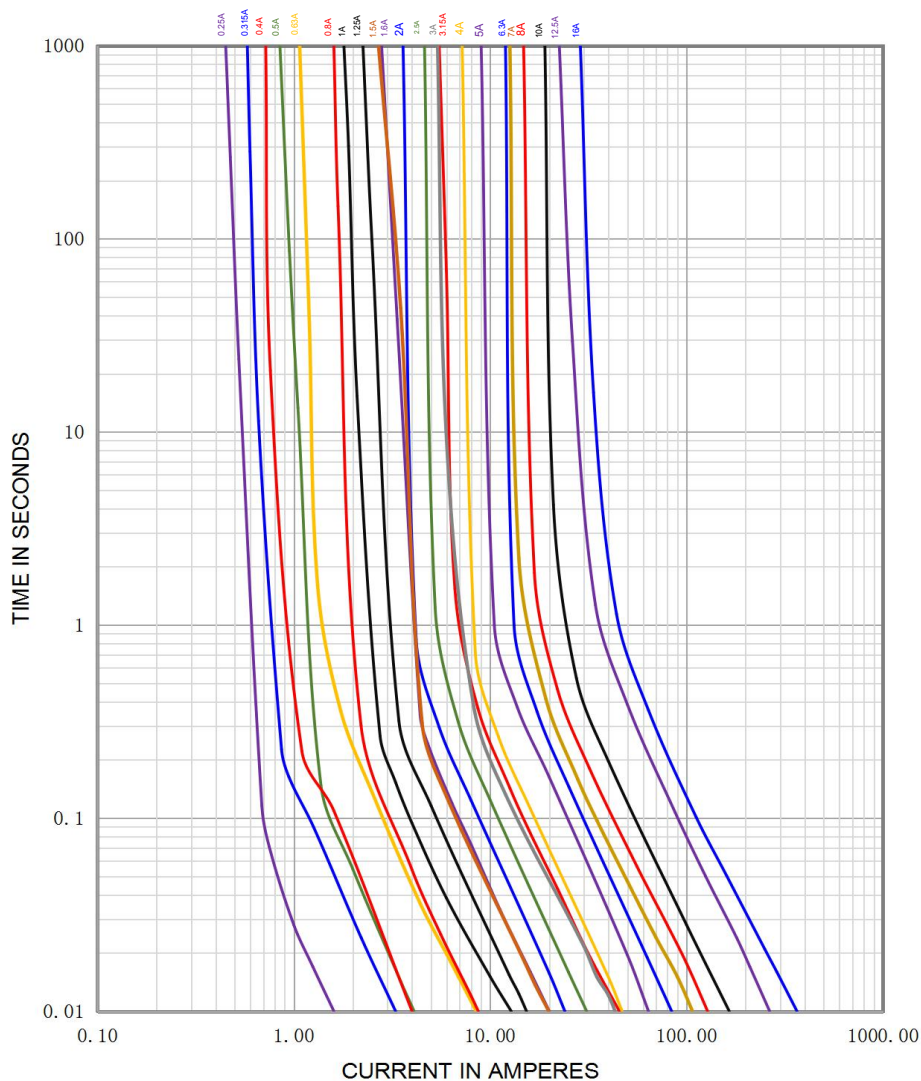
Time vs Current Characteristics Table

(measured with constant current power supply)

Time vs Current Characteristics: IEC 60127-2/ II					
Rated Current	150%	210%	275%	400%	1000%
250mA~6.3A	>1h	<30min	50ms~2s	10ms~300ms	≤20ms
8A~10A	>1h	<30min	50ms~2s	10ms~400ms	≤40ms
12.5A~16A	>30min	<30min	50ms~3s	10ms~600ms	≤80ms

Average Time Current (I-T) Curves

Average Current Curve(I-T Curve)



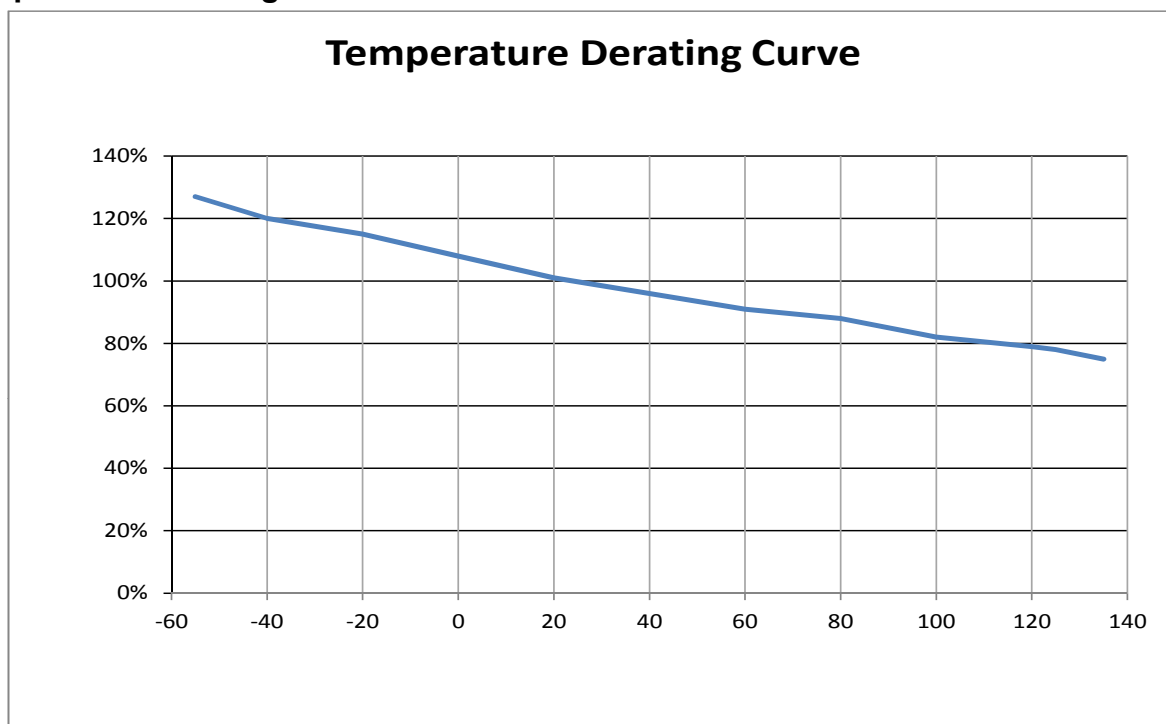


Electrical characteristics

Electrical Characteristics at 25°C												
Amp Code	Rated Current	Rated Voltage	Voltage Drop Max(mV)	Max Power Dissipation (W)	Typical Cold Resistance (mΩ)	Nominal Melting I²T (A²sec)	Breaking Capacity	Approvals				
								cURus	CQC	VDE	PSE	CCC
0250	250mA	125V AC 250V AC	1400	1.6	570	0.026	10KA/125V AC 100A/250V AC	○	○	○	○	○
0315	315mA		1300	1.6	860	0.109		●	○	●	○	●
0400	400mA		1200	1.6	540	0.240		●	○	○	○	●
0500	500mA		1000	1.6	220	0.168		●	○	●	○	●
0630	630mA		650	1.6	285	0.723		●	○	●	○	●
0800	800mA		240	1.6	120	0.757		●	○	●	○	●
1100	1.00A		200	1.6	101	1.64		●	○	●	●	●
1125	1.25A		200	1.6	65.0	2.56		●	○	●	●	●
1150	1.50A		190	1.6	51.47	3.76		●	○	○	○	○
1160	1.60A		190	1.6	50.35	4.00		●	○	●	●	●
1200	2.00A		170	1.6	40.65	5.76		●	○	●	●	●
1250	2.50A		170	1.6	30.00	9.61		●	○	●	●	●
1300	3.00A		150	2.5	25.00	13.9		●	○	○	○	○
1315	3.15A		150	2.5	24.00	20.7		●	○	●	●	●
1400	4.00A		130	2.5	17.60	22.1		●	○	●	●	●
1500	5.00A		130	2.5	13.50	41.0		●	○	●	●	●
1630	6.30A		130	2.5	10.60	70.6		●	○	●	●	●
1700	7.00A		130	2.5	9.48	106		●	○	○	○	○
1800	8.00A		130	4	7.50	164		●	●	●	●	○
2100	10.00A		130	4	6.30	272		●	●	●	●	○
2125	12.50A		100	6	3.80	702		○	●	○	○	○
2160	16.00A		100	6	3.10	1332		○	●	○	○	○

- Note:** (1) Permissible continuous operating current is 100% at ambient temperature of 23°C (73.4°F)
 (2) The cURus certification by 125V and 250V; the VDE certification with 8A~10A by 125V and 250V; the others certification by 250V.
 (3) The current values used for calculating I²T should be within the standard range of 8ms ~ 10ms.

Temperature Derating Curve



$$\text{Calculation for ideal fuse selection} = \frac{\text{Operating Current (A)}}{\text{Rating (\%} \times 0.75)}$$



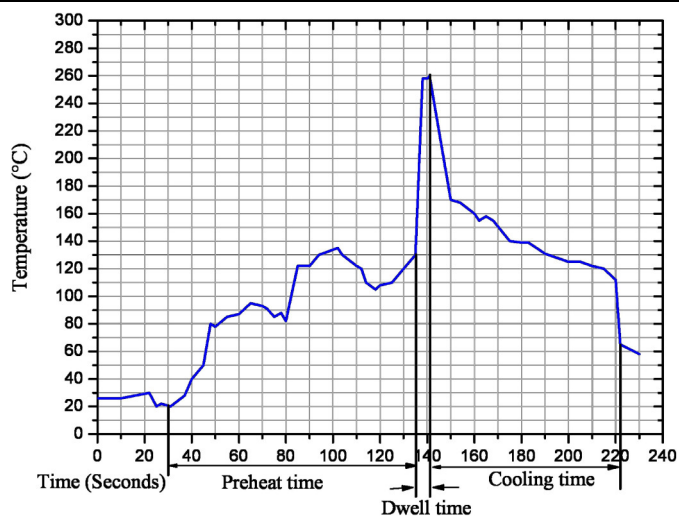
7. SOLDERING PARAMETERS

260°C. ≤5 sec (Wave Soldering)

350°C. ≤3 sec (Hand Soldering)

Soldering Peak:

260°C - 10 sec (IEC 60068-20)



8. ORDERING INFORMATION

The following information are necessary in order to place your order with us correctly:

Series	Amp Code	Supplementary Code	Qty
521			

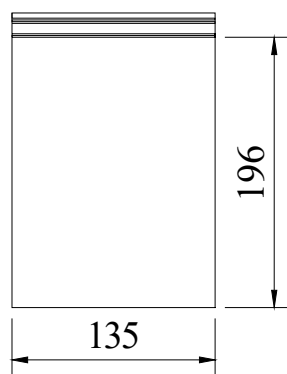


9. PACKING INFORMATION

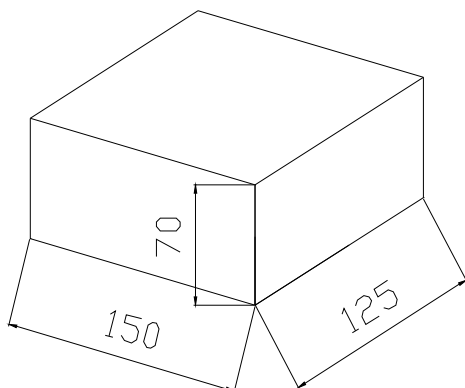
Packing details

Unit:mm

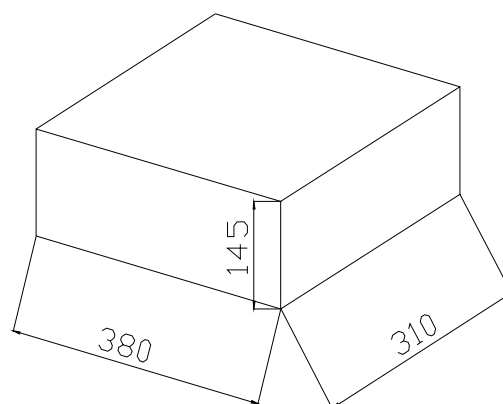
Plastic bag



Inner Box



Master Carton



Net Weight (pcs/bag)		Inner box weight		Master Carton Weight	
Qty per bag	500pcs	Qty per box	1000pcs	Qty per carton	10000pcs

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