



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.	
日期 Date	

客 户 Customer	
-----------------	--

品 名 Product	<b>Quick-Acting Sub-Miniature Fuse</b>
系 列 Series	<b>211 Series</b>

料号 Part No.	规格描述 Specification	备注 Remark
贝特电子 Betterfuse		
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			

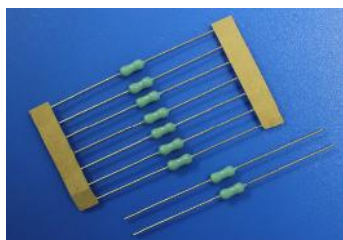
联络 Contact			
业务 Sales	电话 Telephone	手机 Cellphone	邮箱 E-mail
零件承认后敬请回签一份给我司留存, 或将承认后的封面传真 (0769-8352 1857) 至我司, 谢谢!			

Document Record						
No.	Date	Modified Content	Page	Edition	Prepared/modified by	Checked by
1	2014.03.14	Draft	6	A/0	Runsong Zhong	Lianghua Guo
2	2014.06.21	Release Edition	10	B/0	Kings Luo	Wenhua Yan
3	2015.02.05	125mA I <sup>2</sup> t change 0.0298 as 0.0256.	10	B/1	Kings Luo	Wenhua Yan
4	2015.07.31	Update UL and UR certification		B/2	Jeffery	Gem Guo
5	2016.08.19	Add the 6A.		B/3	Jeffery	Wenhua Yan
6						
7						
8						
9						
10						
11						

## TABLE OF CONTENTS

<b>1. SCOPE AND DESCRIPTION.....</b>	<b>3</b>
<b>2. GENERAL INFORMATION.....</b>	<b>3</b>
<b>3. AGENCY APPROVALS.....</b>	<b>3</b>
<b>4. PART NUMBERING SYSTEM.....</b>	<b>4</b>
<b>5. MECHANICAL SPECIFICATIONS.....</b>	<b>5</b>
<b>6. ELECTRICAL SPECIFICATIONS.....</b>	<b>6</b>
<b>7. SOLDERING PARAMETERS.....</b>	<b>8</b>
<b>8. ORDERING INFORMATION.....</b>	<b>8</b>
<b>9. PACKING INFORMATION.....</b>	<b>9</b>
<b>10. APPENDIX.....</b>	<b>10</b>

### 1. SCOPE AND DESCRIPTION



Following electronic product specifications apply to fuses of the 211 series. The 211 series is a quick-acting type subminiature fuse for over-current protection.

Due to its small size the 211 series' main applications are for flat-panel TVs, medical equipment, LCD monitors, lighting systems and industrial equipment.

### 2. GENERAL INFORMATION




#### General Description

The 211 series quick-acting fuse with low breaking capacity for use with printed circuit boards and is used in a variety of applications. This 3.0x7mm device is constructed of a ceramic body with electro-plated brass end caps. The 211 series comes with 250 VAC rating and 50 Ampere breaking capacity, offers excellent quality and is 100% tested for cold resistance and precise length.

#### Detailed Features

- Subminiature fuse with quick-acting, low breaking capacity
- 3.0mm x 7mm physical dimensions
- Ceramic tube, encapsulated with epoxy coating and with nickel plated brass end caps
- Optional axial leads are 0.6mmX26.5mm
- Protection against harmful over-currents in primary and secondary applications.
- Lead-free, Halogen-free, RoHS compliant
- Designed compliant to UL 248-14

### 3. AGENCY APPROVALS

Agency	Agency File Number	Ampere/ Voltage Range
	E300003	125VAC/ 250VAC: 0.1A~2.5A
	E300003	125V AC/250VAC: 3.15A~10A 16V AC/32VAC: 12A~20A
	J 50242119	250VAC: 250mA; 315mA; 400mA; 500mA; 630mA; 800mA; 1A; 1.25A; 1.6A; 2A; 2.5A; 3.15A; 4A;

## 4. PART NUMBERING SYSTEM

### 4.1 Part Number

Example: 2110315200



- 1 ..... Product Series ..... 211
- 2 ..... Ampere Rating ..... 315mA (see table 4.3 below)
- 3 ..... Max. Voltage Rating ..... 2: 250VAC (only by 0.1A~10A);  
32VAC (only by 12~20A)
- 4 ..... Supplementary Code ..... (see table 4.2 below)

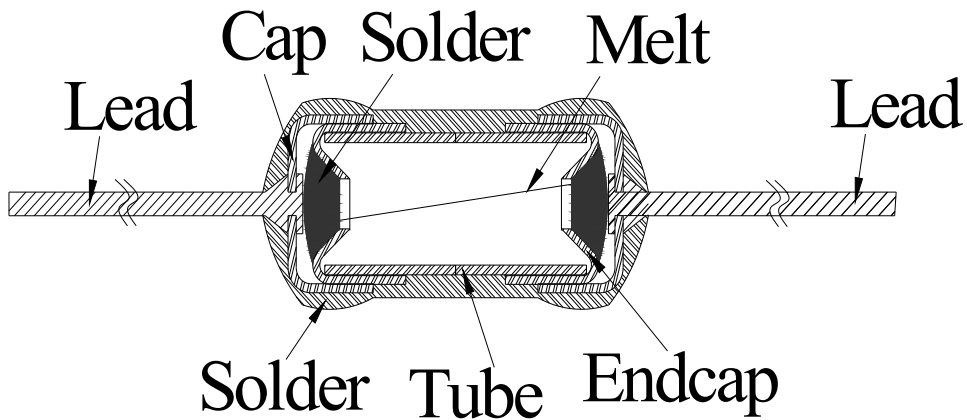
### 4.2 Supplementary Code Table

CODE	DESIGNATION
<b>00</b>	Standard model
<b>01</b>	Bent leads
<b>02</b>	Custom designed

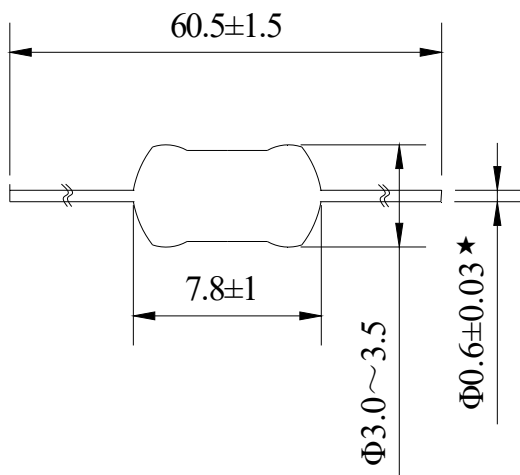
### 4.3 Ampere / Voltage Rating Table

AMP CODE	CURRENT RATING	VOLTAGE RATING
<b>0100</b>	100mA	125 / 250V AC
<b>0125</b>	125mA	125 / 250V AC
<b>0160</b>	160mA	125 / 250V AC
<b>0200</b>	200mA	125 / 250V AC
<b>0250</b>	250mA	125 / 250V AC
<b>0315</b>	315mA	125 / 250V AC
<b>0400</b>	400mA	125 / 250V AC
<b>0500</b>	500mA	125 / 250V AC
<b>0630</b>	630mA	125 / 250V AC
<b>0800</b>	800mA	125 / 250V AC
<b>1100</b>	1.00A	125 / 250V AC
<b>1125</b>	1.25A	125 / 250V AC
<b>1160</b>	1.60A	125 / 250V AC
<b>1200</b>	2.00A	125 / 250V AC
<b>1250</b>	2.50A	125 / 250V AC
<b>1315</b>	3.15A	125 / 250V AC
<b>1400</b>	4.00A	125 / 250V AC
<b>1500</b>	5.00A	125 / 250V AC
<b>1600</b>	6.00A	125 / 250V AC
<b>1630</b>	6.30A	125 / 250V AC
<b>1800</b>	8.00A	125 / 250V AC
<b>2100</b>	10.00A	125 / 250V AC
<b>2120</b>	12.00A	16 / 32V AC
<b>2150</b>	15.00A	16 / 32V AC
<b>2160</b>	16.00A	16 / 32V AC
<b>2200</b>	20.00A	16 / 32V AC

**5. MECHANICAL SPECIFICATIONS**



**Dimensions** (units: mm)



100mA~6.3A:  $\Phi$  0.6mm

8A~20A:  $\Phi$  0.8mm

**Operating Temperature:**

-55°C to +125°C

**Storage Conditions:**

+10°C to +60°C

Relative humidity:  $\leq$  75% yearly average  
without dew, maximum 30 days at 95%

**Vibration Resistance:**

24 cycles at 15 min. each (60068-6)

10-60Hz at 0.75mm amplitude

60-2000Hz at 10g acceleration

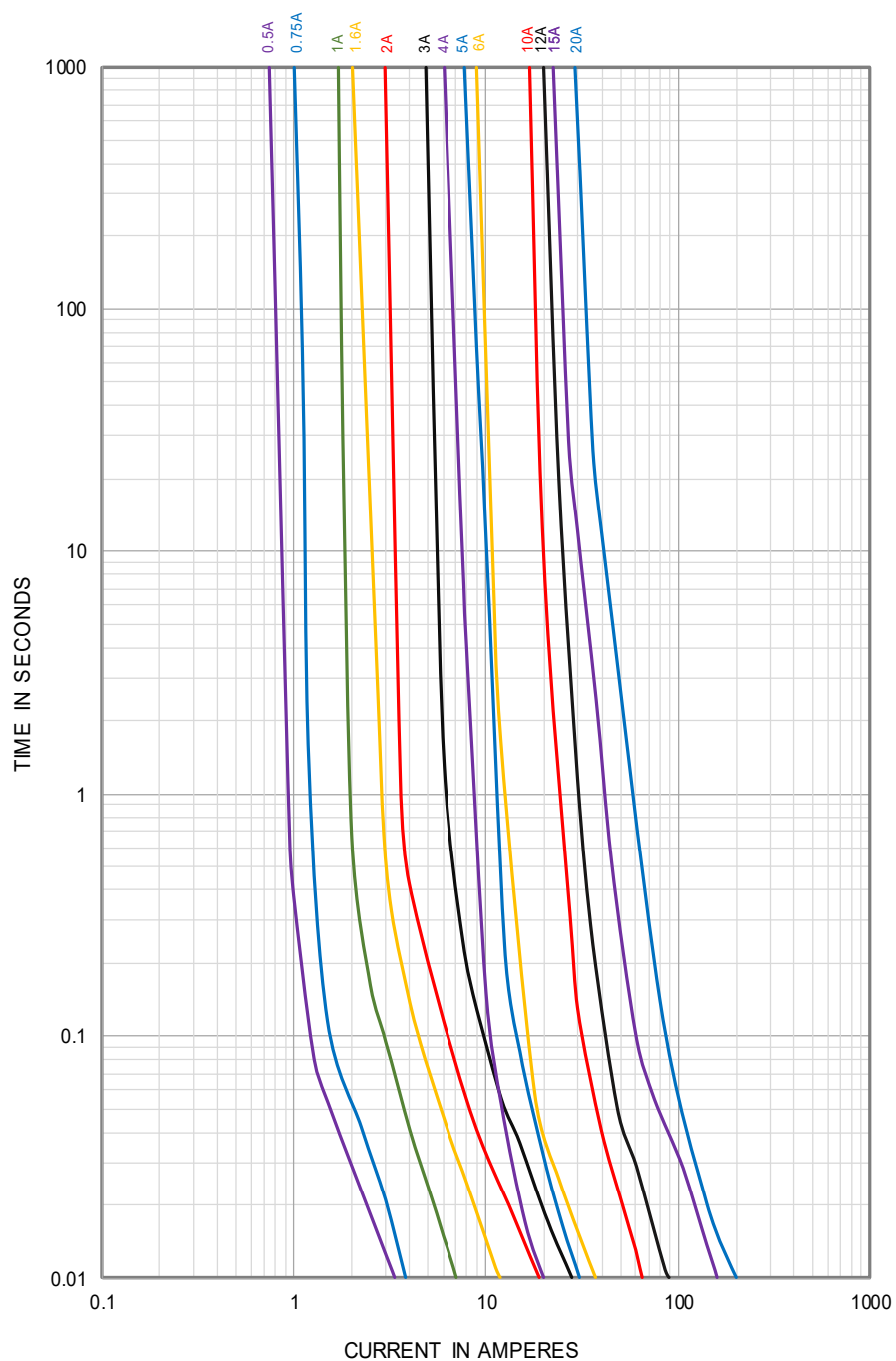
## 6. ELECTRICAL SPECIFICATIONS

### Time vs Current Characteristics Table

(measured with constant current power supply)

Time vs Current Characteristics: UL-248-14		
Rated Current	100%	200%
100mA~20A	>4h	<60s

### Average Time Current (I-T) Curves

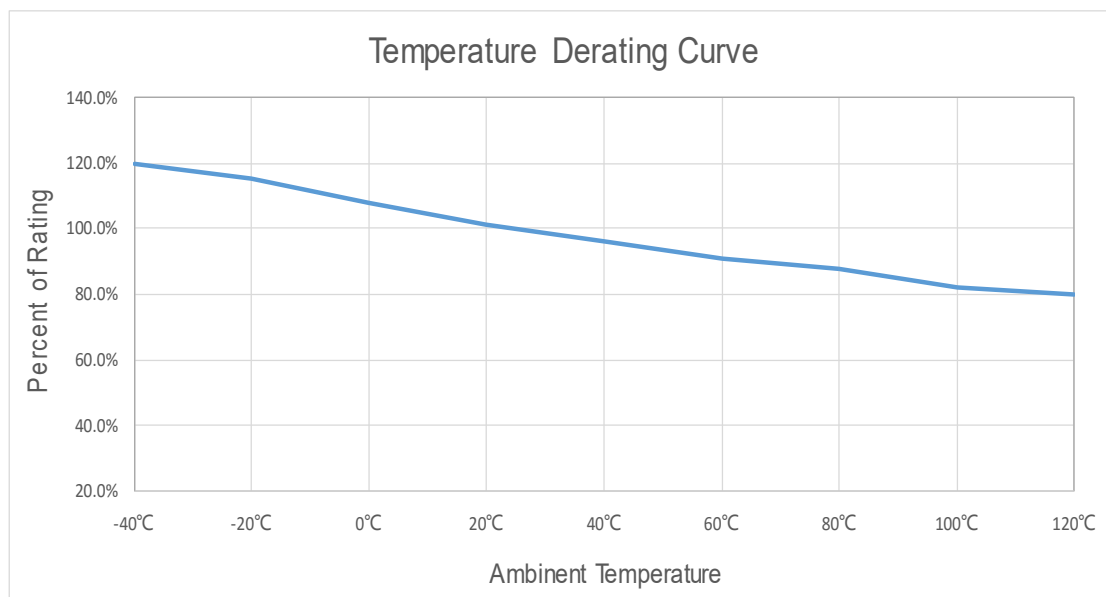


## Electrical characteristics

Electrical Characteristics								
Amp Code	Rated Current	Max. Voltage	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec)	Breaking Capacity	Approvals			
					cULus	cURus	TUV	
0100	100mA	250V AC	0.0191	50A@250V AC 50A@125V AC	●	○	○	
0125	125mA		0.0256		●	○	○	
0160	160mA		0.0489		●	○	○	
0200	200mA		0.081		●	○	○	
0250	250mA		0.1265		●	○	●	
0315	315mA		0.2304		●	○	●	
0400	400mA		0.360		●	○	●	
0500	500mA		0.1089		0.1267	●	○	●
0630	630mA		0.301		0.49	●	○	●
0800	800mA		0.846		1.392	●	○	●
1100	1.00A		3.61		7.99	●	○	●
1125	1.25A		6.76		4.00	○	●	●
1160	1.60A		13.7		9.3	○	●	○
1200	2.00A		12.96		29.16	○	●	○
1250	2.50A		42.25		78.32	○	●	○
1315	3.15A		249.6	255	○	●	○	
1400	4.00A		392		○	●	○	
1500	5.00A							
1600	6.00A							
1630	6.30A							
1800	8.00A							
2100	10.00A	32V AC						
2120	12.00A							
2150	15.00A							
2160	16.00A							
2200	20.00A							

- Note:** (1) Permissible continuous operating current is 100% at ambient temperature of 23°C (73.4°F)  
 (2) The cURus and cULus certification for 100mA~10A only by 125V and 250V AC, for 12A~16A only by 16V and 32V AC; the TUV certification only by 250V AC.  
 (3) The current values used for calculating I<sup>2</sup>T should be within the standard range of 8ms ~ 10ms.

## Temperature Derating Curve



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

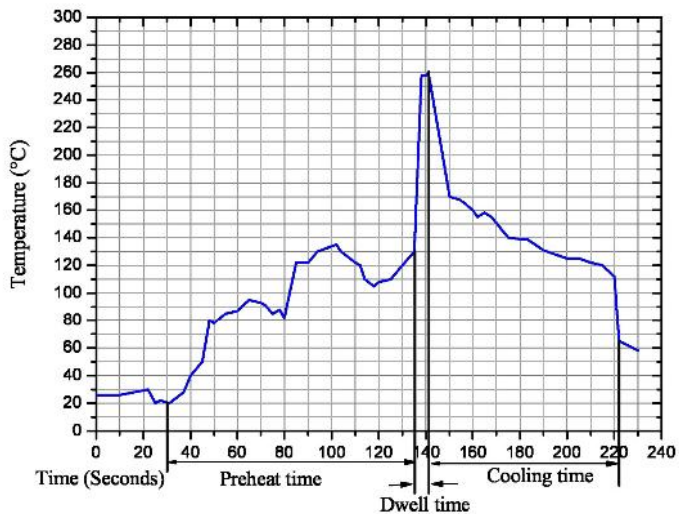
## 7. SOLDERING PARAMETERS

260°C. ≤5 sec (Wave Soldering)

350°C. ≤3 sec (Hand Soldering)

Soldering Peak:

260°C - 10 sec (IEC 60068-20)



## 8. ORDERING INFORMATION

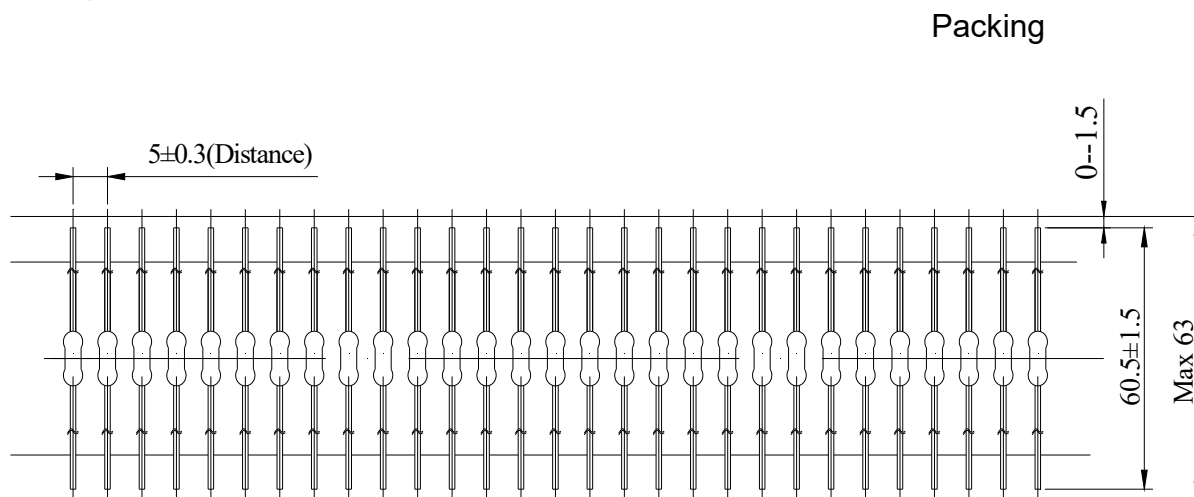
Series	Amp Code	Supplementary Code	Qty
211			

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

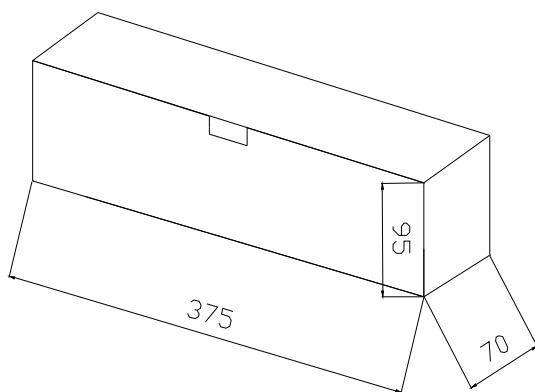


## 9. PACKING INFORMATION

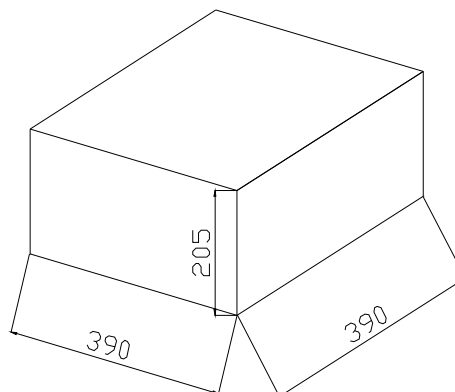
### Taping details



Inner Box



Master Carton



Net Weight (3000pcs+Tapping)	890g	Master Carton Weight	10.7kg
Qty per box	3000pcs	Qty per carton	30000pcs

© Dongguan Better Electronics Technology Co., Ltd.

东莞市贝特电子科技股份有限公司

Room 601 of 16 Block, Xinzhu Yuan, No.4, Xinzhu Road, Songshanlake Hightech Industrial Development Zone, Dongguan City, Guangdong P.R.C  
 中国广东省东莞市松山湖国家高新技术产业开发区新竹路4号新竹苑16座办公601

Tel: +86 769-2307 8212 Fax: +86 769-8352 1857

Web: [www.betterfuse.com](http://www.betterfuse.com)

Email: [info@betterfuse.com](mailto:info@betterfuse.com)

## 10. APPENDIX



### ONLINE CERTIFICATIONS DIRECTORY

#### JDYX2.E300003 Fuses, Supplemental - Component

[Page Bottom](#)

#### Fuses, Supplemental - Component

[See General Information for Fuses, Supplemental - Component](#)

**DONGGUAN BETTER ELECTRONICS TECHNOLOGY CO LTD**  
 RM 601 OF 16 BLK  
 XINZHUYUAN NO 4 XINZHU RD  
 SONGSHANLAKE HIGHTECH INDUSTRIAL DEVELOPMENT ZONE  
 DONGGUAN, GUANGDONG 523808 CHINA

E300003

**Supplemental micro fuses: pigtail leads, surface mount**

Cat. No.	Size mm(in)	Amps (A)	Volts (V)	Interrupting Rating (A)
<b>211, followed by 1 or 2, followed by three digit number</b>				
	3.0 x 7.2 (0.12 x 0.28)	3.15 - 10	125Vac	35
		3.15 - 10	250Vac	35
		12 - 20	16Vac	100
		12 - 20	32Vac	50

**Supplemental micro fuses: pigtail leads**

Cat. No.	Size mm(in)	Amps (A)	Volts (V)	Interrupting Rating (A)
<b>212</b>	7.2 x 3.0 (0.28 x 0.12)	3 - 6.3	125Vac	35
		3 - 6.3	250Vac	35

Marking: Company name and model designation.

[Last Updated](#) on 2015-07-17

[Questions?](#)

[Print this page](#)

[Terms of Use](#)

[Page Top](#)

◆ 2015 UL LLC

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions:  
 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings).  
 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2015 UL LLC".

## JDYX.E300003 Fuses, Supplemental

[Page Bottom](#)

### Fuses, Supplemental

[See General Information for Fuses, Supplemental](#)

**DONGGUAN BETTER ELECTRONICS TECHNOLOGY CO LTD**  
 RM 601 OF 16 BLK  
 XINZHUYUAN NO 4 XINZHU RD  
 SONGSHANLAKE HIGHTECH INDUSTRIAL DEVELOPMENT ZONE  
 DONGGUAN, GUANGDONG 523808 CHINA

E300003

#### Supplemental micro fuses: pigtail leads

Cat. No.	Size mm(in)	Amps (A)	Volts (V)	Interrupting Rating (A)
<b>212</b>	7.2 x 3 (0.28 x 0.12)	0.1 - 2.5	125Vac	50
		0.1 - 2.5	250Vac	50

#### Supplemental micro fuses: pigtail leads, surface mount, cartridge enclosed

Cat. No.	Size mm(in)	Amps (A)	Volts (V)	Interrupting Rating (A)
<b>211</b>	3.0 x 7.2 (0.12 x 0.28)	0.1 - 2.5	125Vac	50
		0.1 - 2.5	250Vac	50

x - Where x represents number.

Last Updated on 2015-07-17

[Questions?](#)

[Print this page](#)

[Terms of Use](#)

[Page Top](#)

© 2015 UL LLC

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2015 UL LLC".

# Zertifikat

mit überwachter Konformität

# Certificate

of surveyed conformity



Zertifikat Nr. *Certificate No.*  
J 50242119

Blatt Page  
0001

Ihr Zeichen *Client Reference*

Unser Zeichen *Our Reference*  
05-YFC- 16047191 001

Ausstellungsdatum  
27.11.2012

*Date of Issue*  
(day/mo/yr)

**Genehmigungsinhaber *License Holder***

Dongguan Better Electronics  
Technology Co., Ltd.  
Room No. 102, 103 of 3rd block  
114 of 4th Block Innovtive Tech. Par  
of Songshan Lake High-tech Ind. Park  
Dongguan, Guangdong  
P.R. China

**Fertigungsstätte *Manufacturing Plant***

Dongguan Better Electronics  
Technology Co., Ltd.  
Nanmen Village, Hengken  
Administrative Zone, Liaobu Town  
Dongguan, Guangdong  
P.R. China

**Prüfzeichen *Test Mark***

Geprüft nach *Tested acc. to*  
EN 60127-1:2006+A1  
EN 60127-3:1996+A2



Zertifiziertes Produkt (Geräteidentifikation)  
*Certified Product (Product Identification)*

Lizenzentgelte - Einheit  
*License Fee - Unit*

(Sub-miniature Fuse-links)

Type Designation : 211 15  
Rated Voltage : AC 250V; 50Hz/60Hz  
Rated Current (In) : 250mA; 315mA; 400mA; 500mA; 630mA;  
800mA; 1A; 1,25A; 1,6A; 2A; 2,5A;  
3,15A; 4A  
Time/Current Characteristic: F  
Rated Breaking Capacity : AC 35A or 10In(which is higher)

**Remark :**

The requirements of standard sheet 3 were taken into consideration.  
The labelling requirements acc. to EU Directive 2001/95 have to be observed for distribution within the EEA.  
The installation has to be carried out according to nstallation instruction accompanying the products.

15

ANLAGE (Appendix): 1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde.  
Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht.  
This certificate is based on our Testing and Certification Regulation. The product fulfills above mentioned requirements, the production is subject to surveillance.

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg  
Tel.: +49 221 806-1371 e-mail: cert-validity@de.tuv.com  
Fax: +49 221 806-3935 http://www.tuv.com/safety

Zertifizierungsstelle



Dipl.-Ing. (FH) T. Zimmer