COOPER Bussmann

Engineering Product Specification

SS-5 Series

REV. #	Revision Description	ECN	Date	Author	Appr.
F	Adding "temperature derating curve" into SS-5_ EPS	SE13054	05/27/2013	Linda. D	Duren. H
E	Update item 3 & 4.2.1 & 5.1, delete item 10.5	SE13044	04/25/2013	Linda. D	Duren. H
D	Update Item9.1, change Korea certificate from EK to KC	SE12036	2012-03-14	ZC. Zhao	T.Zhu
C	Update Semko File No. in Item9.2.5 .	SE10023	2/8/10	Brian.W	T.Zhu
B	Add' Construction' in Item5.2, Update 'UL,PSE' file info. In item 9.2.1&9.2.6.	SE08075	12/23/08	Brian.W	T.Zhu
A	Update Electronics and Mechanical performance	SE08064	10/30/08	Brian.W	T.Zhu
X2	Update Certifications ,corrections		9/10/07	Brian.W	。

2013-05-28

Table of Contents

1 SCOPE

This Specification applies to SS-5 series fuses.

2 GENERAL

2.1 General Information

- Time delay, low breaking capacity.
- Subminiature Fuse
- Plastic Cap & Base,Black Color(Flammability UL94V-0).
- Lead Wire ,with Tin plated Copper ,Dia.0.6mm.
- Protects against Harmful overcurrents in primary and secondary Applications.
- Small , Rectangular leaded design minimizes board space and eliminates need for additional mounting components
- Pb & Halogen-Free , RoHS Compliant
- Designed to IEC 60127-3 Sheet 4. (400mA – 4A)&Extension 5A,6.3A.

2.2 General Description

SS-5 time-delay, Low Breaking capacity fuse protection for the PC board is used in a variety of applications. This Subminiature device is constructed of Plastic Cap and Base with Tin Plated Copper Lead Wire. The SS-5 with a 250 VAC rating and 35A or 10times Whichever is greater ,95% -100% of PF. offers excellent assurance with its 100% cold Res testing.

3 MANUFACTURER AND PRODUCTION FACILITY

3.1 Manufacturer Cooper Bussmann

3.2 Production Facility The same as above

3.3 ISO Registration ISO 9001: 2008

4 CATALOG SYMBOL AND PART NUMBERING SYSTEM

4.1 Catalog Symbol

Example :

SS-5-1A-BK1

SS-5 -1A- BK1

1 2 3

1 Series Number: SS-5
2 Ampere Rating: 1A
3 Packaging Code: BK1=200cs in a PolyBag ,Lead L=18.8mm

4.2 Part Numbering System

4.2.1 Packaging Code

Catalog Symbol	Designation
-BK	200 pieces in polybag,Lead L=4.3+/-0.3.
-BK1	200 pieces in polybag,Lead L=18.8+/-1.0.
-BK2	200 pieces in polybag,Lead L=21+/-3.0.
-AP	Ammo Pack,Pitch=12.7

4.2.2 Electrical Characteristic

Catalog Symbol	Characteristic
SS-5	Time Delay

4.2.3 Manufacturers &Location Identification

*Slanted font Direction of Fuse Type and Rating Des. on the Cap to show	*T(AMP)250V*	T(AMP)250V
Manufacturer	DCE	SaveFuse
Location	Dongguan ,China	Seoul,Korea

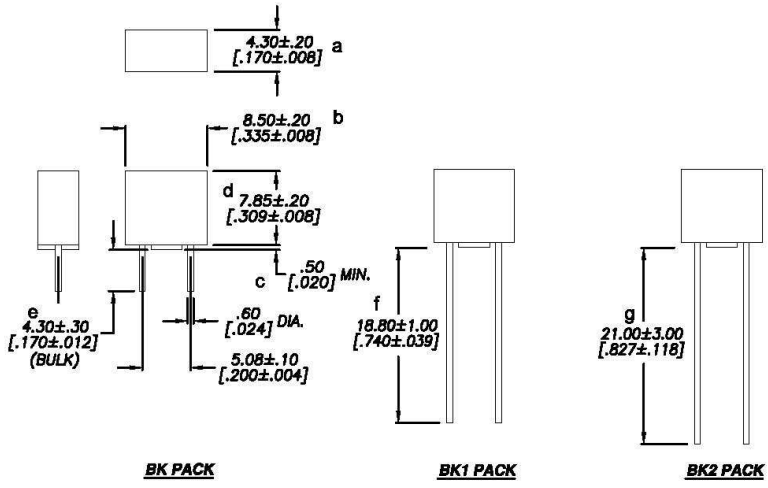
* If the fuse is made in DCE ,Dongguan ,China,the Slanted font Direction of Fuse Type and Rating Des. on the Cap '*T(AMP)250V*'will now have a forward slanted font.

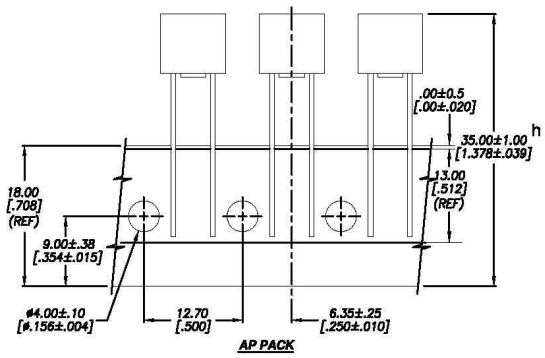
4.2.4 Ampere Rating

Catalog Symbol	Description
SS-5-400mA	.400A Fuse
SS-5-500mA	.500A Fuse
SS-5-630mA	.630A Fuse
SS-5-800mA	.800A Fuse
SS-5-1A	1A Fuse
SS-5-1.25A	1.25A Fuse
SS-5-1.6A	1.6A Fuse
SS-5-2A	2A Fuse
SS-5-2.5A	2.5A Fuse
SS-5-3.15A	3.15A Fuse
SS-5-4A	4A Fuse
SS-5-5A	5A Fuse
SS-5-6.3A	6.3A Fuse

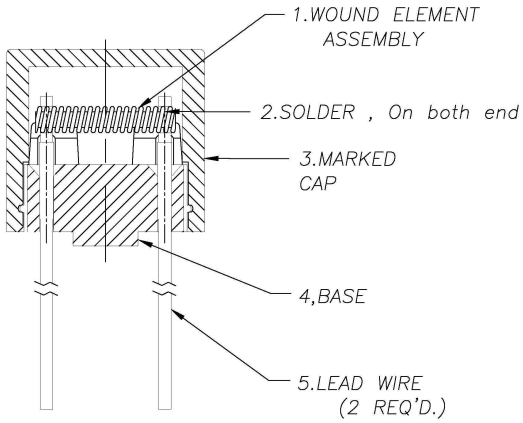
5 MECHANICAL SPECIFICATIONS

5.1 Dimension (Drawing not to scale)





5.2 Construction

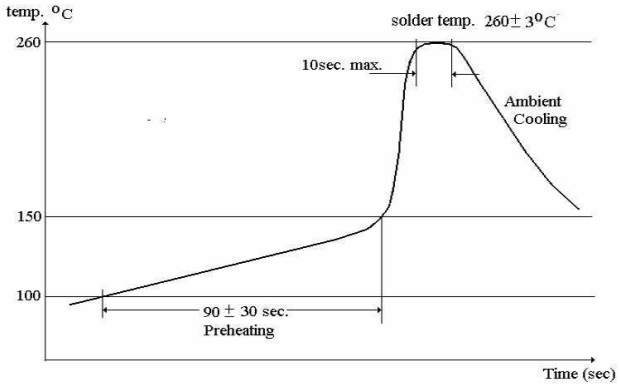


N0 . (In above construction)	1	**2**	3	4	**5**
Component	Wound Element	Solder	Rectangle Cap	Base	Lead
Material	Metal alloy wound on Fiber glass	SnCu0.7	DuPont , FR7025V0F (UL94V-0)	DuPont , FR7025V0F (UL94V-0)	Tin Plated Copper

6 Soldering

6.1 Wave Solder

6.1.1 Reservoir Temp.:260°C, Max.10Sec.Recommended Solder Reflow Profile

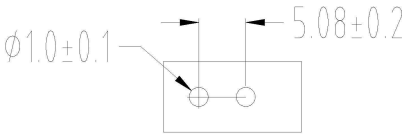


6.2 Manual Solder

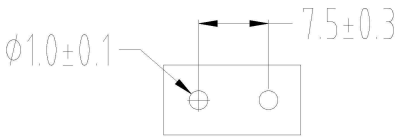
--350°C,4-5Sec.(By Soldering Iron),generally Hand Soldering is not recommended .

7 Land Pattern

Pitch=5mm .



Pitch=7.5mm



8 ELECTRICAL SPECIFICATIONS

8.1 Voltage Rating: 400mA-6.3A, U.L. Recognized, 250 Vac.

Catalog Symbol	Voltage Rating (AC)
SS-5-400mA	250V
SS-5-500mA	250V
SS-5-630mA	250V
SS-5-800mA	250V
SS-5-1A	250V
SS-5-1.25A	250V
SS-5-1.6A	250V
SS-5-2A	250V
SS-5-2.5A	250V
SS-5-3.15A	250V
SS-5-4A	250V
SS-5-5A	250V
SS-5-6.3A	250V

8.2 Interrupting Ratings:

Interrupting ratings:400 m A to 3.15A were measured at 35A ,95%-100% of PF on AC,4A ,5A&6.3A measured at 10Times of Rating Current ,95%-100% of PF on AC.

Catalog Symbol	Interrupting Rating at rated voltage (50Hz) AC
SS-5-400mA	35A
SS-5-500mA	35A
SS-5-630mA	35A
SS-5-800mA	35A
SS-5-1A	35A
SS-5-1.25A	35A
SS-5-1.6A	35A
SS-5-2A	35A
SS-5-2.5A	35A
SS-5-3.15A	35A
SS-5-4A	40A
SS-5-5A	50A
SS-5-6.3A	63A

8.3 Time vs. Current Characteristic (Measured with a constant current power supply)

Limits for Pre-Arcing Time

	1.5 In 2.1 In		2.75 In		4 In		10 In	
In	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
400mA to 4A	60 min.	2 min.	400 ms.	10 sec.	150 ms	3 sec.	20 ms	150ms
5A-6.3A	60 min.	2 min.	400 ms.	10 sec.	150 ms	3 sec.	20 ms	150ms

8.4 Typical Cold Resistance (Measured at <10% of rated current)

Catalog Symbol	Typical DC Cold Resistance (milliohms)
SS-5-400mA	330
SS-5-500mA	257.5
SS-5-630mA	140
SS-5-800mA	118
SS-5-1A	80.75
SS-5-1.25A	62.4
SS-5-1.6A	41
SS-5-2A	31.15
SS-5-2.5A	24.3
SS-5-3.15A	16.75
SS-5-4A	12.75
SS-5-5A	7.35
SS-5-6.3A	7.4

8.5 Typical Voltage Drop (Voltage drop was measured at 20°C ambient temperature at rated current)

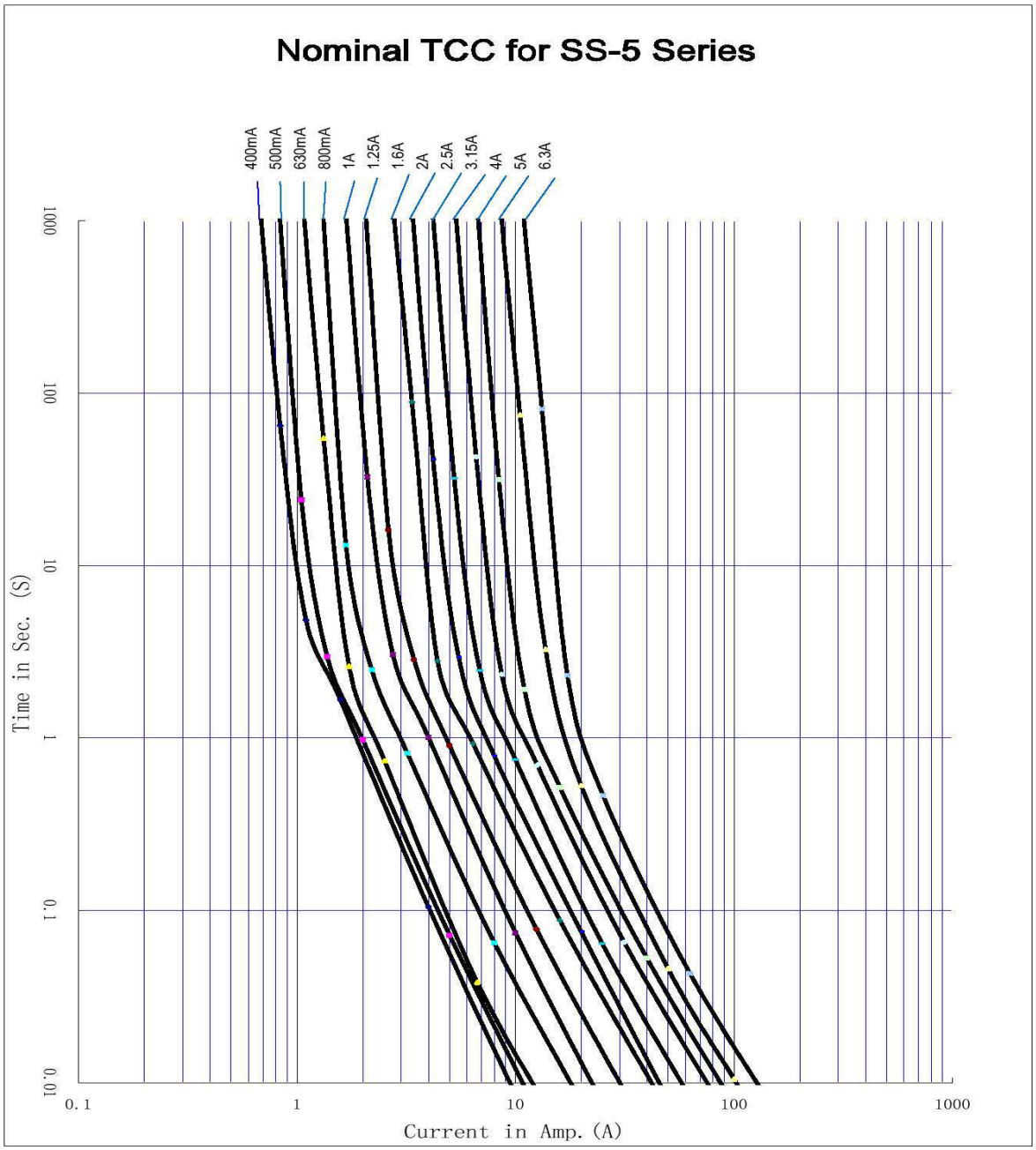
Catalog Symbol	Typical Voltagedrop@1In (mV)
SS-5-400mA	147
SS-5-500mA	151.5
SS-5-630mA	100.5
SS-5-800mA	110.5
SS-5-1A	94.5
SS-5-1.25A	93.5
SS-5-1.6A	71.5
SS-5-2A	75
SS-5-2.5A	74.5
SS-5-3.15A	62.5
SS-5-4A	65.4
SS-5-5A	43
SS-5-6.3A	59

8.6 Typical Pre-arching I2t.

Catalog Symbol	Typical I^2t (A^2S)
SS-5-400mA	1.67
SS-5-500mA	1.79
SS-5-630mA	1.51
SS-5-800mA	4.21
SS-5-1A	7.4
SS-5-1.25A	12.75
SS-5-1.6A	23.0
SS-5-2A	29.8
SS-5-2.5A	40.3
SS-5-3.15A	67
SS-5-4A	87
SS-5-5A	120
SS-5-6.3A	176

* I^2t Value is measured at 10In DC.

8.7 Nominal Time Current Curve (Average Melt)



9 AGENCY CERTIFICATION AND APPROVAL INFORMATION

9.1 Certifications Markings for the Product made in China

Current Rating	Certifications					
	cURus	KC	VDE	CQC	SEMKO	PSE+JET
400 mA	V	V	V	V		
500mA	V	V	V	V	V	
630mA	V	V	V	V	V	
800mA	V	V	V	V	V	
1A	V	V	V	V	V	V
1.25A	V	V	V	V	V	V
1.6A	V	V	V	V	V	V
2A	V	V	V	V	V	V
2.5A	V	V	V	V	V	V
3.15A	V	V	V	V	V	V
4A	V	V	V	V	V	V
5A	V	V	V	V	V	V
6.3A	V	V	V	V	V	V

9.2 Certifications Files for Product made in China

9.2.1 UL Recognition-
File:E19180.GuideJDYX2&JDYX8 (Covers 400mA~ 6.3A)

9.2.2 KC SU05011-8001 (400mA~800mA)
SU05011-8002 (1A~2.5A)
SU05011-8003 (3.15A~6.3A)

9.2.3 VDE Acceptance - 40015513 (Covers 400mA~ 6.3A)

9.2.4 CQC- Cert NO. CQC08012025533 (Covers 400mA~ 6.3A)

9.2.5 Semko – Cert NO.902108 (630mA, 1A~4A)
Cert NO. 902107 (500mA, 800mA, 5A, 6.3A)

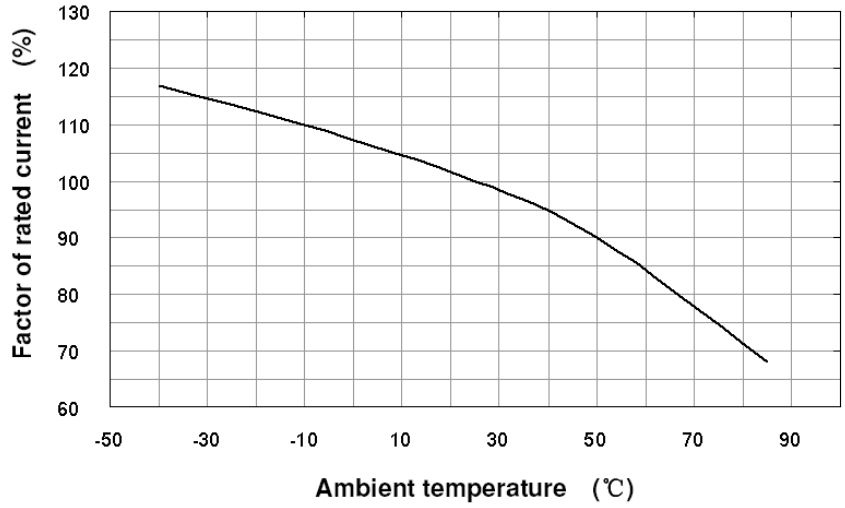
9.2.6 PSE JET- Cert NO. JET1641-31007-1001 (1A~5A)
Cert NO.JET1641-31007-1002 (6.3A)

10 TEMPERATURE DERATING CURVE

10.1 Normal Operating Temperature: 25℃ ± 2℃

10.2 Operating Temperature: -40℃ to 85℃ with proper correction factor applied

10.2.1 Correction Factor Chart



10.3 Storage Temperature: -10°C to 40°C

11 PACKAGING SPECIFICATION

11.1 BK/ 200 pieces in polybag,Lead L=4.3+/-0.3.

11.2 BK1/ 200 pieces in polybag,Lead L=18.8+/-1.0.

11.3 BK2/ 200 pieces in polybag,Lead L=21+/-3.0.

11.4 AP/ 1000Pcs in a Box ,Ammo Pack,Pitch=12.7

12 Environmental (Reliability/Qualification) Data

12.1 High Frequency Vibration Test-Withstands 10-55Hz per MIL-STD-202F,Method 201A

12.2 Solderability-EIA-186-9E Method 9

12.3 Endurance Test-IEC60127-3/4

1.0In carrying 'ON' for 1Hour, 'OFF' for 15Minutes,100Cycles,followed by 1.5In for 1Hour ,after that ,voltragedrop at 1In is changing not more than 10%.

13 End.