SPECIFICATION

FOR

BRITISH POWER SUPPLY CORDSET (PB FR)

CORD : H05VV-F 3X0.75mm² PVC LEAD FREE

CUSTOMER	: VPE/FARNELL
CUSTOMER'S PART No.	: 2490169
VOLEX'S SPEC. REF. No.	: 152522/8
ISSUE No.	: 002
DATE	: 14TH JULY 2015

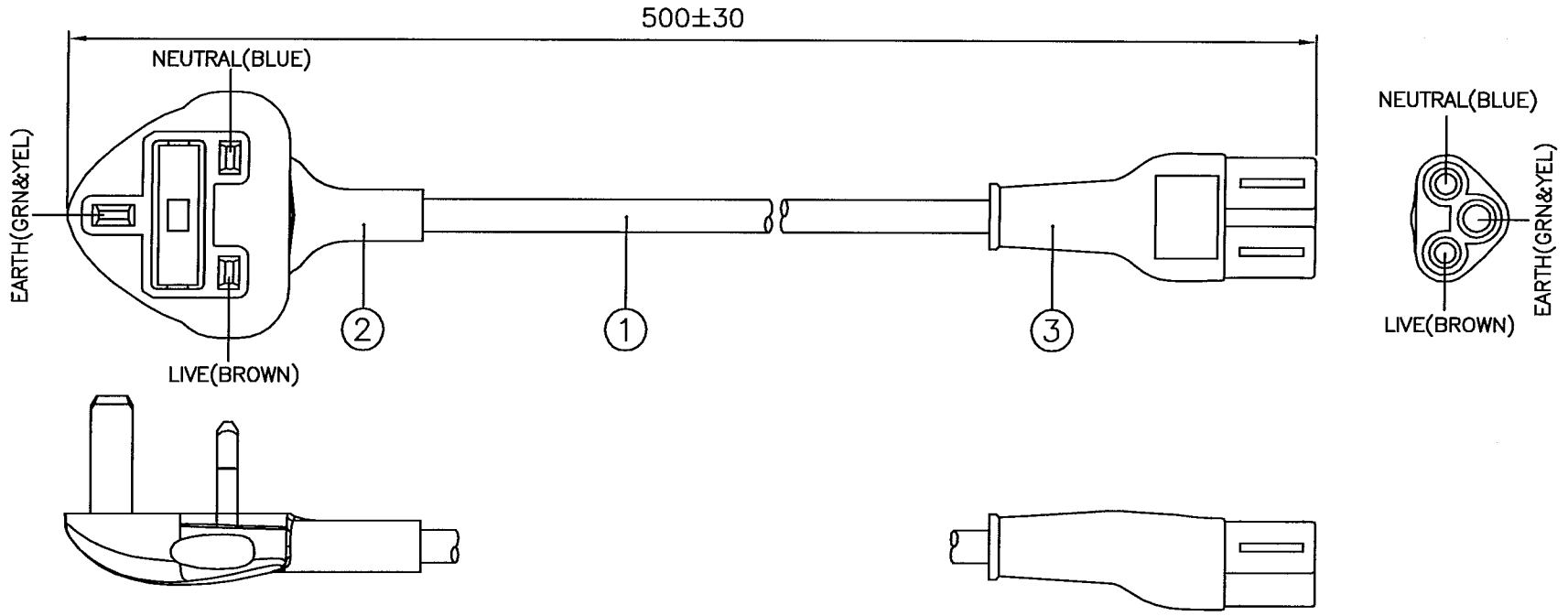
CUSTOMER APPROVED :

APPROVED BY :	
SIGNATURE :	
APPROVED DATE :	
No. OF PAGES :	

Volex (Asia) Pte Ltd
35 Tampines St. 92
Singapore 528880
Tel : (65) 6788 7833
Fax : (65) 6788 7822

AMENDMENT RECORD

REF. No.	DESCRIPTION OF CHANGES	DATE
152522/8	(1) FIRST SUBMISSION.	25/05/15
(HG05-197-15)		
ISSUE : 001		
152522/8	(1) CHANGE CUSTOMER P/N FM. 'VNUK13A3-VNC5S'	14/07/15
(HG07-051-15)	TO '249Ø169' ON COVER & ASSEMBLY DWG. PAGE.	
ISSUE : 002		



S/N	DESCRIPTION	ITEM NUMBER	QTY
	IP40G NL792B BLK	4100017	–
3	MOLDED CONNECTOR VNC5S (2.5A 250V)	VNC5S–V	1
	FUSE 10A (CAP WITH NICKEL PLATING)	6210013	OR
	FUSE 10A	6210005	1
	IP40G NL792B BLK	4100017	–
2	MOLDED PLUG VNUK13A3 (10A 250V)	VNUK13A3–V	1
1	H05VV–F 3X0.75 BLK PVC LEAD FREE	1210334	1

APPROVED SOURCE FOR CABLE

1. BAO HING(SHENZHEN)

NOTE :

1. ALL DIMENSIONS IN mm.
2. THE CORD SHALL COMPLY WITH EN 50525–2–11.
3. THE MOLDED PLUG SHALL COMPLY WITH BS 1363–1.
4. THE MOLDED CONNECTOR SHALL COMPLY WITH IEC 60320–1 OR EN 60320–1.
5. THIS PART CAN BE MANUFACTURED AT ANY LOCATION WHICH HAS SAFETY APPROVAL.

TITLE : BRITISH POWER SUPPLY CORDSET (PB FR)					SCALE : N.T.S.
CUSTOMER : VPE/FARNELL					PAGE : 1/1
CUSTOMER PART NUMBER : 249Ø169					ISSUE 002
Reference Number : 152522/8 (HG07–051–15)					
SALES :	QA :	ENGRG :	CHECKED BY :	DRAWN BY :	Volex (Asia) Pte Ltd
Date :	Date :	Date : 15/07/15	Date : 14/07/15	Date : 14/07/15	Confidential property of Volex. Information contained herein shall not be disclosed to others, reproduced or used for any other purposes except as authorized in writing by an authorized official of volex asia.

REV.	DESCRIPTION	DATE
E	UPDATE VALUES AS PER PRODUCT SAFETY.	28/07/04
F	CHANGE THE COMPLIANCE STANDARD PER SAFETY. UPDATE FORMAT AS SHOWN.	23/12/13

1. PVC FLEXIBLE CORD

1.1 SCOPE

This specification shall be in accordance with EN 50525-2-11. ⚠E

1.2 CONSTRUCTION

CONDUCTOR	ANNEALED COPPER WIRE
INSULATION	PVC (BLUE, BROWN AND GREEN&YELLOW)
JACKET	PVC

ITEM		UNIT	SPEC. VALUE
TEMPERATURE RATING		°C	70
RATED VOLTAGE		V	300/500
NO. OF CORE		NO.	3
CONDUCTOR NOMINAL AREA		mm^2	0.75
MIN. AVE. THICKNESS OF INSULATION		mm	0.60
MIN. THICKNESS AT ANY POINT OF INSULATION		mm	0.44
MIN. AVE. THICKNESS OF JACKET		mm	0.80
MIN. THICKNESS AT ANY POINT OF JACKET		mm	0.58
OVERALL DIAMETER OF JACKET		mm	6.0~7.6
DIELECTRIC-STRENGTH TEST IMMERSED IN WATER 20±5°C FOR MINIMUM 1 HOUR	ON COMPLETED CABLE	–	2000V for 15 mins.(minimum)
	ON CORES	–	1500V for 5 mins.(minimum)
VOLTAGE TEST (D.C)		–	5000V d.c. for 5 mins.(minimum)
		–	2000V a.c. for 5 mins.(minimum)
INSULATION RESISTANCE TEST (70°C)		MΩ km	>0.011
CONDUCTOR RESISTANCE TEST (20°C)		Ω/km	<=26

TITLE : CABLE SPECIFICATION
EUROPEAN APPROVED POWER SUPPLY CABLE
H05VV-F 3X0.75mm²

SPEC NO. :	APPROVED BY :	CHECKED BY :	DRAWN BY :	REVISION :	⚠E Volex (Asia) Pte Ltd
CS-038EU	DATE : 20/12/13	DATE : 20/12/13	DATE : 23/12/13	PAGE : 1/1	Confidential property of Volex. Information contained herein shall not be disclosed to others, reproduced or used for any other purposes except as authorized in writing by an authorized official of volex asia.

REV.	DESCRIPTION	DATE
B	ADD IN BAO HING (SU ZHOU).	22/10/02
	UPDATE THE FORMAT AS SHOWN.	
	ADD IN '(EU/SAA/SAB/IEC)' ON THE TITLE.	
	REMOVE BAO HING (SUZHOU) CABLE	
C	MARKING DETAILS.	18/01/05

CABLE MARKING

BAO HING (SHENZHEN)

- H05VV-F 3G0.75mm^2 ◁VDE▷ KEMA-KEUR +ᔕ +ᔕ +ᔕ
  ◁ÖVE▷ CEBEC IEMMEQU SABS 1574 Ⓢ Ⓝ Ⓓ Ⓕⓘ
  BAOHING GTSA-3 N14586 CE LF

△C

DRAWN	CONGFANG	18/01/05	FILENAME :
CHECK	weiz	18/01/05	CABLE MARKING/ BH/H05/H05W-F 3X0.75 LF- BH
APPR	changhm	18/01/05	
SCALE	N.T.S.	REV.	C

TITLE :
CABLE MARKING
(EU/SAA/SAB/IEC) △C

REFERENCE :
H05VV-F 3X0.75mm^2 LF

Volex (Asia) Pte Ltd

△C

2. PLUG

REV	DESCRIPITION	DATE
AB	ADD IN CATALOG NO. VNUK13A3 & LSUK13THA3.	03/04/15
AC	ADD IN CATALOG NO. VNUK13A2.	23/04/15

2.1. SCOPE

The plug shall be in accordance with BS 1363 Part 1,
(Specification for up to 13A fused plugs,switched and unswitched socket-outlets)

2.2. CONSTRUCTION

The plug construction shall comply with our catalogue No: MP5004, MP5004A, MP5004AW, MP5004H, MP5004SC, UK13A2,UK13CBA2,UK10SC3, MP5004BS, MP5004V, UK13A3 , MP5004DBS , MP5004D , VPUK13A3, VPUK13A2, DS13CA2, APUK13A2 , APUK13A3, DS13EA2, MFUK13A2, DLUK10S3, VNUK13A3, LSUK13THA3 & *VNUK13A2*.

2.3. CHARACTERISTICS

NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
1.	Moisture resistance test	Samples are kept in a humidity cabinet containing air with a relative humidity between 85 to 95% and a temperature of 20°C-30°C for a duration of 48 hours.	No damage
2.	Electric strength test	A voltage of A.C 2000V with a trip current of min. 100mA is applied for 1 min after the moisture resistance test. A voltage of A.C 6000V is also applied between current carrying parts and body for 1 min.	No flashover and breakdown
3.	Insulation resistance test	This test is measured with a D.C 500V for 1 min. after the moisture resistance test.	Min. 5 M Ohm
4.	Flexing test	The sample shall be loaded with a weight of 1kg for 0.75mm^2 or less, or 2kg for 1.00mm^2 and above and the oscillating member shall be moved backward and forward through an angle of 90°(45° on either side of the vertical) the number of flexing being 10,000.Rated current of the plug is passed.	No damage to the insulation and the breakage of conductor of each core shall not exceed 10%.
5.	Tumbling test	The samples are dropped from a height of 50cm onto a plywood base(10mm thick) for a total of 5000 times.	No damage
6.	Abrasion test	The pin of sample slopes downwards at angle of 10° to the horizontal. The sample is loaded with a force of 4N on the sleeve of the pin. The number of movement is 20,000 and the length of pin subjected to abrasion is approx. 7mm over the insulating sleeve.	No damage

DRAWN:	SANDY YU	23/04/15	TITLE :
CHECK:	Sandy	23/04/15	
APPR:	Ng Teng	23/4/15	BRITISH PLUG
REV:	AC		
REFERENCE:			**Volex (Asia) Pte Ltd**

NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
7.	Heat deformation test	The samples are kept for 1 hour in a heating carbinet at temperature of 70±5°C.	no damage and withstand electric strength test.
8.	Ageing test	The samples are kept for 7 days in a heating carbinet at temperature of 70±5°C. It is then put in room temperature for 4 hours.	no damage
9.	Temperature rise test	Rated current of the plug is passed for at least 4 hours. This test is repeated on the same sample after tumbling barrel test.	Rise in temperature for joints shall not exceed 52K while the rest shall not exceed 37K.
10.	Cord-anchorage test	The cord is subjected to a load of 3kg for ($1.0mm^2$ or smaller) or 6kg (the rest) 25 times without jerk. The cord is then subjected to a torque of 0.15Nm ($0.5mm^2$), 0.2Nm ($0.75mm^2$), 0.25Nm ($1.0mm^2$), 0.3Nm ($1.25mm^2$), 0.35Nm ($1.5mm^2$) for 1 min.	Shall withstand a voltage of 3750±75V for 1 min., between each conductor and cord shall not been displaced by more than 2mm.
11.	Pressure test	A force of 20N is applied on the sample for 1 hour at a temperature of 70±5°C.	No damage and shall withstand electric strength and insulation resistance test. The sample must also fit into fig. 5 jig of BS1363.
12.	Ball pressure test	A steel ball of 5mm in diameter is applied with 20N force on the sample at a temperature of 75±5°C for 1 hour. The sample is then cooled by cold water.	The diameter of the impression shall not exceed 2mm.
13	Glow wire test	The tip of the glow wire heated electrically to 750±10°C shall be applied at the portion between the current-carrying pins for a period of 30s.	Any flame and glowing shall extinguish within 30s after the removal of the glow-wire. There shall be no ignition of the tissue papernor sorching of the board.

DRAWN:	SANDY.YU	23/04/15	TITLE :
CHECK:	Sandy	23/04/15	
APPR:	W.L.Teng	23/4/15	BRITISH PLUG
REV:	AC		
REFERENCE:			**Volex (Asia) Pte Ltd**

REV	DESCRIPTION	DATE
AT	ADD IN CATALOGUE NO. HWC13U.	29/04/15
AU	ADD IN CATALOGUE NO. VNC5S.	22/05/15

3. CONNECTOR

3.1. SCOPE

The connector shall be in accordance with IEC 60320-1 or EN 60320-1, Test specification - appliance couplers.

3.2. CONSTRUCTION

The connector construction shall comply with our catalogue No: VAC5S, APC5A, APC5S, APC5M, VAC5AR, APC5SM, DLC5A3, V1625, V1625A, VAC19, VAC17S, VSCC13, AVLC13, APC13, APC13S, VSC19, V1625LA, VAC19A, VSCC15, APC5SP, APC13F, V1625BS, APC13G, VAC13A, VAC13S, PIC17S, VIC13A, DLC5U3, VAC13KS,SOC5S, V1625H, VAC19KS, DLC5E3, HPC13A, V1625AT, VAC17A, APC5SF, VCC13, VCC5S, APC13H, VCC17S, VAC19H, APC13FH, APC13HC, VAC17KS, DLC5CS3, VNC13S, HWC13U & *VNC5S.*

"All connectors complying to Standard Sheet C5, C13, C15, C15A, C17 and C19"

3.3. CHARACTERISTICS

NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
1.	Moisture resistance test	Samples are kept in a humidity cabinet containing air with a relative humidity between 91 to 95% and a temperature of 20°C-30°C for a duration of 48 hours.	No damage
2.	Electric strength test	Voltages of 3000V±60V and 1500V±60V, with min. trip current of 100mA is applied for 60s±5s between current-carrying contacts and body and between each contacts respectively after the moisture resistance tests.	No flashover and breakdown
3.	Insulation resistance test	This test is measured with a D.C 500V after the moisture resistance test.Readings are taken after 60s ± 5s of application of voltage.	Min. 5 M Ohm
4.	Withdrawal force test	i) Min. 1.5N (2N for 16A) - A single pin made to the minimum dimension is inserted into the connector. The pin, together with the weight should exert a force of 1.5N (2N for 16A connector). Each individual pole of the connector is tested seperately. ii) Max. 50N (60N for 16A) - Insert and withdraw the connector from a socket having pin dimension to the maximum and shroud dimension to the minimum for 10 times.The connector is then inserted again into the socket hang with a total weight of 50N(60N for 16A).The weight consist of a principal weight which is 90% of the total weight and a supplementary weight of 10%. The test is repeated for hot connector with temperature of 120°C±2°C on the pins.	i) The pin with the weight should not be withdrawn from the connector for more than 3 seconds. ii) The connector shall be withdrawn from the socket. If not the supplementary weight is lifted from a height of 5cm and drop. The connector must be withdrawn. The test is repeated after temperature rise test.

DRAWN:	LI XIA	22/05/15
CHECK:	Li Xia	22/05/15
APPR:	Feng	23/05/15
REV:	AU	
REFERENCE:		

TITLE: EUROPEAN & BRITISH APPLIANCE COUPLERS

Volex (Asia) Pte Ltd

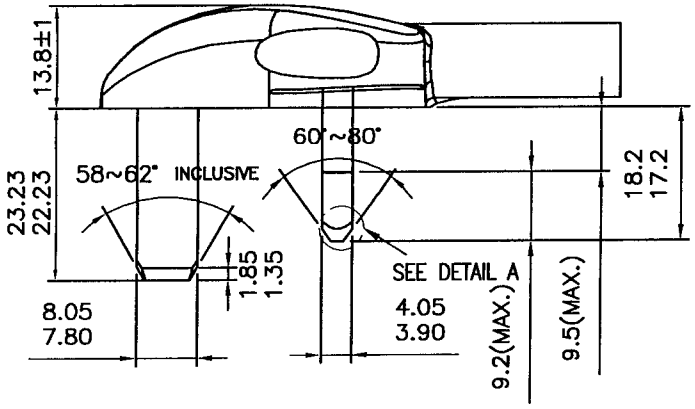
NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
5.	Glow wire test	Glow wire is applied for 30s with temperature of 750°C on inserts and housings retaining contacts and 650°C on elsewhere.	Flame (if any) shall be self-extinguished within 30s . upon the removal of the glow wire and molten droplets shall not ignite paper.
6.	Bending test	The sample shall be loaded with a weight of 10N for 0.75mm^2 or 20N for 1.00mm^2 or bigger and the oscillating member shall be moved backward and forward through an angle of 90°(45° on either side of the vertical) the number of flexing being 20,000.A rated current is applied. For round cord, the sample is turned 90 degree around the axis of cable after 10,000 cycles. The flexing is further completed in this axis. Flat cable is flexed only along the bigger axis of the cable.	There shall be no complete breakage of any of the conductor. Broken conductor shall not have pierced the insulation.
7.	Tumbling test	The sample is dropped from a height of 50cm onto a steel plate(3mm thick) for a total of 500 times.	No damage to impair further use of connector.
8.	Breaking capacity test	The connector is connected and disconnected 50 times (100 strokes) with the inlet at a rate of 30 strokes per minute with 275V and 1.25 times of rated current.	No flashover or sustained arcing during the test and no damage to impair further use of connector.
9.	Normal operation test	Test is similar to breaking capacity except that the test voltage is 250V with the connector connnected and disconnected with the inlet for 1000 times (2000 strokes) with rated current and 3000 times (6000 strokes) without current.	Withstand electric strength at 1500V for 1 min, and show no damage.
10.	Temperature rise test	An alternating current at 1.25 times rated current is passed through the current carrying contacts for 1 hour.This is repeated for connector with earth contact passing current between earth and each of the current carrying contacts.	The temperature rise shall not exceed 45K.
11.	Cord-anchorage test	The cord is subjected to pulls of 50N(2.5A) or 60N(others) for 100 times each time for 1 sec. without jerk.Thereafter the cord is subjected for 1 min. to a torque of 0.15Nm(0.75mm^2) or 0.25Nm(others).	The cord shall not be damaged and shall not been displaced by more than 2mm.
12.	Heat deformation test	Samples are kept for 1 hour in a heating cabinet at temperature of 100±2°C.	No damage to impair further use of connector.
13.	Heat pressure test	A pressure of 20N is applied at a temperature of 100°C ± 2°C for 1 hour.	No damage to impair further use of connector.

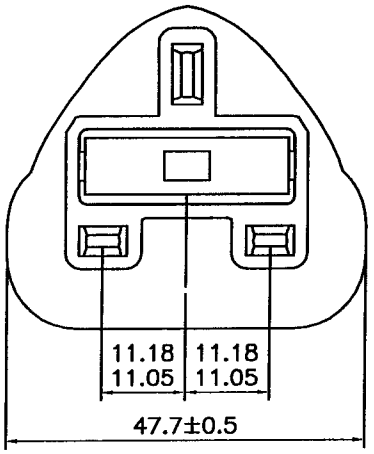
DRAWN:	LI XIA	22/05/15	TITLE: EUROPEAN & BRITISH APPLIANCE COUPLERS
CHECK:	[signature]	22/05/15	
APPR:	Feng	23/05/15	
REV:	AU		
REFERENCE:			**Volex (Asia) Pte Ltd**

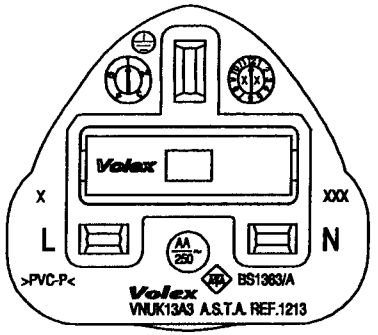
NO.	TEST ITEM	DESCRIPTION	ACCEPTANCE CRITERIA
14.	Aging test	The samples are kept for 168 hours in a heating cabinet at a temperature of 80±2°C.	No damage & marking shall be legible.
15.	Ball pressure test	A ball of 5mm in diameter is applied on the connector with the following temperature with 20N force for 1 hour. i) 125°C for hot connectors. ii) 125°C for parts retaining current carrying parts and earth circuit. iii) 75°C for other parts for cold connector. The connector is then cooled down to room temperature with cold water.	The diameter of the impression shall not exceed 2mm.

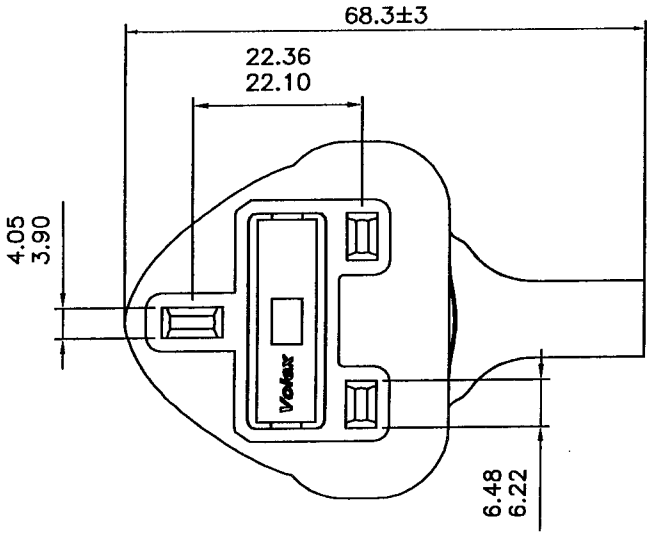
DRAWN:	LI XIA	22/05/15	TITLE: EUROPEAN & BRITISH APPLIANCE COUPLERS
CHECK:		22/05/15	
APPR:	Feng	23/05/15	
REV:	AU		
REFERENCE:			Volex (Asia) Pte Ltd

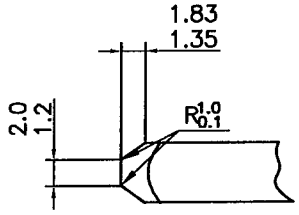
REV.	DESCRIPTION	DATE
A	INITIAL RELEASE.	23/04/15



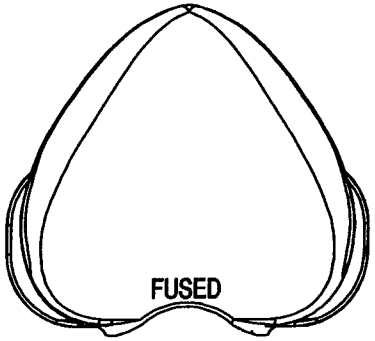








DETAIL A



MARKING DETAILS

TABLE :

FUSE RATING (AA)	3		5		10	V	13	

NOTE :

1.) ALL DIMENSIONS IN mm.
2.) X – CAVITY NO. (OPTIONAL)
3.) XXX – MANUFACTURING LOCATION.
4.) AA – RATING : (REFER TO THE TABLE)
5.) YEAR & MONTH & WEEK CODE INSERT.

YEAR XX
2015 = 15
2016 = 16

1 ~ 5 – week of the month

HG	HENG GANG (CHINA)	
SM1/SMI	ZHONGSHAN (CHINA)	X
VH	HANOI (VIETNAM)	
B	BATAM (INDONESIA)	
VC	CHENNAI (INDIA)	

MANUFACTURE LOCATION MARK
(' X ' IS APPLICABLE ONLY)

DRAWN	LI XIA	23/04/15	FILE NAME : A-PLUG/UK/GENERAL/VNUK13A3-YMW
CHECK	[illegible]	23/04/15	
APPR	[illegible]	23/4/15	
REV.	A	SCALE	N.T.S.

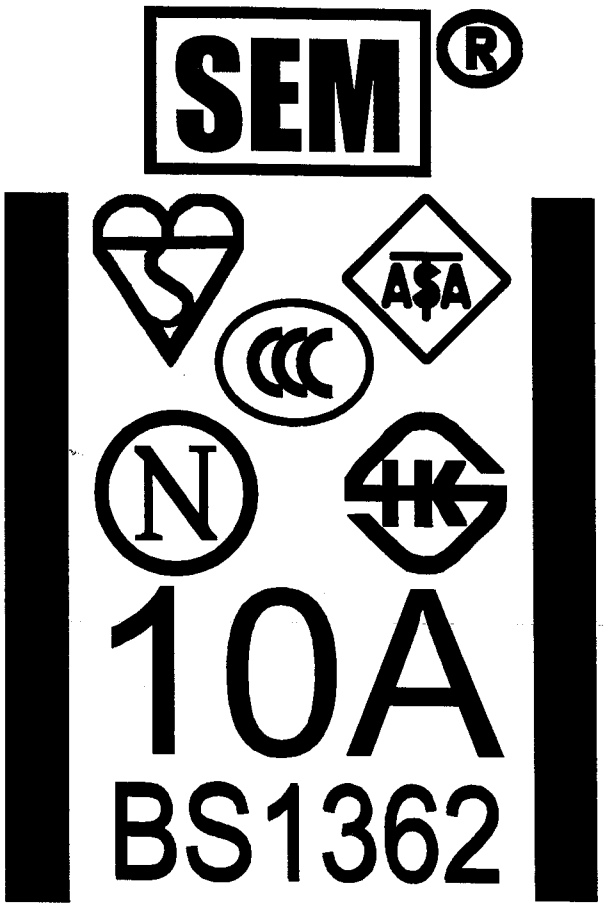
REFERENCE :

BRITISH APPROVAL

TITTLE : MOLDED PLUG
VNUK13A3
(YEAR,MONTH,WEEK CODE)

Volex (Asia) Pte Ltd

REV.	DESCRIPTION	DATE
A	INITIAL RELEASE.	29/06/12



LEAD FREE

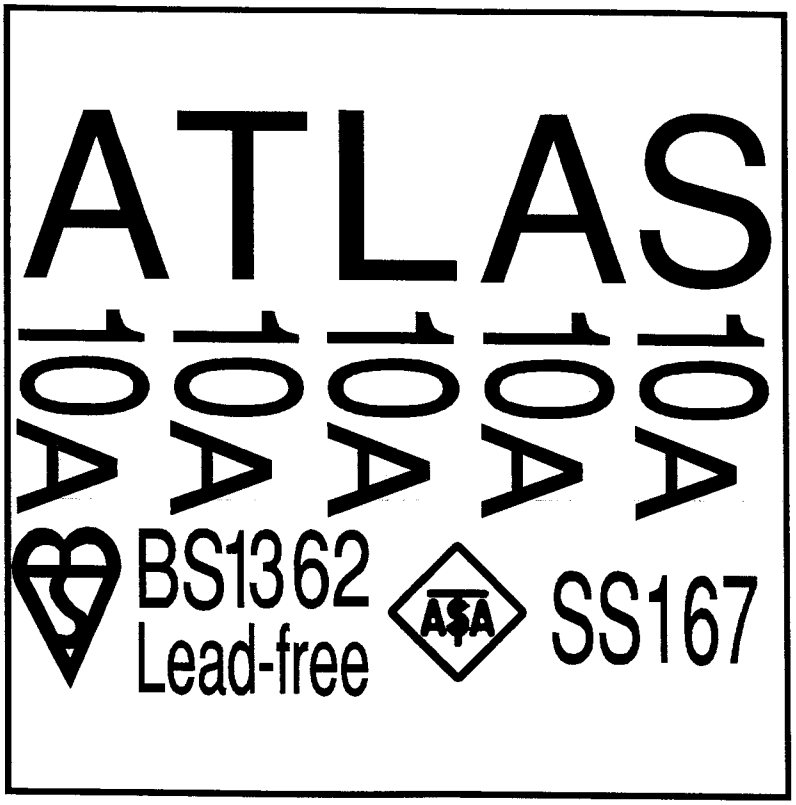
DRAWN	HONGYAN	29/06/12	REVISION:	TITLE : LEAD FREE FUSE (10A)
CHECK		04/07/12		
APPR		4/7/12	A	
SCALE	N.T.S.			
REFERENCE :				Volex

REV.	DESCRIPTION	DATE
A	INITIAL RELEASE.	29/06/12

AsiaFuse
AF63C-10A
10A
BS1362
SS167

DRAWN	HONGYAN	29/06/12	REVISION:	TITLE : LEAD FREE FUSE (10A)
CHECK		04/07/12		
APPR		4/7/12	A	
SCALE	N.T.S.			
REFERENCE :				Volex

REV.	DESCRIPTION	DATE
C	ADD IN 'REFERENCE E07.010-C' IN REFERENCE COLUMN.	31/07/08
D	CHANGE MARKING AS SHOWN.	13/11/12

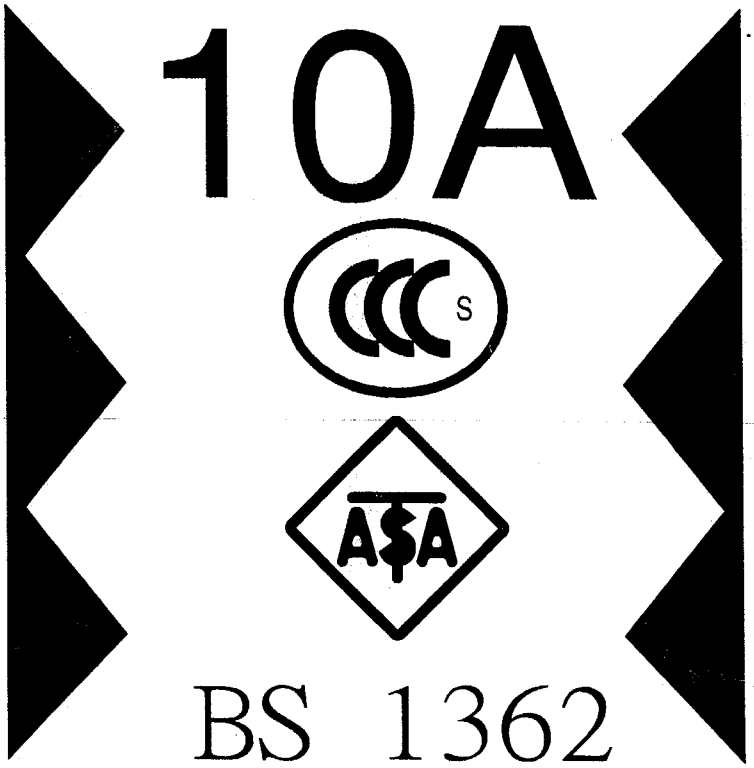


△D

DRAWN	HONGYAN	13/11/12	REVISION:	TITLE : LEAD FREE FUSE (10A)
CHECK		13/11/12		
APPR		13/11/12	D	
SCALE	N.T.S.			
REFERENCE : 6210005 (REFERENCE E07.010-C)				Volex

REV.	DESCRIPTION	DATE
E	ADD IN 'TYPE REFERENCE TDC 180-10A' IN REFERENCE COLUMN.	14/07/08
F	AMEND NOTE FOR ADD IN ITEM b.	29/08/08

*PRINT BLOCK TOPS WITH MACHINE NUMBERS



NOTE:

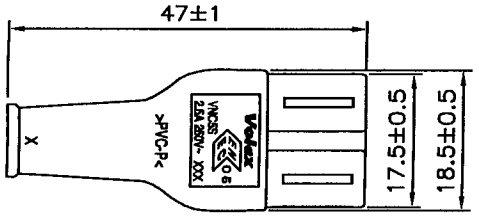
(1) *PRINT BLOCK TOP (DOT LINE) = BUSSMANN INTERNAL IDENTIFICATION ON MACHINERY.

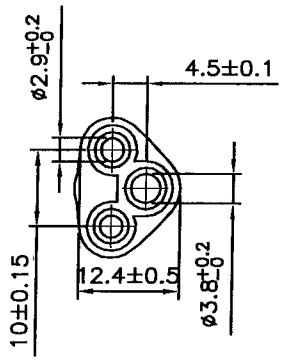
a: DIFFERENT LOCATION/NUMBER OF DOT LINE INDICATE DIFFERENT MACHINE NUMBER USED.

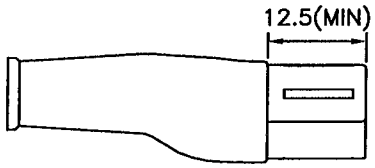
⚠F b: THE FUSE PRODUCE ON THE MACHINE #20 IS WITHOUT THE PRINT BLOCK TOP (DOT LINE).

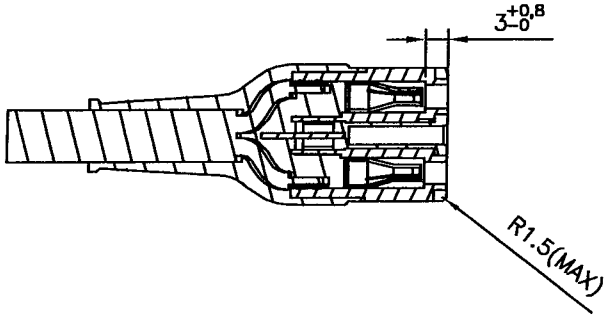
DRAWN	QIAN SM	29/08/08	REVISION:	TITLE : LEAD FREE FUSE (10A)
CHECK		29/8/08		
APPR		29/08/08	F	
SCALE	N.T.S.			
REFERENCE : 6210013 (TYPE REFERENCE TDC 180-10A)				Volex

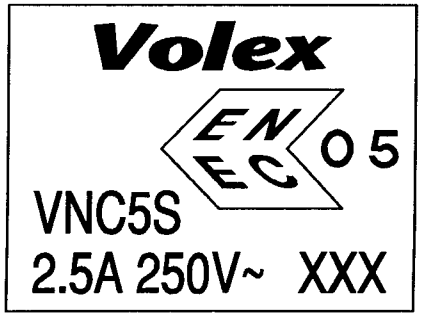
REV.	DESCRIPTION	DATE
A	INITIAL RELEASE.	25/05/15











MARKING DETAILS

NOTES :

1.) ALL DIMENSIONS IN mm.
2.) XXX – MANUFACTURING LOCATION.
3.) X – CAVITY NO (OPTIONAL).

HG	HENG GANG (CHINA)	
SM1/SMI	ZHONGSHAN (CHINA)	X
VH	HANOI (VIETNAM)	
B	BATAM (INDONESIA)	
VC	CHENNAI (INDIA)	

MANUFACTURE LOCATION MARK
(' X ' IS APPLICABLE ONLY)

DRAWN	TIAN SHUO	25/05/15	FILE NAME : A-CONNECTOR/EURO/GENERAL/VNC5S-EURO-ENEC
CHECK	TianShuo	25/05/15	
APPR	Feng	25/05/15	
REV.	A	SCALE	N.T.S.

REFERENCE :

EUROPEAN APPROVAL
(ENEC)

TITLE :

MOLDED CONNECTOR
VNC5S

Volex (Asia) Pte Ltd