



SPECIFICATION

TP72241 - USB to Molex cable

Standard DATA MODUL cable

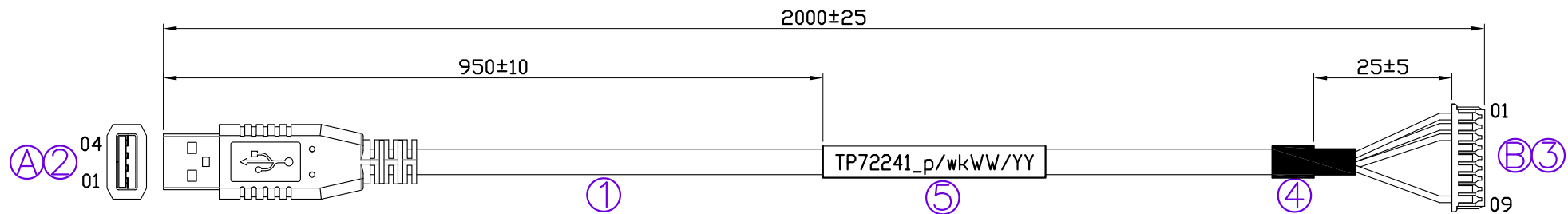
Version: 1.0

Date: 13.04.2018

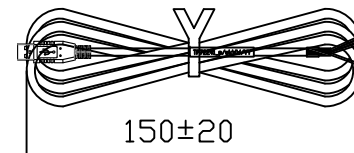
Note: This specification is subject to change without prior notice

Customer Approved

ROHS



PACKING:



PIN ASSIGNMENT		
A	B	COLOR
1	1	RED
2	2	WHITE
3	3	GREEN
4	9	BLACK
SHELL		DRAIN

大琬國際股份有限公司
發行 確認 設變 圖面章
 28-Aug-18
 工程 部： KELLY

5	WHITE HEAT SHRINK TUBE UL 4ø*50MM PRINTING "TP72241_p/wkWW/YY"	YUN LIN CHANGYUAN	E255532 E180908
4	BLACK HEAT SHRINK TUBE F34 UL 4ø*25MM	SUMITOMO DONGGUAN	E75077 E364978
3	HOUSING: MOLEX 51021-0900 TERMINAL: MOLEX 50058-8000	MOLEX	E29179
2	USB A MALE ,MOLDING:BLACK	SHANGZHOU YU CHUN	E237064 E363107
1	UL2725 28AWG*2C ,28AWG*1P ,ABE JACKET:BLACK ,OD : 3.5±0.15mm	CHUAN WEI FREEWAY	E138961 E257034
ITEM	MATERIAL	MANUFACTURER	UL FILE



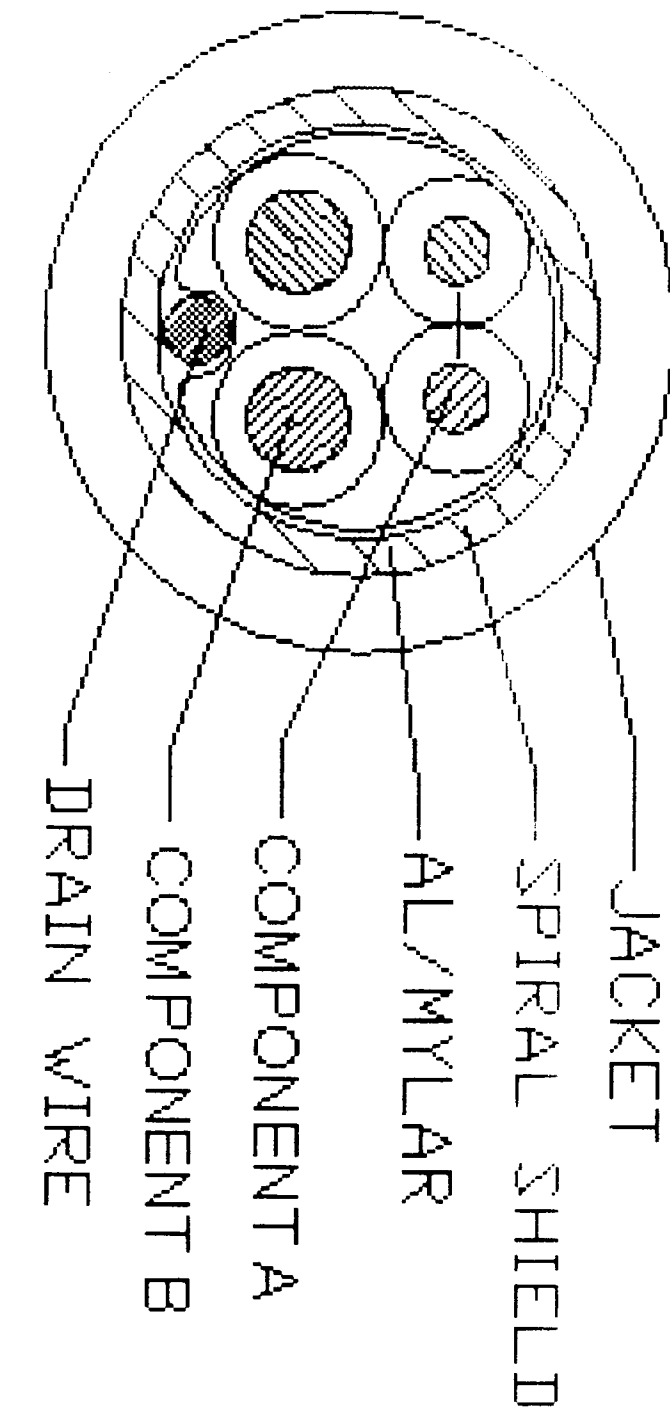
Pro-Data International Corp.

Rev.	Date	Description	Approved	Part no	TP72241	
1	AUG/28/2018	INCREASE HEAT SHRINK TUBE UL AND WIRE UL	Checked	Item	AS50000670A	
			Drawing	TONY	Drawing no	PDED_TP72241

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Customer	EU0137	Unit:mm	
Date	APR/13/2018	Sheet:1/1	

COMPONENT A	COMPONENT		UNIT #28AWGX1P+#28AWGX2C+AL/MYLAR+E+SPIRAL		
	NO OF PAIR		EACH 1		
	CONDUCTOR	CONSTITUTION	28AWG 7/0.127±0.008		
		MATERIAL	TINNED COPPER STRANDED		
		OD.	MM	0.38 (REF)	
	INSULATION	MATERIAL	HD-PE		
		THICKNESS	MM	0.23 (REF)	
		O D.	MM	0.85±0.05	
		COLOR	WHITE&GREEN		
	COMPONENT B	NO OF WIRE		2	
CONDUCTOR		CONSTITUTION	28AWG 7/0.127±0.008		
		MATERIAL	TINNED COPPER STRANDED		
		OD.	MM	0.38 (REF)	
INSULATION		MATERIAL	SR-PVC		
		THICKNESS	MM	0.23 (REF)	
		O D.	MM	0.85±0.05	
		COLOR	1.RED 2.BALCK		
AL/MYLAR(AL. FACE OUTSIDE)		COVERAGE	%	100	
		OVERLAP	%	25	
DRAIN WIRE		28AWG 7/0.127±0.008 TINNED COPPER STRANDED			
SPIRAL SHIELD	CONSTITUTION	40±3/0.12±0.008			
	MATERIAL	TINNED COPPER WIRE			
JACKET	MATERIAL	FR-PVC			
	THICKNESS	MM	0.45 (REF)		
	HARDNESS	HA	75±5		
	O. D.	MM	3.5±0.15		
	COLOR	BLACK (FREEWAY COLOR CODE 140C)			
UL		UL 2725			
TEMPERATURE		°C	80		
VOLTAGE RATING		V	30		
DIELECTRIC STRENGTH		AC-500V/1 MIN			
INSULATION RESISTANCE		SR-PVC 50 M OHM/KM MIN. AT 20°C			
		HD-PE 100 M OHM/KM MIN. AT 20°C			
CONDUCTOR RESISTANCE		28AWG 237 OHM/KM MAX. AT 20°C			
		24AWG 93 OHM/KM MAX. AT 20°C			
SPARK TEST		AC-2KV IN AIR			
JACKET MARKING		免 AWM E257034 FREEWAY STYLE 2725 80°C 30V VW-1 28AWG/1P+28AWG/2C USB 2.0 CABLE			



東莞富偉電線有限公司
FREEWAY ELECTRONIC WIRE & CABLE (DONGGUAN) CO., LTD

CUSTOMER	晶泰	VERSION	A
APPD		SHEET NO.	N11019-A
CHKD		PART NO	
DR	Lee	DATE	2011/06/24

CHUAN WEI WIRE & CABLE CO.,LTD

69 Mei Chu Hsi rd.
Suan Hsi Hsiang
Taipei,Taiwan,R.O.C

TEL:886-2-24933755

FAX:886-2-24933808

SPECIFICATION OF MULTI-CONDUCTOR COMPUTER CABLE UL2725 28AWG 2 CONDUCTOR AND 28AWG 1 PAIR ,ALUMINUM FOIL & BRAID SHIELD

1) MARKING: AWM 2725 80°C 30V VW-1 E138961 CHUAN WEI (L.F)

2) WIRE:

1. 28AWG (7/0.127 TA), OD:0.38mm strand tinned copper. FPE insulation material, thickness 0.21mm, Insulation Diameter: 0.8mm
2. 28AWG(7/0.127 TA), OD:0.38mm, SR-PVC insulation material, thickness 0.23mm, Insulation Diameter: 0.85mm

3) SHIELD:

1. ALUMINUM-FOIL/MYLAR:OVERLAP 25% MIN. (AL side outside)
2. DRAIN WIRE: 24AWG (7/0.20 TA).
3. BRAID:16/06/0.12 TA Coverage 85% MIN.

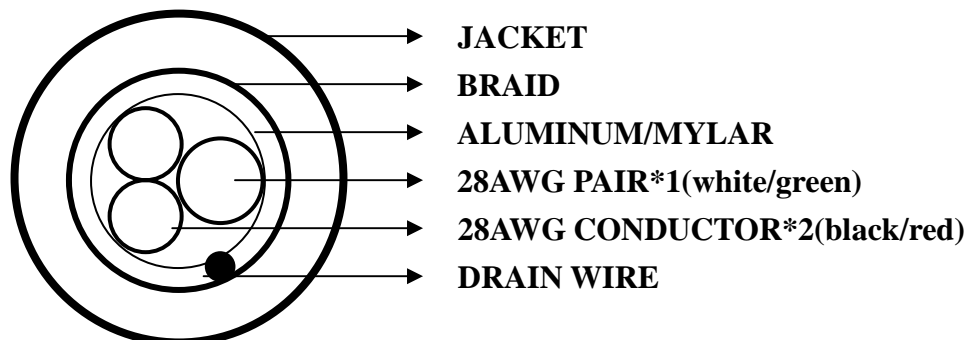
4) JACKET:

1. MATERIAL: PVC
2. THICKNESS: 0.8mm
3. OD: 3.5mm +/- 0.12mm

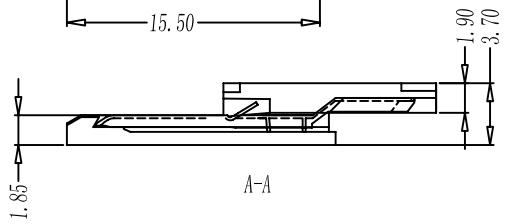
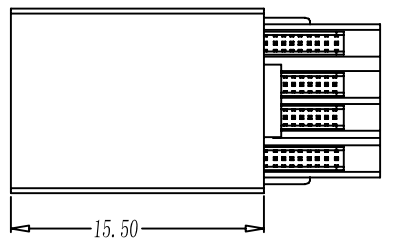
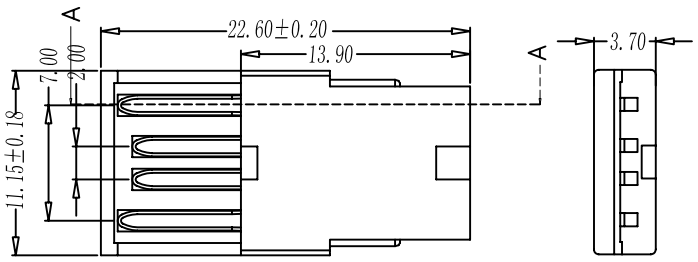
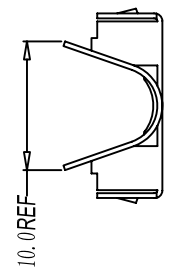
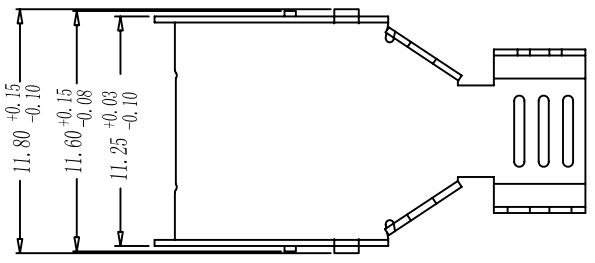
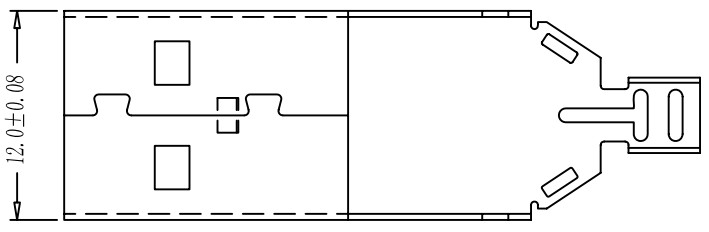
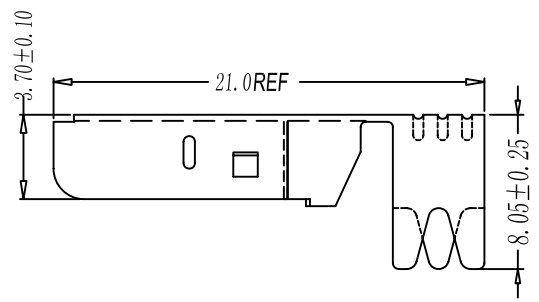
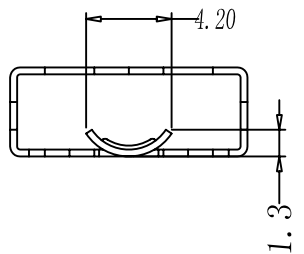
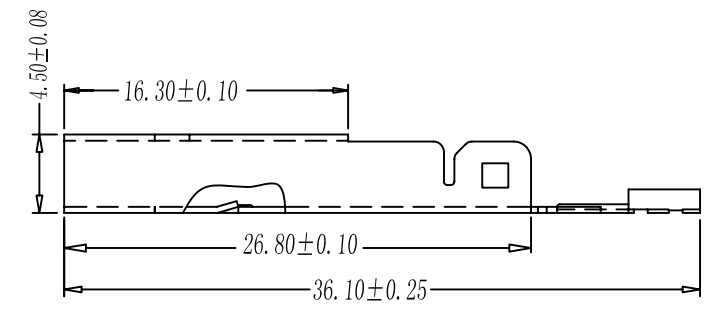
5) CHARACTER:

1. VOLTAGE RATING: 30V.
2. TEMPERATURE RATING: 80°C.
3. CONDUCTOR RESISTANCE:
28AWG: 237Ω/KM MAX .at 20°C
4. INSULATION RESISTANCE:
SR-PVC: DC-500V 10M Ω/KM MIN . at 20°C
PE:DC-500V 100M Ω/KM MIN . at 20°C
5. DIELECTRIC STRENGTH: AC 750V/1 sec MIN
6. SPARK TEST: AC 2000V/0.15 sec MIN
7. FLAME-RETARDANT PROPERTIES: VERTICAL FLAM TEST VW-1
8. IMPEDANCE : measured at frequency: 10mhz
nominal impedance: 90 ohm±10ohm

6) DETAIL OF STRUCTURE:



7	8	9	10
目錄 MAPX	設變內容 MODIFICATION	日期 DATE	修改人核準 DRAW APPROVE



备注:

1. 材质:
外壳:SPCC T=0.30;端子:C2680 T=0.20;胶芯 PBT
2. 电镀:
外壳:镀全NI, 盐雾测试18H 24H; 端子:GF 3U 15U 30U
3. 客户料号:
前壳: 51048C010 后壳: W04-094 主体: W04-699

公差一覽表
TOLERANCE UNLESS OTHERWISE

X.	±0.15	X°	±5°
.X	±0.12	.X°	±2°
.XX	±0.08	.XX°	±1°

东莞市创端电子有限公司

DONGGUAN CHUANGDUANG ENTERPRISE CO.,LTD

單位 UNITS	mm	製圖 DRAWING	张威	客戶料號 CUSTOMER PART NO.	
角法 VIEW		設計 DESIGN	王小盟	品名 PRODUCT NAME	USB AM三件式加厚特大号
版本 VER	A0	核準 APPD		日期 DATE	110830
				張數 SHEET	1/1

10 9 8 7 6 5 4 3 2 1

F

F

E

E

D

D

C

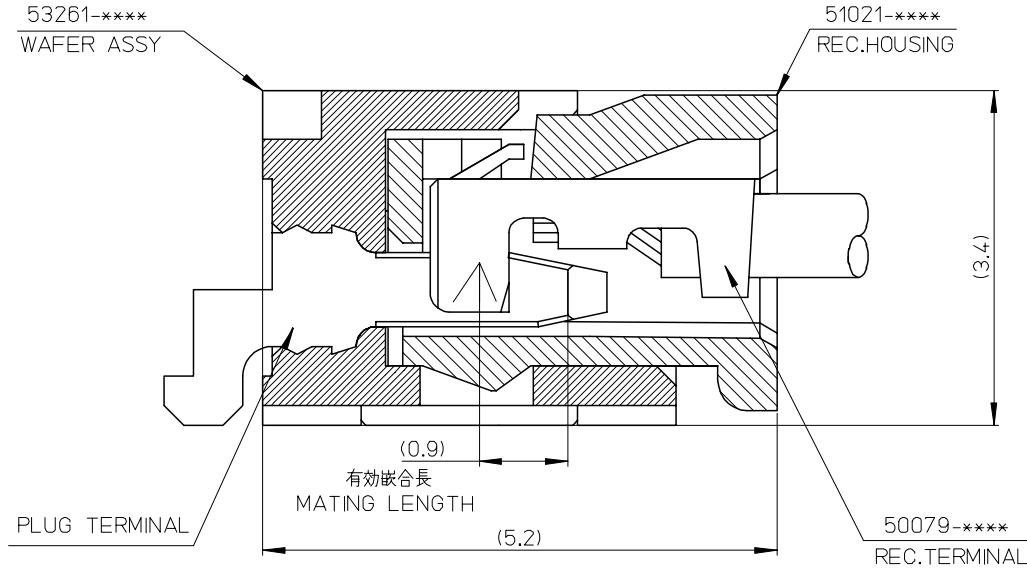
C

B

B

A

A



53261-****	WAFER ASSY	MODEL NO./MATERIAL NO.
50079-****	TERMINAL	
51021-****	HOUSING	

RELEASED EC NO: J2006-2426 DRWN: A0YAGI 2006/02/02 CHKD: YMAEDA 2006/02/03 APPR: NUKITA 2006/02/07	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE ---	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION	
	10 UNDER	± ---	DRAWN BY Y. A0YAGI	DATE 2006/01/30	TITLE 1.25 W-TO-B CONN. 51021,53261 MATING CROSS SECTION			
	10 OVER 30 UNDER	± ---	CHECKED BY Y. MAEDA	DATE 2006/01/30	MOLEX INCORPORATED			
	30 OVER	± ---	APPROVED BY N. UKITA	DATE 2006/01/30	DOCUMENT NO. SD-51021-002			
	ANGULAR	± --- °	MATERIAL NO. SEE CHART		SHEET NO. 1 OF 1			
0	DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		SIZE A3		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION			

9

8

7

6

5

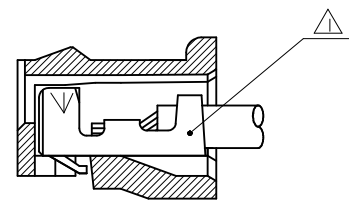
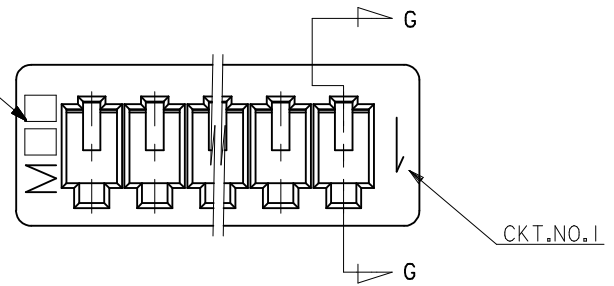
4

3

2

10 9 8 7 6 5 4 3 2 1

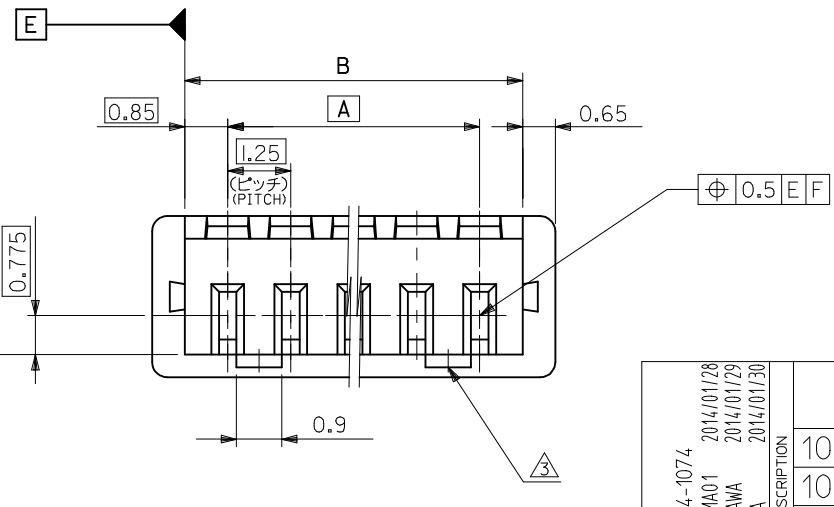
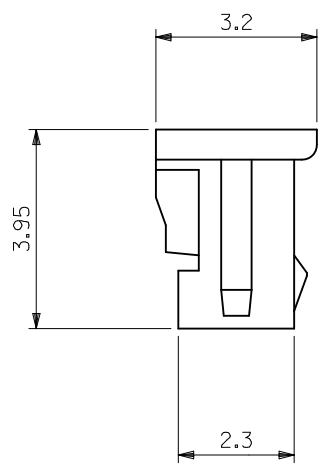
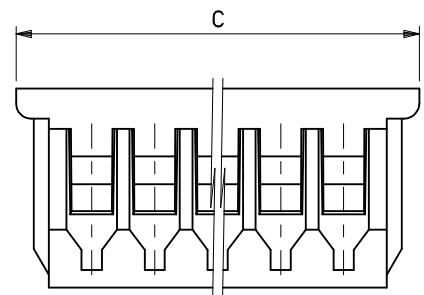
トレードマーク
TRADE MARK



SECT. G-G

注記 NOTES

- △ 適合ターミナル : 50058, 50079 シリーズ
APPLICABLE TERMINAL : 50058, 50079 SERIES
- 2 嵌合相手 : 53047, 53048, 53261, 53398 シリーズ
MATE WITH : 53047, 53048, 53261, 53398 SERIES
- △ ロックは、2, 3極は1ヶ, 4極以上は2ヶとする。
LOCKING WINDOW : ONE PLACE FOR 2 & 3 CKT.
AND TWO PLACES FOR MORE THAN 3 CKT.

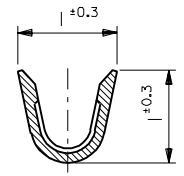
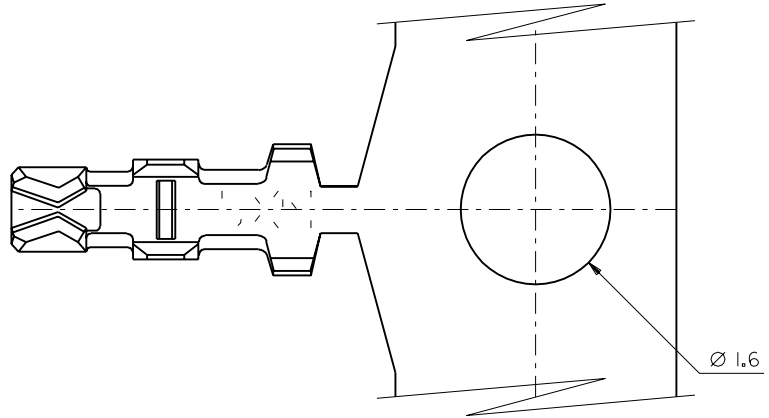


MATERIAL
PBTP UL94V-0

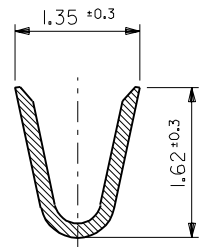
20.5	19.2	17.5	51021-1500	15
19.25	17.95	16.25	-1400	14
18	16.7	15	-1300	13
16.75	15.45	13.75	-1200	12
15.5	14.2	12.5	-1100	11
14.25	12.95	11.25	-1000	10
13	11.7	10	-0900	9
11.75	10.45	8.75	-0800	8
10.5	9.2	7.5	-0700	7
9.25	7.95	6.25	-0600	6
8	6.7	5	-0500	5
6.75	5.45	3.75	-0400	4
5.5	4.2	2.5	-0300	3
4.25	2.95	1.25	51021-0200	2
C	B	A	ENG.NO.	極数 CKTS.

REVISED EC NO: J2014-1074 DRWN: TYAJIMA01 2014/01/28 CHKD: KASAKAWA 2014/01/29 APPR: NUKITA 2014/01/30	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE 10:1	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION
	10 UNDER	±0.20	DRAWN BY TYAJIMA01	DATE 2014/01/28	TITLE 1.25 W/B CONN. REC. HOUSING		
	10 OVER 30 UNDER	±0.25	CHECKED BY KASAKAWA	DATE 2014/01/29			
	30 OVER	±0.30	APPROVED BY NUKITA	DATE 2014/01/30			
ANGULAR ±3 °	DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS	MATERIAL NO. SEE TABLE	DOCUMENT NO. SD-51021-005	SHEET NO. 1 OF 1			
		SIZE A3	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION				

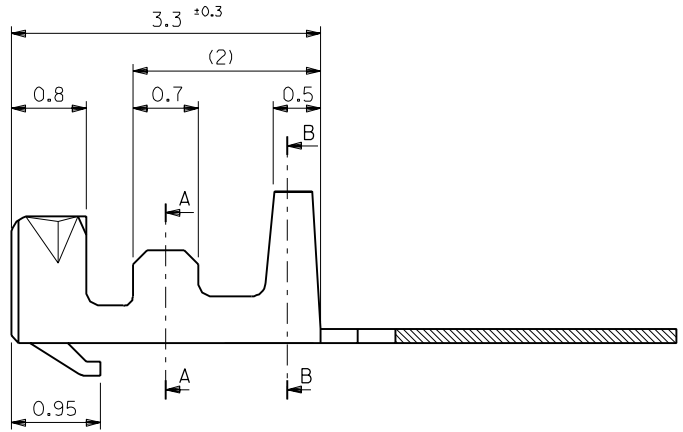
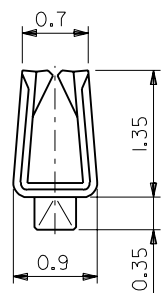
9 8 7 6 5 4 3 2



SECT. A-A



SECT. B-B



50058-8100	バラ状 LOOSE
50058-8000	連鎖状 CHAIN
ENG. NO.	端子形状 FORM

注記
NOTES

- 適合ハウジング：51021シリーズ
APPLICABLE HOUSING：51021 SERIES
- メッキ仕様 PLATING
錫 0.9 μ m MIN. リフロー処理（前メッキ）
TIN 0.9 μ m MIN. REFLOW TREATMENT (PRE-PLATED)

材料 MATERIAL リン青銅 PHOSPHOR BRONZE (t=0.15)		仕上げ FINISH —H—	
適用電線範囲 WIRE RANGE AWG #28-32		被覆外径 INS. RANGE $\phi 0.5-1.0$	
DRAWN BY '92/10/21 H.HIRAMOTO		CHK'D BY '93/9/6 M.FUKUSHIMA	
APP'D BY '93/9/6 M.FUKUSHIMA		尺度 SCALE 20 - 1	
DR. / CHK.	日付 DATE	変更内容 REVISION RECORD	記号 LTR
DR. / CHK.	日付 DATE	変更内容 REVISION RECORD	記号 LTR

角度 ANGLE	$\pm 3^\circ$
30以上 OVER	± 0.3
10以上 30未満 OVER UNDER	± 0.25
10未満 UNDER	± 0.2
一般公差 GENERAL TOLERANCES	

molex MOLEX-JAPAN CO.,LTD. 日本モレックス株式会社	
REVISE ONLY ON CAD SYSTEM	
TITLE 名称 1.25 WIRE TO BOARD CONN. CRIMP REC. TERMINAL	
DWG. NO. SD-50058-8*00	REV D

普通热缩套管规格表

WV-1 Heat-shrinkable tubing Specification Table 单位:MM

●规格 SIZE

规格 SIZE	收缩前尺寸(mm) As supplied		完全收缩后尺寸(mm) After recovery		包装方式 (米/卷)	适用范围 (mm)
	内径 Inside diameter	平均壁厚 Average wall-thickness	最大内径 Inside diameter	平均壁厚 Average wall-thickness		
Φ0.8	1.1±0.2	0.13±0.05	0.45	0.24±0.05	200	0.4~0.8
Φ1.0	1.5±0.3	0.18±0.05	0.60	0.36±0.05	200	0.5~0.9
Φ1.5	2.0±0.3	0.18±0.05	0.80	0.36±0.05	200	0.7~1.4
Φ2.0	2.5±0.3	0.18±0.05	1.20	0.36±0.05	200	1.0~1.8
Φ2.5	3.0±0.3	0.20±0.05	1.30	0.40±0.05	200	1.2~2.3
Φ3.0	3.5±0.3	0.20±0.05	1.70	0.40±0.05	200	1.5~2.7
Φ3.5	4.0±0.3	0.20±0.05	1.85	0.40±0.05	200	1.7~3.2
Φ4.0	4.5±0.3	0.23±0.05	2.30	0.46±0.05	200	2.0~3.6
Φ4.5	5.0±0.3	0.23±0.05	2.40	0.50±0.05	200	2.3~4.0
Φ5.0	5.5±0.3	0.23±0.05	2.70	0.46±0.05	100	2.5~4.5
Φ5.5	6.0±0.3	0.23±0.05	3.00	0.46±0.05	100	2.7~5.0
Φ6.0	6.5±0.3	0.25±0.05	3.30	0.52±0.05	100	3.0~5.4
Φ6.5	7.0±0.3	0.25±0.05	3.50	0.52±0.05	100	3.0~5.4
Φ7.0	7.5±0.3	0.28±0.05	3.70	0.55±0.05	100	3.5~6.3
Φ8.0	8.5±0.3	0.28±0.05	4.30	0.55±0.08	100	4.0~7.2
Φ9.0	9.5±0.3	0.30±0.08	4.70	0.60±0.08	100	4.5~8.0
Φ10.0	10.5±0.4	0.30±0.08	5.20	0.60±0.08	100	5.5~10.0
Φ11.0	11.5±0.4	0.30±0.08	5.70	0.60±0.08	100	6.0~11
Φ12.0	12.5±0.4	0.30±0.08	6.20	0.60±0.08	100	6.5~12
Φ13.0	13.5±0.4	0.33±0.12	6.70	0.60±0.08	100	7.0~13
Φ14.0	14.5±0.4	0.35±0.12	7.30	0.65±0.08	100	8.0~14
Φ15.0	15.5±0.4	0.36±0.12	7.80	0.70±0.08	100	8.5~15
Φ16.0	16.5±0.4	0.36±0.12	8.30	0.72±0.12	100	9.0~16
Φ17.0	17.5±0.4	0.36±0.12	8.80	0.77±0.12	100	10~17
Φ18.0	18.7±0.5	0.40±0.15	9.30	0.77±0.12	100	11~18
Φ20.0	20.6±0.8	0.40±0.15	10.3	0.80±0.15	100	12~20
Φ22.0	22.7±0.8	0.46±0.15	11.3	0.90±0.15	50	14~22
Φ25.0	25.5±0.8	0.46±0.15	12.3	0.90±0.15	50	15~25

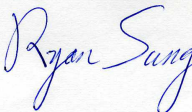
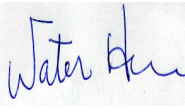
特殊尺寸按订单制造。并保证最小订单量。



To :

SPECIFICATION FOR SUMITUBE F34

SUMI-PAC CORPORATION

Authorized by	Prepared by
	

SPECIFICATION FOR SUMITUBE F34

1. Scope :

This specification covers the heat shrinkable tubing of SUMITUBE F34 .

2. Feature :

SUMITUBE F34 is a flexible, flame retardant, irradiated cross-linking, heat-shrinkable modified polyolefin tubing.

SUMITUBE F34 is free of polybrominated biphenyl ethers (PBBEs) , polybrominated biphenyl oxides (PBBOs) , polybrominated biphenyls (PBBS) . These chemicals are classified as environment hazardous substance.

SUMITUBE F34 performs a variety of functions with low shrink temperature (90°C) for environment protection of the harmful substance decree (RoHS) of electronic product of the electric apparatus choice in commercial application , and general purpose use such as insulation or jacketing of wire harness , insulation of wire terminals , capsule of electronic components , identification or color coding of wires which flame retardant or UL224 and CSA and JQA F Mark recognition are required .

3. Recognition :

SUMITUBE F34 is UL224 and CSA with rating.

Item	UL 224	CSA C22.2 No.198.1
Voltage Rating	300V	150V
Temperature Rating	125°C	125°C
File No.	E-75077	LR-33298
Flameability	VW-1	VW-1

4. Color :

Standards colors . (BLACK 、 BROWN 、 RED 、 ORANGE 、 YELLOW 、 GREEN 、 BLUE 、 VIOLET 、 GRAY 、 WHITE .)

5. Marking :

 **SUMI-PAC SUMITUBE F34 CSA 125°C VW-1 -F- (φ SIZE) εφ**

6. Standard sizes :

Standard sizes shall be specified in TABLE 1 .

7. Properties :

Properties sizes shall be specified in TABLE 2

8. Method of measuring sizes and testing properties :

1.) Inside diameter :

Inside diameter shall be measured by a metal Gage rod or metal Taper gage which has interval or graduation.

In case of using a Gage rod : Read the value of the maximum gage rod which shall pass freely into tubing without expanding the wall of tubing.

In case of using a Taper gage : Read the value on the gage when the tubing isn't expanded by insertion and there is no visible space between the tubing and the Taper gage.

2.) Wall thickness :

Wall thickness shall be measured by a Pin-dial gage or a micrometer at Several points.

3.) Shrinkable condition and Longitudinal change :

Shrinkable condition : unrestricted shrinkage shall be placed at 150°C in A circulating for 5 minutes.

Longitudinal Change : The tubing shall be cut in about 100mm and measured the lengths. After unrestrained shrinkage (after recovered) , the length is to be re-measured and the Longitudinal Change shall be calculated from the following formula.

$$\text{Longitudinal Change (\%)} = \frac{\text{Length after Recovered} - \text{Length as Supplied}}{\text{Length as Supplied}} \times 100 \%$$

$$\text{Eccentricity (\%)} = \frac{\text{Min. Thickness}}{\text{Max. Thickness}} \times 100\%$$

4.) Properties shall be tested in accordance with UL224 & CSA C22.2 No.198.1 specification.

SUMITUBE F34 Standard size

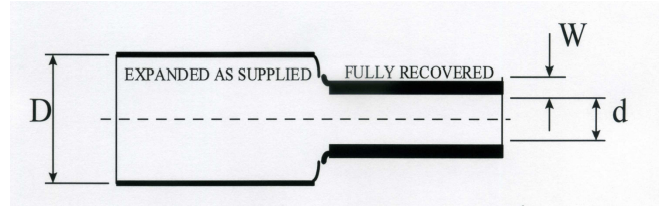


TABLE 1.

Trade Size (Metric)	As Supplied (mm)		After Recovered (mm)		Length (M)	
	Inside Diameter D	nom.Wall thickness	Inside Diameter d (Max)	Wall thickness W (Min)	CUT	SPOOL
1.0 × 0.10	1.40 ± 0.20	0.10	0.50	0.20	1	200
1.5 × 0.10	1.90 ± 0.20	0.10	0.75	0.20	1	200
2.0 × 0.10	2.30 ± 0.20	0.10	1.00	0.20	1	200
2.5 × 0.15	2.90 ± 0.20	0.15	1.25	0.25	1	200
3.0 × 0.15	3.30 ± 0.30	0.15	1.50	0.25	1	200
3.5 × 0.15	3.80 ± 0.30	0.15	1.75	0.25	1	200
4.0 × 0.15	4.40 ± 0.30	0.15	2.00	0.25	1	200
5.0 × 0.15	5.50 ± 0.30	0.15	2.50	0.25	1	100
6.0 × 0.15	6.50 ± 0.40	0.15	3.00	0.28	1	100
7.0 × 0.15	7.50 ± 0.40	0.15	3.50	0.28	1	50
8.0 × 0.15	8.50 ± 0.40	0.15	4.00	0.28	1	50
9.0 × 0.15	9.50 ± 0.40	0.15	4.50	0.28	1	50
10.0 × 0.15	10.50 ± 0.40	0.15	5.00	0.28	1	50

Longitudinal Change : -5 ± 5%

Eccentricity of Wall Thickness : 60%(Min)

TABLE 2.

PROPERTIES

PROPERTIES		UL		CSA	
		Condition	Requirement	Condition	Requirement
Tensile Strength	Unaged	*1	10.4Mpa(Min),(1.05Kg/mm ²)	*1	10.4Mpa(Min),(1.05Kg/mm ²)
	Aged *2	*1	More then 70% of the value Obtained with unaged.	*1	More then 70% of the value Obtained with unaged.
Elongation	Unaged	*1	200% (Min)	*1	200% (Min)
	Aged *2	*1	More then 70% of the value Obtained with unaged.	*1	More then 70% of the value Obtained with unaged.
Heat Shock		250°C* 4Hr	NO Crack	250°C* 4Hr	NO Crack
Cold Bead		-30°C* 1Hr	NO Crack	-30°C* 1Hr	NO Crack
Flammability		VW-1	Pass	OFT	Pass
Secant Modulas		2%Strain	172Mpa(Max),(17.5Kg/mm ²)	2%Strain	172Mpa(Max),(17.5Kg/mm ²)
Dielectric Voltage Withstand	Unaged	*1	A.C.,2500V * 60Sec NO Breakdown	*1	A.C.,2500V * 60Sec NO Breakdown
	Aged *2	*1	A.C.,2500V * 60Sec NO Breakdown	*1	A.C.,2500V * 60Sec NO Breakdown
Breakdown Voltage	Unaged	*1	A.C.,2500V (Min)	*1	A.C.,2500V (Min)
	Aged *2	*1	A.C.2500V(Min)and more Than 50% of the value Obtained with unaged.	*1	A.C.2500V(Min)and more Than 50% of the value Obtained with unaged.
Volume Resistivity			10¹⁴ Ω-cm		10¹⁴ Ω-cm
Corrosion of Bare Copper		*3	NO Corrosion		NO Corrosion
Copper Stability		*1, *3	Elongation , 100%(Min)		Elongation , 100%(Min)
Flexibility		*2	NO Crack		*****

*1 : When tested at 500 mm(Min).

*2 : 158°C * 7 days.

*3 : After placed in a humidity chamber with relative humidity of 95±5(%)
at 23°C for 24 hours aged in condition of 158°C * 7 days.

G5(F)

Environmentally friendly polyolefin tubing

環保一般阻燃熱收縮套管



G5(F)

Environmentally friendly polyolefin tubing

Applications

General purpose tubing for military and commercial applications such as electrical insulation and protecting in-line components, disconnect terminals, and splices. Used for jacketing wire bundles and light-duty harness and identifying or color-codes wires, cables, terminals, and components.

Characteristics

Very flexible, highly flame-retardant (colos only)
Resistant to common fluids and solvents
Excellent physical, chemical, and electrical properties
The material meets standard Sony-SS-00259, RoHS

Operating temperature range

Operating temperature : -55°C ~ 125°C
Minimum shrink temperature : 70°C
Minimum full recovery temperature : 110°C

Approvals / Specifications

AMS-DTL-23053/5 class 1 and class 3
UL224 File no. E255532, 125°C VW-1 600V

G-APEX G5(F) 規格尺寸表

size	as supplied (mm)		as recovery (mm)		package	application range
mm	I.F.	W.T.	I.F. (max)	W.T. (min)	(m/spool)	(mm)
Φ 0.8	1.0±0.2	0.15±0.05	0.5	0.25±0.05	200	0.4~0.80
Φ 1.0	1.5±0.3	0.20±0.05	0.6	0.33±0.05	200	0.5~0.90
Φ 1.5	2.0±0.3	0.20±0.05	0.75	0.36±0.05	200	0.7~1.40
Φ 2.0	2.5±0.3	0.20±0.05	1.0	0.44±0.05	200	1.0~1.80
Φ 2.5	3.0±0.3	0.25±0.05	1.25	0.44±0.05	200	1.2~2.30
Φ 3.0	3.5±0.3	0.25±0.05	1.5	0.44±0.05	200	1.5~2.70
Φ 3.5	4.0±0.3	0.25±0.05	1.75	0.44±0.05	200	1.7~3.20
Φ 4.0	4.5±0.3	0.25±0.05	2.0	0.44±0.05	200	2.0~3.60
Φ 4.5	5.0±0.3	0.25±0.05	2.25	0.44±0.08	200	2.3~4.00
Φ 5.0	5.5±0.3	0.25±0.05	2.5	0.56±0.08	100	2.5~4.50
Φ 6.0	6.5±0.3	0.28±0.05	3.0	0.56±0.08	100	3.0~5.40
Φ 7.0	7.6±0.3	0.30±0.06	3.5	0.56±0.08	100	3.5~6.30
Φ 8.0	8.6±0.3	0.30±0.06	4.0	0.56±0.08	100	4.0~7.20
Φ 9.0	9.6±0.3	0.30±0.06	4.5	0.56±0.08	100	4.5~8.00
Φ 10.0	10.7±0.4	0.30±0.06	5.0	0.56±0.08	100	5.0~9.00
Φ 11.0	11.7±0.4	0.30±0.06	5.5	0.56±0.08	100	5.0~10.0
Φ 12.0	12.7±0.4	0.30±0.06	6.0	0.56±0.08	100	6.0~11.0
Φ 13.0	13.7±0.4	0.35±0.07	6.5	0.69±0.08	100	6.5~12.0
Φ 14.0	14.7±0.4	0.35±0.07	7.0	0.69±0.08	100	7.0~13.0
Φ 15.0	15.7±0.5	0.35±0.07	7.5	0.69±0.08	100	7.5~14.0
Φ 16.0	16.7±0.5	0.35±0.07	8.0	0.69±0.08	100	8.0~15.0
Φ 17.0	17.5±0.5	0.35±0.07	8.5	0.70±0.08	100	8.8~16.0
Φ 18.0	19.0±0.5	0.40±0.10	9.0	0.77±0.15	100	9.0~17.0
Φ 20.0	21.0±0.5	0.40±0.10	10.0	0.77±0.15	50	10~19.0
Φ 22.0	23.0±0.5	0.40±0.10	11.0	0.77±0.15	50	11~21.0
Φ 25.0	26.0±1.0	0.45±0.10	12.5	0.87±0.15	50	12~24.0
Φ 28.0	29.0±1.0	0.45±0.10	14.0	0.87±0.15	50	14~29.0
Φ 30.0	31.5±0.7	0.45±0.10	15.0	0.95±0.15	50	15~29.0
Φ 35.0	37.0±0.7	0.50±0.15	17.5	1.00±0.15	50	17~34.0
Φ 40.0	40.5±0.7	0.50±0.15	20.0	1.00±0.15	50	20~39.0
Φ 45.0	46.0±0.7	0.50±0.15	22.5	1.00±0.15	25	25~45.0
Φ 50.0	50.5±0.7	0.50±0.15	25.0	1.00±0.15	25	35~70.0
Φ 60.0	60.0±3.0	0.80±0.20	32.0	1.30±0.20	25	30~60.0
Φ 70.0	70.0±3.0	0.80±0.20	35.0	1.50±0.20	25	35~70.0
Φ 80.0	80.0±3.0	0.80±0.30	40.0	1.50±0.30	25	40~80.0
Φ 90.0	90.0±4.0	0.80±0.30	43.0	1.50±0.30	25	50~100
Φ 100.0	100.0±4.0	0.80±0.30	43.0	1.50±0.30	25	50~100
Φ 120.0	120.0±4.0	0.80±0.30	56.0	1.50±0.30	15	60~120


Color: black, white, red, blue, yellow, green, other colors on request.

Special size, cut pieces are available on request.

深圳长园电子材料有限公司
上海长园电子材料有限公司

Shenzhen Changyuan Electronic Material Co., Ltd.
Shanghai Changyuan Electronic Material Co., Ltd.

承 认 书
CERTIFICATION

客户名称: Customer Name:		产品名称: 热缩套管 Products Name:		
承认规格: 系列产品 Products Range:		颜 色: Standard		
产品型号: CB-HFT Products Type:				
客 户 签 章	核准 Approve	复核 Re-Check	审核 Check	主办 Charge
				
	日期 Date	日期 Date	日期 Date	日期 Date

地址: 深圳南山区科技工业园科技路 30-4 栋 邮编 (P. C.): 518057

Add: Bld#30-4, Shenzhen Science & Technology Industry Park, Nanshan, Shenzhen, China

电话 (Tel): 0755-6553696 (16 线/Lines) 传真 (Fax): 0755-6630674 0755-6632551

地址: 上海市嘉定区嘉好路 1690 号

邮编 (P. C.): 201802

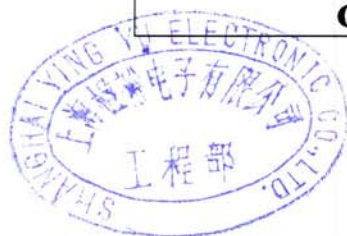
Add: No.366, Xianghuang Road, Nanxiang Town, Jiading, Shanghai, China

电话 (Tel): 021-69978846, 69978839

传真 (Fax): 021-69978838

一. 特性参数 Specifications

项 目 Item		无卤环保型 (HFT) Non-flammability
收缩温度 (°C) Shrink Temperature		125
收缩时间 (min) Shrink time		5min
连续使用温度 (°C) Temperature Range		-40-125
径向收缩率 (%) Radial Shrinking Ratio		> 50
轴向收缩率 (%) Longitudinal Shrinking Ratio		< 5
抗张强度 (MPa) Tensile Strength		> 10.4
断裂伸长率 (%) Elongation Ratio		> 200
空气烘箱老化 Aging in circulating-air oven		(158 ± 1.0) °C, 7天 (158 ± 1.0) °C, 7days
老化后 After aging	抗张强度 (MPa) Tensile Strength	> 7.3
	断裂伸长率 (%) Elongation Ratio	> 100
耐电压等级 (V) Dielectric Voltage Withstand		600/300
体积电阻率 (Ω · cm) Volume Resistivity		10 ¹⁴
击穿强度 (kV/mm) Dielectric Strength		> 15
裸铜腐蚀性 Corrosion of Bare Copper		无腐蚀 No corrosion
热冲击 Heat Shock		无裂纹 No cracking
冷弯曲 Cold Bend		无裂纹 No cracking
燃烧性 Flammability		VW-1
同心率 (%) Concentricity		> 65

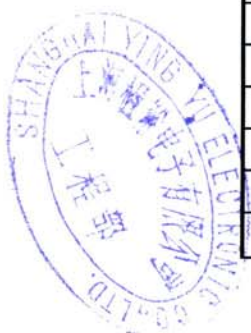


二. 环保物质控制 (Controlled hazardous substances)

Item	测试标准 Test Standard	测试结果 Test Result
镉 (Cd)	IEC 62321/2 111/95/CDV	<5ppm
铅 (Pb)	IEC 62321 111/95/CDV	<50ppm
汞 (Hg)	IEC 62321 111/95/CDV	<2ppm
铬 (Cr)	IEC 62321 111/95/CDV	<5ppm
多溴联苯(PBBs)	IEC 62321 111/95/CDV	N.D
多溴联苯醚(PBBEs)	IEC 62321 111/95/CDV	N.D
氯 (Cl)	IEC61189-2: 2006	<500ppm
溴 (Br)	IEC61189-2: 2006	<500ppm
氯、溴化合物合计含量	IEC61189-2: 2006	<1000ppm

三. 无卤环保型缩管成品尺寸规格(HFT Heat-shrinkable Tube Standard Sizes).

规格 Size	收缩前尺寸 As Supplied		完全收缩后尺寸 After Recovery	
	内径(D) Inside Diameter	壁厚(T) Wall-thickness	内径(d) Inside Diameter	壁厚(t) Wall-thickness
Φ0.8	1.2 ± 0.2	0.20±0.05	< 0.45	0.40±0.08
Φ1.0	1.5 ± 0.2	0.20±0.05	< 0.60	0.40±0.08
Φ1.5	2.0 ± 0.2	0.20±0.05	< 0.80	0.40±0.08
Φ2.0	2.5 ± 0.2	0.20±0.05	< 1.00	0.40±0.08
Φ2.5	3.0 ± 0.2	0.22±0.05	< 1.25	0.44±0.10
Φ3.0	3.5 ± 0.2	0.25±0.08	< 1.50	0.44±0.10
Φ3.5	4.0 ± 0.2	0.25±0.08	< 1.75	0.44±0.10
Φ4.0	4.5 ± 0.3	0.25±0.08	< 2.00	0.48±0.10
Φ4.5	5.0 ± 0.3	0.25±0.08	< 2.00	0.48±0.10
Φ5.0	5.5 ± 0.3	0.25±0.08	< 2.50	0.50±0.10
Φ6.0	6.5 ± 0.3	0.25±0.08	< 3.00	0.50±0.10
Φ6.5	7.0 ± 0.3	0.30±0.08	< 3.25	0.55±0.10
Φ7.0	7.7 ± 0.3	0.30±0.08	< 3.50	0.60±0.10
Φ8.0	8.7 ± 0.3	0.36±0.10	< 4.0	0.66±0.10
Φ9.0	9.7 ± 0.3	0.36±0.10	< 4.50	0.66±0.10
Φ10	10.7 ± 0.4	0.36±0.10	< 5.00	0.66±0.10
Φ11	11.7 ± 0.4	0.36±0.10	< 5.50	0.66±0.10
Φ12	12.7 ± 0.4	0.36±0.10	< 6.00	0.68±0.10
Φ13	13.7 ± 0.4	0.36±0.10	< 6.50	0.68±0.12
Φ14	14.7 ± 0.4	0.36±0.10	< 7.00	0.68±0.12
Φ15	15.7 ± 0.4	0.36±0.10	< 7.50	0.70±0.12
Φ16	16.7 ± 0.4	0.36±0.10	< 8.00	0.70±0.12
Φ17	17.7 ± 0.4	0.36±0.10	< 8.50	0.70±0.12
Φ18	18.7 ± 0.5	0.40±0.12	< 9.0	0.80±0.12
Φ20	20.7 ± 0.8	0.40±0.12	< 10.0	0.80±0.12
Φ22	22.7 ± 0.8	0.46±0.12	< 11.0	0.90±0.12

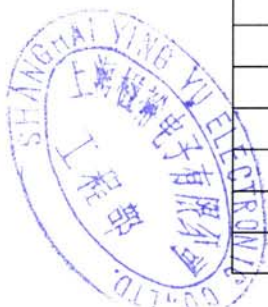


Φ25	26.0 ± 0.8	0.42±0.12	< 12.5	0.86±0.15
Φ28	29.2 ± 1.0	0.46±0.12	< 14.0	0.90±0.12
Φ30	31.0 ± 1.0	0.46±0.12	< 15.0	1.00±0.12
Φ35	36.0 ± 1.0	0.50±0.15	< 17.5	1.00±0.30
Φ40	41.0 ± 1.0	0.50±0.15	< 21.0	1.20±0.30
Φ45	46.0 ± 1.2	0.50±0.15	< 23.5	1.20±0.30
Φ50	51.0 ± 1.2	0.50±0.15	< 26.0	1.20±0.30
Φ60	61.0 ± 1.2	0.50±0.15	< 31.0	1.20±0.30
Φ80	81.0 ± 1.2	0.50±0.15	< 41.0	1.30±0.30

备注(Remark): 1.可接受特殊规格产品订单 (Other sizes are available upon special order).

四、环保薄型热缩管成品尺寸规格(CB-HFT Thin Heat-shrinkable Tube Standard Sizes)

规格	扩张后成品尺寸(mm)		完全收缩后尺寸(mm)	
	内径(D)	平均壁厚(T)	内径(d)	平均壁厚(t)
φ 0.6	0.8 ± 0.2	0.13 ± 0.05	< 0.40	0.22 ± 0.05
Φ0.7	0.9 ± 0.2	0.13 ± 0.05	< 0.45	0.22 ± 0.05
Φ0.8	1.2 ± 0.2	0.13 ± 0.05	< 0.45	0.23 ± 0.05
Φ1.0	1.5 ± 0.2	0.13 ± 0.05	< 0.60	0.25 ± 0.05
Φ1.5	2.0 ± 0.2	0.13 ± 0.05	< 0.80	0.25 ± 0.05
Φ2.0	2.5 ± 0.2	0.15 ± 0.05	< 1.00	0.28 ± 0.05
Φ2.5	3.0 ± 0.2	0.15 ± 0.05	< 1.25	0.30 ± 0.05
Φ3.0	3.5 ± 0.3	0.15 ± 0.05	< 1.50	0.30 ± 0.05
Φ3.5	4.0 ± 0.3	0.15 ± 0.05	< 1.75	0.30 ± 0.05
Φ4.0	4.5 ± 0.3	0.15 ± 0.05	< 2.0	0.30 ± 0.05
Φ5.0	5.5 ± 0.3	0.15 ± 0.05	< 2.5	0.30 ± 0.05
Φ6.0	6.5 ± 0.3	0.18 ± 0.06	< 3.0	0.36 ± 0.08
Φ7.0	7.7 ± 0.3	0.18 ± 0.06	< 3.5	0.36 ± 0.08
Φ8.0	8.5 ± 0.4	0.18 ± 0.06	< 4.0	0.36 ± 0.08
Φ9.0	9.5 ± 0.4	0.18 ± 0.06	< 4.5	0.36 ± 0.08
Φ10	10.5 ± 0.4	0.18 ± 0.06	< 5.0	0.36 ± 0.08
Φ11	11.5 ± 0.4	0.18 ± 0.06	< 5.5	0.36 ± 0.08
Φ12	12.5 ± 0.4	0.18 ± 0.06	< 6.0	0.36 ± 0.08
Φ13	13.5 ± 0.4	0.18 ± 0.06	< 6.5	0.36 ± 0.08
Φ14	14.5 ± 0.4	0.18 ± 0.06	< 7.0	0.36 ± 0.08
Φ15	15.5 ± 0.4	0.18 ± 0.06	< 7.5	0.36 ± 0.08
Φ16	16.5 ± 0.4	0.20 ± 0.08	< 8.0	0.40 ± 0.08
Φ17	17.5 ± 0.5	0.20 ± 0.08	< 8.5	0.40 ± 0.08
Φ18	18.6 ± 0.5	0.20 ± 0.08	< 9.0	0.40 ± 0.08
Φ20	20.6 ± 0.5	0.20 ± 0.08	< 10.0	0.40 ± 0.08
Φ22	22.6 ± 0.5	0.20 ± 0.08	< 11.0	0.40 ± 0.08
Φ25	25.7 ± 0.5	0.20 ± 0.08	< 12.5	0.40 ± 0.08
Φ30	31.0 ± 0.6	0.23 ± 0.10	< 15.0	0.48 ± 0.10
Φ60	61.0 ± 0.6	0.30 ± 0.10	< 30.0	0.60 ± 0.15



DATA MODUL



ALL TECHNOLOGIES. ALL COMPETENCIES. ONE SPECIALIST.



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