



Wire Jumpers

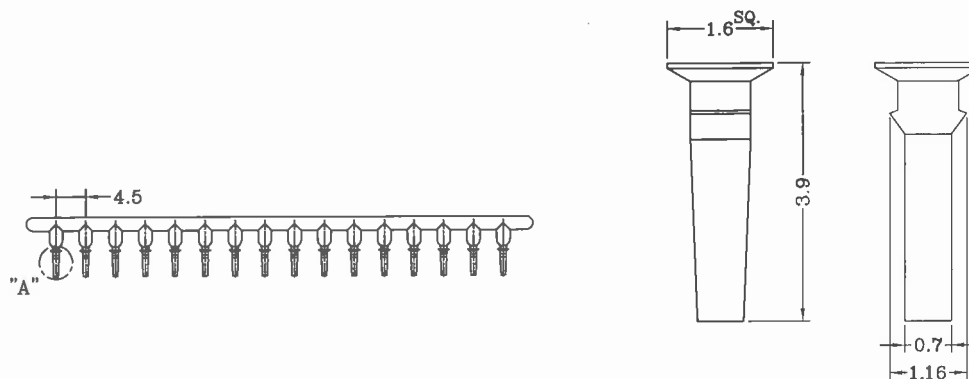
- Female Terminal Specifications
- Female Terminal Test Results
- Male Terminal Specifications
- Insulated Wire Specifications
- Insulated Wire Compliance
- Heat Shrink Tubing Specifications
- Daisy Chain Assembly Drawing

A2541 Series 2.54mm pitch polarizing key



Features:

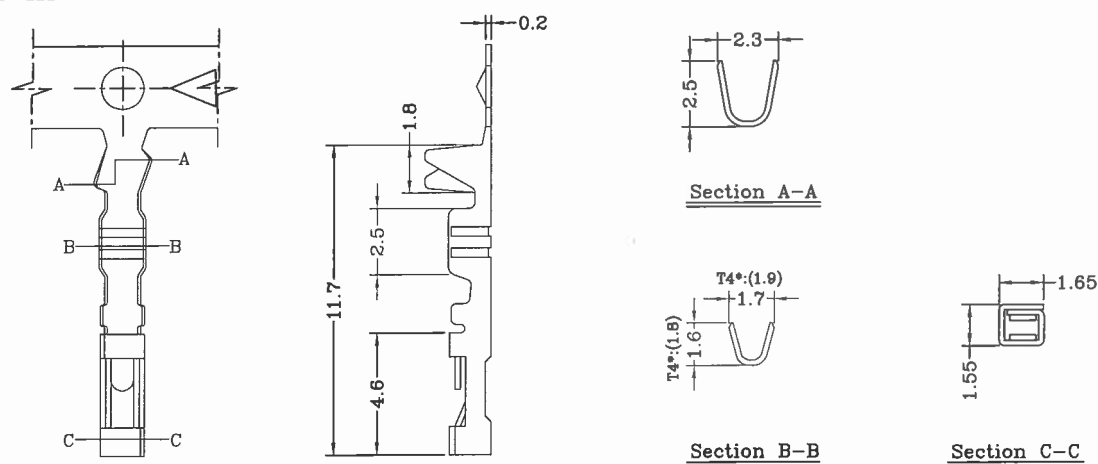
- * Material: PBT UL 94V-0 +30%GF/PA66 UL 94V-0 +15%GF (Black)
- * Unit Quantity: 1000 Pcs/Bag
- * Used in JWT A2541 & A2542 series socket
- * JWT P/N : A2541K00-16-** (Color: Black)
- * JWT P/N : A2541K00-16K-** (Color: White)



A2541 Series 2.54mm pitch crimp terminal

Features:

- * Used in JWT A2541 series socket



Specifications & Ordering Information:

Part No	Wire Range	Insulation O.D.	Material	Finish	Qty/reel
A2541T3*-2	AWG#22~#28	1.70mm(max)	Brass or P. Bronze	Tin-plated	10,000 PCS
A2541T3*-0*	AWG#22~#28	1.70mm(max)	Brass or P. Bronze	Au over Nickel	10,000 PCS
A2541T4*-0*	AWG#22~#28	1.70mm(max)	Brass or P. Bronze	Au over Nickel	10,000 PCS

Note: 0* (eg. 00, 0A, 0B...) designates Au-plate thickness identification.
For availability, delivery and MOQ, contact JWT.



37423 Fremont Blvd, Fremont CA 94536

510-744-9900 510-744-9909(fax)

Customer		Test Date	2014.11.16
Sample Set	Terminal	A2541T3P-2	Documentation Approval
	Housing	A2541H02-1×1P	Performed : 刘如建
	Wafer	A2541WV2-1×1P	Checked :
Sample Size	5 sample(s)		Approved : 朱芹

Equipment :

1. Auto-insertion & Withdrawal Test System (SE Testsystems AL-50K)

Test Condition :

1. Insert crimped terminal into connector housing manually
2. Mated connectors, fixed the connectors on a tester
3. mate and unmate connectors for 30 cycles at a rate of 25±3mm per minute, the locking device shall be removed.
4. Initial insertion&withdrawal force and at 10th, 30th withdrawal force shall be measured

Specification Requirement :

Initial Insertion force value :0.60 kgf. (maximum)

Initial withdrawal force value :0.20 kgf. (minimum)

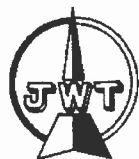
10th withdrawal force value : 0.19kgf. (minimum)

30th withdrawal force value : 0.19kgf. (minimum)

Results

Unit : kgf.

Sample No.	Initial Insertion force	Initial withdrawal force	10th withdrawal force	30th withdrawal force			
1	0.42	0.38	0.29	0.30			
2	0.51	0.36	0.26	0.23			
3	0.53	0.33	0.27	0.21			
4	0.49	0.38	0.26	0.28			
5	0.45	0.37	0.28	0.26			
Maximum	0.53	0.38	0.29	0.30			
Minimum	0.42	0.33	0.26	0.21			
Average	0.48	0.36	0.27	0.26			
Result	OK	OK	OK	OK			



加緯興業股份有限公司
JOWLE TECHNOLOGY CO., LTD.
台北縣新莊市化成路660巷13號
TEL : 85217306 FAX : 85217273

DOCUMENT NO.

RDS0022H

SERIAL NO.

A2541、A2542
A2545、A2549

PAGE : 3 OF 5

[3. PERFORMANCE]

3-1. Electrical Performance:

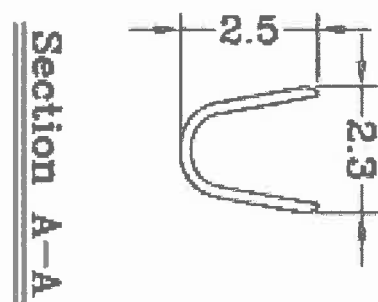
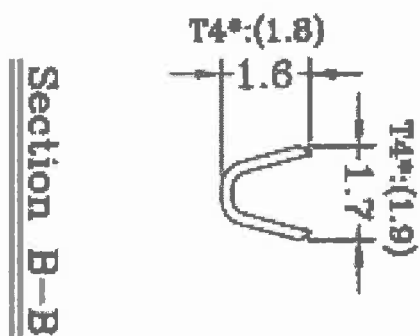
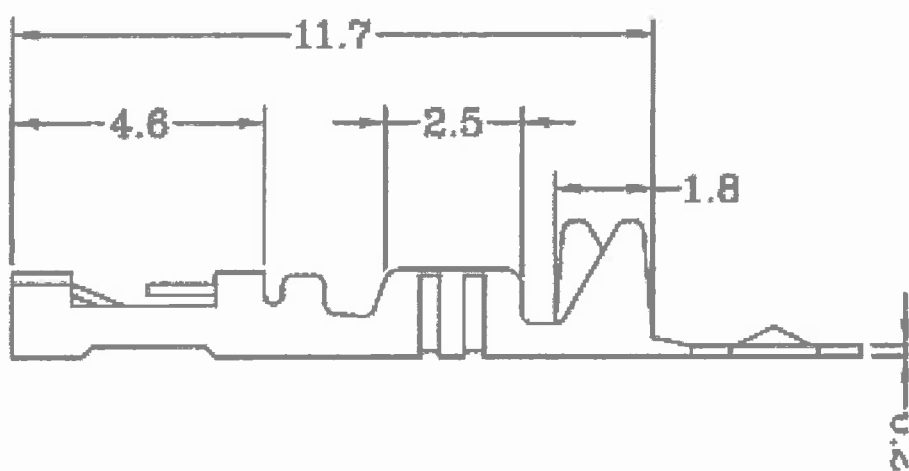
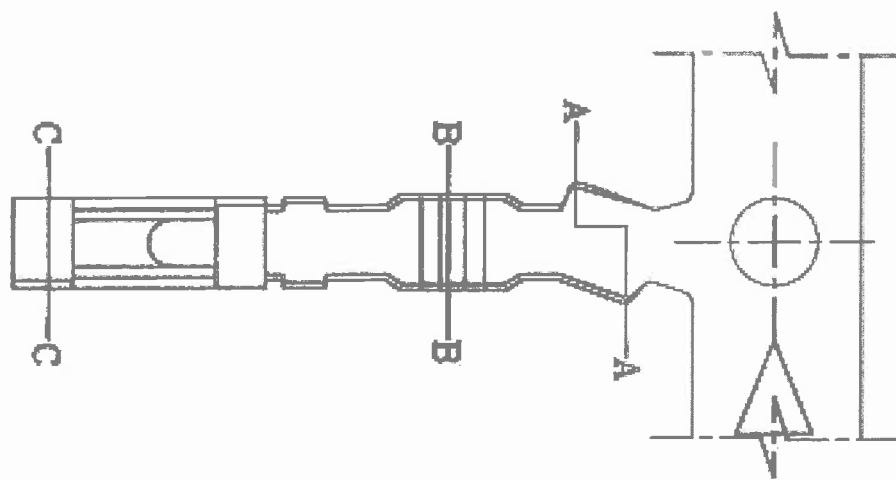


Item	Test Condition	Requirement
3-1-1	Mate connectors, measure by dry circuit, 20mV MAX., 10mA. Mated Length : 50mm (AWG #22) (Based upon JIS C5402 5.4)	20mΩ MAX.
3-1-2	Mate connectors, apply 500V D.C. between adjacent terminal or ground. (Based upon JIS C5402 5.2 / MIL-STD-202 Method 302 Condition B)	1000MΩ MIN.
3-1-3	Mate connectors, apply 800V A.C. for 1 minute between adjacent terminal or ground.(Based upon JIS C5402 5.1 / MIL-STD-202 Method 301)	No Breakdown and Flashover
3-1-4	Crimp the maximum applicable wire on to the terminal, measure by dry circuit, 20mV MAX., 10mA. Wire Length : 50mm (AWG #22)	20mΩ MAX.

3-2. Mechanical Performance:

Item	Test Condition	Requirement
3-2-1	Insert and withdraw connectors at the speed rate of 25±3mm/minute.	Insertion force: (per pin)
		A2541T3*-2 / A2541T3*-00
		600gf
		A2541T3*-L A2549T3*-*
		250gf 250gf
		Withdrawal force: (per pin)
		(MIN) A2541T3*-2* / A2541T3*-00
		1st 200gf
		10th 190gf
		30th 190gf
3-2-2	Fix the crimped terminal, apply axial pull out force on the wire at a constant speed of 25±3mm/minute. (Based upon JIS C5402 6.22)	(MIN) A2541T3*-L A2549T3*-*
		1st 80gf 50gf
		10th 80gf 50gf
		30th 80gf 50gf
		WIRE SIZE (AWG) #22 #24 #26 #28
		CRIMP WIDTH 1.40±0.10
		CRIMP HEIGHT 0.84 0.75 0.68 0.61
		~0.93 ~0.84 ~0.77 ~0.70
		CRIMP WIDTH 1.60
		CRIMP HEIGHT 1.95 1.80 1.75 1.55
		CRIMP STRENGTH 4.8kgf 3.0kgf 1.8kgf 1.1kgf
		(MIN) (MIN) (MIN) (MIN)
		① CONDUCTOR(mm) ② INSULATION(mm)

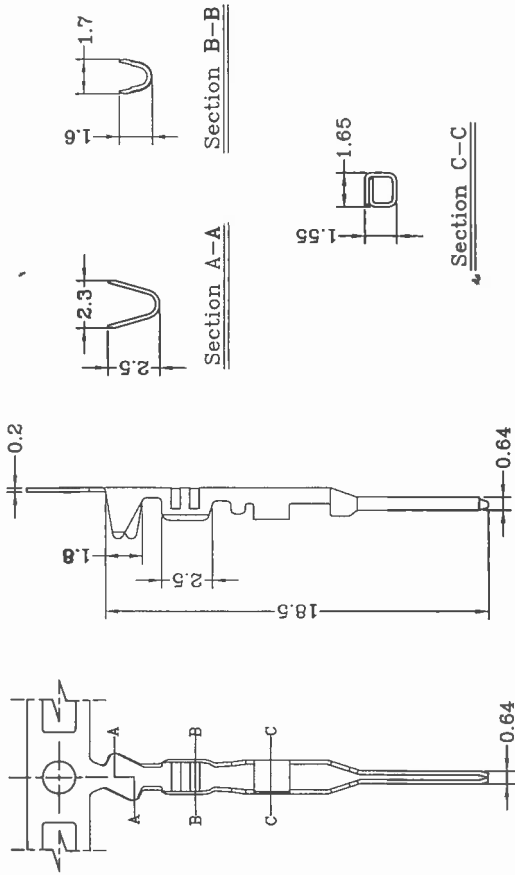
¹: For reference only.



A2542 Series 2.54mm pitch crimp terminal

Features:

* Used in JWT A2541 & A2542 series socket



Specifications & Ordering Information:

Part No	Wire Range	Insulation O.D.	Material	Finish	Qty/Reel	NOTE
A2542T3B-2	AWG #24~#28	1.60mm(max)	Brass	Tin-plated	10,000 PCS	e: Stamping before tin plating
A2542T3B-2e	AWG #24~#28	1.60mm(max)	Brass	Tin-plated	10,000 PCS	
A2542T3B-0*	AWG #24~#28	1.60mm(max)	Brass	Au over Nickel	10,000 PCS	

Note: 0* (eg. 00, 0A, 0B...) designates Au-plate thickness identification.
For availability, delivery and MOQ, contact JWT.



規 格 書

SPECIFICATION

PURCHASER	日 盛
PRODUCTS NAME	SR-PVC Insulated Hook-Up Wire UL1061(LF)
SPEC. NUM.	BDD-99021 (D06XA-)
REFE.SPEC.	UL SUB. 758 & CSA C22.2 No.210
DATE	2010.01.27

AUTHORIZED BY	APPROVED BY	DESIGNED BY
		

PURCHASER RECOGNITION

Description:

UL1061(LF) SR-PVC Insulated Hook-Up Wire	
Size	16AWG ~ 28AWG
Rating	80°C , 300V
Conductor	Tinned annealed copper wire
Insulation	Lead Free SR-PVC
Packing	The wire shall be delivered on coiled in specified length, and the interval joint may exist.
Marking	1061 E41396  AWM VW-1 80°C 300V PACIFIC CSA AWM I A/B FT1 SR-PVC LL47210 80°C 300V NO.AWG -F- LF
Note: 1. Marking may be some modification which must be complied with UL and CSA requirements. 2. The Lead Free Cable can meet EU RoHS requirements.	

Construction:

Construction of Conductor		Conductor Overall Diameter	Insulation Nominal Thickness	Approximate Overall Diameter	Maximum Conductor Resistance
AWG	No./mm	mm	mm	mm	$\Omega/\text{km}(20^{\circ}\text{C})$
28	7/0.127	0.38	0.26	0.9 ± 0.05	239
26	7/0.16	0.48	0.26	1.0 ± 0.05	150
24	11/0.16	0.61	0.27	1.15 ± 0.08	94.2
22	17/0.16	0.76	0.27	1.3 ± 0.08	59.4
20	21/0.18	0.95	0.27	1.49 ± 0.08	36.7
18	34/0.18	1.2	0.3	1.8 ± 0.1	23.2
16	26/0.254	1.5	0.35	2.2 ± 0.1	14.6

Electrical Properties:

Spark Test	3000V/0.15sec
Dielectric Test	2000V/min

Physical Properties:

Insulation:	
Tensile Strength (min)	3000Psi
Elongation (min)	100%
Aging test	113°C for 168 hours
Tensile Strength (min)	70%
Elongation (min)	70%
Deformation Test	The thickness of insulation shall not decrease more than 50% when subjected to a temperature of 121°C for 1 hour and loaded a 250 grams weight.

Heat Shock Test	No crack shall be shown on the surface after one hour at 121°C when the finished wire tightly wound for 6 turns onto a mandrel of two times diameter.
Cold Bend Test	No crack shall be shown on the surface after four hours at -10°C when the finished wire tightly wound for 6 turns onto a mandrel of two times diameter.
Flame Retardant Test	UL subject 758 VW-1



寧波太平洋電纜有限公司

(太平洋電線電纜股份有限公司集團企業)

電話：0574-88035170 傳真：0574-88035671

浙江省 寧波市 鄞州區 鄞江鎮 四明東路 103號 (郵編：315151)

NO. 103, SI-MING EAST ROAD, YINJIANG TOWN, YINZHOU ZONE, NINGBO, ZHEJIANG, CHINA (315151)



規格承認書 Specification

Purchaser	
Products Name	UL1007 PVC Insulated Wire LF
Spec. No.	
Reference Standard	UL Sub.758 / CSA AWM
Date	2013.04.12

Authorized By	Approved by	Designed By

Purchaser Recognition

Description

UL1007 PVC INSULATED WIRE LF (LEAD FREE)	
Conductor Size	30AWG ~ 16AWG
Rating Temperature (°C)	80°C
Conductor	Tinned Stranded Annealed Copper
Rating Voltage (V)	300V
Packing	The wire shall be delivered on coiled in specified length.

Construction

Conductor		Nominal Insulation Thickness	Overall Diameter (mm)	Maximum (@20°C) Conductor Resistance
AWG	No./mm			
30	7/0.102	0.40	1.10±0.08	381.0
28	7/0.127	0.40	1.18±0.08	239.0
26	7/0.16	0.40	1.28±0.08	150.0
24	7/0.203	0.40	1.41±0.08	94.2
24	11/0.16	0.40	1.41±0.08	94.2
22	7/0.254	0.40	1.56±0.08	59.4
22	17/0.16	0.40	1.56±0.08	59.4
20	7/0.32	0.40	1.76±0.08	36.7
20	21/0.18	0.40	1.75±0.08	36.7
18	7/0.404	0.40	2.00±0.08	23.2
18	34/0.18	0.40	2.00±0.08	23.2
16	26/.254	0.45	2.40±0.10	14.6

Physical & Electrical Properties

Comply with Standard		UL Sub.758 CSA AWM		
Flamability Test		Pass UL Sub.758 VW-1		
Insulation	Tensile Strength	1500PSI min.	121°C/168hrs Aged Reserve	70%min.
	Elongation	100% min.		65%min.
Spark Test		3.0KV/0.15sec No breakdown		
Dielectric Strength		2.0KV/1min. No breakdown		
Deformation Test		121°C/1hr 250g · (400g for 20AWG~16AWG) max:50%		
Flexibility Test		121°C/168HRs, Twice the diameter of the insulation 6 adjacent turns No cracks		

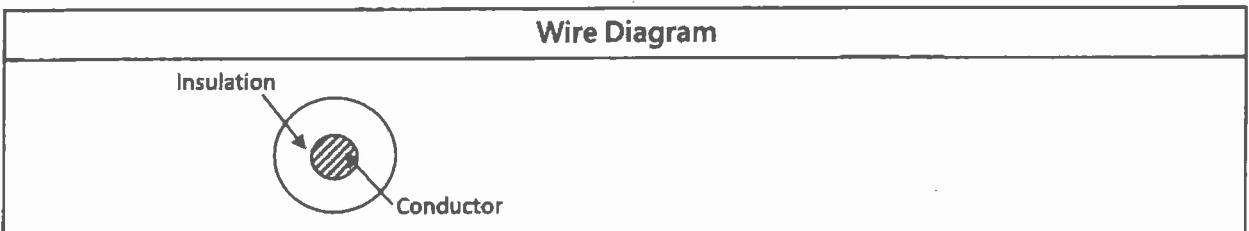
Heat Shock Test	121°C/1HR, Twice the diameter of the insulation 6 adjacent turns No cracks
Cold Bend	-10°C/4HRs, Twice the diameter of the insulation 6 adjacent turns No cracks

Marking

1007 E357645 A AWM VW-1 80°C 300V PACIFIC(NINGBO) A AWM I A/B FT1 90°C XX AWG LF

Colour

Black, Brown, Red, Orange, Yellow, Green, Blue, Purple, Gray, White, Dark Blue, Dark Green



CERTIFICATE OF COMPLIANCE

Certificate Number 20120827-E357645
Report Reference E354177-20120824A
Issue Date 2012-AUGUST-27

Issued to: NINGBO PACIFIC CABLE CO LTD
NO 103 SI-MING EAST ROAD
YIN-JIANG TOWN YING-ZHOU BOROUGH
NINGBO
ZHEJIANG 315151 CHINA

This is to certify that COMPONENT - APPLIANCE WIRING MATERIAL
representative samples of PLEASE NEXT PAGE FOR MODELS/STYLES

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 758- Appliance Wiring Material
Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Recognized Component Mark should be considered as being covered by UL's Recognition and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark:  may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Recognized Component Mark on the product.



William R. Carney, Director, North American Certification Programs

UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20120827-E357645
Report Reference E354177-20120824A
Issue Date 2012-AUGUST-27

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Product: SINGLE-CONDUCTOR THERMOPLASTIC-INSULATED WIRE

Models/ Styles: 1007, 1015, 1032, 1061, 1095, 1429, 1430, 1431, 1533,
1569, 1571, 1617, 1618, 1672, 1691, 10064, 10097, 10183, 10368,
10369, 10625, 11352, 11353



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Certificate Number 20120827-E357645
Report Reference E354177-20120824B
Issue Date 2012-AUGUST-27

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NO 103 SI-MING EAST ROAD
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NINGBO
ZHEJIANG 315151 CHINA

This is to certify that COMPONENT - APPLIANCE WIRING MATERIAL
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Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 758- Appliance Wiring Material
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Certificate Number 20120827-E357645
Report Reference E354177-20120824B
Issue Date 2012-AUGUST-27

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

PRODUCT: MULTI-CONDUCTOR THERMOPLASTIC-INSULATED WIRE

MODELS/STYLES: 2464, 2468, 2547, 2552, 2725, 2851, 2854, 20276



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CERTIFICATE OF COMPLIANCE

Certificate Number 20120827-E357645
Report Reference E354177-20120804C
Issue Date 2012-AUGUST-27

Issued to: NINGBO PACIFIC CABLE CO LTD
NO 103 SI-MING EAST ROAD
YIN-JIANG TOWN YING-ZHOU BOROUGH
NINGBO
ZHEJIANG 315151 CHINA

This is to certify that COMPONENT - APPLIANCE WIRING MATERIAL
representative samples of PLEASE NEXT PAGE FOR MODELS/STYLES

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 758- Appliance Wiring Material
Additional Information: See the UL Online Certifications Directory at
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CERTIFICATE OF COMPLIANCE

Certificate Number 20120827-E357645
Report Reference E354177-20120804C
Issue Date 2012-AUGUST-27

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

PRODUCT: SINGLE-CONDUCTOR THERMOSETTING-INSULATED WIRE
MODEL/STYLES: 3265, 3266, 3271, 3289, 3302, 3317, 3321, 3385, 3386, 3398,
3443, 3613, 3633, 3688.



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CERTIFICATE OF COMPLIANCE

Certificate Number 20120827-E357645
Report Reference E354177-20120825
Issue Date 2012-AUGUST-27

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NINGBO
ZHEJIANG 315151 CHINA

This is to certify that COMPONENT - APPLIANCE WIRING MATERIAL
representative samples of PLEASE REFER NEXT PAGE FOR MODELS/STYLES

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: C22.2 No. 210 - Appliance Wiring Material Products
Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Recognized Component Mark for Canada should be considered as being covered by UL's Recognition and Follow-Up Service meeting the appropriate Canadian requirements.

The UL Recognized Component Mark for Canada consists of the UL Recognized Mark for Canada:  and the manufacturer's identification and catalog number, model number, or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory.

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CERTIFICATE OF COMPLIANCE

Certificate Number 20120827-E357645
Report Reference E354177-20120825
Issue Date 2012-AUGUST-27

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Appliance Wire, Extruded PVC, Insulated Singles, Class I, Group A, B, or A/B.

Appliance Wire, Extruded PVC, Multiconductor Flat Ribbon Cable, Class I, Group A, B, or A/B.

Appliance Wire, Extruded SRPVC, Insulated Singles, Class I, Group A, B, or A/B.

Appliance Wire, Extruded FEP, Insulated Singles, Class I, Group A, B, or A/B.

Appliance Wire, Extruded XLPVC, Insulated Singles, Class I, Group A, B, or A/B.

Appliance Wire, Extruded XLPE, Insulated Singles, Class I, Group A, B, or A/B.

Appliance Wire, Extruded TPE, Insulated Singles, Class I, Group A, B, or A/B.

Appliance Wire, Extruded HDPE, Insulated Singles, For further processing as insulated singles in jacketed cable, Class I, Group A, B, or A/B

Appliance Wire, Single or Multiconductor Cable with non-integral PVC jacket, Class I, II, or I/II, Group A, B, or A/B



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HAMBURG INDUSTRIES CO.,LTD

6FL, No.12, Lane 270, Sec.3, Pei Shen Rd., Shen Keng Hsiang, Taipei Hsien, Taiwan 222

PRODUCT SPECIFICATION

HAMBURG H-2 環保阻燃熱收縮套管(無鹵)

Halogen free, environmentally friendly, flexible, flame-retardant polyolefin tubing

■ 應用

HAMBURG H-2 系柔軟、無鹵阻燃、輻照交聯聚烯烴復合物制成之優質環保型熱收縮套管，通過 UL 及 CSA 認證。該產品不含任何鹵素阻燃劑，不含有氯化物 PCBs、PCPs 及多溴聯苯 PBBs、多溴氧化聯苯 PBBOs、多溴聯苯醚 PBBEs、PBDEs 等危害環境的物質，符合歐洲 RoHS 環保指令及 SONY SS00259 標準的環保要求。廣泛應用於線纜絕緣保護、端末或連接處的絕緣處理或應力解除、線材加工的被覆與絕緣保護、焊點保護、電子元器件的包覆、電阻、電容的絕緣保護、金屬產品的防鏽、防腐蝕處理，電線標示或標色等。

■ 特點

- ◎收縮比 2:1
- ◎低溫收縮
- ◎柔軟、高阻燃
- ◎優異的物理、化學及電學性能
- ◎不含鹵素阻燃劑，不含氯化物 PCBs、PCPs 及多溴聯苯 PBBs、多溴氧化聯苯 PBBOs、多溴聯苯醚 PBBEs、PBDEs 等對環境有害的物質，符合歐洲 RoHS 環保指令及 SONY SS00259 標準的環保要求。
- ◎可提供多種規格及顏色

■ 熱收縮性能

- ◎連續使用的環境溫度：-55℃~125℃
- ◎起始收縮溫度：70℃
- ◎完全收縮溫度：125℃
- ◎縱向收縮率：≤5%

■ 認證 / 符合標準

- ◎ UL224 E255394 125℃ 600V VW-1
- ◎ CSA C22.2 238014 125℃ 600V VW-1

■ Application

HAMBURG H-2 is halogen free, environmentally friendly, flexible, flame-retardant, irradiated crosslinking heat-shrinkable modified polyolefin tubing. It contains no added halogens, and is free of PCBs, PCPs, polybrominated biphenyls (PBBs), polybrominated biphenyl oxides and others (PBBOs, PBBEs and PBDEs) and toxic heavy metal (Pb, Cd, Hg, Cr⁶⁺) compounds, which are classified as environmentally hazardous substances. This high-reliability product is widely used for insulation or jacketing of wire harness, strain relief of wire terminations and connections, bundling of wire harness, protection of soldered points, insulation and capsule of electronic components, anti-corrosive protection, identification and color coding, etc.

■ Features/Benefits

- ◎Shrink ration:2:1
- ◎Low shrink temperature
- ◎Very flexible, flame-retardant
- ◎Good thermal stability
- ◎Excellent physical, chemical and electrical properties
- ◎No added halogens, free of PCBs, PCPs, polybrominated biphenyls (PBBs), polybrominated biphenyl oxides and others (PBBOs, PBBEs, and PBDEs) and toxic heavy metal (Pb, Cd, Hg, Cr⁶⁺) compounds, which are classified as environmentally hazardous substances, Conforms to European RoHS environmental directive.
- ◎Wide range of sizes and colors

■ Heat shrinking property

- ◎Temperature range: -55℃~125℃
- ◎Shrinking temperature: 70℃
- ◎Full recovery temperature: 125℃
- ◎Longitudinal shrinking: ≤5%

■ Standards/Approvals

- ◎UL224 E255394 125℃ 600V VW-1
- ◎CSA C22.2 238014 125℃ 600V VW-1



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■ 性能特性 Property

性能 Property		單位 Unit	測試方法 Test method	性能指標 Standard
物理性能 Physical	拉伸強度 Tensile strength	Mpa	GB/T1040	≥ 10.4
	斷裂伸長率 Elongation	%	GB/T1040	≥ 200
	熱老化後拉伸強度 Tensile strength after aging	Mpa	UL224 158°Cx168hr	≥ 7.3
	熱老化後斷裂伸長率 Elongation after aging	%	UL224 158°Cx168hr	≥ 100
	耐熱沖擊 Heat Resistance	-	UL224 250°Cx4hr	不發粘, 不龜裂 No viscosity, No cracking
	抗冷彎曲 Cold blend	-	UL224 -30°Cx4hr	不龜裂 No cracking
電氣性能 Electrical	擊穿強度 Dielectric strength	KV/mm	GB/T1408	≥ 15
	耐壓 Dielectric withstand	V	UL224	2500V 不擊穿 No breaking for 2500V
	體積電阻率 Volume resistance	$\Omega \cdot \text{cm}$	GB/T1410	$\geq 1 \times 10^{14}$
化學性能 Chemical	抗腐蝕性 Anti Corrosion	-	UL224 158°Cx168hr	通過 Pass
	銅安定性 Copper stability	-	UL224 158°Cx168hr	通過 Pass
	阻燃性 Flammability	-	UL224	VW-1

HAMBURG H-2

V1.5

For further information, please contact:

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規格尺寸 Product sizes

規格 Size(mm)	收縮前(mm) As supplied		收縮後(mm) After recovery		包裝(米/捲) Packing (M/Spool)	適用範圍 Application (mm)
	內徑(I.D.) Inside diameter	壁厚(W.T.) Wall thickness	內徑(I.D.) Inside diameter	壁厚(W.T.) Wall Thickness		
Φ0.5	0.8 ± 0.2	0.15 ± 0.05	≤0.30	0.22 ± 0.10	400	0.4~0.7
Φ0.6	0.9 ± 0.2	0.15 ± 0.05	≤0.40	0.22 ± 0.10	400	0.5~0.7
Φ0.8	1.1 ± 0.2	0.15 ± 0.05	≤0.50	0.22 ± 0.10	400	0.6~0.8
Φ1.0	1.5 ± 0.2	0.15 ± 0.05	≤0.65	0.28 ± 0.10	400	0.75~0.9
Φ1.5	2.0 ± 0.2	0.18 ± 0.05	≤0.90	0.32 ± 0.10	400	0.95~1.4
Φ2.0	2.5 ± 0.2	0.18 ± 0.05	≤1.00	0.35 ± 0.10	400	1.1~1.8
Φ2.5	3.0 ± 0.2	0.18 ± 0.05	≤1.30	0.38 ± 0.10	400	1.35~2.3
Φ3.0	3.5 ± 0.2	0.18 ± 0.05	≤1.50	0.40 ± 0.10	400	1.6~2.7
Φ3.5	4.0 ± 0.2	0.22 ± 0.05	≤1.80	0.42 ± 0.10	400	1.85~3.2
Φ4.0	4.5 ± 0.2	0.25 ± 0.05	≤2.00	0.45 ± 0.10	400	2.1~3.6
Φ4.5	5.0 ± 0.2	0.25 ± 0.05	≤2.30	0.50 ± 0.10	200	2.35~4.0
Φ5.0	5.5 ± 0.2	0.25 ± 0.05	≤2.50	0.55 ± 0.10	200	2.6~4.5
Φ6.0	6.5 ± 0.2	0.28 ± 0.05	≤3.00	0.55 ± 0.10	200	3.1~5.4
Φ7.0	7.5 ± 0.3	0.28 ± 0.05	≤3.50	0.55 ± 0.10	100	3.7~6.3
Φ8.0	8.5 ± 0.3	0.28 ± 0.05	≤4.00	0.60 ± 0.10	100	4.2~7.2
Φ9.0	9.5 ± 0.3	0.30 ± 0.08	≤4.50	0.60 ± 0.10	100	4.7~8.0
Φ10.0	10.5 ± 0.3	0.30 ± 0.08	≤5.00	0.60 ± 0.10	100	5.2~9.0
Φ11.0	11.5 ± 0.3	0.30 ± 0.08	≤5.50	0.60 ± 0.10	100	5.7~10.0
Φ12.0	12.5 ± 0.3	0.30 ± 0.08	≤6.00	0.60 ± 0.10	100	6.2~11.0
Φ13.0	13.5 ± 0.3	0.35 ± 0.10	≤6.50	0.65 ± 0.10	100	6.7~12.0
Φ14.0	14.5 ± 0.3	0.35 ± 0.10	≤7.00	0.65 ± 0.10	100	7.3~13.0
Φ15.0	15.5 ± 0.4	0.40 ± 0.12	≤7.50	0.70 ± 0.10	100	7.8~14.0
Φ16.0	16.5 ± 0.4	0.40 ± 0.12	≤8.00	0.70 ± 0.10	100	8.3~15.0
Φ17.0	17.5 ± 0.4	0.40 ± 0.12	≤8.50	0.70 ± 0.10	100	8.8~16.0
Φ18.0	19.0 ± 0.5	0.40 ± 0.15	≤9.00	0.80 ± 0.15	100	9.3~17.0
Φ20.0	22.0 ± 0.5	0.40 ± 0.15	≤10.00	0.80 ± 0.15	100	10.4~19.0
Φ22.0	24.0 ± 0.5	0.40 ± 0.15	≤11.00	0.80 ± 0.15	100	11.4~21.0
Φ25.0	26.0 ± 0.5	0.50 ± 0.15	≤12.50	0.90 ± 0.15	50	12.8~24.0
Φ28.0	29.0 ± 0.5	0.50 ± 0.15	≤14.00	0.90 ± 0.15	50	14.4~29.0
Φ30.0	31.5 ± 1.0	0.50 ± 0.15	≤15.00	0.95 ± 0.15	50	16.0~29.0
Φ35.0	36.5 ± 1.0	0.50 ± 0.15	≤17.50	1.00 ± 0.15	50	18.0~34.0
Φ40.0	41.5 ± 1.0	0.55 ± 0.15	≤20.00	1.00 ± 0.15	50	21.0~39.0
Φ45.0	46.5 ± 1.0	0.55 ± 0.15	≤22.50	1.00 ± 0.15	25	23.5~44.0
Φ50.0	≥50	0.55 ± 0.15	≤25.00	1.00 ± 0.15	25	26.0~49.0

HAMBURG H-2

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Ordering Information

◎Color: Black.

other colors are available upon request.

◎Nonstandard size: Special sizes are available upon request.

◎Standard packaging: On spools, Cut pieces are available upon request.

◎Ordering description: Specify product type, size (mm or inch) and color.

For further information, please contact:

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HAMBURG INDUSTRIES CO.,LTD

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PRODUCT SPECIFICATION

HAMBURG H-2(CB) 環保阻燃薄壁熱收縮套管(無鹵)

Halogen free, environmentally friendly, ultra thin-wall, flame-retardant polyolefin tubing

■ 應用

HAMBURG H-2(CB)系柔軟、無鹵阻燃、輻照交聯聚烯烴復合物制成之環保超薄型熱收縮套管，通過UL及CSA認證。H-2(CB)系超薄設計，快速收縮，特別適用於空間緊張和對溫度敏感的場合。例如，高密度連接器的應力解除，輕、薄、小、熱敏元件的絕緣保護等。H-2(CB)不含鹵素阻燃劑，不含PCBs、PCPs、PBBs、PBBOs、PBBEs、PBDEs等對環境有害的物質，符合環保要求。

■ 特點

- ◎收縮比 2 : 1
- ◎低溫收縮、快速收縮
- ◎柔軟、高阻燃
- ◎優異的物理、化學及電學性能
- ◎不含鹵素阻燃劑，不含 PCBs、PCPs、PBBs、PBBOs、PBBEs、PBDEs 等對環境有害的物質，符合歐洲 RoHS 環保指令及 SONY SS00259 標準的要求。
- ◎可提供多種規格及顏色

■ 熱收縮性能

- ◎ 連續使用環境溫度：-55℃~125℃
- ◎ 起始收縮溫度：70℃
- ◎ 完全收縮溫度：125℃
- ◎ 縱向收縮率：≤5%

■ 認證 / 符合標準

- ◎UL224 E255394 125℃ 300V VW-1
- ◎CSA C22.2 238014 125℃ 150V VW-1

■ Application

HAMBURG H-2(CB) is halogen free, environmentally friendly, flexible, ultra thin-wall, flexible, flame-retardant, irradiated cross-linking heat-shrinkable modified polyolefin tubing. It is designed for applications that require an ultra thin wall for rapid shrinking and space saving. Low shrink temperature further reduces installation time and the risk of damage to temperature-sensitive components.

■ Features/Benefits

- ◎Shrink ration:2:1
- ◎Low shrink temperature
- ◎Ultra thin-wall, rapid shrinking.
- ◎Very flexible, flame-retardant
- ◎No added halogens, free of PCBs, PCPs, polybrominated biphenyls (PBBs), polybrominated biphenyl oxides and others (PBBOs, PBBEs, and PBDEs) and toxic heavy metal (Pb, Cd, Hg, Cr6+) compounds, which are classified as environmentally hazardous substances. Conforms to European RoHS environmental directive.
- ◎Wide range of sizes and colors

■ Heat shrinking property

- ◎Temperature range: -55℃~125℃
- ◎Shrink temperature: 70℃
- ◎Full recovery temperature: 125℃
- ◎Longitudinal shrinking: ≤5%

■ Standards/Approvals

- ◎UL224 E255394 125℃ 300V VW-1
- ◎CSA C22.2 238014 125℃ 150V VW-1

HAMBURG H-2(CB)

V1.5

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■ 性能特性 Property

性能 Property		單位 Unit	測試方法 Test method	性能指標 Typical data
物理性能 Physical	拉伸強度 Tensile strength	Mpa	GB/T1040	≥ 10.4
	斷裂伸長率 Elongation	%	GB/T1040	≥ 200
	熱老化後拉伸強度 Tensile strength after aging	Mpa	UL224 158°Cx168hr	≥ 7.3
	熱老化後斷裂伸長率 Elongation after aging	%	UL224 158°Cx168hr	≥ 100
	耐熱沖擊 Heat Resistance	-	UL224 250°Cx4hr	不發粘,不龜裂 No viscosity, No cracking
	抗冷彎曲 Cold blend	-	UL224 -30°Cx4hr	不龜裂 No cracking
電氣性能 Electrical	擊穿強度 Dielectric strength	KV/mm	GB/T1408	≥ 15
	耐壓 Dielectric withstand	V	UL224	1500V 不擊穿 No breaking for 1500V
	體積電阻率 Volume resistance	$\Omega \cdot \text{cm}$	GB/T1410	$\geq 1 \times 10^{14}$
化學性能 Chemical	抗腐蝕性 Anti Corrosion	-	UL224 158°Cx168hr	通過 Pass
	銅安定性 Copper stability	-	UL224 158°Cx168hr	通過 Pass
	阻燃性 Flammability	-	UL224	VW-1

HAMBURG H-2(CB)

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規格尺寸 Product sizes

規格 Size(mm)	收縮前(mm) As supplied		收縮後(mm) After recovery		包裝(米/捲) Packing (M/Spool)	適用範圍 Application (mm)
	內徑(I.D.) Inside diameter	壁厚(W.T.) Wall thickness	內徑(I.D.) Inside diameter	壁厚(W.T.) Wall thickness		
Φ0.6	0.9 ± 0.2	0.13 ± 0.05	≤0.40	0.20 ± 0.10	400	0.4~0.7
Φ0.8	1.1 ± 0.2	0.13 ± 0.05	≤0.50	0.20 ± 0.10	400	0.6~0.8
Φ1.0	1.4 ± 0.2	0.13 ± 0.05	≤0.65	0.20 ± 0.10	400	0.7~1.0
Φ1.5	1.9 ± 0.2	0.13 ± 0.05	≤0.90	0.20 ± 0.10	400	0.9~1.4
Φ2.0	2.4 ± 0.2	0.13 ± 0.05	≤1.00	0.22 ± 0.10	400	1.1~1.8
Φ2.5	2.9 ± 0.2	0.13 ± 0.05	≤1.30	0.25 ± 0.10	400	1.4~2.3
Φ3.0	3.4 ± 0.2	0.13 ± 0.05	≤1.50	0.28 ± 0.10	400	1.6~2.7
Φ3.5	3.9 ± 0.2	0.13 ± 0.05	≤1.80	0.28 ± 0.10	400	1.9~3.2
Φ4.0	4.4 ± 0.2	0.15 ± 0.05	≤2.00	0.30 ± 0.10	400	2.1~3.6
Φ4.5	4.9 ± 0.2	0.15 ± 0.05	≤2.30	0.30 ± 0.10	200	2.4~4.0
Φ5.0	5.5 ± 0.2	0.15 ± 0.05	≤2.50	0.32 ± 0.10	200	2.6~4.5
Φ6.0	6.5 ± 0.2	0.15 ± 0.05	≤3.00	0.32 ± 0.10	200	3.1~5.4
Φ7.0	7.5 ± 0.3	0.15 ± 0.05	≤3.50	0.32 ± 0.10	200	3.7~6.3
Φ8.0	8.5 ± 0.3	0.15 ± 0.05	≤4.00	0.32 ± 0.10	200	4.2~7.2
Φ9.0	9.5 ± 0.3	0.15 ± 0.05	≤4.50	0.35 ± 0.10	200	4.7~8.0
Φ10.0	10.5 ± 0.3	0.15 ± 0.05	≤5.00	0.35 ± 0.10	200	5.2~9.0
Φ11.0	11.5 ± 0.3	0.18 ± 0.05	≤5.50	0.40 ± 0.10	200	5.7~10.0
Φ12.0	12.5 ± 0.3	0.20 ± 0.05	≤6.00	0.40 ± 0.10	200	6.2~11.0
Φ13.0	13.5 ± 0.3	0.20 ± 0.05	≤6.50	0.40 ± 0.10	200	6.7~12.0
Φ14.0	14.5 ± 0.3	0.20 ± 0.05	≤7.00	0.40 ± 0.10	200	7.3~13.0
Φ15.0	15.5 ± 0.4	0.20 ± 0.05	≤7.50	0.40 ± 0.10	200	7.8~14.0
Φ16.0	16.5 ± 0.4	0.22 ± 0.05	≤8.00	0.40 ± 0.10	200	8.3~15.0
Φ17.0	17.5 ± 0.4	0.22 ± 0.05	≤8.50	0.40 ± 0.10	200	8.8~16.0
Φ18.0	18.5 ± 0.4	0.22 ± 0.05	≤9.00	0.42 ± 0.10	200	9.3~17.0
Φ20.0	20.5 ± 0.5	0.25 ± 0.05	≤10.00	0.45 ± 0.10	200	10.5~19.0
Φ22.0	22.5 ± 0.5	0.25 ± 0.05	≤11.00	0.45 ± 0.10	200	11.5~20.5
Φ25.0	25.5 ± 0.5	0.25 ± 0.05	≤12.50	0.45 ± 0.10	100	13.0~24.0

HAMBURG H-2(CB)

V1.5

Ordering Information

◎Color: Black

Other colors are available upon request.

◎Nonstandard size: Special sizes are available upon request.

◎Standard packaging: On spools, Cut pieces are available upon request.

◎Ordering description: Specify product type, size (mm or inch) and color.

For further information, please contact:

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Electrical Properties:

All Materials Must Be RoHS Compliant

1. It shall not have any open/short, miswiring, and intermittent failures.
2. The cable shall be 100% electrical test.

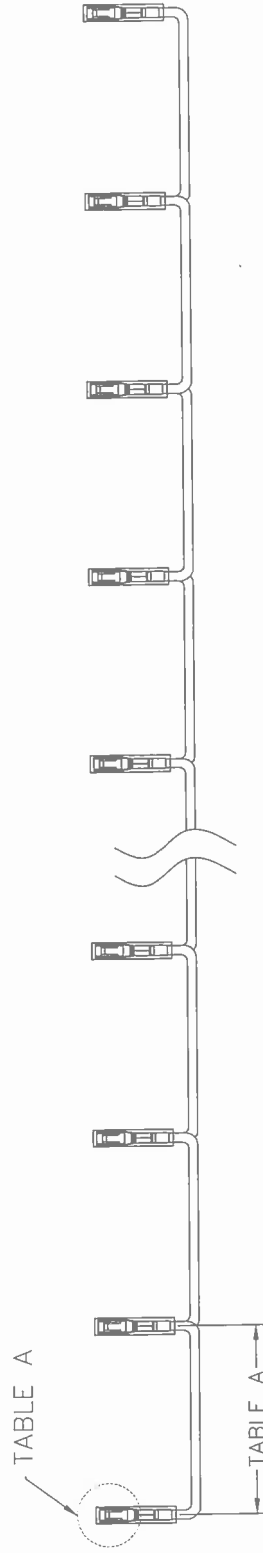
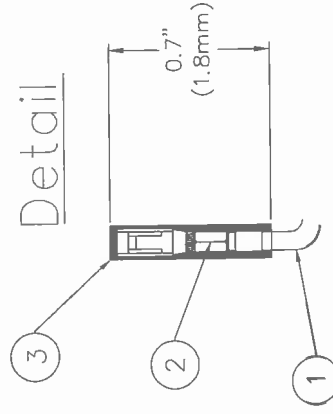


TABLE A

TABLE A				
#	CONTACTS	P/N, REV.	LENGTH	COLOR
50		172-0007-01A	7"	BLUE

Detail



APPROVED BY _____
 COMPANY: _____
 PURCHASING/ENGINEER: _____
 DATE: _____



ITEM	DESCRIPTION	UNITS:		PART NO.:	TITLE:
		INCH/MM			
3	HEAT SHRINKING TUBE: OD 1.0mm*1.8mm, COLOR BLACK			172-00XX-XXX	QTY 50 DAISY CHAINED FEMALE
2	FEMALE CONTACT JWT A2541T3B-00 (PITCH: 2.54mm) OR EQUIV.				DWG NO.:
1	WIRE: UL1061 28AWG, 80°C 300V	Leo	Cliff	Jasmine 2014/7/24	PP130104001
		APPD BY	CHECK BY	DRAWN BY	SCALE SHEET REV.
					NONE 1/1 A