



# 承 認 書

## SPECIFICATION FOR APPROVAL

DOC. NO. : JN96-01178-B07

ISSUE DATE : 2010/9/24

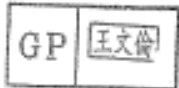
CUSTOMER : \_\_\_\_\_

PART NAME : FPC 0.3P CONNECTOR

PART NO. : 196160-□□041

APP. DATE : \_\_\_\_\_

MANUFACTURER SIGNATURE



P-TWO INDUSTRIES INC.

NO. 9, SHIN HWA RD, KWEI SHAN IND. PARK TAOYUAN, 330 TAIWAN, R.O.C.  
TEL:00886-3-3766666 FAX:00886-3-3762222

P-TWO INDUSTRIES(S.Z.) CO.LTD.

NO.1,GONG YE NORTH ROAD,CO-PROSPERITY, INDUSTRIAL PARK,  
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P-TWO TECHNOLOGY CO.,LTD.

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Part Name: FPC 0.3 CONNECTOR	Doc No.: JN96-01178	REV.: 07
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## SPECIFICATION OF PRODUCTS

### 0.3mm PITCH FFC/FPC CONNECTOR

**1. Scope:**

This specification covers the requirements for product performance, and test methods provisions of 0.3mm PITCH FFC/FPC CONNECTOR.

**2. Applicable documents:**

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

**2.1 Military Standard and Specifications:**

MIL-STD-1344 Test Methods for Electrical Component Parts.

MIL-STD-202 Test Methods for Electronic and Electrical Component Parts.

**3. Requirements:**

**3.1 Designs and Construction:**

Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.

**3.2 Materials:**

A. Contact: Copper Alloy. Gold Plating 4u”

B. Fitting Nail: Copper Alloy. Matte Tin Plating. (Lead Free)

C. Housing: Heat Resistance Plastic (UL94 V-0).

D. Actuator: Heat Resistance Plastic (UL94 V-0).

**3.3 General Specification:**

A. Voltage Rating : 30V (AC/DC)/Contact.

B. Current Rating : 0.3A (AC/DC)/Contact.

C. Operation Temperature & Humidity Rating : -40°C~+85°C, 95%MAX.

D. Storage Temperature & Humidity Rating : -40°C~+85°C, 95%MAX.

4.GP requires substances (level 1)forbidden(including orders placed to subcontractors)

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**SPECIFICATION OF PRODUCTS**

**4. Electrical Performance:**

No.	Items	Requirements	Test Procedures
4.1	Low Level Contact Resistance	100 mΩ MAX.	It should be tested in accordance with method 3004 of MIL-STD-1344A. Measure by low level. ( Max : 20mV , 100mA )
4.2	Insulation Resistance	500 mΩ MIN.	In accordance with method MIL-STD-202 method 302. When 500V DC is applied between adjacent contacts or ground measured for 1 min.
4.3	Dielectric Strength	No Breakdown.	In accordance with method MIL-STD-202 method 301. When 500V AC (rms) applied between adjacent contacts or ground measured for 1 min.

**5. Mechanical Performance:**

No.	Items	Requirements	Test Procedures
5.1	Appearance	Product shall be conforming to the requirements of applicable product drawing.	Visually, dimensionally and functionally inspected per applicable product drawing. The components shall be visually examined under 10X magnification.
5.2	FFC/FPC Retention Force	25 gf MIN / PIN	Apply axial load to FFC/FPC by operating at 25±3 mm/min.

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**SPECIFICATION OF PRODUCTS**

**6. Physical Performance**

No.	Items	Requirements	Test Procedures
6.1	Durability	Retention force : 20gf / PIN MIN.. Contact Resistance : 100mΩ MAX. Appearance neither damage nor crack.	Mate applicable FFC/FPC and insert and withdraw actuator at the speed rate of 25 ± 3 mm/min. Times: Up to 30 cycles.
6.2	Vibration	Appearance no damage, loose part nor crack. Contact Resistance : 100mΩ MAX. Discontinuity : 1μs MAX.	In accordance with method MIL-STD-202 method 201, all contacts shall be connected in series and DC 100mA shall be applied. Wave form : Sine wave Frequency : 10~55~10Hz in 1 minutes Amplitude : 1.5mm Orientation : X,Y,Z (3 axes) Duration : 2 hours /axis
6.3	Shock	Appearance no damage, loose part nor crack. Discontinuity : 1μs MAX.	In accordance with method MIL-STD-202 method 213. DC 100mA shall be applied. MAX acceleration : 50G Wave form : Half sine wave Orientation : X,Y,Z (3 axes) Duration : 11ms./axis Times : 3 strokes in each X,Y,Z axis
6.4	Solderability	More than 95% of the immersion shall be covered with solder	It should be tested to compare with method 208 of MIL-STD-202. Steam Aging 8H Soldering time : 5 ± 0.5 seconds Solder temperature : 245 ± 5°C
6.5	Resistance to soldering heat	No loose contacts nor damage	1. Hand soldering: Soldering time: 5 second. Solder temperature: 350 ± 5°C. 2. Reflow: Soldering temperature: 250°C.MAX. Duration time : 10 ± 0.5 seconds Condition : 3 cycles

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## SPECIFICATION OF PRODUCTS

### 7. Environmental Performance

No.	Items	Requirements	Test Procedures
7.1	H <sub>2</sub> S Gas	Contact Resistance : 100mΩ MAX	The specimens subjected to the chamber temperature of 40±2°C exposure to H <sub>2</sub> S gas from 3±1ppm for 96 hours, humidity at 90%.
7.2	NH <sub>3</sub> Gas	Contact Resistance : 100mΩ MAX	The specimens subjected to the chamber temperature of 40±2°C exposure to NH <sub>3</sub> gas evaporating from 28% ammonia solution for 40 minutes, humidity at 75%.
7.3	Salt spray	Contact Resistance : 100mΩ MAX.	In accordance with method MIL-STD-202 method 101. Temperature : 35±2°C Density : 5±1% in weight Duration : 48 hours
7.4	Humidity (steady state)	Appearance neither damage nor corrosion. Contact Resistance : 100 mΩ MAX Dielectric Strength : No Breakdown Insulation Resistance : 500 MΩ MIN	In accordance with method MIL-STD-202 method 103. Temperature : 40±2°C Relative Humidity : 90~95% Duration : 96 hours
7.5	Humidity, temperature cycling	Insulation Resistance : 500MΩ MIN. Contact Resistance : 40mΩ MAX. Dielectric Strength : No Breakdown.	In accordance with method MIL-STD-202 method 106 (without low frequency vibration). Subject mated connectors to 10 cycles 240h of humidity-temperature change between -10°C and 65°C at 95% R.H. in a chamber.
7.6	Temperature cycling (Thermal Shock)	Contact Resistance : 100mΩ MAX	In accordance with method MIL-STD-202 method 107. Temperature : -55±3°C (30min) → 25±3°C (5min) → 85±3°C (30min) → 25±3°C (5min) Condition : 25 cycles

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**SPECIFICATION OF PRODUCTS**

7.7	Temperature life High (Heat Resistance)	Contact Resistance : 100m $\Omega$ MAX. Appearance neither damage nor crack.	In accordance with method MIL-STD-202 method 108. Temperature : 85 $\pm$ 2 $^{\circ}$ C Duration : 96 hours
7.8	Temperature life Cold (Cold Resistance)	Contact Resistance : 100m $\Omega$ MAX. Appearance neither damage nor crack.	In accordance with method IEC-60068-2-1. Temperature : -40 $\pm$ 2 $^{\circ}$ C Duration : 96 hours

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## ORDERING INFORMATION

### 0.3mm PITCH FFC/FPC CONNECTOR

**Specifications:**

Part Name: 0.3mm PITCH FFC/FPC Connector.

Connector Styles: Wire to Board Connector.

ZIF (Zero Insertion Force) Type.

Mounting of Connector On Board:

SMT (Surface Mounted Technology) Type.

Centerline (Pitch): 0.3mm(0.012 inch)

**Part No.:**

**1 9 6 1 6 0 -  0 4 1**  
 (1)            (2)            (3)

(1) Type Of Connectors:

160: FPC Easy Lock Type

(2) No. Of Contacts:

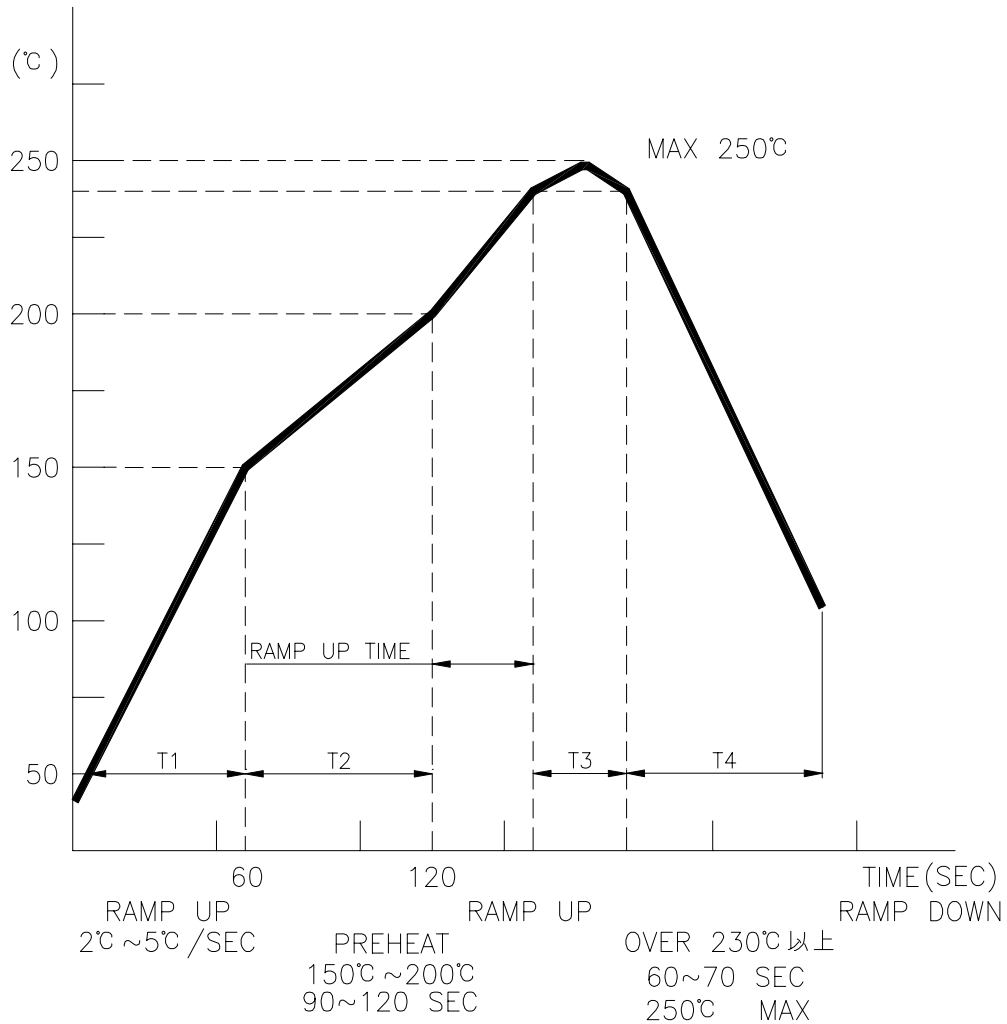
17~81 Pin.

(3) Plating:

04: Gold Plating (Lead Free).

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## INFRARED REFLOW CONDITION



T1:	Temperature Ramp Up Rate	2°C ~5°C /SEC
T2:	Preheat: 150°C ~200°C	90~120 SEC
T3:	Time Over 230°C	60~70 SEC
T4:	Ramp Down Rate During Cooling	4°C ~7°C /SEC
	Peak Temperature	250°C Max

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**MATERIAL REFERENCE TABLE**

<b>Parts Name</b>	<b>General Name</b>	<b>Model No.</b>	<b>Heat Resistance Level</b>	<b>UL Card NO.</b>	<b>Specific Weight</b>
Housing	LCP	LD235	UL94 V-0	E172082	See the Attachment (P10)
Acauator	PA9T	GW2458HF	UL94 V-0	E90350	
Terminal	Phosphor Borne	C5210R-SH	—	—	

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## MATERIAL REFERENCE TABLE

PIN	HOUSING	ACTUATOR	FRONT TERMINAL	BACK TERMINAL	TOTAL TO WEIGH
17	0.031g	0.022g	0.018g	0.016g	0.087g
19	0.032g	0.023g	0.020g	0.018g	0.093g
21	0.033g	0.023g	0.022g	0.020g	0.098g
23	0.034g	0.024g	0.024g	0.022g	0.103g
25	0.035g	0.024g	0.026g	0.024g	0.109g
27	0.036g	0.025g	0.028g	0.026g	0.114g
29	0.037g	0.025g	0.030g	0.028g	0.120g
31	0.038g	0.026g	0.032g	0.030g	0.125g
33	0.039g	0.026g	0.034g	0.032g	0.131g
35	0.040g	0.027g	0.036g	0.034g	0.136g
37	0.041g	0.027g	0.038g	0.036g	0.142g
39	0.042g	0.028g	0.040g	0.038g	0.147g
41	0.043g	0.028g	0.042g	0.040g	0.153g
43	0.044g	0.029g	0.044g	0.042g	0.158g
45	0.045g	0.029g	0.046g	0.044g	0.164g
47	0.046g	0.030g	0.048g	0.046g	0.169g
49	0.047g	0.030g	0.050g	0.048g	0.175g
51	0.048g	0.031g	0.052g	0.050g	0.180g
53	0.049g	0.031g	0.054g	0.052g	0.186g
55	0.050g	0.032g	0.056g	0.054g	0.191g
57	0.051g	0.032g	0.058g	0.056g	0.197g
59	0.052g	0.033g	0.060g	0.058g	0.202g
61	0.053g	0.033g	0.062g	0.060g	0.208g
63	0.054g	0.034g	0.064g	0.062g	0.213g
65	0.055g	0.034g	0.066g	0.064g	0.219g
67	0.056g	0.035g	0.068g	0.066g	0.224g
69	0.057g	0.035g	0.070g	0.068g	0.230g
71	0.058g	0.036g	0.072g	0.070g	0.235g
73	0.059g	0.036g	0.074g	0.072g	0.241g
75	0.060g	0.037g	0.076g	0.074g	0.246g
77	0.061g	0.037g	0.078g	0.076g	0.252g
79	0.062g	0.038g	0.080g	0.078g	0.257g
81	0.063g	0.038g	0.082g	0.080g	0.263g

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PLASTIC MATERIAL CERTIFICATE OF HOUSING

'10年01月14日(水)14時51分 宛: DIC 様

題: DIC株式会社EP事業部

R: 847 P: 11

Jan-san



DIC Corporation

January 8, 2010

Certificate of Analysis

Commodity: OCTA

Grade: LD-235

Lot No.: E1038

Production Date: December 20, 2009

Inspection Date: December 23, 2009

7X1/711864-4

DIC-0952

8700 kg

CHECKING ITEM	TEST METHOD	UNIT	VALUE OF CERTIFICATION	INSPECTION RESULT
OUTSIDE APPEARANCE	DIC METHOD	-	Pass	Pass
ASH CONTENT	DIC METHOD	%	31.0~37.0	33.8
TENSILE STRENGTH	ASTM D-63M	MPa	110±	142
FLOW LENGTH	DIC METHOD	cm	30~60	37
IZOD IMPACT STRENGTH NOTCHED	ASTM D-256	J/m	70±	87

DIC CORPORATION  
KOMAKI PLANT  
QUALITY ASSURANCE

Natsumi Kawabata

Kazuyoshi Ogi

FM KIMI/DIC TOKYO

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## PLASTIC MATERIAL CERTIFICATE OF HOUSING

Component - Plastics E53829

**DIC CORP**

DIC BLDG, 7-20 NIHONBASHI 3-CHOME, CHUO-KU TOKYO 103-0027 JP

**LD-235(f2)**

Liquid Crystal Polymer (LCP), "OCTA", furnished as pellets

	Min Thk	Flame			RTI	RTI	RTI
Color	(mm)	Class	HWI	HAI	Elec	Imp	Str
NC, BK	0.20	V-0	-	-	130	130	130

Comparative Tracking Index  
(CTI): **3**

Dimensional Stability (%): -

High-Voltage Arc Tracking Rate  
(HVTR): -

High Volt, Low Current Arc Resis  
(D495): -

Dielectric Strength (kV/mm): -

Volume Resistivity (10<sup>x</sup> ohm-cm): -

**(f2) - Subjected to one or more of the following tests: Ultraviolet Light, Water Exposure or Immersion in accordance with UL 746C, where the acceptability for outdoor use is to be determined by UL.**

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents.

ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 2004-03-31

Last Revised: 2006-01-26

Underwriters Laboratories Inc®

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PLASTIC MATERIAL CERTIFICATE OF ACTUATOR

2010年 5月31日 16時43分

クラレトレーディング(株)

NO. 5900 P. 1

高村  
W595  
W599

KURARAY CO., LTD.

(KABUSIKI KAISHA KURARAY)

1-1-3, OTEMACHI, CHIYODA-KU, TOKYO, 100-8115, JAPAN

TELEPHON 81-3-6701-1672

FACSIMILE 81-3-6701-1580

To whom it may concern:

Date: Apr. 16, 2010

We are pleased to submit the INSPECTION REPORT OF GENESTAR as follows:

INSPECTION REPORT OF GENESTAR (PART)

Grade : GW2458HF  
Type : 1  
Color : BLACK  
Lot No. : 0323Z01

Item	Test method	Unit	Test result
Tensile strength	ASTM D 638	MPa	161
Tensile elongation(at break)	ASTM D 638	%	2
Flexural strength	ASTM D 790	MPa	238
Flexural modulus	ASTM D 790	GPa	16.2
Specific gravity	ASTM D 792	-	1.72
Notched izod impact strength	ASTM D 256	J/m	167
Ash content		%	44.8

Takeshi Akashi

GENESTAR DIVISION

Part Name: FPC 0.3 CONNECTOR

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PLASTIC MATERIAL CERTIFICATE OF ACTUATOR

QMFZ2 Component - Plastics

Wednesday, August 25, 2004

E90350

KURARAY CO LTD

HIGH PERFORMANCE MATERIALS DEV DEPT 1-12-39 UMEDA KITA-KU OSAKA

530-0001 JAPAN

Material Designation: **GW2458HF**

Product Description: Polyamide 9T (PA9T), furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.75	V-0	0	0	150	130	140	-	-
	1.5	V-0	0	0	150	130	140	-	-
	3.0	V-0	0	0	150	130	140	-	-
<b>CTI: 0</b>		<b>HVTR: 4</b>		<b>D495: 5</b>		IEC Ball Pressure (°C): -			

Dielectric Strength (kV/mm): -

Volume Resistivity (10\*ohm-cm): -

Dimensional Stability(%): -

ISO Tensile Strength (MPa): -

ISO Flexural Strength (MPa): -

ISO Heat Deflection (°C): -

ISO Tensile Impact (kJ/m<sup>2</sup>): -

ISO Izod Impact (kJ/m<sup>2</sup>): -

ISO Charpy Impact (kJ/m<sup>2</sup>): -

Report Date: 7/10/2002

Underwriters Laboratories Inc®

UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULI.

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CONTACT MATERIAL CERTIFICATE OF CONTACT



REPORT OF MATERIAL TEST

各佳利

DATE: MAR. 12, 2007

Customer: 怡和股份有限公司  
 Commodity: C5210R PHOSPHOR BRONZE FAR SPRING (SH)  
 Applied Standard: CNS 9503 Phosphor Bronze Sheets, Plates and Strips

ISO 9002:4MSY085-00  
 台正字第 號

Chemical Analysis Test

Work No.	Size of Product			P(%)	Sn(%)	Cu+(Sn+P)(%)			
	Thickness (mm)	Width (mm)	Length (mm)						
	Standard								
				0.030 - 0.050	7.00 - 9.00	min. 99.70			
62M055C	0.200	306.000		0.125	7.710	99.975			
62M055D	0.200	306.000		0.125	7.710	99.975			

Mechanical & Physical Test

Work No.	Size of Product			Dimension Test		Tension Test		Hardness Test HV	Grain Size (mm)	Electric Conductivity (%)
	Thickness (mm)	Width (mm)	Length (mm)	Thickness (mm)	Width (mm)	Tensile Strength (kgf/mm <sup>2</sup> )	Elongation (%)			
	Standard			-	(-) 0.10 - (+) 0.00	75 - 85	min. 9			
				GOOD.	GOOD.	76.20	19.96	235.0 - 238.0	0.005	11.8
62M055C	0.200	306.000		GOOD.	GOOD.	76.20	19.96	235.0 - 238.0	0.005	11.8
62M055D	0.200	306.000		GOOD.	GOOD.	76.20	19.96	235.0 - 238.0	0.005	11.8

QC Supervisor 鄭建益 A901005

MINCHALI METAL INDUSTRY CO., LTD.  
11, Pei Yuan Road, Chung Li City, Taiwan, R. O. C.  
Tel : (03)4526141-5 (03)4526017-9

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**METAL MATERIAL CERTIFICATE OF TERMINAL**

Phosphor Bronze				Cupro-nickel and Nickel Silver				High Performance Alloy			
C5102	C5191	C5210	C5212	C7451	C7521	C7701	PMC1240	C19010	C64750	C19210	C19400
Phosphor Bronze, 5%	Phosphor Bronze, 6%	Phosphor Bronze, 8%	Phosphor Bronze, 8%	Nickel Silver 65-10	Nickel Silver 65-18	Nickel Silver 55-18	Nickel Silver 51-8	PMC102	PMC26	PMC90	C194
Cu 94.8 Sn 5.0 P 0.2	Cu 93.8 Sn 6.0 P 0.2	Cu 91.8 Sn 8.0 P 0.2	Cu 91.8 Sn 8.0 P 0.2	Cu 65 Zn 25 Ni 10	Cu 65 Zn 17 Ni 18	Cu 55 Zn 27 Ni 18	Cu 48.0 Zn 39.5 Ni 8.0 Pb 0.5	Cu 98.5 Ni 1.0 Si 0.2 P 0.03	Cu 97.4 Ni 2.0 Si 0.3 P 0.3	Cu 99.9 Fe 0.1 P 0.032	Cu 97.4 Fe 2.4 Zn 0.13 P 0.04

C5102	C5191	C5210	C5212	C7451	C7521	C7701	PMC1240	C19010	C64750	C19210	C19400
310-385	310-415	-	340-415	320-395	370-445	-	-	-	-	-	-
390-440	390-480	-	390-470	-	-	-	-	360-430	-	295-375	-
490-560	490-560	510-580	490-570	410-490	440-550	535-620	-	430-490	-	355-430	365-430
-	-	-	-	-	-	-	-	-	-	-	-
585-660	585-660	585-660	585-670	-	535-610	625-705	490-590	480-550	590-660	390 min.	410-480
635-705	665-735	685-735	675-765	-	-	705-805	-	520-600	590 min.	-	-
-	-	745-815	-	-	-	760-865	-	590 min.	-	-	480-520
-	-	-	-	-	-	-	-	-	-	-	500-550

C5102	C5191	C5210	C5212	C7451	C7521	C7701	PMC1240	C19010	C64750	C19210	C19400
40 min.	50 min.	-	45 min.	20 min.	20 min.	-	-	-	-	-	-
28 min.	42 min.	-	40 min.	-	-	-	-	10 min.	-	15 min.	-
15 min.	30 min.	35 min.	30 min.	5 min.	5 min.	11 min.	-	6 min.	-	6 min.	6 min.
-	-	-	-	-	-	-	-	-	-	-	-
7 min.	18 min.	20 min.	8 min.	-	3 min.	6 min.	10 min.	4.5 min.	-	4 min.	4 min.
4 min.	5 min.	14 min.	5 min.	-	-	-	-	4.5 min.	8 min.	-	-
-	-	9 min.	-	-	-	-	-	4 min.	6 min.	-	4 min.
-	-	-	-	-	-	-	-	-	-	-	-

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## METAL MATERIAL CERTIFICATE OF TERMINAL

### Thickness Tolerances

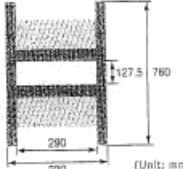
(Unit: mm)

Thickness	Width	Up to 300 incl.	Over 300 to 600 incl.
		Up to 0.08 incl.	±0.005
Over 0.08 to 0.15 incl.		±0.008	±0.010
Over 0.15 to 0.25 incl.		±0.008	±0.010
Over 0.25 to 0.35 incl.		±0.010	±0.012
Over 0.35 to 0.45 incl.		±0.012	±0.015
Over 0.45 to 0.55 incl.		±0.015	±0.018
Over 0.55 to 0.70 incl.		±0.018	±0.020
Over 0.70 to 1.0 incl.		±0.020	±0.025
Over 1.0 to 1.3 incl.		±0.025	±0.030
Over 1.3 to 2.0 incl.		±0.030	±0.035
Over 2.0 to 3.0 incl.		±0.035	±0.040

### Tin Plated Copper & Copper Alloy Strips

Description	Base Metal	Available Range		Tin Plated Type	Specification	
		Thickness	Width		Underplating	Tin Plating
Content	Copper, Brass Phosphor Bronze High Performance Alloy	0.15~0.80mm	Max 400mm (Nor. 305mm)	Reflow Type	Cu: 0.5~1.5 $\mu$ m	Sn: 0.8~2.0 $\mu$ m
Others			As per specific agreement with customer		Application to brass only	

### Traverse Wound (T/W) Coil

Production Range	Description	Bobbin Material, Weight & T/W Coil Weight		Standard Bobbin Dimension
		Domestic	Overseas	
Thickness	0.2~0.8mm	Bobbin Material	Stainless	
		Bobbin Weight	About 50kg/EA	
Width	10~40mm	T/W Coil Weight	400~500kg/Coil	

 Part Name:  
**FPC 0.3 CONNECTOR**

 Doc No.:  
**JN96-01178**

 REV.:  
**07**

 Part Number:  
**196160-□□041**

 Issue Date:  
**2010/9/24**

 Page:  
**17 of 20**

## METAL MATERIAL CERTIFICATE OF TERMINAL

### Poongsan's Sheets & Strips Copper Alloy Guide

Alloy No.	Copper				Brass				
	C1020	C1100	C1220	C2100	C2200	C2300	C2600	C2680	C2801
Alloy Name	Oxygen Free (OF)	Tough Pitch (TP)	Phosphorus Deoxidized, High Residual Phosphorus (DHP)	Gilding, 95%	Commercial Bronze, 90%	Red Brass, 85%	Cartridge Brass, 70%	Yellow Brass, 65%	Muntz Metal, 60%
Nominal Composition (%)	Cu 100	Cu 99.9 min. 0.02 0.05 max.	Cu 99.9 min. 0.015-0.040	Cu 95 Zn 5	Cu 90 Zn 10	Cu 85 Zn 15	Cu 70 Zn 30	Cu 65 Zn 35	Cu 60 Zn 40

#### Tensile Strength (N/mm<sup>2</sup>)

Alloy No.	C1020	C1100	C1220	C2100	C2200	C2300	C2600	C2680	C2801
0 (Annealed)	205 min.	205 min.	205 min.	215-275	235-295	250-325	290-375	290-375	320-440
1/4H	235-275	235-275	235-275	255-325	270-335	300-355	350-415	350-415	350-440
1/2H	250-315	250-315	250-315	295-365	290-365	330-385	370-445	370-445	410-490
3/4H	270-335	270-335	270-335	-	-	-	390-470	390-470	-
H	290-365	290-365	290-365	340-415	360-450	390-510	440-520	440-520	470-540
EH	340-415	340-415	340-415	-	-	-	515-600	515-600	-
SH	-	-	-	-	-	-	625-690	625-690	-
ESH	-	-	-	-	-	-	655-715	655-715	-

#### Elongation (%)

Alloy No.	C1020	C1100	C1220	C2100	C2200	C2300	C2600	C2680	C2801
0 (Annealed)	35 min.	35 min.	35 min.	40 min.	42 min.	44 min.	50 min.	50 min.	25 min.
1/4H	25 min.	25 min.	25 min.	23 min.	25 min.	28 min.	35 min.	35 min.	25 min.
1/2H	15 min.	15 min.	15 min.	18 min.	20 min.	23 min.	28 min.	28 min.	15 min.
3/4H	15 min.	15 min.	15 min.	-	-	-	18 min.	18 min.	-
H	-	-	-	-	-	-	12 min.	12 min.	-
EH	-	-	-	-	-	-	-	-	-
SH	-	-	-	-	-	-	-	-	-
ESH	-	-	-	-	-	-	-	-	-

www.poongsan.co.kr

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Part Name: FPC 0.3 CONNECTOR

Doc No.: JN96-01178

REV.: 07

Part Number: 196160-□□041

Issue Date: 2010/9/24

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METAL MATERIAL CERTIFICATE OF TERMINAL

新泰伸科技股份有限公司  
HIS TECHNOLOGY CO., LTD.

INSPECTION CERTIFICATE

QM-QCT-4-002A  
台灣省桃園縣楊梅鎮民權路8號  
No.8, Ming-Lang Road, Yang-Mei Chen,  
Tao-Yuan Hsin, Taiwan  
TEL : 886-3-472-5833 FAX : 886-3-472-7711

Customer: 禾昌興業股份有限公司      Your P/O No:      Date: 2007/4/3  
Specification: CS210R-SH JIS H3130(2003)      Our Order No:      Your Part No:      Weight: 0 Kg

Lot No.	Standard Dimension	Property Test								Weight (Kg)
		Yield strength (Kg/mm <sup>2</sup> )	Tensile strength (Kg/mm <sup>2</sup> )	Young's strength (Kg/mm <sup>2</sup> )	Elongation (%)	Hardness (Hv .3)	Conductivity (%IACS)	Bend Test (180°)	Grain Size (mm)	
STB-06H0019	0.2 x 390	69.04	78.5	—	≥ 9	230 - 250	≥ 0	Good	0.01	0

Lot No.	Standard	Composition (wt%)						Surface Roughness Ra (μm)	Sur face	Dimension	
		Cu	Sn	P	Zn	Pb	Pb			Thickness(mm)	Width(mm)
STB-06H0019		91.2848	7.5545	0.1141	0	0.011	0.003	0.099	Good	0.2	390

Remark: 1. Mechanical properties shall be determined in accordance with ASTM E8 · ISO 6892 ·  
2. Conductivity shall be determined in accordance with ISO 1337 ·  
3. The results shown in the certificate refer only to the specimens of the lot number stated above and the contents are issued for reference only.  
4. This certificate cannot be reproduced, except in full, without prior written permission of this company. Any unauthorized alteration, forgery or falsification of the content or appearance of this certificate is unlawful and offenders may be prosecuted to the fullest extent of the law.



Approved by: [Signature]

Checked by: [Signature]

Part Name: FPC 0.3 CONNECTOR	Doc No.: JN96-01178	REV.: 07
Part Number: 196160-□□041	Issue Date: 2010/9/24	Page: 19 of 20



METAL MATERIAL CERTIFICATE OF TERMINAL



第一伸銅科技股份有限公司  
FIRST COPPER TECHNOLOGY CO., LTD.  
檢驗報告表  
Inspection Report

C5210R-SH 0.2

F01020-A1900

序號: 51220041 -95 -0  
Serial NO.

客戶名稱 Customer	禾品興業股份有限公司		重量 Weight( Kg )	695.2	出貨日期 Date	20070314		
品名 Article	標準 Standard NO.	尺寸 & 質別 Dimension & Temper		製程代號 P-Code	銅卷編號 Coil NO.			
C5210	JIS H 3130	0.2mm*19mm*SH材		N5S2000	BN5510054			
化學成份 Chemical Compositions (%)								
元素 Element	Sn	Pb	Fe	P	Cu+Sn+P			
規範 Spec.	MAX MIN	↓ .0500	↓ .1000	.3500	↑ 99.70			
實測 Actual	7.9700	.0053	.0001	.1317	99.97			
機械性質 Mechanical Properties								
項目 Item	抗張強度 Tension Strength Kg/mm <sup>2</sup>	伸長率 Elongation %	硬度 Hardness HV	毛邊 Burr mm	No Prohibited Substances Contained			
規範 Spec.	MAX MIN	↑ 74.0	↑ 9.0	250.0 230.0	↓ .030			
實測 Actual	77.3	9.8	234.0	.023				

PCF39-1

Q.A. 品保處 Manager: *[Signature]* 2007

Part Name: FPC 0.3 CONNECTOR	Doc No.: JN96-01178	REV.: 07
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禁用品質保證函

The Confirmation of Prohibited / Controlled Substances

我們保證我們的產品遵循下列內容：

We hereby confirm and assure that our products are in conformity of the following stipulations:

1、塑膠原料及零部件之塑膠部分，其鎘(Cadmium)含量必須低於 5 PPM，其鉛(Lead)含量必須低於 100 PPM，汞(Mercury)、六價鉻(Chromium VI)、聚溴聯苯(PBBs)及聚溴二苯醚(PBDEs)低於 1000 PPM。

Cadmium contained in raw material for plastics and plastic components must be less than 5ppm; Lead must be less than 100ppm. ; Mercury, Chromium VI, PBBs and PBDEs must be less than 1000ppm..

2、包裝材料(包括紙箱、輪盤、TUBE 管、PE 袋及標籤紙)其鎘(Cadmium)、鉛(Lead)、汞(Mercury)、六價鉻(Chromium VI)總含量必須低於 100 PPM。

The total content of Cadmium, Lead, Mercury and Chromium VI in packaging (including cartons, reels, PVC tubes, PE bags, INK and labels) must be less than 100ppm.

3、金屬材料(包括銅板、銅線及表面電鍍層)其鎘(Cadmium)含量必須低於 5 PPM，其汞(Mercury)、六價鉻(Chromium VI)及鉛(Lead) 含量必須低於 1000 PPM。

The content of Cadmium in metal material (including copper, copper wire and surface plating) must be less than 5ppm ; Mercury , Chromium VI, Lead must be less than 1000ppm.

4、凡我方交給客戶的所有我方之零件和包裝材料均依照上述規定，若有不符這份保證信則本公司將承擔所有發生的費用及法律責任。

All parts and packaging materials delivered to our customers must be in compliance with stipulations above. If failure to any part of this guarantee letter happens, our company is responsible for all incurred charge and legal issues.

5、本保證函所生一切訴訟，適用中華民國法律，雙方同意以台灣台北地方法院為專屬管轄法院。

This agreement shall be governed by, and construed with, the substantive the laws of the Republic of China. Any disputes under this agreement will be brought in the courts located in Taipei, Taiwan, R.O.C., and the parties hereby consent to the personal jurisdiction and venue of the court.

6、本保證函同時以中文及英文書寫，有任何疑義爭執產生時，以中文版本所載為準。

This agreement wrote by Chinese and English, if it has any dispute arise, it being understood that the Chinese version shall be controlling.

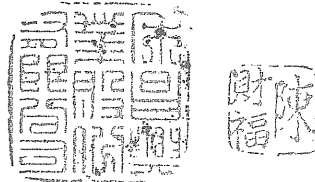
Company Name: P-TWO INDUSTRIES INC.

Representative: 陳財福

Address: NO.9, SHIN HWA RD, KWEI SHAN IND. PARK TAOYUAN, 330 TAIWAN.

Tel No.: +886-3-3769999

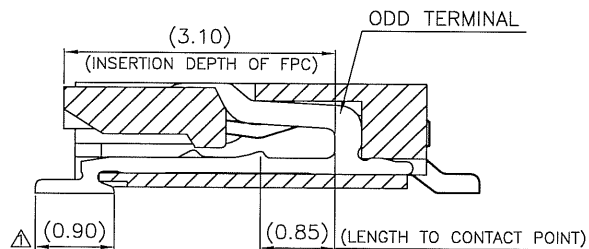
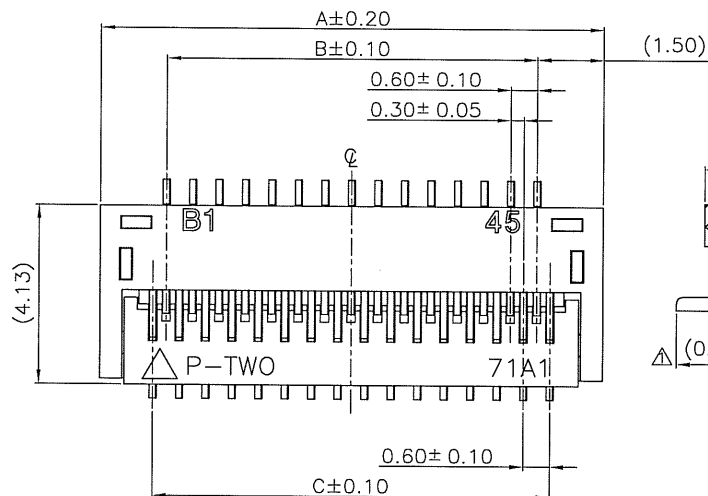
Fax No.: +886-3-3762222



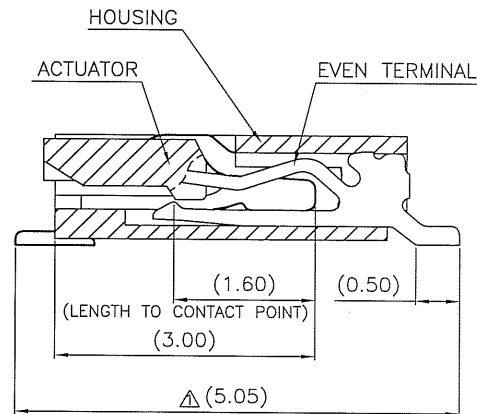
NOTES:

1. HOUSING MATERIAL: HEAT RESISTANT PLASTIC UL94V-0 ; COLOR: CREAM  
ACTUATOR MATERIAL: HEAT RESISTANT PLASTIC UL94V-0 ; COLOR: BLACK
2. TERMINAL MATERIAL: COPPER ALLOY
3. PLATING:  
TERMINAL: GOLD 4u"~6u" SELECTIVE PLATED OVER NICKEL
4. PARTS NO: 196160-XX041

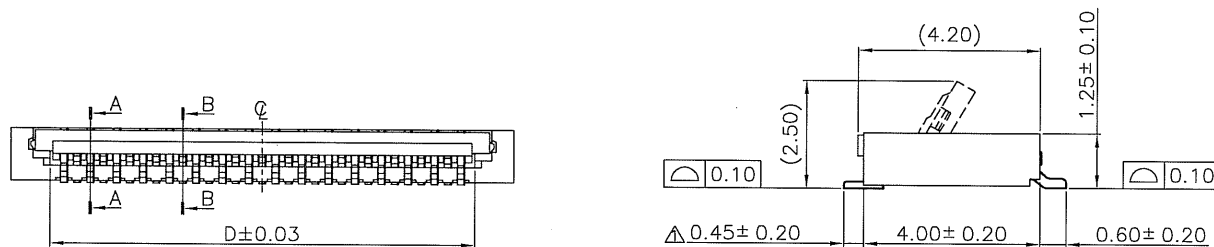
NO. OF CONTACT:  
17~81 PIN



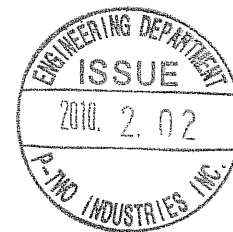
SECTION A-A  
SCALE 16:1



SECTION B-B  
SCALE 16:1



NO. of Contacts(n)	Dimensions			
	A	B	C	D
17	7.20	4.20	4.80	5.43
19	7.80	4.80	5.40	6.03
21	8.40	5.40	6.00	6.63
23	9.00	6.00	6.60	7.23
25	9.60	6.60	7.20	7.83
27	10.20	7.20	7.80	8.43
29	10.80	7.80	8.40	9.03
31	11.40	8.40	9.00	9.63
33	12.00	9.00	9.60	10.23
35	12.60	9.60	10.20	10.83
37	13.20	10.20	10.80	11.43
39	13.80	10.80	11.40	12.03
41	14.40	11.40	12.00	12.63
43	15.00	12.00	12.60	13.23
45	15.60	12.60	13.20	13.83
47	16.20	13.20	13.80	14.43
49	16.80	13.80	14.40	15.03
51	17.40	14.40	15.00	15.63
53	18.00	15.00	15.60	16.23
55	18.60	15.60	16.20	16.83
57	19.20	16.20	16.80	17.43
59	19.80	16.80	17.40	18.03
61	20.40	17.40	18.00	18.63
63	21.00	18.00	18.60	19.23
65	21.60	18.60	19.20	19.83
67	22.20	19.20	19.80	20.43
69	22.80	19.80	20.40	21.03
71	23.40	20.40	21.00	21.63
73	24.00	21.00	21.60	22.23
75	24.60	21.60	22.20	22.83
77	25.20	22.20	22.80	23.43
79	25.80	22.80	23.40	24.03
81	26.40	23.40	24.00	24.63

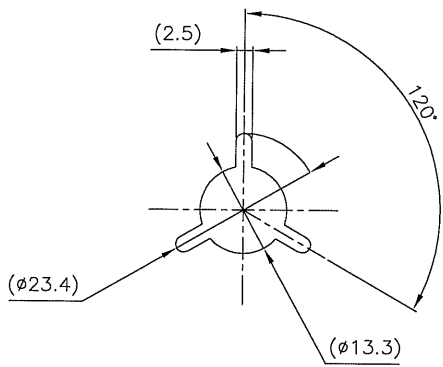
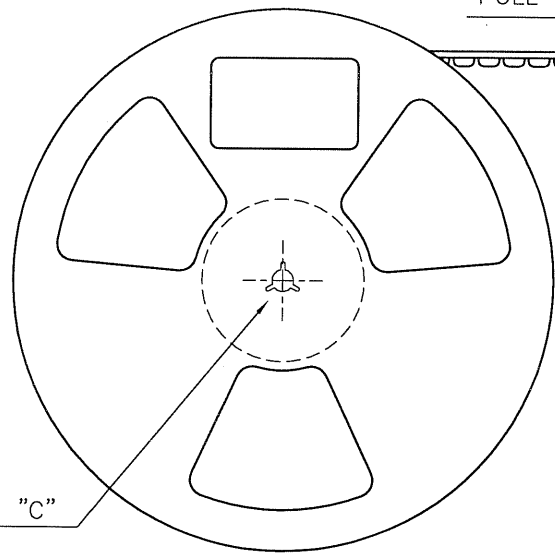


CUSTOMER DRAWING

**P-TWO INDUSTRIES INC.**

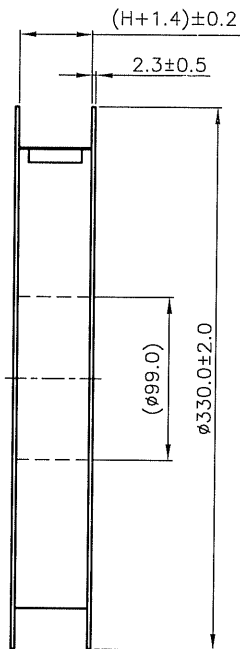
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE X.X ±0.25 X.XX ±0.15 X.XXX ±0.10 ANG. ±0°30'				APPROVED BY: <i>Ben Wafar</i> DATE: <i>2/10</i> CHECKED BY: <i>Ben Wafar</i> DATE: <i>2/10</i> DRAWN BY: <i>Ben Wafar</i> DATE: <i>2/10</i>	TITLE: FPC 0.3 EASY LOCK H1.25 TYPE II	DOCUMENT NO: JB96-01175	PAGE 1		
△ (G.4)	NB100128	Ben	02-01 2010	UNIT mm	SIZE A3	DRAWING NO 196160-XX041	REV B	SHEET 1/2	SCALE 8:1





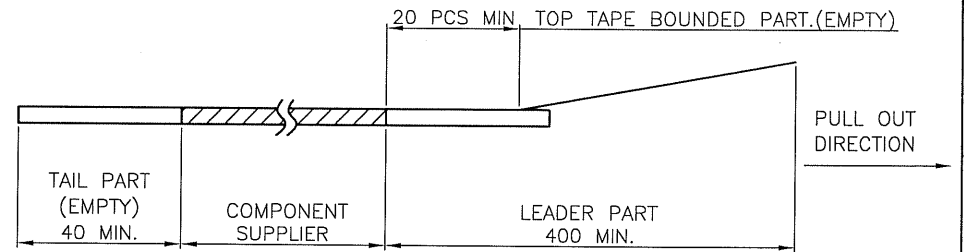
DETAIL "C"

PULL OUT DIRECTION

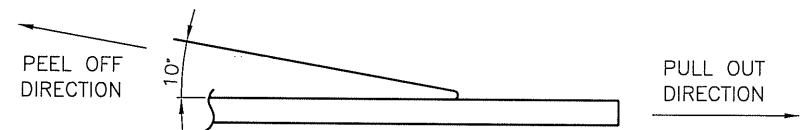


NOTES:

1. FOR DETAIL OF CONNECTOR DIMENSIONS, PLEASE SEE THE DRAWING OF CONNECTOR ITSELF (NOT PACKAGED).
2. CAMBER NOT TO EXCEED 1mm IN 100mm.
3. LEAD TAPE LENGTH: 400mm MIN.



4. PEELING OFF FORCE OF TOP TAPE: 0.1N~1.3N (10gf~130gf) (PEELING DIRECTION AS SHOWN IN FOLLOWING FIG.) THIS REQUIREMENT SHOULD BE APPLIED AT SHIPMENT. PEEL OFF SHOULD NOT BE ALLOWED, DURING TRANSPORTATION.



5. MATERIAL:

CARRIER TAPE: POLYSTYRENE

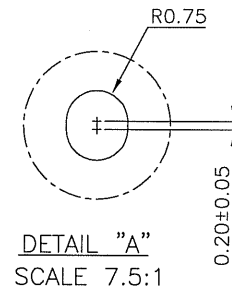
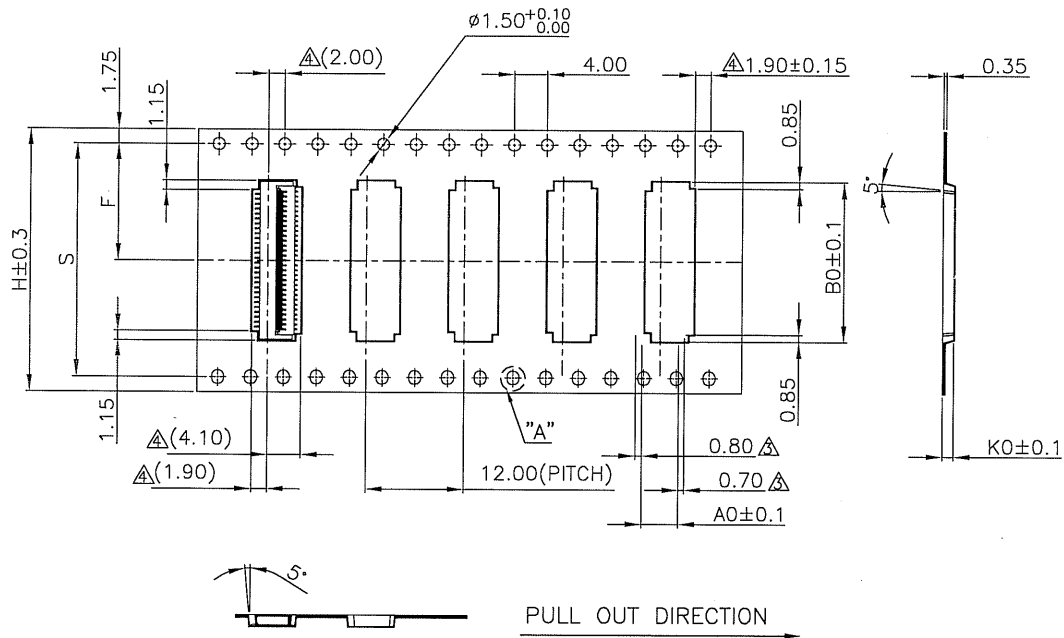
TOP TAPE: PET, PE, PEF

REEL: POLYSTYRENE (PS) <RECYCLE MATERIAL CONTAINED>



SER	AREA	DESCRIPTION	CHK	DATE	UNLESS OTHERWISE SPECIFIED TOLERANCES ARE	APPROVED BY	DATE	TITLE
		NA090504	Jerry	2009-06-04	X.X ±0.15	<i>[Signature]</i>		FPC 0.3P H1.25 TYPE II
		NB090414	Jerry	2009-04-15	X.XX ±0.1	<i>[Signature]</i>		EASY-LOCK CARRIER
		NB090333	Jerry	2009-03-30	X.XXX	<i>[Signature]</i>		
	(F,6)	NB090216	Jerry	2009-03-11	ANG. ±0'30'	<i>[Signature]</i>		
					UNIT mm			
					SIZE A3			
					DRAWING NO 496160-XXOXX			
					REV E			
					SHEET 1/3			
					SCALE 1.5:1			





Carrier Length:56M  
Pitch:12mm

Number of Connectors:1500 PCS/Small Reel (18.7M)

NO. of Contacts (n)	A0	B0	K0	S Δ	F Δ	H	Carrier Part No.			
53	4.50	18.30	1.37	28.4 ±0.1	14.2 ±0.1	32	496160-32053			
55		18.90					496160-32055			
57		19.50					496160-32057			
59		20.10					496160-32059			
61		20.70					496160-32061			
63		21.30					496160-32063			
65		21.90					496160-32065			
67		22.50					496160-32067			
69		23.10					40.4 ±0.1	20.2 ±0.15	44	496160-44069
71		23.70					496160-44071			



Connector+Carrier Tape Part Number:  
196160-XXXX1  
No. of CKT

SER	AREA	DESCRIPTION	CHK	DATE	UNIT	SIZE
Δ	(2.1)	NA090504	Jerry	2009 06-04	mm	A3
Δ	(F,3)	NB090414	Jerry	2009 04-15	mm	A3
Δ	(E,9)	NB090333	Jerry	2009 03-30	mm	A3
Δ		NB090216	Jerry	2009 03-11	mm	A3

**P-TWO INDUSTRIES INC.**

APPROVED BY: *[Signature]* DATE: *6/4/09* TITLE: FPC 0.3P H1.25 TYPE II EASY-LOCK CARRIER

CHECKED BY: *[Signature]* DATE: *6/4/09*

DRAWN BY: *[Signature]* DATE: *6/4/09* DOCUMENT NO: JB96-04089

DRAWING NO: 496160-XX0XX REV: E SHEET: 3/3 SCALE: 1.5:1

品質/環安政策

**QUALITY/ENVIRONMENTAL SAFETY POLICIES**

1. 顧客滿意守法規.

Satisfying customer & obeying the law and regulations.

2. 防汙減廢節能源.

Protecting pollution, reducing waste & saving energy.

3. 全員參與勤改善.

All the staff join in & improve frequently.

4. 以人為本保安全.

Taking person as foundation & keep safety .