I N D E X

BTC104-06-50

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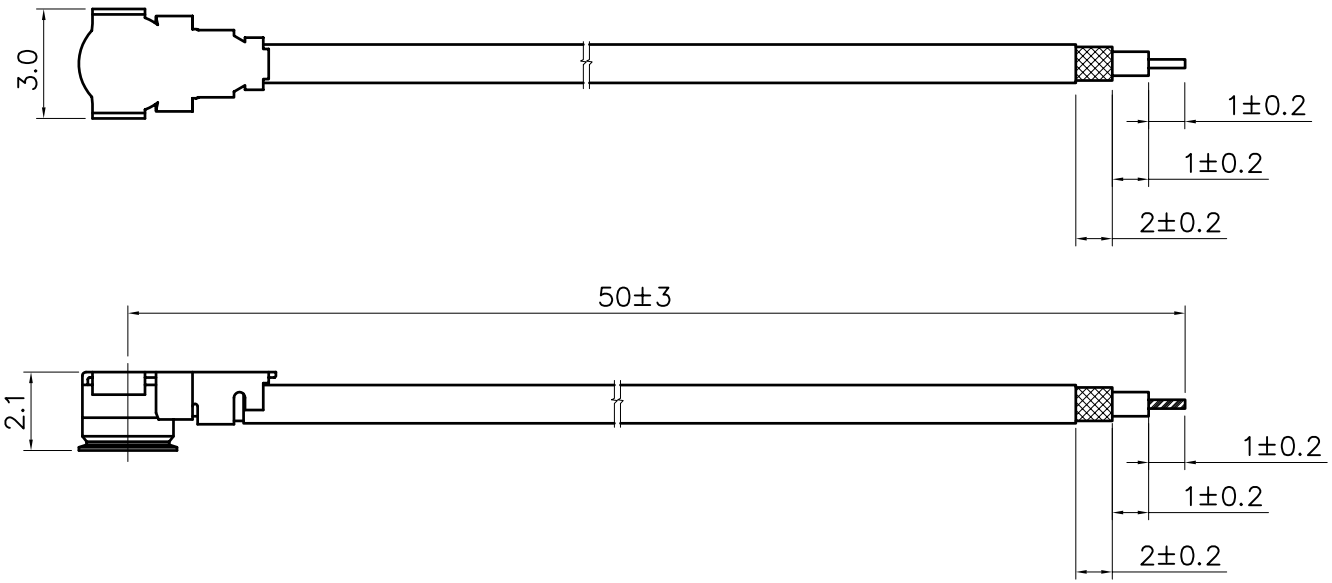
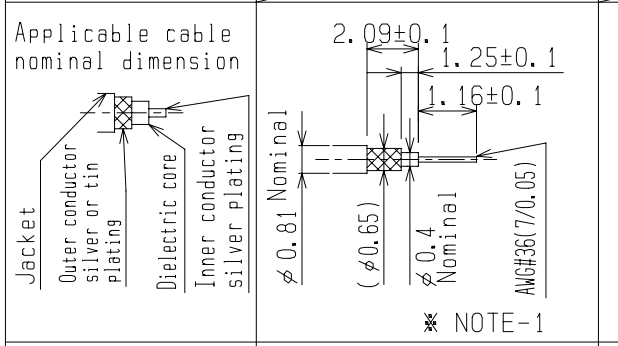
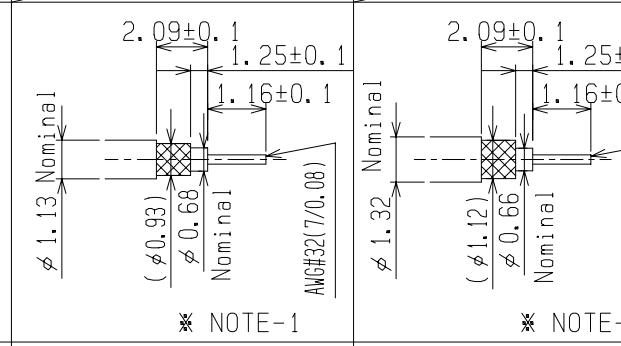
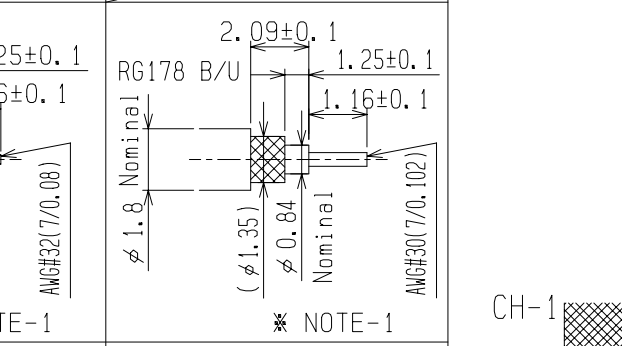
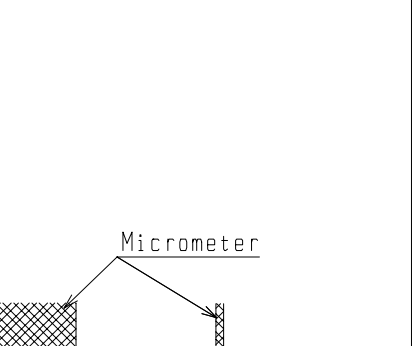
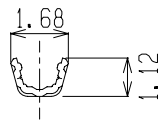
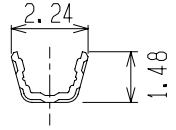
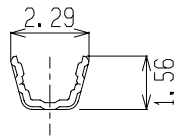
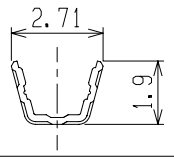
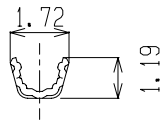
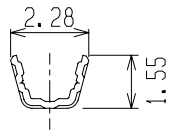
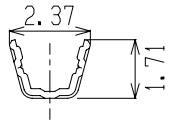
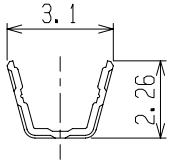
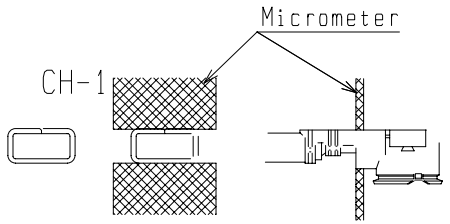
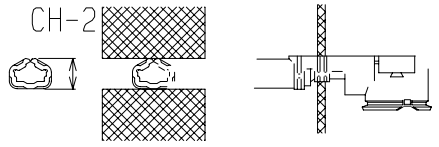


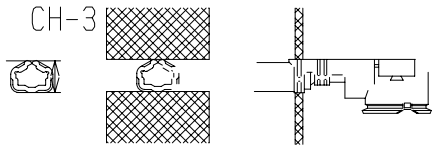
PROJECTION	TOLERANCE UNLESS OTHERWISE SPECIFIED		Mega-Chip Electronics Pte Ltd.	
	LINEAR	ANGLE		
UNITS MM	.0 ± 0.10	X° REF ± 0.5°	TITLE	SHEET
	.00 ± 0.05	X° ±	BTC104-06-50	1/1
	.000± 0.01	X°X' ±	RFC-1C-1P-50-K1.13G	
REV. SHEET	APPD.		DWG NO.	REV.
SHEET	CHKD			
SIZE 5/1	DESIGN		BTC104-06-50.DWG	A
A4	DRAW	Rae 95/6/20		

NO.	PART NO.	CODE NO.	REV	ECN	NAME	DATE
2.	1.13	Cable	4.			
1.	20278-101R-13	I-PEX	3.			
			2.			
			1.			

Part No.	20278-101R-08 / 20278-111R-08	20278-101R-13 / 20278-111R-13	20278-101R-32 / 20278-111R-32	20278-101R-18 / 20278-111R-18
Applicable cable nominal dimension				
Braided shield of Outer conductor 外部導体の編組	Single / 1重編組	Single / 1重編組	Double / 2重編組	Single / 1重編組
P/N of hand Tool / P/N of semi auto termination machine	90187-008C / 90213-008C	90187-013C / 90213-013C	90187-032C / 90213-032C	90233-018 / 90232-018
Sect. M-M				
Sect. L-L				
Crimp Height CH-1	1.34~1.40	1.34~1.40	1.34~1.40	1.34~1.40
Crimp Height CH-2	0.76~0.84	1.06~1.14	1.20~1.30	1.41~1.49
Crimp Height CH-3	0.85~0.97	1.15~1.35	1.26~1.46	1.70~1.80







Crimp Height

NOTE-1
中心導体，外部導体への半田コーティングは不可
Must not use solder coated
inner conductor and outer conductor.

GENERAL TOLERANCE	
6 MAX.	±0.2
6 OVER MAX. 30	±0.3
30 OVER MAX. 120	±0.5
ANGLE	±2°

REV	ECN	BY	DATE	APP

REV. RECORD
SERIES No. 2814

DESIGN'D BY DATE
CHK'D BY DATE
APP'D BY DATE

CUSTOMER COPY
PROJECTION

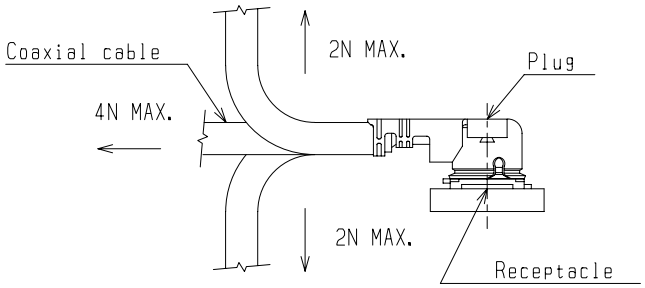
I-PEX Interconnect and Packaging Electronics TOKYO, JAPAN

TITLE
MHF series micro coaxial connector plug vertical (ground contact : gold plating)

SCALE	UNIT	DWG. No.	SHEET	REV.
-/-	mm	20278	2/3	13C

Notes

1. Material
 (1) Housing : PBT , UL94V-0 , black
 (2) Contact
  phosphor bronze
  gold plating 0.1μm MIN.
  over nickel 1.27μm MIN.
 (3) Ground contact
  phosphor bronze
  gold plating 0.05μm MIN.
  over nickel 1.27μm MIN.
2. Packing : reel
3. Mating partner part No.
 : 20279-001E-01
4. Permissible load of cable at mating



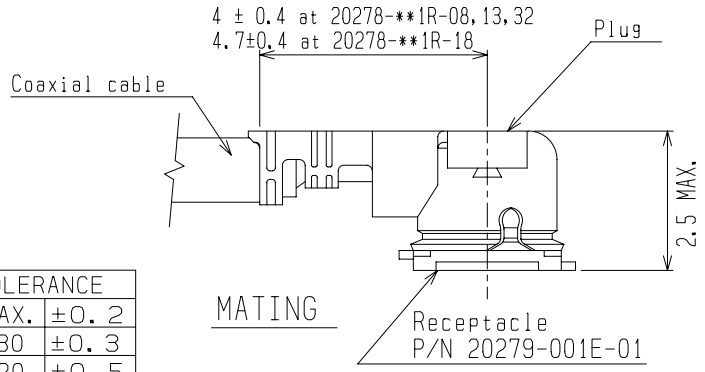
1. 材　料
 (1) ハウジング：PBT，UL94V-0，黒色
 (2) コンタクト
  りん青銅
  金メッキ0.1μm MIN.
  下地 ニッケル1.27μm MIN.
 (3) グランドコンタクト
  りん青銅
  金メッキ0.05μm MIN.
  下地 ニッケル1.27μm MIN.
2. 梱包 : リール
3. かん合相手 part No.
 :20279-001E-01
4. コネクタかん合後のケーブルに対する荷重

5. Suggestions for mating & unmating operation.

5-1 Mating.
Please mate the connector straightly to vertical direction as much as possible, adjusting the mating axis of plug and receptacle.
As excessive slant angle mating may break the connector , please don't do it.

5. コネクタかん合時および抜去時の注意

5-1 コネクタ挿入時
PlugとReceptacleのかん合軸を合わせ、できるだけ垂直に挿入して下さい。
極端な斜め挿入は行わないで下さい。
コネクタ破損の原因となりますので、過度なこじり挿抜は行わないで下さい。

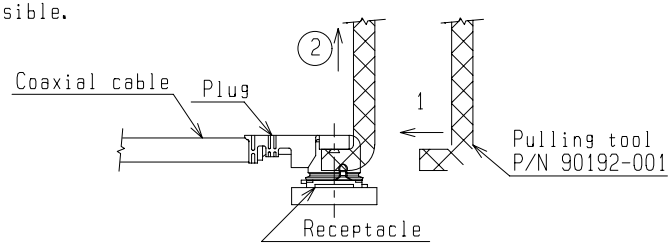


5-2 Unmating.

(1) In case of unmating by pulling tool.
Please use the pulling tool as the following drawing, and please pull plug to vertical direction as directly as possible.

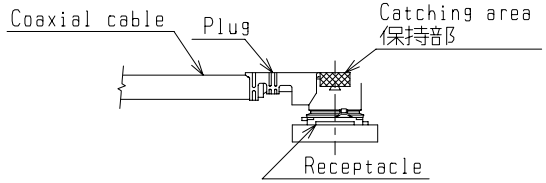
5-2 コネクタ抜去時

(1) 抜去ジグを用いる場合
下図のようにできるだけ垂直に引き抜いて下さい。



(2) In case of unmating directly by hand
Please catch the catching area of plug , and please pull plug to vertical direction as directly as possible.

(2) 手で直接引き抜く場合
下図の保持部をつかみ，できるだけ垂直に引き抜いて下さい。



5-3 Crimp over standards of outer conductor

Standards:Less than 10% from total numbers of outer conductor
(Numbers of outer conductor's crimp over from outer conductor's barrel)

5-3 外部導体はみ出し量

外部導体はみ出し量規定
：外部導体トータル本数の10%以下
（外部導体バレルの外にはみ出した量）

5-4 Caution about Heat shrinkage tubes

Please be cureful not to melt housing when using heat shrinkage tubes.
It will become cause of open circuit.

5-4 熱収縮チューブについての注意
熱収縮チューブで外部導体を覆う場合は、導通不良の原因になりますので、熱によりハウジグを溶融させないよう注意してください。

GENERAL TOLERANCE	
6 MAX.	±0.2
6 OVER MAX. 30	±0.3
30 OVER MAX. 120	±0.5
ANGLE	±2°

REV	ECN	BY	DATE	APP

REV. RECORD
SERIES No. 2814

DESIGN'D BY DATE
CHK'D BY DATE
APP'D BY DATE

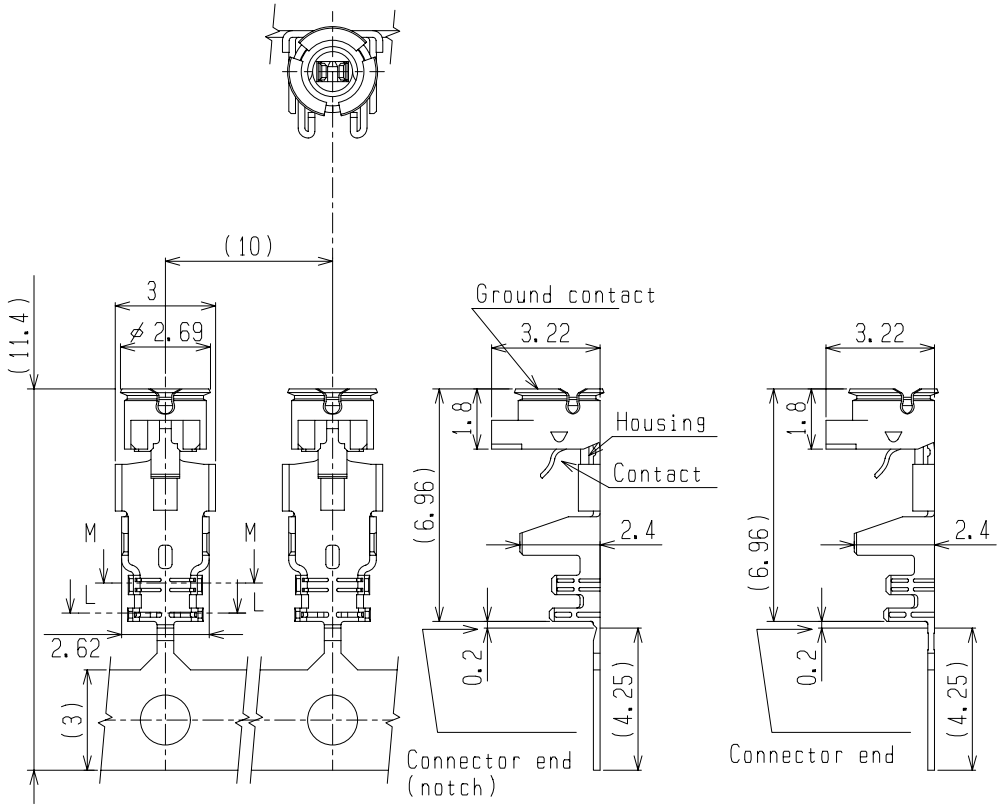
CUSTOMER COPY
PROJECTION

I-PEX Interconnect and Packaging Electronics TOKYO, JAPAN

TITLE
MHF series micro coaxial connector plug vertical (ground contact : gold plating)

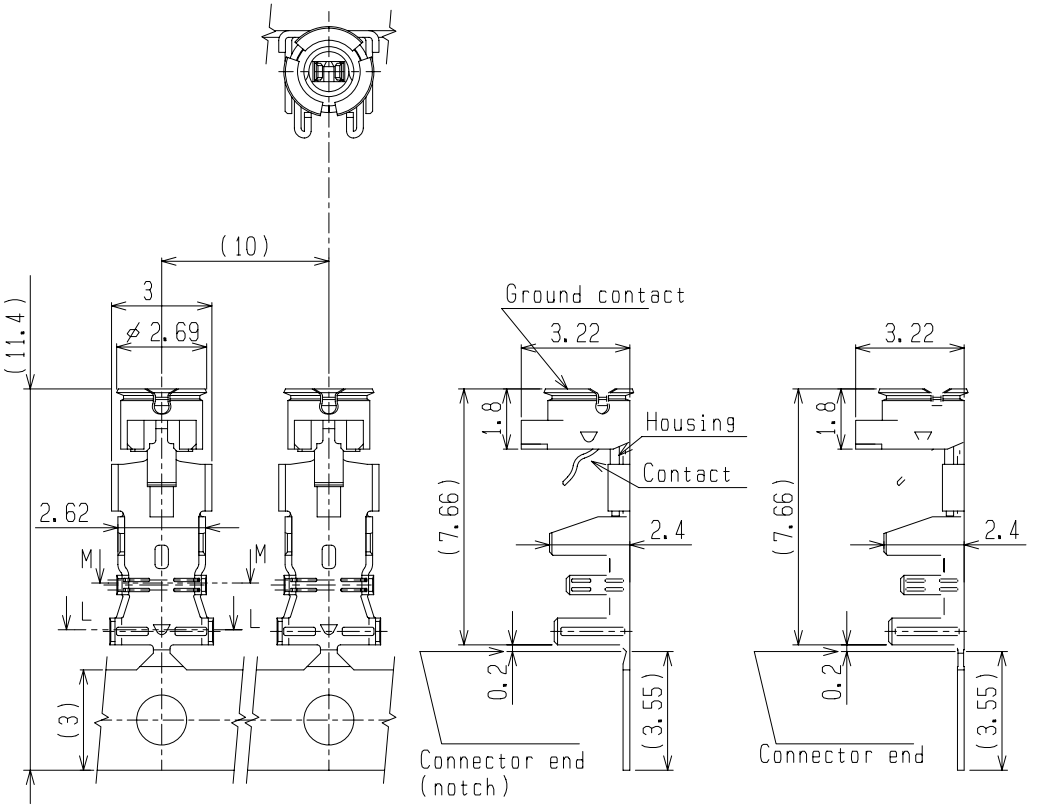
SCALE	UNIT	DWG. No.	SHEET	REV.
-/-	mm	20278	3/3	13C

PART NO.
20278-**1R-**



Part No. 20278-101R-08
20278-101R-13
20278-101R-32
For hand tool
(with notch)

Part No. 20278-111R-08
20278-111R-13
20278-111R-32
For semi auto
termination machine
(without notch)



Part No. 20278-101R-18
For hand tool
(with notch)

Part No. 20278-111R-18
For semi auto
termination machine
(without notch)

GENERAL TOLERANCE	
6 MAX.	±0.2
6 OVER MAX. 30	±0.3
30 OVER MAX. 120	±0.5
ANGLE	±2°

REV	ECN	BY	DATE	APP
13C	Z3074	A.H	May/22/'03	K.K
12C	Z3052	K.O	Apr/16/'03	K.K

REV	ECN	BY	DATE	APP
11C	Z3041	K.O	Mar/24/03	K.K
10C	Z3014	K.O	JAN/31/03	K.K
9C	Z2239	K.O	NOV/15/02	E.K
8C	Z2224	K.O	OCT/17/02	E.K
7B	Z2180	K.O	JUL/29/02	E.K
6B	Z2146	K.O	JUN/24/02	K.K
5B	Z2117	A.H	MAY/17/02	K.K

REV	ECN	BY	DATE	APP
4	Z2023	K.O	JAN/30/02	E.K
3	Z1256	K.O	NOV/14/01	K.K
2	Z1197	K.O	AUG/27/01	K.K
1	Z1118	K.O	JUN/26/01	K.K
0	Z1109	K.O	JUN/13/01	

REV. RECORD

SERIES No. 2814

DESIGN'D BY	DATE
K.Ohbayashi	JUN/13/01
CHK'D BY	DATE
APP'D BY	DATE
K.Katabuchi	JUN/13/01

CUSTOMER COPY

PROJECTION

I-PEX Interconnect and Packaging Electronics TOKYO, JAPAN

TITLE
MHF series micro coaxial connector plug
vertical (ground contact : gold plating)

SCALE	UNIT	DWG. No.	SHEET	REV.
6/1	mm	20278	1/3	13C

Date :

Our Spec. No. WS03-M051

MESSRS.

SPECIFICATION

FOR

HIGH FREQUENCY COAXIAL CABLE

" KHCX - 32AWG - SB - TA "

SHOWA ELECTRIC WIRE & CABLE CO., LTD.

TORANOMON

TOKYO JAPAN

James Huang

LANTRRA INDUSTRIAL CO., LTD.
F.14, NO. 92, SHING TEH ROAD,
SAN CHUNG, TAIPEI, TAIWAN
TEL:886-2-8511-1178
FAX:886-2-8511-1179
Email:sales@lanterra.com.tw
www.lanterra.com.tw
www.terraview.com.tw

T. Mori

T. Mori
Manager, Engineering Section
Engineering Dept.
Electronic Wire Business Unit

Our Spec. No. WS03-M051 (1/2)

1．適用(SCOPE)

本仕様書は電子機器などの内部配線に使用される細径同軸“KHCX-32AWG-SB-TA”の構造と特性について定める。

This specification covers the construction and characteristics of coaxial cable “KHCX-32AWG-SB-TA” for internal wiring of electronic equipment.

2．ケーブル型名の説明（EXPLANATION OF CABLE TYPE）

KHCX－32AWG－SB－TA
（1）　（2）　（3）

（1）ケーブル略称（Cable Abbreviation）
（2）導体サイズ（Conductor Size）
（3）外部導体タイプ（Outer Conductor Type）

3．構造(CONSTRUCTION)

項目 Item		要求特性 Requirement
内部導体 Inner conductor	材質 Material	銀めっき軟銅線 Silver coated annealed copper wire
	構成 Stranding	7/0.08mm
	外径 Diameter	標準 0.24mm Nom. 0.24mm
絶縁体 Insulation	材質 Material	FEP
	色別 Color	自然色 Natural
	厚さ Thickness	標準 0.22mm Nom. 0.22mm
	外径 Diameter	標準 0.68mm Nom. 0.68mm
外部導体 Outer conductor	材質 Material	錫めっき軟銅線 Tinned annealed copper wire braid shield
	構成 Stranding	16/4/0.05 mm
シース Sheath	材質 Material	FEP
	色別 Color	灰・白・黒 Gray・White・Black
	厚さ Thickness	標準 0.10mm Nom. 0.10mm
仕上外径 Overall diameter		標準 1.13mm Nom. 1.13mm
概算質量 Approximate mass		3 kg/km

4．電気特性(２０℃) (ELECTRICAL CHARACTERISTICS at 20 degree)

項目 Item	単位 Unit	要求特性 Requirements
導体抵抗 Conductor Resistance	Ω/km	520 以下 Max. 520
絶縁抵抗 Insulation Resistance	MΩkm	1,500 以上（DC 500V 1 分間充電後） Min. 1,500 (After charge DC 500V for 1 min.)
耐電圧 Dielectric Strength	V/1min.	AC 1,000
静電容量 Capacitance	pF/m	標準 97 (at 1kHz) Nom. 97 (at 1kHz)
特性インピーダンス Characteristic Impedance	Ω	標準 50 (TDR にて測定) Nom. 50 (at TDR)

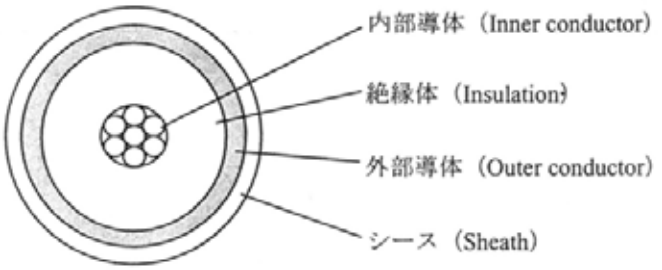


図１.ケーブル構造図

Fig.1. Cable Cross-Section

5．梱包及び荷札の表示（PACKING AND MARKING ON TAG）

完成品は運送中及び保管中に損傷を生じぬ荷造りをする。

また、荷札の表示は以下の通りとする。

The completed cables shall be coiled and packing in such a manner as to be adequately protected from damage during packing, shipping, and normal handling.

The following items shall be marked in the Tag which is attached to the products.

1) 品名（Type of Cable）
2) 導体サイズ（Conductor size）
3) 条長（Length）
4) 製造者名または略称（Manufacturer's name or trade mark）
5) 製造年月（The year and month of manufacture）

なお、完成品にはジョイントを有する場合がある。その場合は条長明細を記載する。

Note：The spool may contain joints. In that case, the detail of length is indicated.

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013
JAPAN

Report No. : CE/2005/61647A
Date : 2005/06/15
Page : 1 of 12

The following merchandise was (were) submitted and identified by the client as :

Type of Product	:	MHF SERIES CONNECTOR
Style/Item No	:	20278-XXXR-XX/20311-XXXR-XX/20351-XXXR-XX/ 20367-XXXR/20279-001E-01/20369-001E
Sample Received	:	2005/06/08
Testing Date	:	2005/06/08 TO 2005/06/15

==========

Test Result : - Please see the next page -

Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013
JAPAN

Report No. : CE/2005/61647A
Date : 2005/06/15

Test Result

PART NAME NO.1 : COPPER METAL (PLEASE REFER TO THE PHOTO ATTACHED)

PART NAME NO.2 BLACK AND WHITE PLASTIC (PLEASE REFER TO THE PHOTO ATTACHED)

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Carbon tetrachloride	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS linked Headspace.	1	N.D.	N.D.

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
CFC's(Chlorofluorocarbons)		Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]			
Group I					
Chlorofluorocarbon-11(CAS No:000075-69-4)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-12(CAS No:000075-71-8)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-113(CAS No:000076-13-1)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-114(CAS No:000076-14-2)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-115(CAS No:000076-15-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Group III					
Chlorofluorocarbon-13(CAS No:000075-72-9)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.

SGS

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013
JAPAN

Report No. : CE/2005/61647A
Date : 2005/06/15
Page : 3 of 12

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Chlorofluorocarbon-111(CAS No:000354-56-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-112(CAS No:000076-12-0)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-211(CAS No:135401-87-5)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-212(CAS No:076564-99-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-213(CAS No:060285-54-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-214(CAS No:002268-46-4)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-215(CAS No:000076-17-5)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-216(CAS No:001652-80-8)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.
Chlorofluorocarbon-217(CAS No:000422-86-6)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.	N.D.

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
PCTs(Polychlorinated Terphenyls)	ppm	Analysis was performed by GC/MS or GC/ECD.	0.5	N.D.	N.D.

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Test Report

I-PEX JP CO., LTD.
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Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Halon		With reference to US EPA 8260.			
Halon-1211(CAS No:000353-59-3)	ppm	Analysis was performed by GC/MS.	1	N.D.	N.D.
Halon-1301(CAS No:000075-63-8)	ppm	Analysis was performed by GC/MS.	1	N.D.	N.D.
Halon-2402(CAS No:000124-73-1)	ppm	Analysis was performed by GC/MS.	1	N.D.	N.D.

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
HCFC's(Hydrogenated chlorofluorocarbons)		With reference to US EPA 8260.			
Hydrochlorofluorocarbon-21(CAS No.:000075-43-4)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-22(CAS No.:000075-45-6)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-31(CAS No.:000593-70-4)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-121(CAS No.:000354-14-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-122(CAS No.:000354-21-2)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-123(CAS No.:000306-83-1)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.

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Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Hydrochlorofluorocarbon-124(CAS No.:002837-89-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-131(CAS No.:000359-28-4)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-132b(CAS No.:000471-43-2)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-133a(CAS No.:000075-88-7)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-141b(CAS No.:001717-00-6)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-221	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-222(CAS No.:000422-30-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-223	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-224	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.

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Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Hydrochlorofluorocarbon-225ca(CAS No.:000422-56-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-226(CAS No.:000431-87-8)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-231	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-232	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-233	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-234	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-235(CAS No.:013838-16-9)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-241	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-242	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.

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Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Hydrochlorofluorocarbon-243(CAS No.:000338-75-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-251	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-252	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-253(CAS No.:000354-06-1)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-261(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-262(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.
Hydrochlorofluorocarbon-271	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.	N.D.

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Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
PCBs(Polychlorinated Biphenyls)(CAS NO:001336-36-3)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/MS or GC/ECD.	0.5	N.D.	N.D.

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Polychlorinated Naphthalene	ppm	With reference to 83/264/EEC & EPA 8270D. Analysis was performed by GC/MS.	5	N.D.	N.D.

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
PVC (CAS No:9002-86-2)	**	With reference to ASTM E1252 method. Analysis was performed by FTIR/ATR and Pyro-GC/MS.	-	Negative	Negative

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Chlorinated Paraffin (C10~C13) (CAS NO:010871-26-2)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by GC/MS or GC/ECD.	0.01	N.D.	N.D.

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Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Halogen		As per EN14582 method B.			
Halogen-Chlorine (Cl)(CAS No:007782-50-5)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.	N.D.
Halogen-Fluorine (F)(CAS No:007782-41-4)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.	3410.0
Halogen-Bromine (Br)(CAS No:007726-95-6)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.	74650.0
Halogen-Iodine (I)(CAS No:007553-56-2)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.	N.D.

Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Methyl chloroform(CAS No.:000071-55-6)	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS linked Headspace.(CFC's(Chlorofluorocarbons))	1	N.D.	N.D.

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Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Monobromobiphenyl	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.	N.D.
Dibromobiphenyl	%		0.0005	N.D.	N.D.
Tribromobiphenyl	%		0.0005	N.D.	N.D.
Tetrabromobiphenyl	%		0.0005	N.D.	N.D.
Pentabromobiphenyl	%		0.0005	N.D.	N.D.
Hexabromobiphenyl	%		0.0005	N.D.	N.D.
Heptabromobiphenyl	%		0.0005	N.D.	N.D.
Octabromobiphenyl	%		0.0005	N.D.	N.D.
Nonabromobiphenyl	%		0.0005	N.D.	N.D.
Decabromobiphenyl	%		0.0005	N.D.	N.D.
Total PBBs (Polybrominated biphenyls)/Sum of above	%		-	N.D.	N.D.
Monobromobiphenyl ether	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.	N.D.
Dibromobiphenyl ether	%		0.0005	N.D.	N.D.
Tribromobiphenyl ether	%		0.0005	N.D.	N.D.
Tetrabromobiphenyl ether	%		0.0005	N.D.	N.D.
Pentabromobiphenyl ether	%		0.0005	N.D.	N.D.
Hexabromobiphenyl ether	%		0.0005	N.D.	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.	N.D.
Nonabromobiphenyl ether	%		0.0005	N.D.	N.D.
Decabromobiphenyl ether	%		0.0005	N.D.	N.D.
Total PBBEs(PBDEs)(Polybrominated biphenyl ethers)/Sum of above	%		-	N.D.	N.D.

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Test Item (s):	Unit	Method	MDL	Result	
				No.1	No.2
Chromium VI (Cr+6)	ppm	UV-VIS after reference to US EPA 3060A.	2	N.D.	N.D.
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	N.D.	N.D.
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	N.D.	N.D.
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	22.1	14.7

NOTE: (1) N.D. = Not detected (<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit
(4) " - " = No Regulation
(5) " --- " = Not Applicable
(6) * = Results shown are of the adjusted analytical results
(7) ** = Qualitative analysis (No Unit)
(8) Negative = Undetectable / Positive = Detectable
(9) The MDL is 5ppm for the single compound of CP

Test Report

LANTERRA INDUSTRIAL CO., LTD.
F. 14, NO. 92, SHING TEH ROAD, SAN CHUNG CITY,
TAIPEI, TAIWAN

Report No. : CE/2006/42970
Date : 2006/04/18
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The following merchandise was (were) submitted and identified by the client as :

Type of Product	:	KHCX-32AWG-SB-TA (GRAY)
Style/Item No	:	KHCX-32AWG-SB-TA (GRAY)
Sample Received	:	2006/04/11
Testing Date	:	2006/04/11 TO 2006/04/18

==========

Test Result : - Please see the next page -

Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

Test Report

LANTERRA INDUSTRIAL CO., LTD.
F. 14, NO. 92, SHING TEH ROAD, SAN CHUNG CITY,
TAIPEI, TAIWAN

Report No. : CE/2006/42970
Date : 2006/04/18

Test Result

PART NAME NO.1 : MIXED ALL PARTS

Test Item (s):	Unit	Method	MDL	Result
				No.1
Monobromobiphenyl	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl	%		0.0005	N.D.
Tribromobiphenyl	%		0.0005	N.D.
Tetrabromobiphenyl	%		0.0005	N.D.
Pentabromobiphenyl	%		0.0005	N.D.
Hexabromobiphenyl	%		0.0005	N.D.
Heptabromobiphenyl	%		0.0005	N.D.
Octabromobiphenyl	%		0.0005	N.D.
Nonabromobiphenyl	%		0.0005	N.D.
Decabromobiphenyl	%		0.0005	N.D.
Total PBBs (Polybrominated biphenyls)/Sum of above	%		-	N.D.
Monobromobiphenyl ether	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl ether	%		0.0005	N.D.
Tribromobiphenyl ether	%		0.0005	N.D.
Tetrabromobiphenyl ether	%		0.0005	N.D.
Pentabromobiphenyl ether	%		0.0005	N.D.
Hexabromobiphenyl ether	%		0.0005	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.
Nonabromobiphenyl ether	%		0.0005	N.D.
Decabromobiphenyl ether	%		0.0005	N.D.
Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above	%		-	N.D.
Total of Mono to Nona-brominated biphenyl ether. (Note 4)	%		-	N.D.

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Test Item (s):	Unit	Method	MDL	Result
				No.1
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	N.D.

NOTE: (1) N.D. = Not detected (<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit
(4) Decabromodiphenyl ether (DecaBDE) in polymeric applications is exempted by Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified under document 2005/717/EC.
(5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.
(6) " - " = Not Regulation

Test Report

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