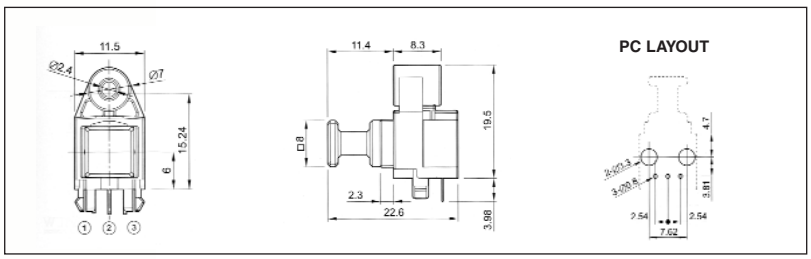
CLIFF Optical Jacks

The **CLIFF®** range of Optical Transmitter and Receiver jacks feature seven different models that conform to the EIAJ standard CP-1201 for Digital Audio Interfaces including Fibre-Optical inter-connections. Optical Jacks are virtually unaffected by noise when transmitting and receiving signals between digital audio equipment, enabling high-quality audio recording and high speed signal receiving. It continues to be adopted as a virtual standard in portable audio equipment. Several models have a self-tapping hole for panel mounting and three models replace the plug-in cover with a convenient hinged shutter to protect against contamination.

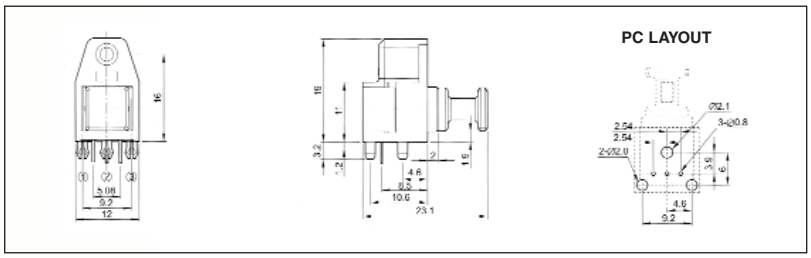
OTJ-1/ORJ-1 Single Optical Transmitter and Receiver Jack. Right angle PCB mount with self tapping hole for panel mounting. Removable plug-in cover.

OTJ-1 (FC6842031T)
ORJ-1 (FC6842031R)



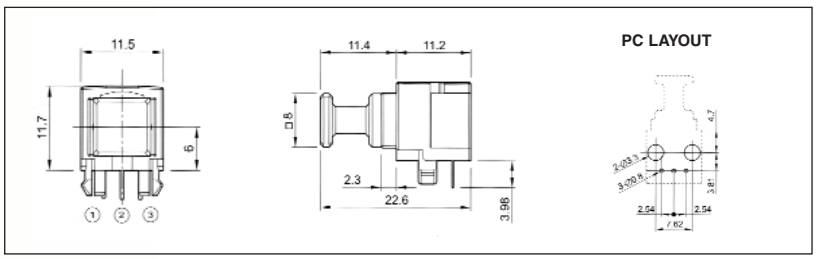
OTJ-2/ORJ-2 Single Optical Transmitter and Receiver Jack. Right angle PCB mount with self tapping hole for panel mounting. Removable plug-in cover.

OTJ-2 (FC684202T)
ORJ-2 (FC684202R)



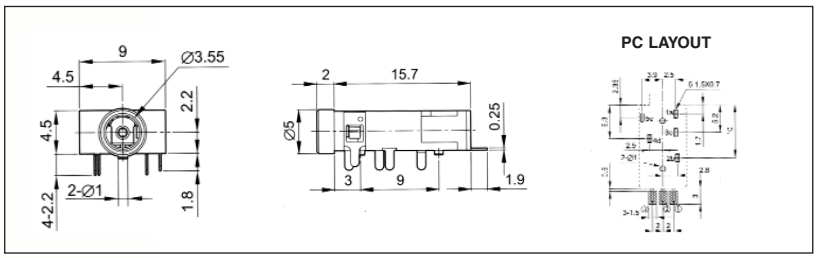
OTJ-3/ORJ-3 Single Optical Transmitter and Receiver Jack. Right angle PCB mount. Removable plug-in cover.

OTJ-3 (FC6842032T)
ORJ-3 (FC6842032R)



OTJ-4/ORJ-4 Single Optical Transmitter and Receiver Jack. Low profile right angle PCB mount.

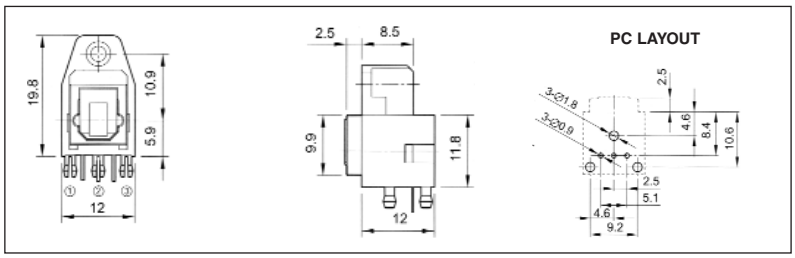
OTJ-4 (FC684204T)
ORJ-4 (FC684204R)

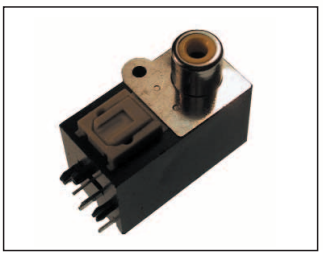


Optical Jacks

OTJ-5/ORJ-5 Single Optical Transmitter and Receiver Jack. Right angle PCB mount with self tapping hole for panel mounting. Hinged shutter.

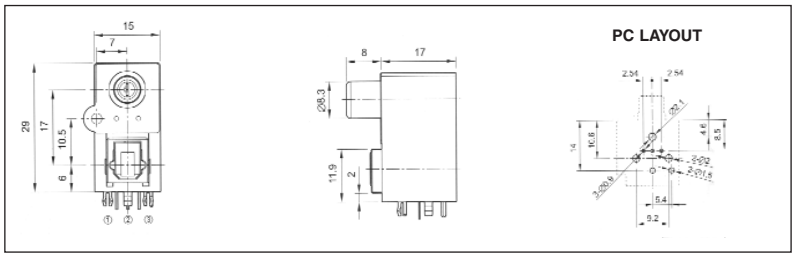
OTJ-5 (FC684205T)
ORJ-5 (FC684205R)

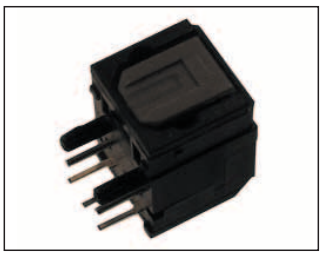




OTJ-6/ORJ-6 Dual SPDIF RCA and Optical Transmitter and Receiver Jack. Right angle PCB mount with self tapping hole for panel mounting. Hinged shutter. Several different colored inserts available.

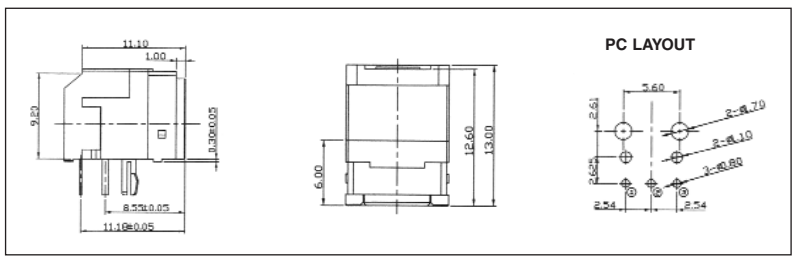
OTJ-6 (FC684206T)
ORJ-6 (FC684206R)





OTJ-8/ORJ-8 Optical Transmitter and Receiver Jack. Right angle PCB mount. Hinged shutter.

OTJ-8 (FC684208T)
ORJ-8 (FC684208R)



Electrical Specifications:

Supply Voltage: -0.5 to 7.0V Maximum.
Input Voltage: -0.5 to +0.5V Maximum.
Operating Temperature: -20 deg. C to +70 deg. C Maximum.
Storage Temperature: -30 deg. C to +80 deg. C Maximum.
Soldering Temperature: 260 deg. C Maximum.

Mechanical Specifications:

Insertion Force: 5.9N Minimum, 39.2N Maximum.
Withdrawal Force: 5.9N Minimum, 39.2N Maximum.

Materials:

Body: PBT +30G, ABS 94-V-0 (depends on model)
Shutter: Nylon PA66

Please refer to the individual technical data sheets available for each model for the recommended operating conditions, characteristics, PC layouts and technical information. We also manufacture molded optical lead assemblies for use with our optical jacks. Please contact our sales office for more details.

設計	制圖	描圖	製表	校對	

HISTORY X COUNT	DATE	ECN NO.	REV.	REVISION	SIGN.
⚠X1	04/09/'07	N074004	1.1	Add new product	

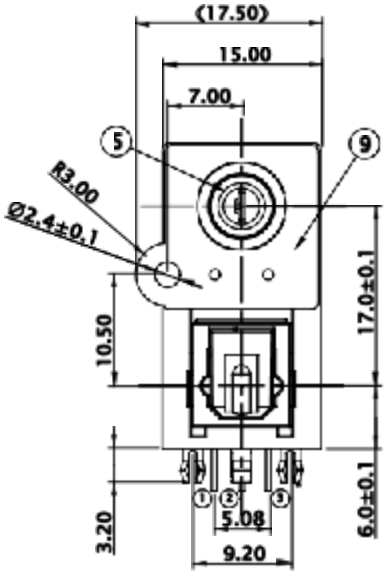
P Tol. SPECIFIED	
DIMENSION RANGE	Tol. ±
X ≤ 1	0.15
1 < X ≤ 8	0.20
8 < X ≤ 18	0.30
18 < X ≤ 50	0.50
50 < X ≤ 120	0.70
120 < X ≤ 250	0.90
250 < X ≤ 500	1.00

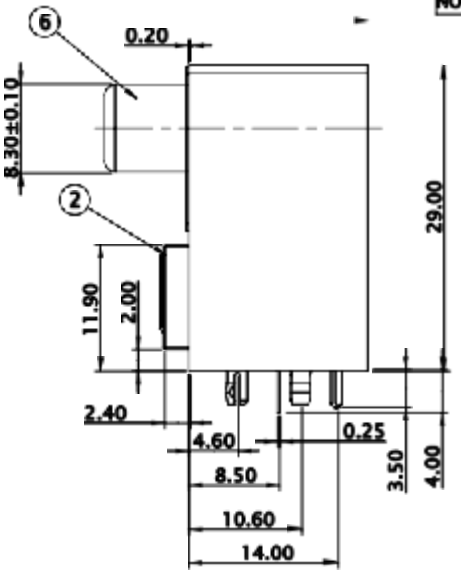
TABLE C	
Code	Color
01	Black
04	Yellow
08	Yellow(PMS 1225C)
10	Pink
31	Orange
34	Purple

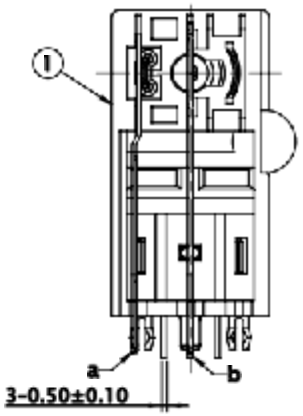
TABLE A	
Material	Product No.
ABS UL 94V-0	0806T*XX-001
	0806T*XX-003
PBT UL 94V-0	0806T*XX-001A
NYLON UL 94HB	0806T*XX-001G

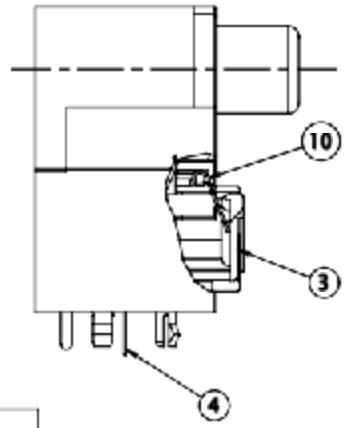
TABLE B		
Name	Color	Product No.
Cover & Inner cover	Black	0806T*XX-003
	Gray	0806T*XX-001
		0806T*XX-001A
		0806T*XX-001G
	Orange	0806T*XX-008

NO.	NAME	RART NO.	Q'TY	Material	COLOR / PLATING	REMARK
10	SPRING	0806-14-tXB	1	SWPA		
9	IRON SHELL COVER	0806-84-bXT	1	BRASS	BRIGHT-Sn	
8	NO:2 PIN	0806-32-bXTc	1	BRASS	Sn-Cu	
7	NO:1 PIN	0806-31-bXN	1	BRASS	NI	
6	IRON SHELL	1168-11-hXN	1	SPCC	NI	
5	AXIS WASHER	1031-25-aXX	1	ABS UL 94HB	SEE TABLE C	
4	IC		1			TRANSMITTER
3	COVER	0806-0a-aXXX	1	NYLON UL 94HB	SEE TABLE B	
2	INNER COVER	0806-06-aXXX		NYLON UL 94HB	SEE TABLE B	
1	BODY	0806A-01-aXB	1	SEE TABLE A	BLACK	
		0806-01-aXBX				

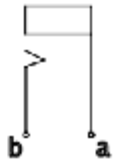




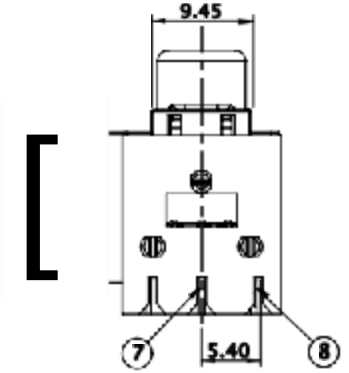


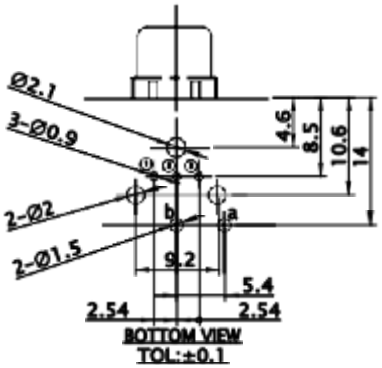


Transmitter	
Vin	①
Vcc	②
GND	③



RCA PIN JACK	
a	GND
b	Vin For JACK





REMARK:0806T*XX-001 0806T*XX-003
0806T*xx-001A 0806T*XX-008
0806T*xx-001G
XX:Color Codes of RCA JACK(SEE TABLE C)

NOTICE		ANGLE TOL. ±2°	2.000	RoHS Compliant	SIZE A3
		TOLERANCE ------	mm	SPECIFICATION	
		ANGLE	92.05.29	OPTICAL/RCA JACK	1.1
	DESIGNED 製	CHECKED 游	APPROVED 游	0806T*XX-001X 0806T*XX-003 0806T*XX-008	0806T-A001 1/1

SPECIFICATION

CUSTOMER MODEL NO. / TITLE	SPECIFICATION NO	PAGE : 1 OF 9
OPTICAL TRANSMITTER JACK (OC-0806T)	FC684206T	DATE : JUN,05,2002

OPTICAL CONNECTOR

1. Features

(1) Uni-directional data transmission using plastic fiber.

(2) Signal transmission speed: MAX. 12.5Mbps

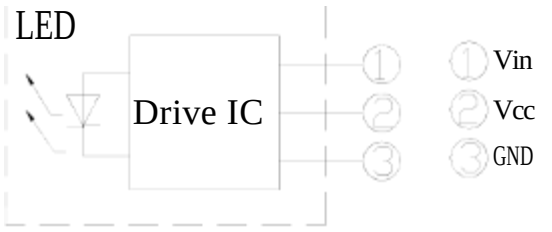
(3) Low voltage drive

Operating voltage: 2.75 to 5.25V

(4) Minimum input optical power: MIN. –21dBm (EIAJ)

(5) TTL and high speed C-MOS LOGIC IC compatible.

Internal equivalent circuit



2. Applications

(1) CD players

(2) MD players

(3) DVD players

3. Absolute Maximum Ratings

(Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	-0.5 to +7.0	V
Input voltage	Vin	-0.5 to Vcc +0.5	V
Operating temperature	Topr	-20 to +70	℃
Storage temperature	Tstg	-30 to +80	℃
*Soldering temperature	Tsol	260 ℃	

* For 5s (2 times or less)

REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91. 6. 5 國勝	許 91. 6. 5 石坪	陳 91. 6. 5 榮鴻	胡 91. 6. 5 文真

SPECIFICATION

CUSTOMER MODEL NO. / TITLE	SPECIFICATION NO.	PAGE : 2 OF 9
OPTICAL TRANSMITTER JACK (OC-0806T)	FC684206T	DATE : JUN,05,2002

4. Recommended Operating Conditions

Parameter	Symbol	MIN.	TYP.	MAX.	
Operating supply voltage	Vcc	2.75	3.0	5.25	Unit
Operating transfer rate	T	-	-	12.5	V
					Mbps

5. Electro-optical Characteristics

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit.
Peak emission wavelength	λp		630	660	690	nm
Optical power output coupling with fiber	Pc	Refer to Fig.1	-21	-18		
Dissipation current	Icc	Refer to Fig.2	-	8	-15	dBm mA
High level input voltage	V_{iH}	Refer to Fig.2	2.1	-	13	V
Low level input voltage	V_{iL}	Refer to Fig.2	-	-	-	V
Low → High delay time	t_{pLH}	Refer to Fig.3	-	-	0.8	ns
High → Low delay time	t_{pHL}	Refer to Fig.3	-	-	180	ns
Pulse width distortion	Δtw	Refer to Fig.3	-15	-	180	ns
Jitter	Δtj	Refer to Fig.3	-	1	+15	ns
					15	

6. Mechanical Characteristics

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
6.1 Insertion force. Withdrawal force.	-	4	-	40	N

6.2 Repeated operation

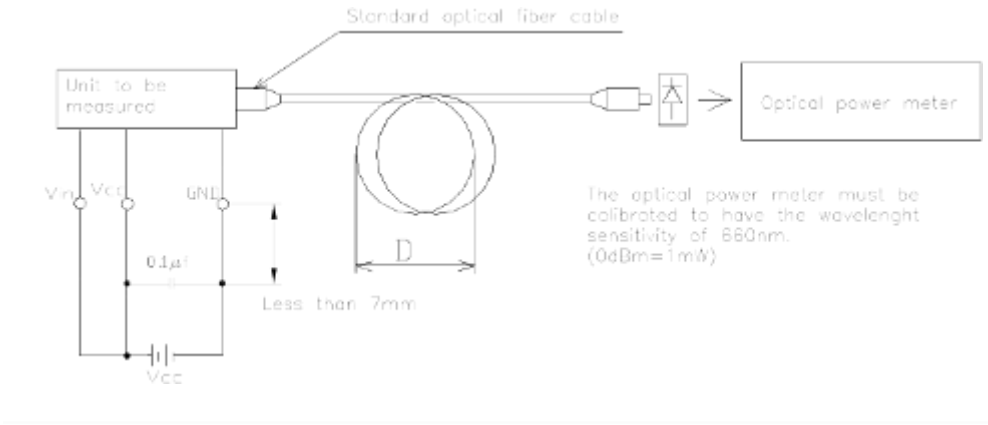
Inserting and withdrawing shall be made at a speed of 20 times or less/min using mating plug. 500 times.

REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91. 6. 5 國勝	許 91. 6. 5 石坪	陳 91. 6. 5 榮鴻	胡 91. 6. 5 文真

SPECIFICATION

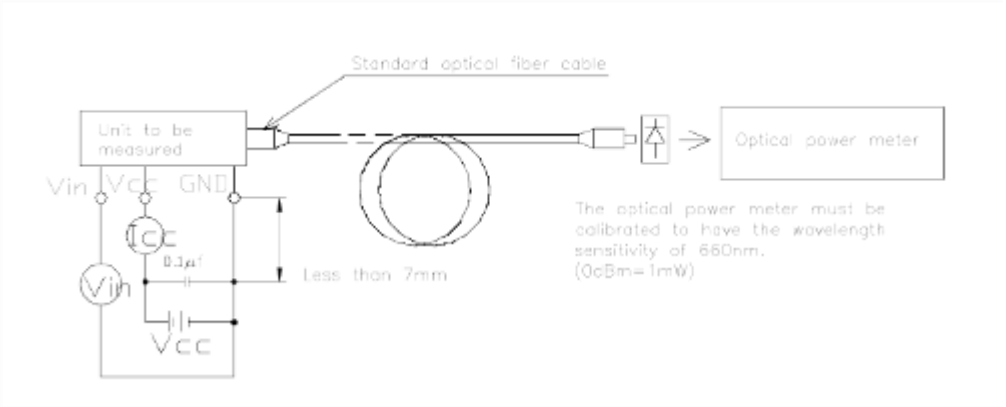
CUSTOMER MODEL NO. / TITLE	SPECIFICATION NO	PAGE : 3 OF 9
OPTICAL TRANSMITTER JACK (OC-0806T)	FC684206T	DATE : JUN,05,2002

Fig.1 Measuring Method of Optical Output Coupling with Fiber.



Notes: (1) OC-08 Vcc=3.0V (State of operating).
(2) To bundle up the standard fiber optic cable, make it into a loop with the diameter D=10cm or more. (The standard fiber optic cable will be specified elsewhere.)

Fig.2 Measuring Method of Input Voltage and Supply Current.



Input conditions and judgement method.

Condition	Judgement method
V_{in}=2.1V or more.	-21≦Pc≦-15dBm, Icc=13mA or less.
V_{in}=0.8V or less.	Pc≦-36dBm, Icc=13mA or less.

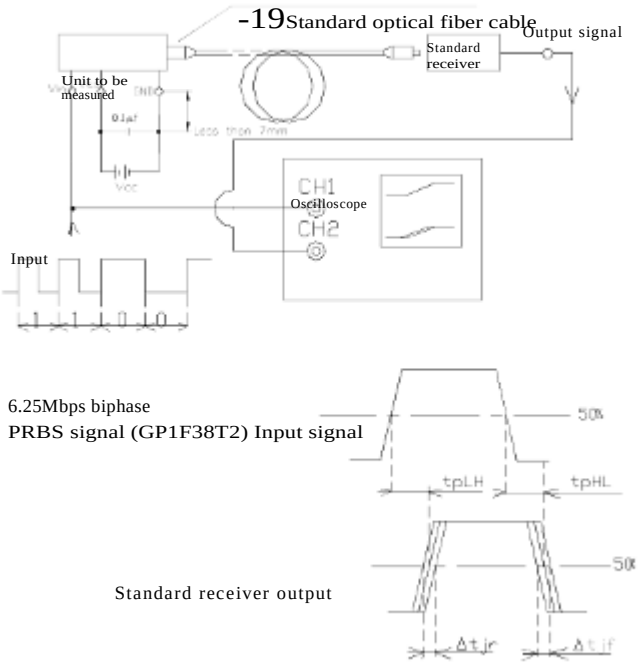
Note) Vcc=3.0V (State of operating).

REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91. 6. 5 國勝	許 91. 6. 5 石坪	陳 91. 6. 5 榮鴻	胡 91. 6. 5 文真

SPECIFICATION

CUSTOMER MODEL NO. / TITLE	SPECIFICATION NO	PAGE : 4 OF 9
OPTICAL TRANSMITTER JACK (OC-0806T)	FC684206T	DATE : JUN,05,2002

Fig.3 Measuring Method of Pulse Response and Jitter.



Test item		
Test item	Symbol	Test condition
Low → High pulse delay time	t_{PLH}	Refer o the above prescriptions
High → Low pulse delay time	t_{PHL}	Refer to the above prescriptions
Pulse width distortion Δtw	Δtw=t_{PHL}-t_{PLH}	
Low → High Jitter	Δtjr	Set the trigger on the rise of input signal to measure the jitter of the rise of output
High → Low Jitter	Δtjf	Set the trigger on the fall of input signal to measure the jitter of the rise of output

Notes(1) The waveform write time shall be 4 seconds. But do not allow the waveform to be distorted by increasing the brightness too much.

(2) Vcc=3.0V (State of operating)

(3) The probe for the oscilloscope must be more than 1MΩ and less than 10pF.

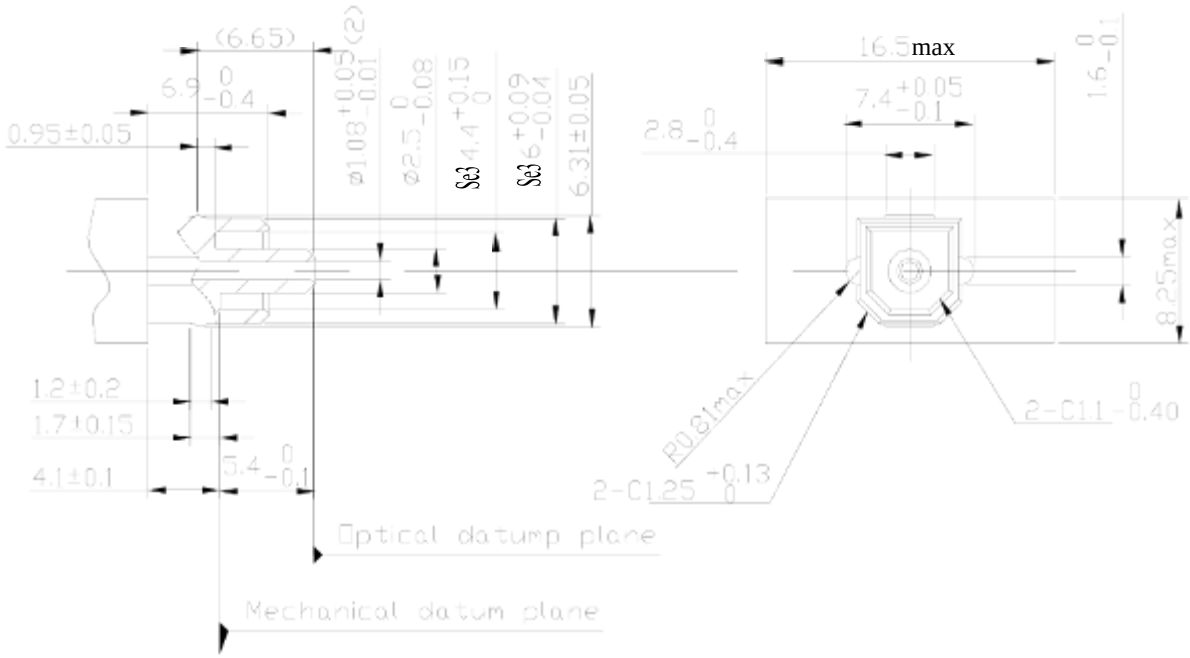
REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91. 6. 5 國勝	許 91. 6. 5 石坪	陳 91. 6. 5 榮鴻	胡 91. 6. 5 文真

SPECIFICATION

CUSTOMER MODEL NO. / TITLE	SPECIFICATION NO.	PAGE : 5 OF 9
OPTICAL TRANSMITTER JACK (OC-0806T)	FC684206T	DATE : JUN,05,2002

Mating plug

EIAJ RC-5720A Rectangular type plug (Unit mm)



REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91. 6. 5 國勝	許 91. 6. 5 石坪	陳 91. 6. 5 榮鴻	胡 91. 6. 5 文真

SPECIFICATION

CUSTOMER MODEL NO. / TITLE	SPECIFICATION NO.	PAGE : 6 OF 9
OPTICAL TRANSMITTER JACK (OC-0806T)	FC684206T	DATE : JUN,05,2002

RCA

1. SCOPE

This specification covers the requirements for "PIN JACK".

2. RATED

A) Rated voltage DC/AC 34V
B) Rated current DC/AC 2A
C) Temperature range -25~70℃
D) Humidity range 85% RH MAX.
E) Test condition

Unless otherwise specified herein, all measurements and tests shall be made at temperature of 5℃~35 ℃ and relative humidity of 45%~85%.

3. ELECTRICAL EFFICIENCY

Item	Condition	Result/Value
3A) Dielectric strength	500V AC applied between mutual insulated metal parts for one minute.	Not breaking insulation
3B) Insulation resistance	(500V DC applied between mutual insulated metal parts.) Initial	≧ 100 MΩ
	After heat test After cold test After resistance to soldering test After life test After temperature cycling test After humidity test	≧ 50 MΩ
3C) Contact resistance	(Measure at a current of less than 100mA 1KHz. The Gauge plug used shall be cleaned and free from oxidation film of the surface.) Initial After humidity test After heat test After cold test After resistance to soldering test After life test After temperature cycling test	≦ 30 mΩ

REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91. 6. 5 國勝	許 91. 6. 5 石坪	陳 91. 6. 5 榮鴻	胡 91. 6. 5 文真

4. MECHANICAL EFFICIENCY

Item	Condition	Insertion force	Withdrawal force
4A) Insertion force And Withdrawal force	(With the gauge plug as show in 8) Initial After humidity test After heat test After cold test After resistance to soldering test After life test After temperature cycling test	0. 3kgf~4.0kgf (2.94N~39.4N)	

4B. Terminal strength

Every terminal shall be capable of withstand a force of 3kgf on 0.5 seconds without loosing and breakdown, but deformation of terminal is authorized.

The jack fixed on PCB, then shall be capable of inserted the gauge plug at 150 times, without loosing and breakdown, but force of inserted the gauge plug shall be less than 3kgf.

4C. Strength of tapping part

The tapping part shall be capable of a torque of 8kgf-cm for 5 seconds by M3×8 tapping tight screw and panel (t=1), the jack shall not be broken.

5. Construction

5A. Mating limit

Mating limit or range of between the plug and spring of jack shall be not regulated.

5B. Connection timing

The jack shall be permitted with connection timing whether shorting or not between the mutually separated terminals or spring of the pin jack, during the plug inserting and extracting.

5C. Creep age distance and spacing

Creep age distance and spacing between mutually insulated parts be 0.2mm minimum, these distance and spacing shall be maintained with or without the gauge plug inserted.

6. Environmental

6A. Life test

The life test shall consist of 150 cycles of insertion and withdrawal with gauge plug covered with a thin coat of grease in order to prevent from heating or wearing, at a rate of 20 to 30 cycles per minute under no load. At the conclusion of this test, the jack shall comply with Paragraphs 3 & 4, and be in operating condition.

6B. Humidity test

The jack shall be subjected to temperature of 40±2℃ and relative humidity of 90% to 95% for a period of 96 hours. Upon completion of the exposure, dewdrops shall be blown out and removed from the jack, after which the jack shall be conditioned at room ambient conditions for 30 minutes. At the conclusion of this test, the jack shall comply with paragraphs 3 & 4.

6C. Heat test

The jack shall be subjected to temperature of 70±2℃ for a period of 96 hours, then shall be allowed to remain in room ambient conditions for 30 minutes. At the conclusion of this test, the jack shall comply with Paragraph 3 & 4.

6D. Cold test

The jack shall be subjected to temperature of –40±3℃ for a period of 96 hours, then shall be allowed to remain in room ambient conditions for 30 minutes. At the conclusion of this test, the jack shall comply with Paragraph 3 & 4.

6E. Resistance to soldering heat test

The jack terminal shall be dipped in solder under the condition as specified below. At the conclusion of this test, the jack shall comply with Paragraph 3 & 4, and not show remarkable failure.

6E1. The terminal for a printed circuit board.

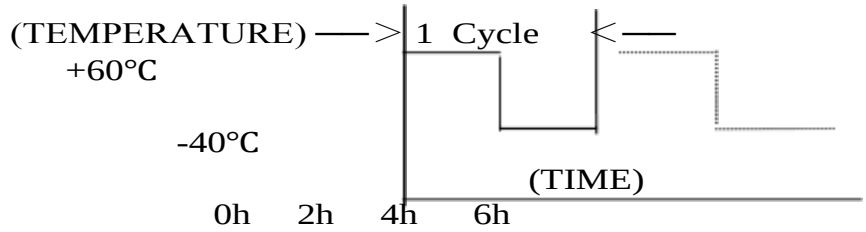
Temperature of solder: 260±5℃; Dip time: 5±1 seconds.

6E2. The terminal for a lead wire

Temperature of solder: 350±10℃; Dip time: 3±0.5 seconds.

6F. Temperature cycling test

The jack shall be subjected to the conditions as shown in fig as follows. And then shall returned and allowed to remain in room ambient condition for 30 minutes. At the conclusion of this test, the jack shall comply with Paragraph 3 & 4.



REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91. 6. 5 國勝	許 91. 6. 5 石坪	陳 91. 6. 5 榮鴻	胡 91. 6. 5 文真

6G. Soldering test

Area of soldering shall be capable of 95% or more of dip terminal area. Condition: Terminal of solder: 235±5℃; Time of dip:5±0.5 sec. Length of dip: 2±0.5mm (from top of terminal)

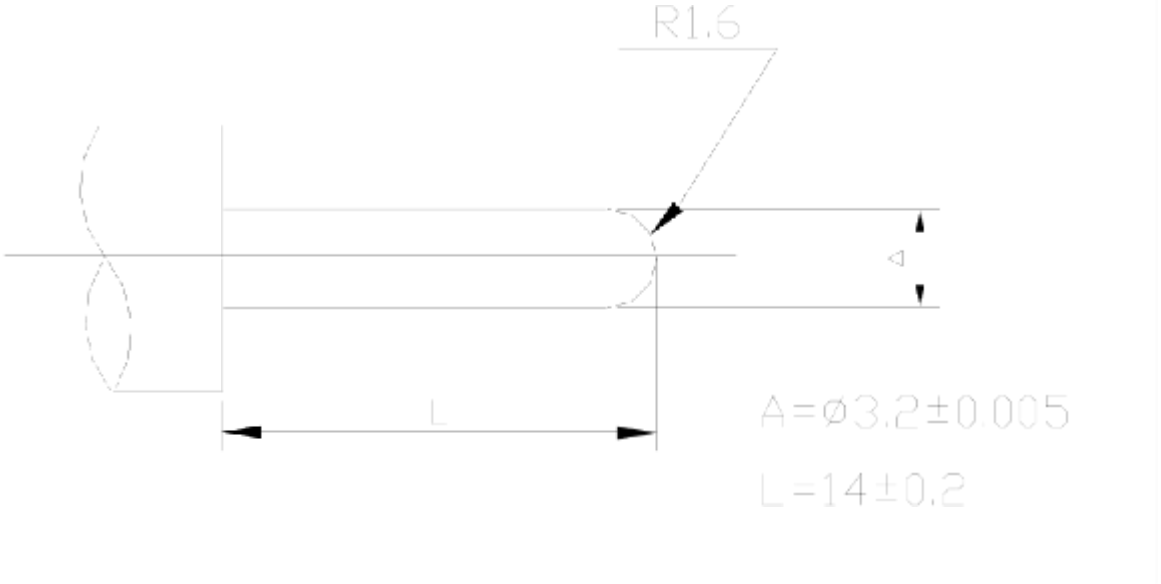
7. OTHERS

When the amendment of this specification comes into necessity, it shall be made by the mutual consultation and agreement between manufacturer and customer.

8. Mated plug

Surface roughness: Peak-to-valley height of 0.8 micron MAX.
For insertion and drawing force. Material: Stainless steel;
Finish: Chromium plated.
For contact resistance. Material: Brass; Finish: Silver plated.

(Hemispherical)



REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91. 6. 5 國勝	許 91. 6. 5 石坪	陳 91. 6. 5 榮鴻	胡 91. 6. 5 文真

Document No.	Document name	Rev.	DATE
01-E	Management standards for "Environment-related substances to be controlled"	1.6	OCT,26,2006

1. This part should not contain any substances which are specified in follow .(Except cadmium is less than 5ppm, Lead is under 90ppm)

2. In this case, pre-processing methods and measurement methods shall conform to ROHS.

3. List of "Environment-related Substances to be Controlled ('The Controlled Substances')"

Substances		Allowable concentration
Heavy metals	Cadmium and cadmium compounds	Less 5ppm
	Lead and lead compounds	Less 90ppm
	Lead in the plastic,rubber,paints,ink	Less 50ppm
	Mercury and mercury compounds	
	Hexavalent chromium compounds	
Chlorinated organic compounds	Polychlorinated biphenyls (PCB)	
	Polychlorinated naphthalenes (PCN)	
	Chlorinated paraffins (CP)	
	Mirex (Perchlordecone)	
	Other chlorinated organic compounds	
Brominated organic compounds	Polybrominated biphenyls (PBB)	
	Polybrominated diphenylethers (PBDE)	
	Tetrabromobisphenol-A-bis- (2, 3-dibromopropylether) (TBBP-A-bis)	
	Other brominated organic compounds	
Organic tin compounds (tributy tin compounds, Triphenyl tin compounds)		
Asbestos		
Azo compounds		
Formaldehyde		
Polyvinyl chloride (PVC) and PVC blends		

4. Allowable concentrations:
   Less than 90ppm is determined as an allowable total-concentration of four heavy metals (mercury, cadmium, hexavalent chromium, and lead). Less than 5ppm is determined as an allowable cadmium-concentration in a plastic (including rubber) part.

REV.	NAME	DATE	REMARK	APVD	陳代	CHKD		CHKD	林 95.10.26 美曲	WRTN	簡 95.10.26 秀陵

CHI MEI CORPORATION

59-1 SAN CHIA JEN TE TAINAN HSIEN TAIWAN

Material Designation: **PA-765A (+)**

Product Description: Acrylonitrile Butadiene Styrene (ABS), designated "Polylac" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	1.5	V-1	-	-	85	80	85	-	-
	2.1	V-0, 5V-B	3	0	85	80	85	-	-
	2.5	5VA	-	0	85	80	85	-	-
	3.0	V-0	0	0	85	80	85	-	-

CTI: 0 **HVTR:** 0 **D495:** 7 **IEC BP:** -

(+) Optional prefix or suffix may be used to denote 0-0.5% acid scavengers.

CHI MEI CORPORATION

59-1 SAN CHIA JEN TE TAINAN HSIEN TAIWAN

Material Designation: **PA-777D**

Product Description: Acrylonitrile Butadiene Styrene/Phenyl Maleimide (ABS/PMI), designated "Polylac" furnished as pellets.

Color	**Min. Thick.** (mm)	**Flame Class**	**HWI**	**HAI**	**RTI Elec**	**RTI Imp**	**RTI Str**	**IEC GWIT**	**IEC GWFI**
ALL	1.5	HB	4	0	50	50	50	-	-

CTI: 1 **HVTR:** 0 **D495:** 7 **IEC BP:** -

Report Date: 03/10/1993 Underwriters Laboratories Inc® 267295002

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.

E I DUPONT DE NEMOURS & CO INC

ENGINEERING POLYMERS CHESTNUT RUN PLAZA PO BOX 80713 WILMINGTON DE 19880

Material Designation: **70G33L(+)**

Product Description: Polyamide 66 (PA66), glass reinforced, designated "Zytel" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.71	HB	4	0	130	120	130	-	-
	1.5	HB	4	0	130	120	130	-	-
	3.0	HB	4	0	130	120	130	-	-

CTI: 0 **HVTR:** 1 **D495:** 5 **IEC BP:** -

(+) Virgin and Regrind up to 50% by weight inclusive, have the same basic material characteristics.

NOTE (1) Material designations that are color pigmented may be followed by suffix letters and numbers. (2) Material designations may be prefixed by "ZYT" or "MIN".