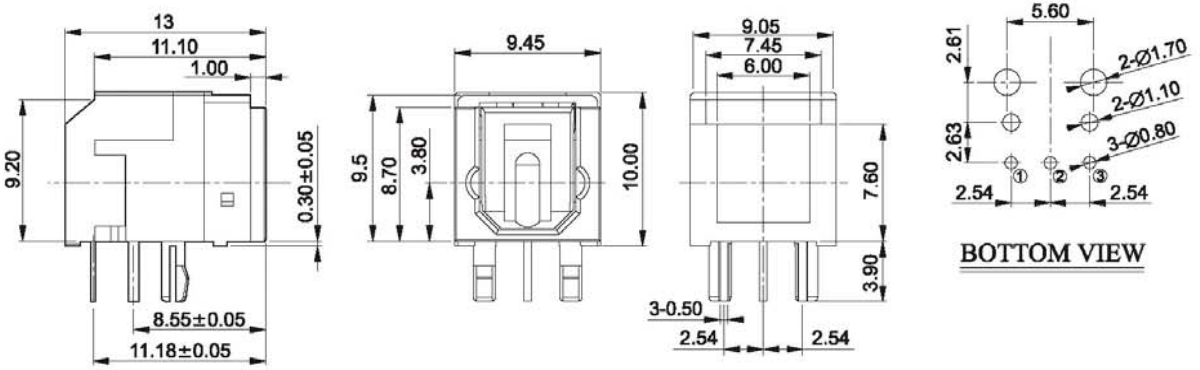
CLIFF

ISS.	AMEND	DATE



	PART NUMBER	TYPE	PIN OUT		
			1	2	3
Receiver	FC684208R	ORJ-8	V cc	GND	V out
Transmitter	FC684208T	OTJ-8	V in	V cc	GND

RoHS COMPLIANT

TOLERANCE
NO DEC. PLACE ±
1 DEC. PLACE ±
2 DEC. PLACE ±
HOLE Ø ±
ANGLES ±
UNLESS OTHERWISE STATED

Cliff Electronic Components Ltd.
76 Holmethorpe Avenue, Holmethorpe Industrial Estate,
Redhill, Surrey, RH1 2PF, England, UK
Tel: 01737-771375 Fax: 01737-766012 Website: www.cliffuk.co.uk

DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED. WORK TO DIMENSIONS. REMOVE ALL BURRS. IF IN DOUBT ASK. | 3rd ANGLE PROJECTION: | DO NOT SCALE

MATERIAL:
FINISH:
DRAWN: | APPROVED:

TITLE: OPTICAL JACK

DRWG. No. | FORM: A4DRWGH

SPECIFICATIONS

CUSTOMER MODEL NO. / TITLE OPTICAL RECEIVING JACK FC684202R, FC6842031R, FC684207R, FC684208R	SPECIFICATION NO.	PAGE : 1 OF 7 DATE : APR,29,2002

Fiber optic receiving module for digital audio interface and navigation system.

Features:

(1) Conform to EIAJ standard CP-1201 (for Digital Audio interfaces Including Fiber Optical inter-connectors).

(2) A self-tapping hole for easy attachment to Audio Equipments panels.

(3) High speed signal receiving
(12.5Mbps NRZ signal)

1. Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Storage Temperature	T_{stg}	-40 ~ 70	℃
Operating Temperature	T_{opr}	-20 ~ 70	℃
Supply Voltage	Vcc	-0.5 ~ 6	V
High Level Output Current	I_{OH}	-1	mA
High Level Output Current	I_{OL}	5	mA
Soldering Temperature	Tsol	260 (1)	℃

Note (1): Soldering time ≦10 seconds (At a distance of 1mm from the package.)

2. Recommended Operating Conditions

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Supply Voltage	Vcc	4.75	5.0	5.25	V

REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91.5.15 國際	許 91.5.13 石坪	陳 91.5.29 榮鴻	周 91.5.10 文貴

SPECIFICATIONS

CUSTOMER MODEL NO. / TITLE OPTICAL RECEIVING JACK	SPECIFICATION NO.	PAGE : 2 OF 7 DATE : APR,29,2002

3. Optical-electro Characteristics (Ta = 25℃, Vcc = 5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit.
Data Rate		NRZ Code (2)	0.1	-	12.5	Mb/s
Transmission Distance		Using APF (3), Using	0.2	-	5	M
Pulse Width Distortion (4)	Δtw	Pulse Width = 147ns Pulse Cycle = 294ns C_L = 10pF	-15	-	15	ns
Maximum Receivable Power	P_{MAX}	12.5Mb/s, Using APF	-	-	-14.5	dBm
Minimum Receivable Power	P_{MIN}	12.5Mb/s, Using APF	-24	-	-	dBm
Current Consumption	I_{CC}		-	15	40	mA
High Level Output Voltage	V_{OH}		2.4	4.8	Vcc	V
Low Level Output Voltage	V_{OL}		-	0.2	0.4	V
Rise time	t_r	Refer to "Test Circuit"	-	10	20	ns
Fall time	t_f	Refer to "Test Circuit"	-	10	20	ns
Low→High delay time	t_pLH	Refer to "Test Circuit"	-	100	180	ns
High→Low delay time	t_pHL	Refer to "Test Circuit"	-	100	180	ns

Note (2): When non-modulated signal (optical all high or all low level signal) is inputted, output signal is not stable.
When modulated optical high level signal is received, output signal is high.
When modulated optical low level signal is received, output signal is low.
The duty factor must be maintained between 25 to 75%.

Note (3): All Plastic Fiber (970 / 1000μm).

Note (4): Between input of transmitting module and output

4. Mechanical Characteristics (Ta= 25℃)

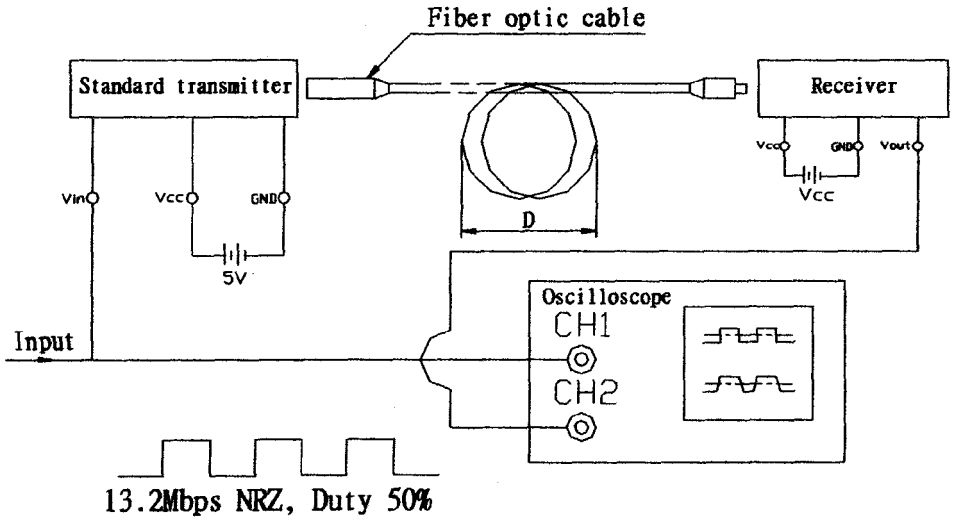
Parameter	Condition	MIN.	TYP.	MAX.	Unit
Insertion Force.	Using	-	-	39.2	N
Withdrawal Force.	Initial value	5.9	-	39.2	N
Torque for Self-Tap	Using self-tapping Screw (TP3×8)	58.8	-	78.4	N · cm

REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 01.5.13 国隊	許 01.5.13 石坪	陳 01.5.13 榮鴻	劉 01.5.13 文鳳

SPECIFICATIONS

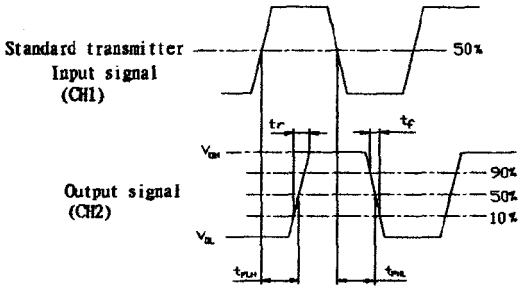
CUSTOMER MODEL NO. / TITLE OPTICAL RECEIVING JACK	SPECIFICATION NO.	PAGE : 3 OF 7 DATE : DEC,17,2002

TEST CIRCUIT



Test item

Test item	Symbol
Low → High pulse delay time	t_{PLH}
High → Low pulse delay time	t_{PHL}
Rise time	t_r
Fall time	t_f
Pulse width distortion Δ tw = t_{PHL} - t_{PLH}	Δ tw
High level output voltage	V_{OH}
Low level output voltage	V_{OL}



Notes:

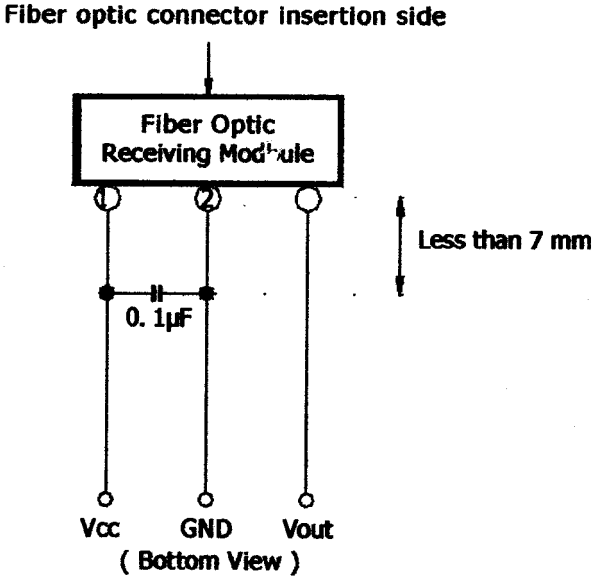
1) Vcc: 5V (State of operation)
2) To bundle up the standard fiber optic cable. Mark it into a loop with the diameter D=10cm.

				APVD		CHKD		CHKD		WRTN	
REV.	NAME	DATE	REMARK								

SPECIFICATIONS

CUSTOMER MODEL NO. / TITLE	SPECIFICATION NO.	PAGE□ 4 OF 7
OPTICAL RECEIVING JACK		DATE□ APR,29,2002

5. Application Circuit



6. Required Optical Fiber with Fiber Optic Connectors

REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 國慶 91.5.13	許 石井 90.5.13	陳 榮鴻 91.5.13	楊 文貞 91.5.13

□□:1.1

SPECIFICATIONS

7. Precautions on Use

(1) Maximum rating

The maximum ratings are the limit values which must not be exceeded during operation of device. None of these rating value must not be exceeded. If the maximum rating value is exceeded, the characteristics of devices may never be restored properly. In extreme cases, the device may be permanently damages.

(2) Soldering

Optical modules are comprised of internal semiconductor devices. However, in principle, optical modules are optical components. During soldering, ensure that flux does not contact with the emitting surface or the detecting surface. Also ensure that proper flux removal is conducted after soldering.

Some optical modules come with a protective cap. The protective cap is used to avoid malfunction when the optical module is not in use. Note that it is not dust or waterproof.

As mentioned before, optical modules are optical components. Thus, in principle, soldering where there may be flux residue and flux removal after soldering is not recommended. CLIFF recommend that soldering be performed without the optical module mounted on the board. Then, after the board has been cleaned, the optical module should be soldered on to the board manually.

If the optical module cannot be soldered manually, use non-halogen (chlorine-free) flux and make sure, without cleaning, there is no residue such as chlorine. This is one of the ways to eliminate the effects of flux. In such a cases, be sure to check the devices' reliability.

(3) Noise resistance

It is believed that the use of optical transfer devices improve noise resistance. In theory, optical fiber is not affected by noise at all. However, receiving modules which handle signals whose level is extremely small, are susceptible to noise.

The optical module is to be used in an area which is susceptible to radiated noise, increase the shielding by covering the optical module and the power line filter with a metallic cover.

				APVD	CHKD	CHKD	WRTN
REV.	NAME	DATE	REMARK				

SPECIFICATIONS

(4) Vibration and shock

This module is plastic sealed and has its wire fixed by resin. This structure is relatively resistant to vibration and shock. In actual equipment, there are sometime cases in which vibration, shock, or tress is applied to soldered parts or connected parts, resulting in lines cut.

A care must be taken in the design of equipment which will be subject to high levels of vibration.

(5) Support pins

The has support pins in order to fix itself to the PCB temporary. Please make the hole for these pins in the PCB under the condition described in board layout hole pattern.

(6) Panel attachment

has hole for panel attachment. Please be sure to attach it to panel with self-tapping screw.

(7) Solvent

When using solvent for flux removal, do not use a high acid or high alkali solvent. Be careful not to pour solvent in to the optical connector ports. If solvent is inadvertently poured in to them, clean it off using cotton tips.

(8) Supply voltage

Use the supply voltage within the recommended operating condition (Vcc = 5±0.25V). Make sure that supply voltage does not exceed the maximum rating value of 7V, even for an instant.

(9) Interface

The . has a TTL interface. It can be interfaced with any TTL-compatible C-MOS IC.

(10) Output

If the receiver output is at low and is connected to the power supply, or if the output is high and is connected to GND, the internal IC may be destroyed.

(11) Soldering condition

Solder at 260□ or less for no more than ten seconds.

SPECIFICATIONS

CUSTOMER MODEL NO. / TITLE OPTICAL RECEIVING JACK	SPECIFICATION NO.	PAGE : 7 OF 7 DATE : APR,29,2002

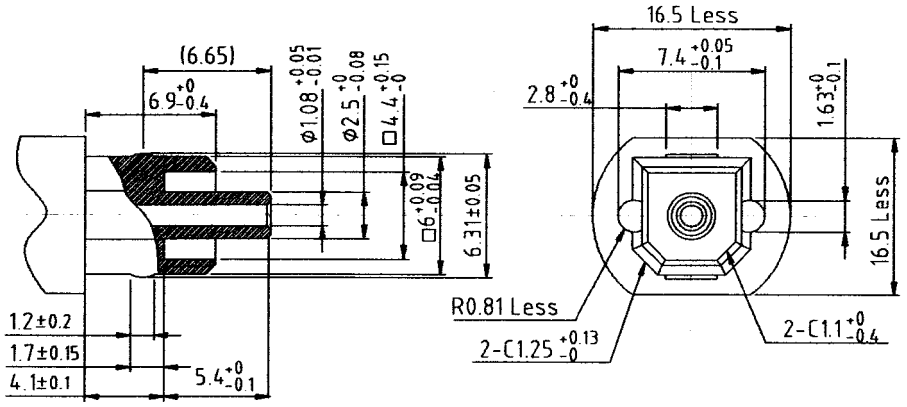
(12) Precautions when disposing of devices and packing materials.

When disposing devices and packing materials, follow the procedures stipulated by local regulations in order to protect the environment against contamination.

(13) Precautions during use

is continually working to improve the quality and the reliability of their products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and their vulnerability to physical stress. It is the responsibility of the buyer, when utilizing products, to observe standards of safety, and to avoid situations in which the malfunction or failure of a product could cause loss of human life, bodily injury or damage to property.

Mating plug



Unit:mm

REV.	NAME	DATE	REMARK	APVD	CHKD	CHKD	WRTN
				趙 91.5.13 國勝	許 91.5.13 石坪	陳 91.5.13 榮鴻	胡 91.5.13 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.

				APVD	陳代	CHKD		CHKD	林 05.10.25 美曲	WRTN	簡 05.10.25 秀陵
REV.	NAME	DATE	REMARK								

NAN YA PLASTICS CORP

PLASTICS 4TH DIV 3RD FL 201 TUNG HWA NORTH RD TAIPEI TAIWAN

Material Designation: **1403G6**

Product Description: Polybutylene Terephthalate (PBT), 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	3	0	130	130	140	-	-
	1.5	V-0	2	0	130	130	140	-	-
	3.0	V-0	2	0	130	130	140	-	-

CTI: 2 **HVTR:** 1 **D495:** 6 **IEC BP:** -

Report Date: 01/11/1991 Underwriters Laboratories Inc® 625400001

TEIJIN CHEMICALS LTD

HIBIYA DAIBIRU BLDG 2-2 UCHISAIWAI-CHO 1-CHOME CHIYODA-KU TOKYO 100-0011 JAPAN

Material Designation: **L-1250#(f2), L-1250U#, L-1250V#, L-1250Z#(f1)**

Product Description: Polycarbonate (PC), designated "Panlite" furnished as pellets, powder.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.40	V-2	4	3	80	80	80	-	-
	0.84	V-2	4	3	80	80	80	-	-
	1.5	HB	4	0	125	115	125	-	-
	3.0	HB	1	0	125	115	125	-	-
	6.0	HB	1	0	125	115	125	-	-

CTI: 2 **HVTR:** 4 **D495:** 5 **IEC BP:** -

\# Material designation may be suffixed with any one or two letters.

(f1) Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

(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 Inc.

Report Date: 09/24/1990 Underwriters Laboratories Inc® 699748006

TEIJIN CHEMICALS LTD

HIBIYA DAIBIRU BLDG 2-2 UCHISAIWAI-CHO 1-CHOME CHIYODA-KU TOKYO 100-0011 JAPAN

Material Designation: L-1225#(f2), L-1225U#, L-1225V#, L-1225Z#(f1)

Product Description: Polycarbonate (PC), designated "Panlite" furnished as pellets, powder.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.40	V-2	4	3	80	80	80	-	-
	0.75	V-2	3	1	80	80	80	-	-
	1.5	V-2	3	1	125	115	125	-	-
	1.9	HB	3	1	125	115	125	-	-
	3.0	HB	2	1	125	115	125	-	-
	6.0	HB	1	1	125	115	125	-	-

CTI: 2 **HVTR:** 4 **D495:** 5 **IEC BP:** -

\# Material designation may be suffixed with any one or two letters.

(f1) Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

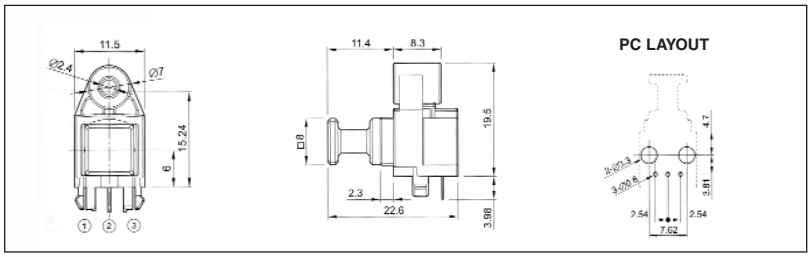
(f2) Subjected to one or more of the following tests: Ultraviolet Light, Water Exposure or Immersion in accordance with UL 746C, where the acceptability for outdoor use is to be determined by UL Inc.

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.

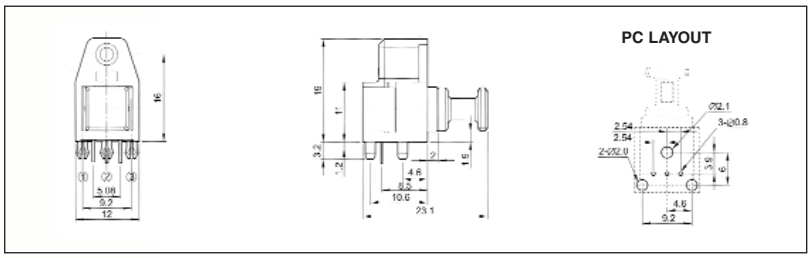
OTJ-1/ORJ-1 Single Optical Transmitter and Receiver Jack. Right angle PCB mount with self tapping hole for panel mounting. Removable plug-in cover.

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



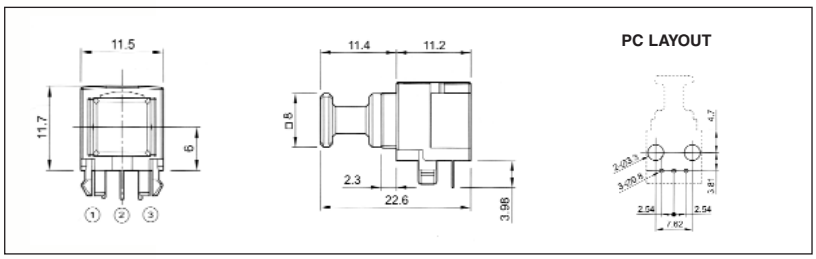
OTJ-2/ORJ-2 Single Optical Transmitter and Receiver Jack. Right angle PCB mount with self tapping hole for panel mounting. Removable plug-in cover.

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



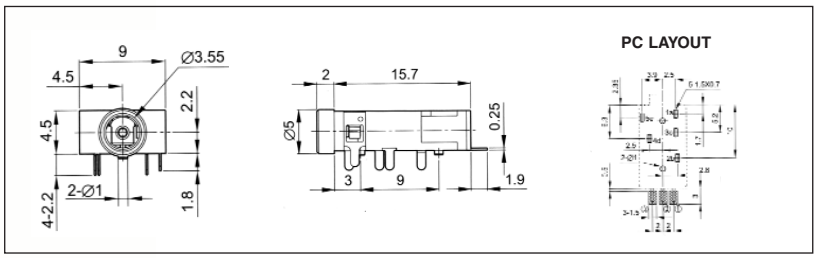
OTJ-3/ORJ-3 Single Optical Transmitter and Receiver Jack. Right angle PCB mount. Removable plug-in cover.

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)



Cliff Electronic Components, Ltd.
76 Holmethorpe Avenue, Holmethorpe Ind. Est.
Redhill, Surrey RH1 2PF. England
Tel: +44 (0) 1737 771375
Fax: +44 (0) 1737 766012
Email: sales@cliffuk.co.uk

Visit us online at:

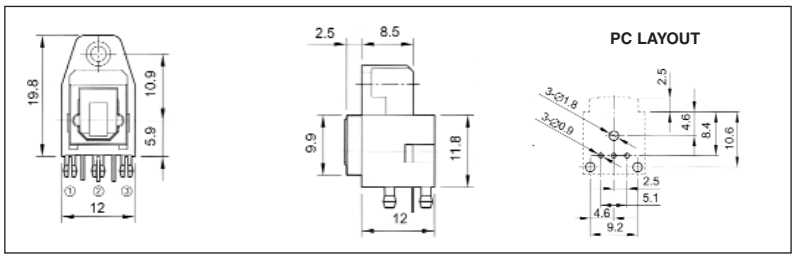
www.cliffuk.co.uk

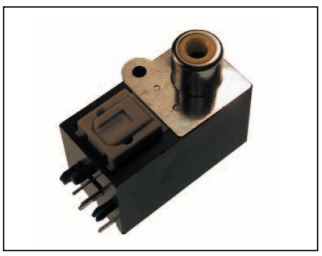
CLIFF

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.

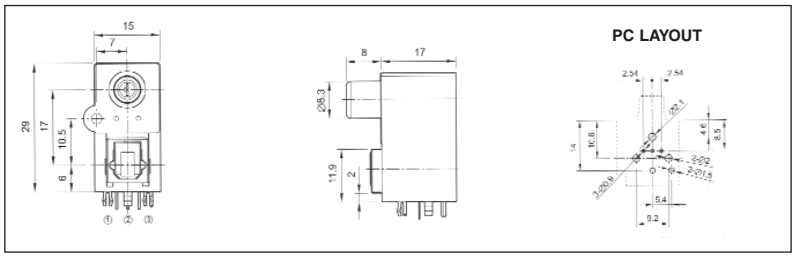
OTJ-5 (FC684205T)
ORJ-5 (FC684205R)

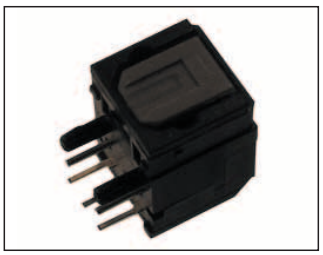




OTJ-6/ORJ-6 Dual SPDIF RCA and Optical Transmitter and Receiver Jack. Right angle PCB mount with self tapping hole for panel mounting. Hinged shutter. Several different colored inserts available.

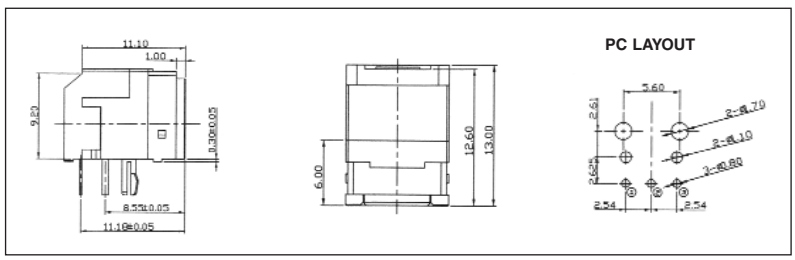
OTJ-6 (FC684206T)
ORJ-6 (FC684206R)





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.

Drawings available on request. Contact sales@cliffuk.co.uk