

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

FIBER OPTIC DATA LINK

DATA SHEET

MODEL NO. : FCR6842031R

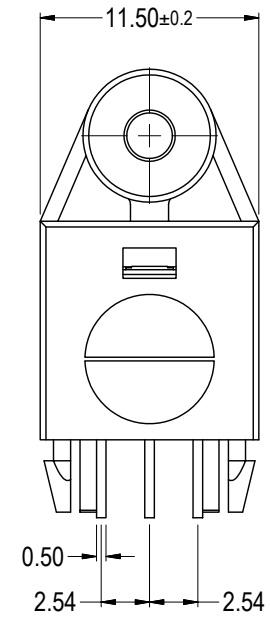
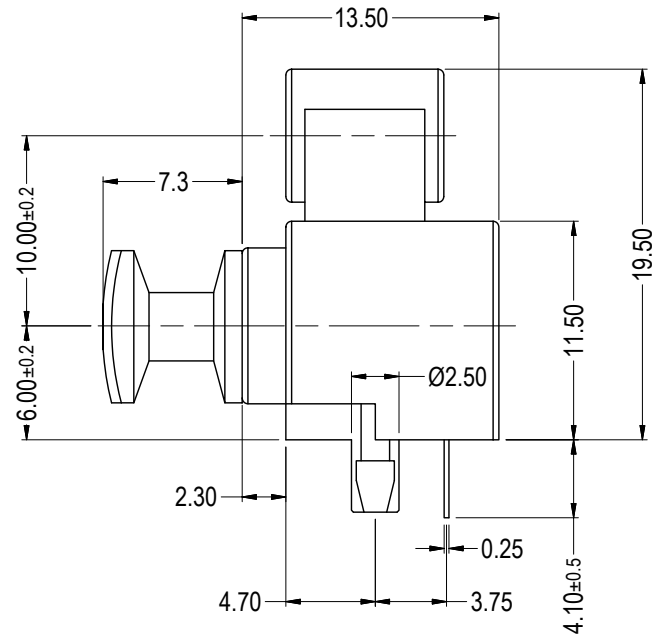
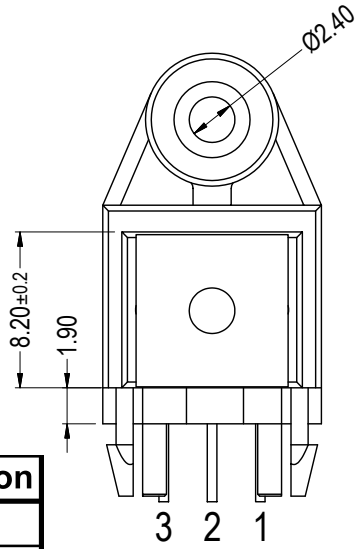
DATE : 09-05-2017 :

VERSION : 1.0

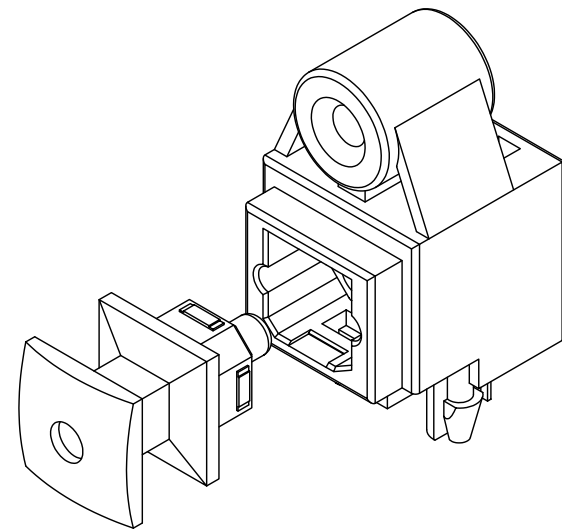
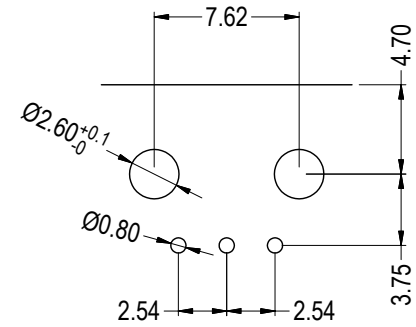
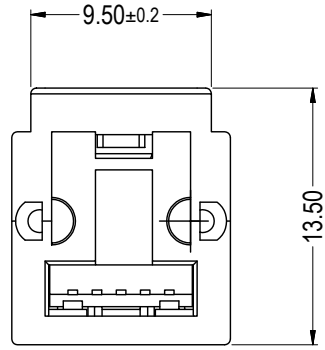
DEVICE : ORJ-1 Optical Receiver

CUSTOMER	DESIGNER	CHECKER	APPROVER

ISS.	AMEND	DATE
1	ISSUED	08/05/17



Pin	Function
1	Vout
2	GND
3	Vcc



DESCRIPTION	MATERIAL	UL
BODY	BLACK PBT	UL94 V-0 E323954
REAR BODY	BLACK PBT	UL94 V-0 E323954
COVER	BLACK PBT	UL94 V-0 E323954
IC	BRIGHT TIN PLATE	n/a

All materials used are environment-friendly, non-toxic and are fully compliant with RoHS and REACH directives

RoHS COMPLIANT	
TOLERANCE	
NO DEC. PLACE ±	
1 DEC. PLACE ±	
2 DEC. PLACE ±	
HOLE Ø ±	
ANGLES ±	
UNLESS OTHERWISE STATED	
DO NOT SCALE	

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:

THE CONTENTS OF THIS DOCUMENT MUST NOT BE COPIED OR DISCLOSED TO A 3rd PARTY WITHOUT WRITTEN PERMISSION OF CLIFF UK. © 2017

MATERIAL: SEE TABLE
 FINISH: SEE TABLE
 DRAWN: T.J.O. APPROVED: D.P.J.

TITLE: OPTICAL JACK RECEIVER ORJ-1
 DRWG. No. **FCR6842031R** FORM: A4DRWGH

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

Features

- High PD sensitivity for red light
- High speed up to 16 Mbps
- Low power consumption and current dissipation
- +3~+5V power source

Descriptions

The light receiving unit is a standard-package product with connector and opto-electric component packaged with PD and I/V amplifier IC. The function of unit changes the light signal into electric signal.

The unit is operated at +3~+5V and the input signal is TTL compatible. FCR6842031R has a maximum operating speed of 16 Mbps.

Applications

- Audio equipment
- Digital optical data link
- MD
- Sound card



Device Selection Guide

Chip		Operating Voltage (Vcc)	Dissipation Current(mA)	Fiber Coupling Light Output (dBm)		
IC Material	LED λ p(nm)			Min.	Typ.	Max.
Si	700	2.7~5.5	Typ. 6.5	-24	-	-14.5

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

Absolute Maximum Ratings(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	5.5	V
Storage Temperature	Tstg	-30 to 80	°C
Operating Temperature	Topr	-20 to 70	°C
Soldering Temperature	Tsol	260*	°C

* Soldering time ≤ 5s / 2times.

*Don't touch flux soldering and white Gas

Electro-Optical Characteristics

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	Vcc	-	2.7	-	5.5	V
Peak Detective Wavelength	λ_p	-	-	700	-	nm
Transfer Speed		NRZ signal	0.1	-	16	Mbps
Receiving Distance		Using APF	0.2	-	20	m
Pulse Width Distortion	Δtw	16Mbps NRZ Signal	-20	-	20	ns
Input Light power	Pi	*1	-24	-	-14.5	dBm
Dissipation Current	Icc	*2	-	6	10	mA
High Level Output Voltage	VOH		2.4	-	-	v
Low Level Output Voltage	VoL		-	-	0.4	v
Rise Time	t _r	*3	-	-	25	ns
Fall Time	t _f	*3	-	-	25	ns
Low → High propagation delay time	t _{PLH}	*3	-	-	100	ns
High → Low propagation delay time	t _{PHL}	*3	-	-	100	ns
Jitter time	Δt_j	*3	-	1.5	15	ns

FCR6842031R light receiving unit satisfies EIAJ CP-1201 digital audio interface standard.

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

Reliability Test Items

No.	Item	Test Condition	Test Hour/Cycle	Samples	Number (n) Failure (c)
1	Soldering Heat	260°C±5°C	5 sec./2times	22	n=22, c=0
2	High temp. & Hum. storage	Ta=40°C, 90%RH	500	22	n=22, c=0
3	High temp. storage	Ta=80°C	500	22	n=22, c=0
4	Low Temp. storage	Ta=-30°C	500	22	n=22, c=0
5	Temp. cycling	-30°C ~ 80°C (30min) (5min) (30min)	20	22	n=22, c=0
6	High Temp. Operation life	Ta=60°C, Vcc=5V ON	500	22	n=22, c=0
7	Repeated operation	500 times	Coupling force < 2 kg 0.4kg<Detaching force <2kg	22	n=22, c=0
8	Terminal Strength(tension)	Weight: 500 g 30 sec./each terminal		22	n=22, c=0
9	Terminal Strength(bending)	Weight: 500 g 2 times/each terminal		22	n=22, c=0
10	Mechanical Shock	Acceleration: 1000m/s ² Pulse width: 6 ms 3 times/ X,Y,Z direction		22	n=22, c=0
11	Vibration	Frequency range: 10~55 Hz /sweep 1 min Overallamplitude:1.5 mm 2H./X,Y,Z direction		22	n=22, c=0

I_{cc} (dissipation current): CURRENT ATTENUATE DIFFERENCE < 20%

T_{PLH} (propagation L→H delay time): DELAY TIME DIFFERENCE < 20%

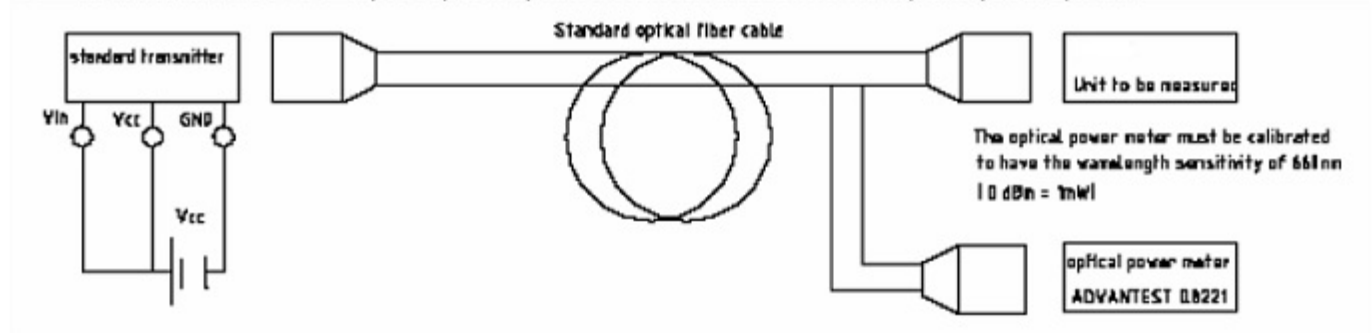
T_{PHL} (propagation H→L delay time): DELAY TIME DIFFERENCE < 20%

T_r (rise time): TIME DIFFERENCE < 20%

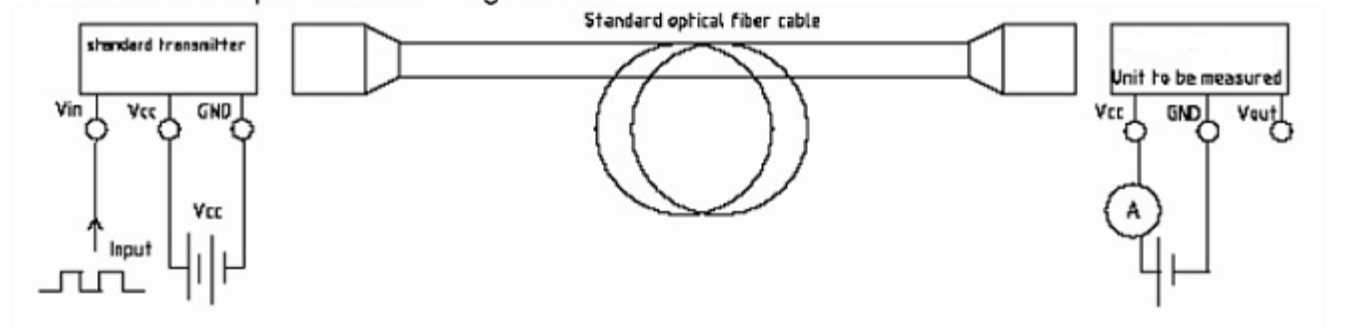
Tf (fall time): TIME DIFFERENCE < 20%

Measuring Method

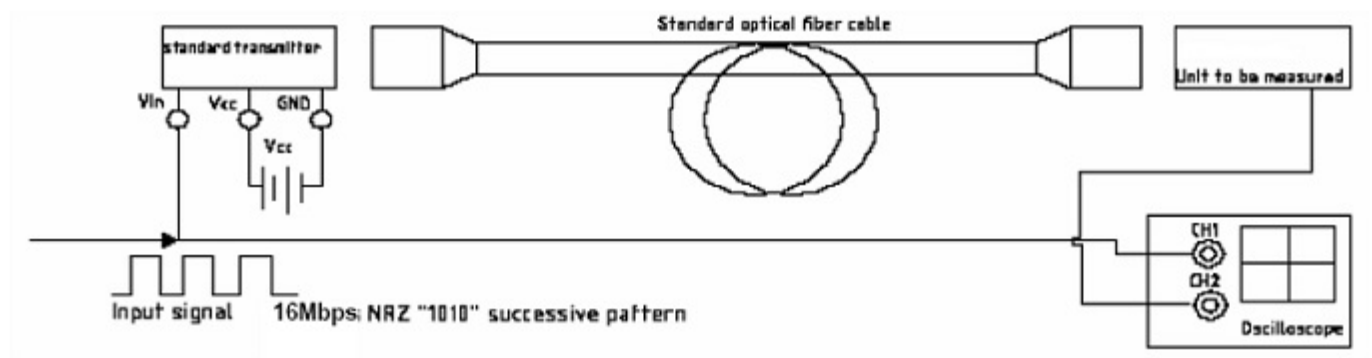
*1 Maximum receiver input optical power/Minimum receiver input optical power



*2 Current dissipation measuring method



*3 Pulse response and jitter measuring method



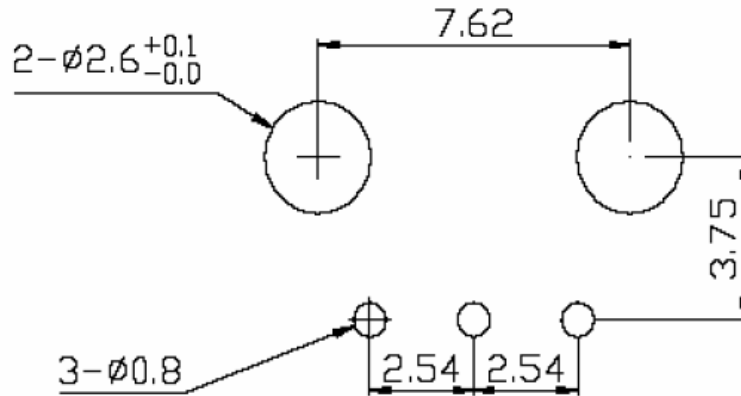
Cliff Electronic Components Ltd.

76 Holmethorpe Avenue, Holmethorpe Industrial Estate,

Redhill, Surrey, RH1 2PF, England, UK

Tel: 01737-771375 Fax: 01737-766012 Website: www.cliffuk.co.uk

PCB Layout For Electrical Circuit

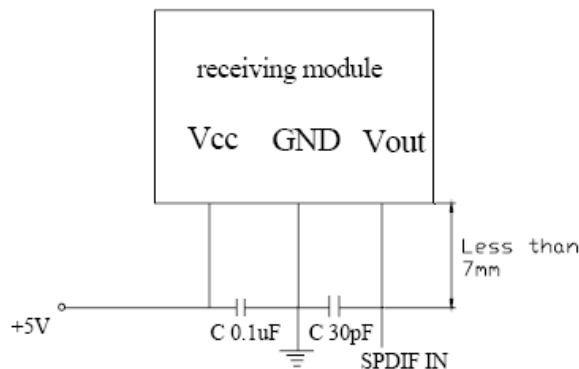


Notes:

1. Unit: mm
2. Unspecified tolerance: ± 0.3 mm
3. Substrate Thickness: 1.6mm

Precautions for Using Method

1. Connect a by-pass capacitor (0.1 μ F) close to FCR6842031R within 7mm of the unit lead frame.
2. Connect a by-pass capacitor(30pF) between GND and Vout avoid loading effect.
3. Take proper electrostatic-discharge (ESD) precautions while handling these devices. These devices are sensitive to ESD.



Pin Function

1. Vout
2. GND
3. Vcc



QMFZ2.E323954 Plastics - Component

For enhanced search functionality, please visit UL's [iQ™ Family of Databases](#).
Click on a product designation for complete information.

[Page Bottom](#)

Plastics - Component

[See General Information for Plastics - Component](#)

DONG GUAN NUO BAO XIN PLASTIC CO LTD

E323954

GUANZHOU INDUSTRY ZONE

WANG NIU DUN TOWN

DONGGUAN, GUANGDONG 523215 CHINA

									H	D	
		Min.		H	H	R T I			V	4	C
		Thk	Flame	W	A	Elec	Mech		T	9	T
Material Dsg	Color	mm	Class	I	I		Imp	Str	R	5	I
Polybutylene Terephthalate (PBT), glass reinforced, furnished as pellets.											
301-G25	NC, BK	3.0	V-0	-	-	75	75	75	-	-	-

Marking: Company name and material designation on container, wrapper or finished part.

[Last Updated](#) on 2015-09-30

[Questions?](#)

[Print this page](#)

[Terms of Use](#)

[Page Top](#)

© 2017 UL LLC

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2017 UL LLC".