TOSHIBA PhotoInterrupter Infrared LED+Photo IC

TLP1217(C2,F)

Lead Free Product Copier, Laser Beam Printer Facsimile, Printer Automatic Vending Machine Various Position Detection Sensor

The TLP1217(C2,F) are digital output photointerrupters having a connector with a GaAs infrared LED and a high sensitivity low current consumption Si photo IC combined. The output becomes low level when the light is shielded.

This product is also usable in applications requiring severe using temperature condition such as detection of paper exit on copier, etc.

- Small package
- Mountable by one touch (snap-in mounting type)
- Mountable to boards in 2 kinds of thickness (1.0mm, 1.2mm)
- For 5V of power supply voltage
- Digital output (open collector)
- Gap: 5mm
- Resolution: Slit width 0.5mm
- Large operating temperature range: $T_{opr} = -25 \sim 90^{\circ}C$
- Low current consumption: I_{CC} = 16.5mA (max.)
- UL recognized PWB adopted: UL94V-0
- Material of the case: Polycarbonate
- Connector

DF3-3P-2DSA (Hirose electric co., ltd. made DF3 series connector)

Outline Drawings: TOSHIBA 11-15C3

Unit in: mm



UNLESS OTHERWISE SPECIFIED

DIMENSION	TOLERANCE
6>	±0.1
6<14	±0.2

() : REFERENCE VALUE

Weight: 1.1 g (typ.)

Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	V _{CC}	10	V
Output voltage	V _O	28	V
Low level output current	I _{OL}	50	mA
Low level output current derating (Ta > 25°C)	ΔI _{OL} / °C	-0.67	mA / °C
Operating temperature range	T _{opr}	-25~90	°C
Storage temperature range	T _{stg}	-40~90	°C

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Pin Connection



Product Indication

Туре	Abbreviation	
TLP1217(C2,F)	P1217	



Recommended Operating Conditions

Characteristic	Symbol	Min.	Тур.	Max.	Unit
Supply voltage	V _{CC}	4.5	5.0	5.5	V
Output voltage	V _O	—	5.0	17	V
Low level output current	I _{OL}	—	—	16	mA
Operating temperature	T _{opr}	-25	_	90	°C

Opto-Electrical Characteristics(unless otherwise specified, Ta = −25~90°C, V_{CC}=5V±10%)

Characteristic Symbol Test Condition		Test Condition	MIn.	Тур.	Max.	Unit	
Supply voltag	je	V _{CC}		4.5	5	5.5	V
Supply	High level	ICCH	Without shutter —			16.5	m۸
current	Low level	I _{CCL}	Shutter in	_	_	16.5	mA
	High level	V _{OH}	Without shutter, $R_L = 47k\Omega$	0.9V _{CC}	—	—	V
Output voltage	Low level	V _{OL}	Shutter in, I _{OL} = 16mA, Ta = 25°C	_	0.07	0.35	V
			Shutter in, I _{OL} = 16mA	—	_	0.4	
Peak emissic	n wavelength	λ _P	Ta = 25°C	—	940	_	nm
Peak sensitiv	ity wavelength	λ _P	Ta = 25°C	—	900	_	nm
Response fre	quency	f	$R_1 = 47k\Omega$. Ta = 25°C (Note)	3000			Hz
Rise time		tr	90%	_	8	I	20
Fall time	Fall time t_f t_r t_f		_	0.03	_	μο	

(Note) A value measured when the disc shown in the following figure was rotated. No DC current should be output.



Terminal strength (Ta = 25°C)

Characteristic	Test Condition		Limit	
	Direction	А		
Pull	Weight	19.6N		
	Time	5s / once	No defect of	
	Direction	В	characteristics	
Bend	Weight	9.8N		
	Time	5s / thrice		



Precaution

Please be careful of the followings.

- 1. During 100 μ s after turning on VCC, output voltage changes for stabilizing the inner circuit.
- 2. When installing, avoid to work by holding the connector by hand. Always, install by holding the main body of the element while assuring the mounting board is not warped or twisted. The connectors shall be inserted or pulled out at normal temperature.
- 3. It is recommended to mount this product by inserting from the sheet metal pressed side.
- 4. The container is made of polycarbonate. Polycarbonate is usually stable with acid, alcohol and aliphatic hydrocarbons however, with petrochemicals (such as benzene, toluene and acetone), alkali, aromatic hydrocarbons, or chloric hydrocarbons, polycarbonate becomes cracked, swollen, or melted. Please take care when choosing a packaging material by referencing the table below.

<Chemicals To Avoid With Polycarbonate>

	Phenomenon	Chemicals
А	Little deterioration but staining	Nitric acid (low concentration), hydrogen peroxide, chlorine
В	Cracking, crazed, or swollen	 Acetic acid (70% or more) Gasoline Methyl ethyl ketone, ethyl acetate, butyl acetate Ethyl methacrylate, ethyl ether, MEK Acetone, m-amino alcohol, carbon tetrachloride Carbon disulfide, trichloroethylene, cresol Thinners, oil of turpentine Triethanolamine, TCP, TBP
С	Melted (): Used as solvent.	 Concentrated sulfuric acid Benzene Styrene, acrylonitrile, vinyl acetate Ethylenediamine, diethylenediamine (Chloroform, methyl chloride, tetrachloromethane, dioxane, 1, 2–dichloroethane)
D	Decomposed	Ammonia waterOther alkali

Recommendable Matched Connector

Hirose electric co., ltd. made DF3 series connector

Housing	DF3-3S-2C				
	Type no.	Product form	Material	AWG size	Insulation diameter
Terminal	DF3-2428 SC	Loosen	Phosphor	AVA/C24~28	0.0~1.4mm
	DF3-2428 SCF	Linked	bronze	Aw 624*20	0.5*1.4000

For details of connectors, please refer to the connector maker.

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Positioning Of Shutter And Device

To operate correctly, make sure that the shutter and the device are positioned as shown in the figure below. The shit pitch of the shutter must be set wider than the slit width of the device. Determine the width taking the switching time into consideration.



		Unit: mm
Metal Board Thickness	a Size	b Size
1.0	11.9min.	9.4max.
1.2	11.7min.	9.2max.



A-A' Cross Section

Recommended Mounting Hole



1.0mm

1.2mm

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