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GP2W0004YP

IrDA Transceiver Module Compliant with IrDA1.0

■ Features

1. Compliant with IrDA1.0
2. Integrated package of transmitter/receiver.
   (9.21×3.76×height 2.71mm)
3. General purpose
4. Low dissipation current due to shut-down function
   (Dissipation current at shut-down mode:Max. 1.0μA)
5. Soldering reflow type
6. Shield type

■ Applications

1. Cellular phones, PHS
2. Personal information tools

■ Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	0 to 6.0	V
LED Supply voltage	V_{LEDA}	0 to 7.0	V
Forward current	I_F	50	mA
*1 Peak forward current	I_{FM}	600	mA
Operating temperature	T_{opr}	–25 to +85	°C
Storage temperature	T_{stg}	–25 to +85	°C
*2 Soldering temperature	T_{sol}	240	°C

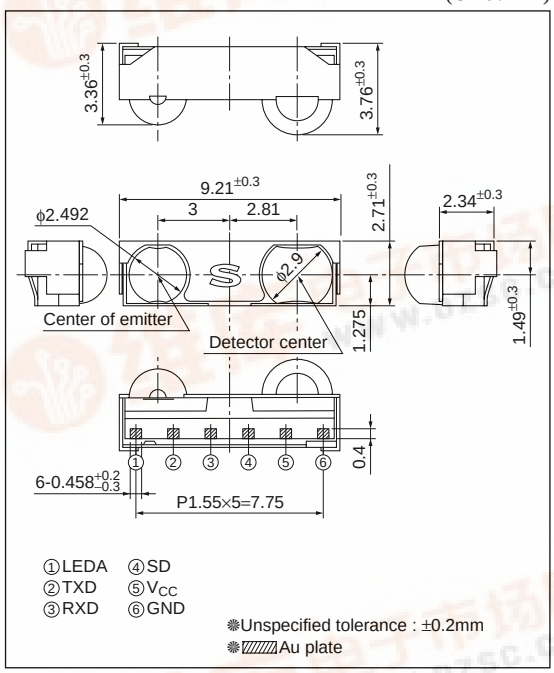
*1 Pulse width 115.2kb/s, Duty ratio :3/16
*2 For MAX. 10s

■ Recommended Operating Conditions

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	2.4 to 5.5	V
Transmission rate	BR	2.4 to 115.2	kb/s
LED Supply Voltage	V_{LEDA}	2.4 to 7.0	V
Operating temperature	T_{opr}	–25 to +85	°C

■ Outline Dimensions

(Unit : mm)



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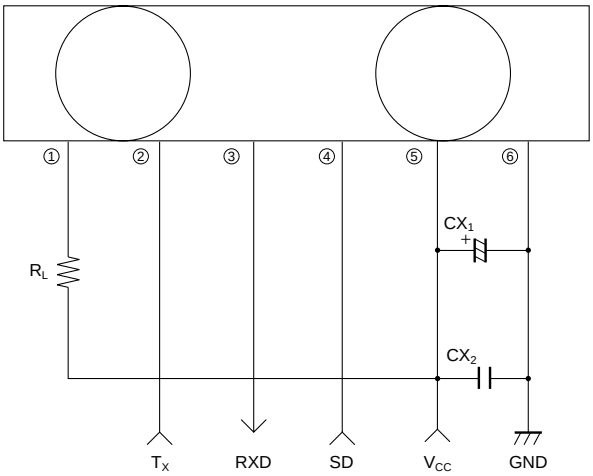
■ Electrical Characteristics

(T_a=25°C, V_{CC}=3.3V)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Receiver side	Dissipation current at no input signal	I_{CC}	No input light, output terminal open, V_{ILSD}=0V	–	110	130	μA
	S/D dissipation current	I_{CC-S}	No input light, output terminal open, V_{IHSD}=V_{CC}	–	0.01	1.0	μA
	High level output voltage	V_{OH1}	V_{CC}=5V, I_{OH}=500μA	4.3	4.6	–	V
		V_{OH2}	V_{CC}=2.4V, I_{OH}=500μA	1.5	1.7	–	V
	Low level output voltage	V_{OL1}	V_{CC}=5V, I_{OL}=500μA*3	–	0.22	0.4	V
		V_{OL2}	V_{CC}=2.4V, I_{OL}=300μA*3	–	0.17	0.3	V
	Pules width	t_w	BR=9.6kb/s, 115.2kb/s*3	1.0	2.4	3.6	μs
	Rise time	t_r	V_{CC}=5.0V, C_L=15pF	–	18	27	ns
	Fall time	t_f	V_{CC}=5.0V, C_L=15pF	–	18	27	ns
	Maximum communication distance	L	V_{OH}, V_{OL}, tw, tr, tf *3 shall be satisfied at ϕ≤15°	1	–	–	m
Transmitter side	Radiant intensity	I_E	BR=115.2kb/s, ϕ≤15°, V_{LEDA}=3.3V *4	40	–	–	mW/sr
	Peak emission wavelength	λ_p		850	870	900	nm

*3 Refer to Fig.3, 4, 5
*4 Refer to Fig.6, 7, 8

Fig.1 Recommended External Circuit



Components circuit	Recommend values
CX_1	*22μF
CX_2	*0.1μF
R_L	(Table1)

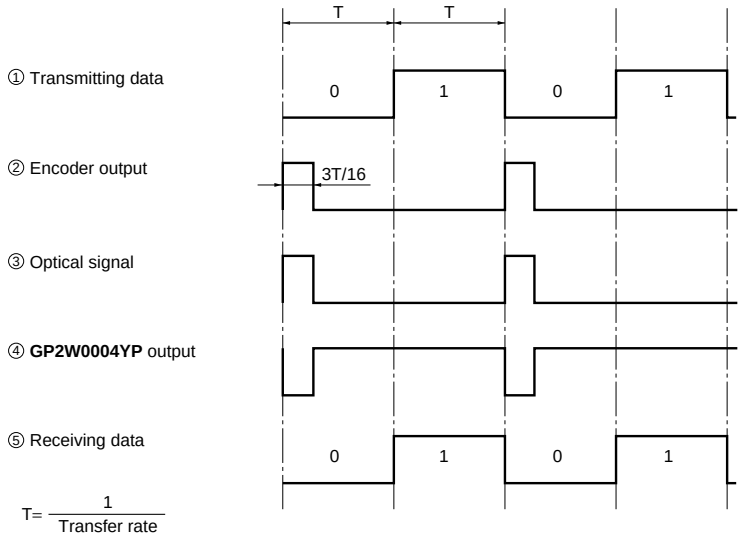
* Please choose the most suitable CX_1 and CX_2 according to the noise level and noise frequency of power supply.

Table1

V_{LED}	R_L
$2.4 \leq V_{LED} \leq 3.6V$	0Ω±5%, 0.5W
$3.5 \leq V_{LED} \leq 4.8V$	1.3Ω±5%, 0.5W
$4.5 \leq V_{LED} \leq 5.5V$	2.7Ω±5%, 0.5W

① LEDA
② TXD
③ RXD
④ SD
⑤ V_{CC}
⑥ GND

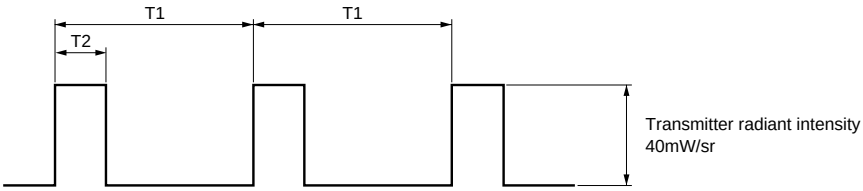
Fig.2 Example of Signal Waveform



$$T = \frac{1}{\text{Transfer rate}}$$

Transfer rate ; 2.4kb/s,9.6kb/s,19.2kb/s,38.4kb/s,57.6kb/s,115.2kb/s

Fig.3 Input Signal Waveforrm(Receiver side)



At BR=9.6kb/s:T1=104.2µs, T2=19.5µs
At BR=115.2kb/s:T1=8.68µs, T2=1.63µs

Fig.4 Output Waveform Specification (Receiver side)

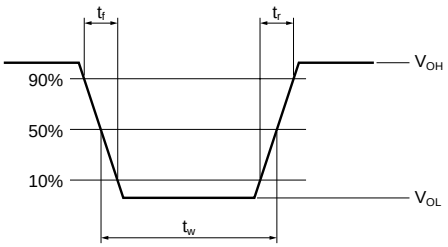
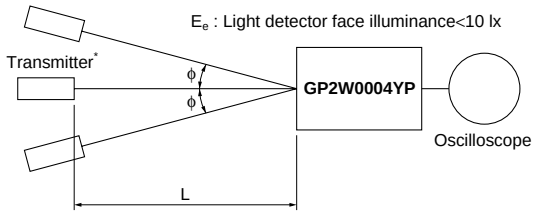


Fig.5 Standard Optical System (Receiver side)



ϕ : Indicates horizontal and vertical directions.

* Transmitter shall use **GP2W0004YP** (λp=870nm TYP.) which is adjusted the radiation intensity at 40mW/sr

Fig.6 Output Waveform Specification(Transmitter side)

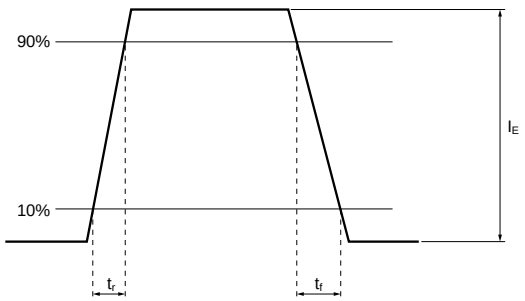


Fig.7 Standard Optical System(Transmitter side)

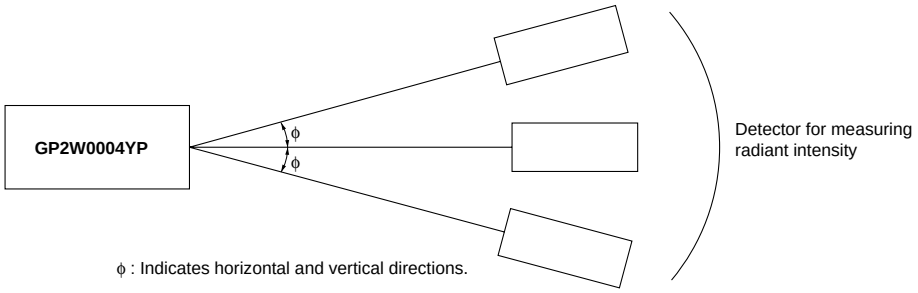


Fig.8 Recommended Circuit of Transmitter side

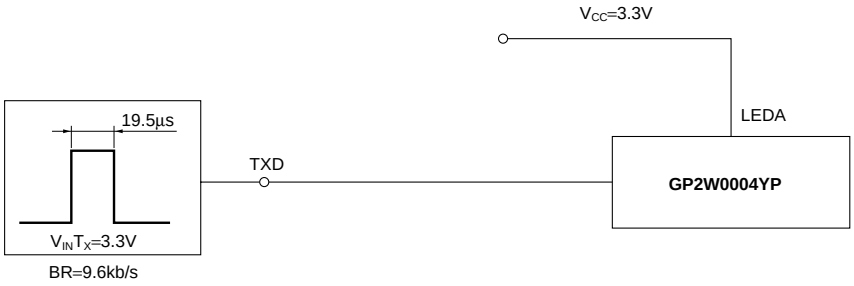
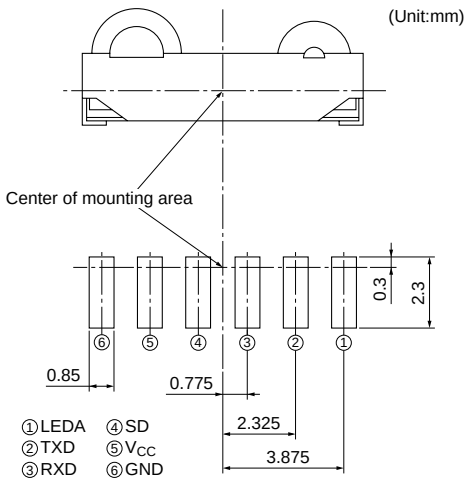


Fig.9 Recommended PCB Foot Pattern

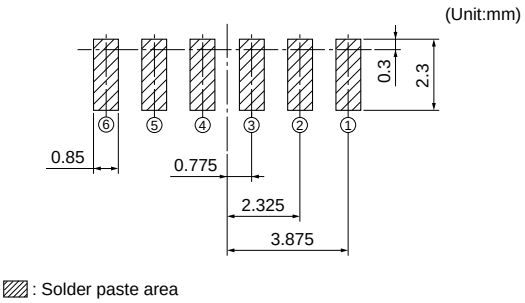
Dimensions are shown for reference



	Terminal	Symbol
①	LED anode	LEDA
②	Transmitter data input	TXD
③	Receiver data output	RXD
④	Shutdown	SD
⑤	Supply voltage	V_{CC}
⑥	Ground	GND

Fig.10 Recommended Size of Solder Creamed Paste (Reference)

Please open the solder mask as below so that the size of solder creamed paste for this device before reflow soldering must be as large as one of the foot pattern land indicated Fig.9



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