GP2W0106YP

IrDA Transceiver Module Compliant with IrDA 1.2 Low Power

■ Features

1. Exclusive for use in IrDA 1.2 Low Power standard
2. Compact package integrated transmitter and receiver
   (7.9×2.75×2.15h mm)
3. Low voltage operation type
   (Operating voltage:2.0 to 3.6V)
4. 3-state output type
5. Low dissipation current
   (Dissipation current:TYP. 100μA)
6. Dissipation current is very low due to a shutdown function
   (Dissipation current at shut-down:TYP. 0.01μA)
7. Built-in constant-current LED circuit (TYP. 20mA)

■ Applications

1. Cellular phone, PHS
2. Personal information tools
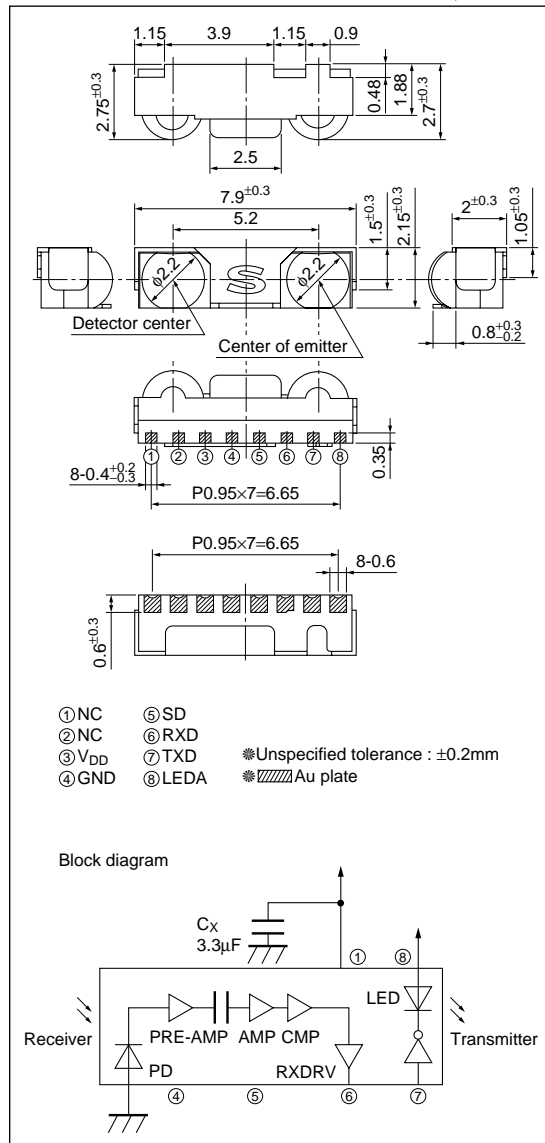
■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{DD}	0 to 6.0	V
[*1] Peak forward current	I_{FM}	60	mA
Operating temperature	T_{opr}	−20 to +85	°C
Storage temperature	T_{stg}	−30 to +85	°C
[*2] Soldering temperature	T_{sol}	230	°C

*1 Pulse width 78.1μs, Duty ratio :3/16
*2 For MAX. 5s

■ Outline Dimensions (Unit : mm)

① NC   ⑤ SD
② NC   ⑥ RXD
③ V_{DD} ⑦ TXD
④ GND   ⑧ LEDA

❋Unspecified tolerance : ±0.2mm
❋ ▨ Au plate

Block diagram

■ Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{DD}	2.0 to 3.6	V
Data rate	BR	2.4 to 115.2	kbps
*3 High level input voltage (SD terminal)	V_{IHSD}	$V_{CC} \times 0.95$ to V_{CC}	V
*4 Low level input voltage (SD terminal)	V_{ILSD}	0.0 to $V_{CC} \times 0.1$	V
*5 High level input voltage (TXD)	V_{IHTXD}	$V_{CC} \times 0.8$ to V_{CC}	V
*6 Low level input voltage (TXD)	V_{ILTXD}	0.0 to $V_{CC} \times 0.2$	V

*3 Shut down mode
*4 Operating mode
*5 Refer to Fig.9. LED ON
*6 Refer to Fig.9. LED OFF

■ Electro-optical Characteristics

(Unless otherwise specified, Ta=25°C, Vcc=3.3V)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Receiver side	Dissipation current	I_{DD}	No input light, output terminal open, V_{IHSD}=0V	−	100	120	μA
	S/D dissipation current	$I_{DD\text{-}S}$	No input light, output terminal open, V_{IHSD}=Vcc	−	0.01	0.2	μA
	High level output voltage	V_{OH}	I_{OH}=20μA, Vcc=2.0 to 3.3V *7	Vcc−0.4	−	−	V
	Low level output voltage	V_{OL}	I_{OH}=20μA, Vcc=2.0 to 3.3V *7	−	−	0.4	V
	Low level pules width	t_w		1.0	−	3.0	μs
	Rise time	t_r		−	−	0.4	μs
	Fall time	t_f	BR=115.2kbps, φ≤15° *7	−	−	0.4	μs
	Maximum communication distance	L		20	−	−	cm
	Receiver sensitivity	Ee		−	−	0.09	W/m²
Transmitter side	Radiant intensity	I_E		3.6	−	25	mW/sr
	LED peak current	I_{LED}	BR=115.2kbps, φ≤15° *8 V_{IHTXD}=2.8V	16	20	26	mA
	Rise time	t_r		−	−	0.6	μs
	Fall time	t_f		−	−	0.6	μs
	Peak emission wavelength	λ_P		850	870	900	nm

*7 Refer to Fig.4, 5, 6
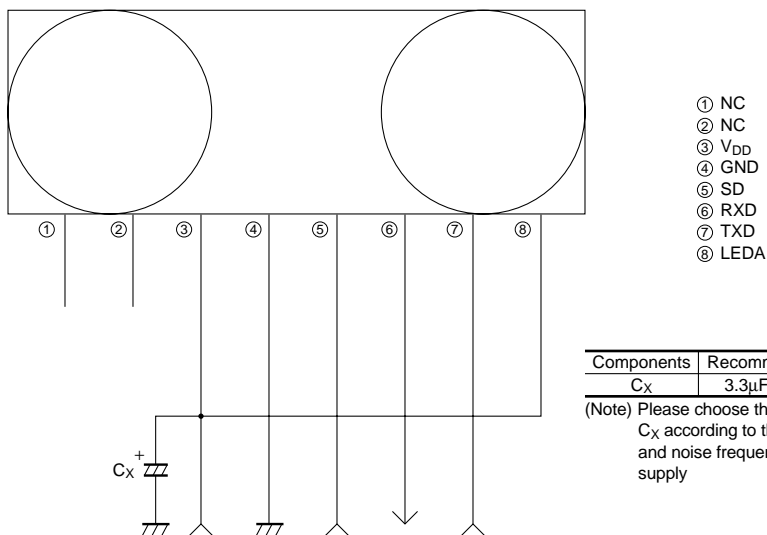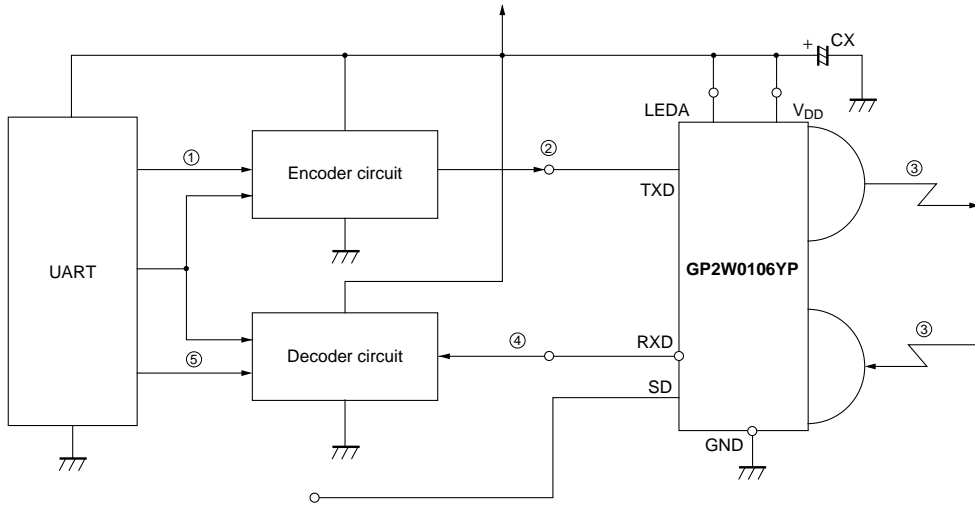*8 Refer to Fig.7, 8, 9

Fig.1 Recommended External Circuit

① NC
② NC
③ V_{DD}
④ GND
⑤ SD
⑥ RXD
⑦ TXD
⑧ LEDA

Components	Recommended values
C_X	3.3μF/6.3V (Note)

(Note) Please choose the most suitable C_X according to the noise level and noise frequency of power supply

Fig.2 System Configuration

Fig.3 Signal Waveform

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

Transfer rate ; 2.4kbps,9.6kbps,19.2kbps,38.4kbps,57.6kbps,115.2kbps
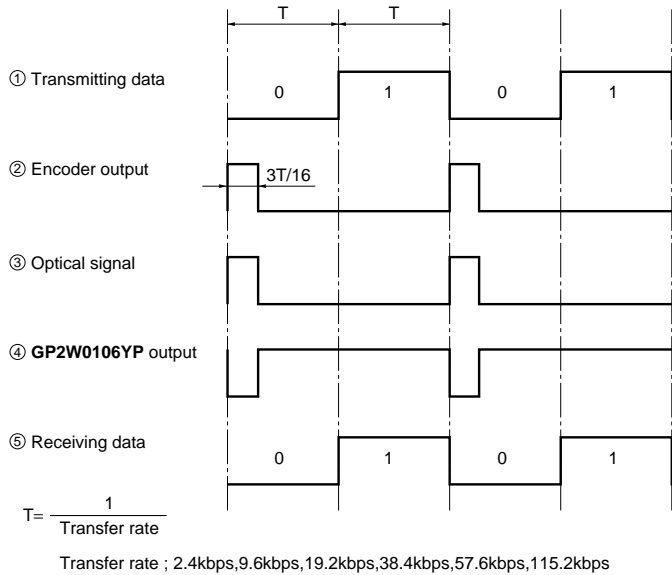
Fig.4 Input Signal Waveforrm(Receiver side)

Transmitter radiant intensity 3.6mW/sr

At BR=2.4kbps : T1=416.7μs, T2=78.1μs
At BR=115.2kbps : T1=8.68μs, T2=1.63μs
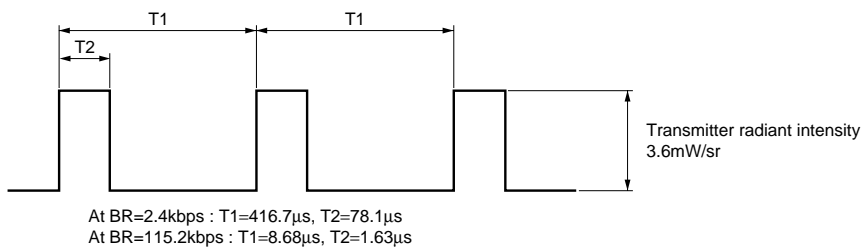
Fig.5 Output Waveform Specification (Receiver side)
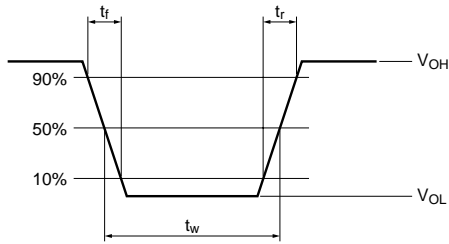
Fig.6 Standard Optical System (Receiver side)

ϕ : Indicates horizontal and vertical directions.
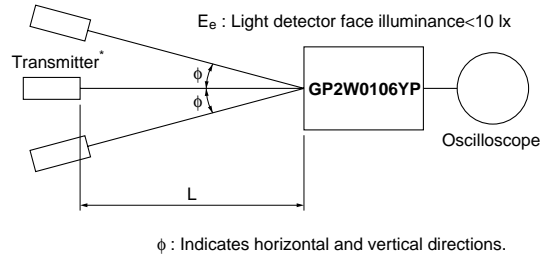
*Transmitter shall use **GP2W0106YP** (λp=870nm TYP.) which is adjusted the radiation intersity at 3.6mW/sr.
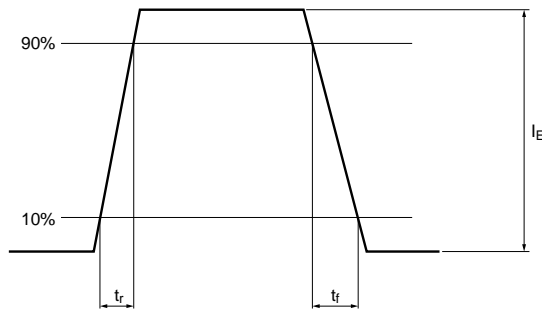
Fig.7 Output Waveform Specification(Transmitter side)

Fig.8 Standard Optical System(Transmitter side)

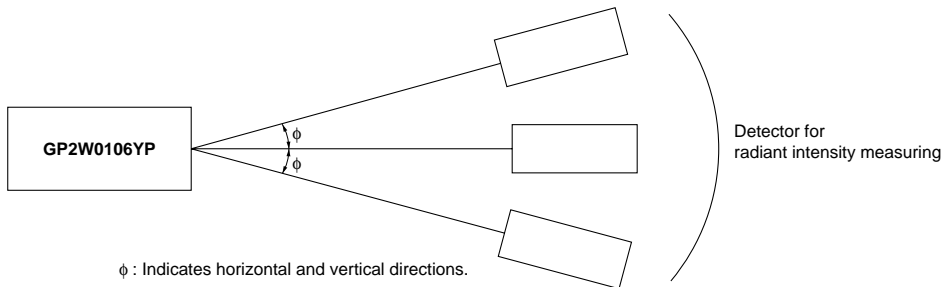ϕ : Indicates horizontal and vertical directions.
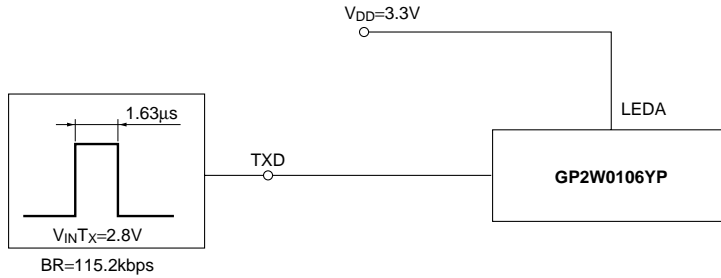
Fig.9 Recommended Circuit of Transmitter side

Fig.10 Peak Forward Current vs. Ambient Temperature
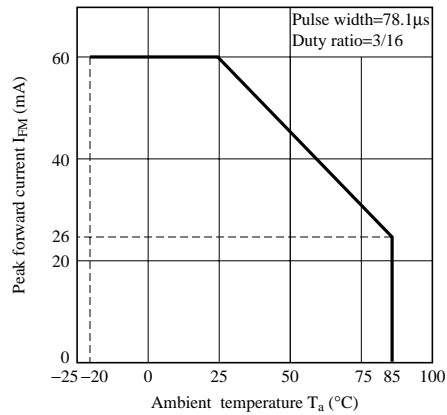
Fig.11 Recommended PCB Foot Pattern

Dimmensions are shown for reference   (unit : mm)

Center of mounting area
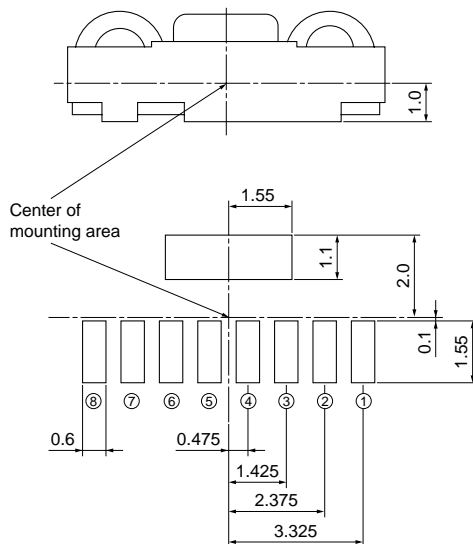
	Terminal	Symbol
①	NC	NC
②	NC	NC
③	VDD	V_{DD}
④	GND	GND
⑤	Shut down	SD
⑥	Receiver data output	RXD
⑦	Transmitter data input	TXD
⑧	LED anode	LEDA

※ connect foot pattern of shield case
to GND pattern

Fig.12 Recommended Size of Solder Creamed Paste (Reference)

Dimensions are shown for 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
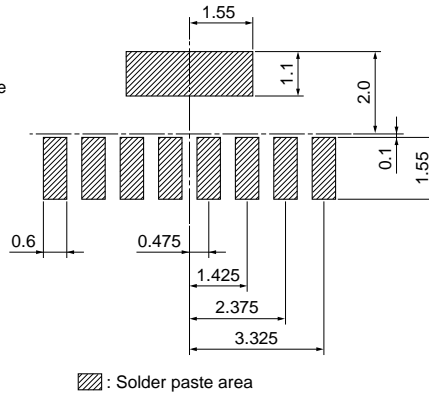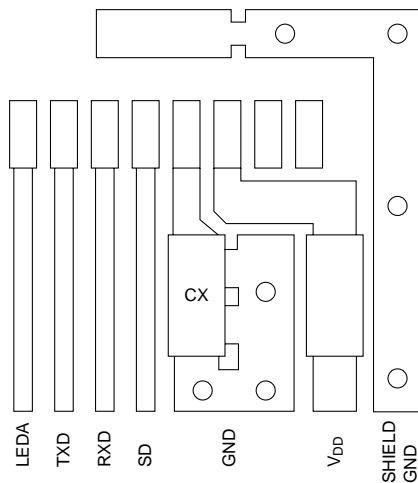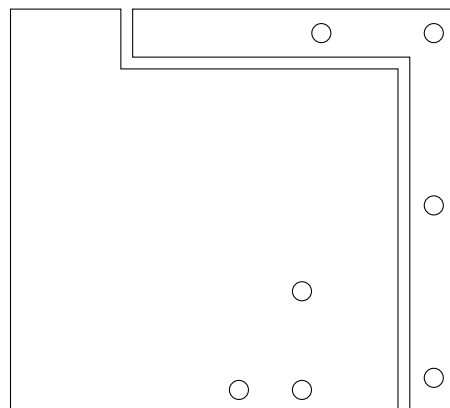pattern land indicated at Fig.11

1.55

1.1

2.0

0.1

1.55

0.6

0.475

1.425

2.375

3.325

▨ : Solder paste area

Fig.13 Example of PCB Pattern

Component side

Circuit side

CX

LEDA

TXD

RXD

SD

GND

V_{DD}

SHIELD
GND

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