GP2W0116YPS

Features

- 1. Compliant with IrDA1.2 low power
- Integrated package of transmitter/receiver. (7.2×2.75×height 1.85mm)
- 3. General purpose
- 4. Low dissipation current due to shut-down function (Dissipation current at shut-down mode:Max. 0.1μA)
- 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		
*1 Peak forward current	I _{FM}	60	mA		
Operating temperature	T _{opr}	-40 to +85	°C		
Storage temperature	T _{stg}	-40 to +85	°C		
*2 Soldering temperature	T _{sol}	260	°C		

*1 Pulse width 78.1µs, Duty ratio:3/16

*2 For MAX. 10s

Recommended Operating Conditions

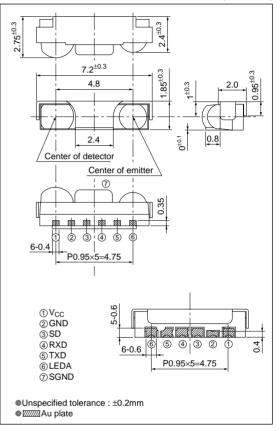
Parameter	Symbol	Rating	Unit
Supply voltage	V _{CC}	2.0 to 3.6	V
LED Supply voltage	V _{LEDA}	2.0 to 6.0	V
Transmission rate	BR	2.4 to 115.2	kb/s
High level input voltage (SD terminal)	V _{IHSD}	$V_{\rm CC}\!\!\times\!\!0.67$ to $V_{\rm CC}$	V
Low level input voltage (SD terminal)	V _{ILSD}	0 to V _{CC} ×0.1	V
*3 High level input voltage (TXD)	V _{IHTXD}	$V_{CC}\!\!\times\!\!0.8$ to V_{CC}	V
*3 Low level input voltage (TXD)	V _{ILTXD}	0 to $V_{CC} \times 0.2$	V

*3 Refer to Fig.9

IrDA Transceiver Module Compliant with IrDA1.2 Low Power

Outline Dimensions

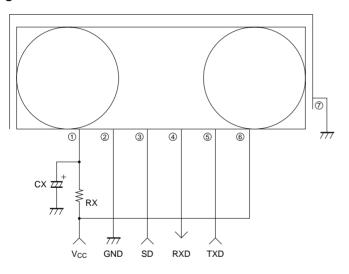
(Unit : mm)



Electro-optical Characteristics						(T _a =25°C, V _{CC} =3.3V)	
	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
	Dissipation current at no input signal	I _{CC}	No input light, output terminal open, V _{IHSD} =0V	-	90	120	μΑ
	S/D dissipation current	current I _{CC-S} No input light, output terminal open, V _{IHSD} =V _{CC}		-	0.001	0.1	μΑ
side	High level output voltage	V _{OH}	I_{OH} =-200µA, V _{CC} =2.0 to 3.6V ^{*4}	V _{CC} -0.4	-	-	V
	Low level output voltage	V _{OL}	I_{OL} =200µA, V_{CC} =2.0 to 3.6V ^{*4}	-	-	0.45	V
Receiver	Low level pules width	t _w	BR=115.2kb/s, ¢≤15°, C _L =10pF ^{*4}	1.28	-	6.0	μs
Rec	Rise time	tr	BR=115.2kb/s, ¢≤15°, C _L =10pF ^{*4}	-	-	0.06	μs
	Fall time	t _f	BR=115.2kb/s, ¢≤15°, C _L =10pF ^{*4}	-	_	0.06	μs
	Maximum communication distance	L	BR=115.2kb/s, ¢≤15° *4	21	-	_	cm
Transmitter side	Radiant intensity	I_E	DD 117 011 / 1170 11 0 011*5	4.0	_	25	mW/sr
Tranși sic	Peak emission wavelength	eak emission wavelength λ_p BR=115.2kb/s, $\phi \leq 15^\circ$, V _{IHTXD} =2.8V *5		850	870	900	nm

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

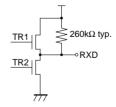
Fig.1 Recommended External Circuit



*I/O Logic table

SD	TXD	LED	Receiver	TR1	TR2	RXD
	High		Don't care	-	-	Not valid
Low	ow Low	OFF	IrDA signal	OFF	ON	Low
			No signal	ON	OFF	High
High	Don't care	OFF	Don't care	OFF	OFF	Pull-up





1	Vcc
2	GND
3	SD
4	RXD
5	TXD
6	LEDA
\bigcirc	SGND

Components	Recommended values	
CX	1μF/6.3V	
RX	1 to 15Ω	

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

Depend on noise level and noise frequency of power supply, CX does not work well.

There are cases that some pulse noises from RXD other than signal will occur in certain communication area. Please check by finish product that there are no problem at all communication area and data rate.

If there are any problem, please check by inserting RX (1 to 15Ω) in the circuit drawing.

Fig.2 System Configuration

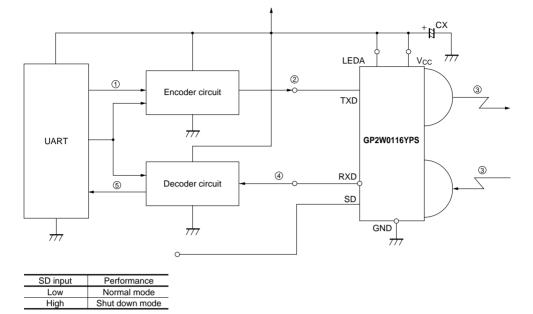
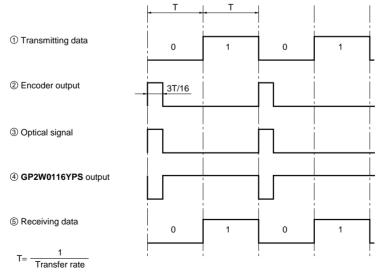


Fig.3 Example of Signal Waveform



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

Fig.4 Input Signal Waveforrm (Receiver side)

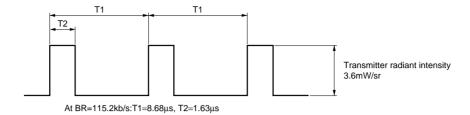


Fig.5 Output Waveform Specification (Receiver side)

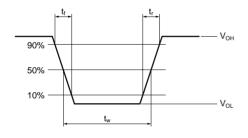
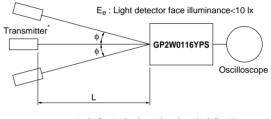


Fig.6 Standard Optical System (Receiver side)



 $\boldsymbol{\phi}$: Indicates horizontal and vertical directions.

* Transmitter shall use GP2W0116YPS (λ p=870nm TYP.) which is adjusted the radiation intensity at 3.6mW/sr

Fig.7 Output Waveform Specification (Transmitter side)

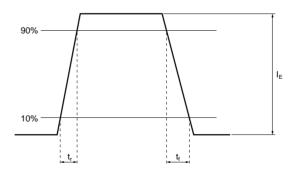


Fig.8 Standard Optical System (Transmitter side)

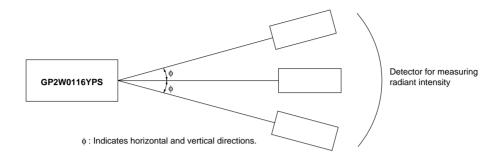


Fig.9 Recommended Circuit of Transmitter side

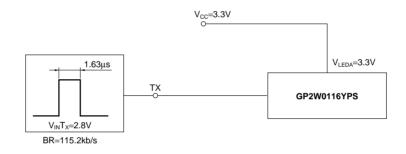
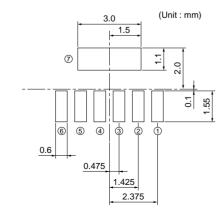


Fig.10 Recommended PCB Foot Pattern

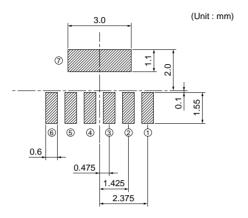
Dimensions are shown for reference



	Terminal	Symbol
1	Supply voltage	V _{CC}
2	Ground	GND
3	Shutdown	SD
4	Receiver data output	RXD
5	Transmitter data input	TXD
6	LED anode	LEDA
0	Shield ground	SGND

Fig.11 Recommended Size of Solder Paste (Reference)

Please open the solder mask as below so that the size of solder paste for this device before reflow soldering must be as large as one of the foot pattern land indicated Fig.10



Solder paste area

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