

RX3012-E25

25Mbps POF Receiver Optical Module

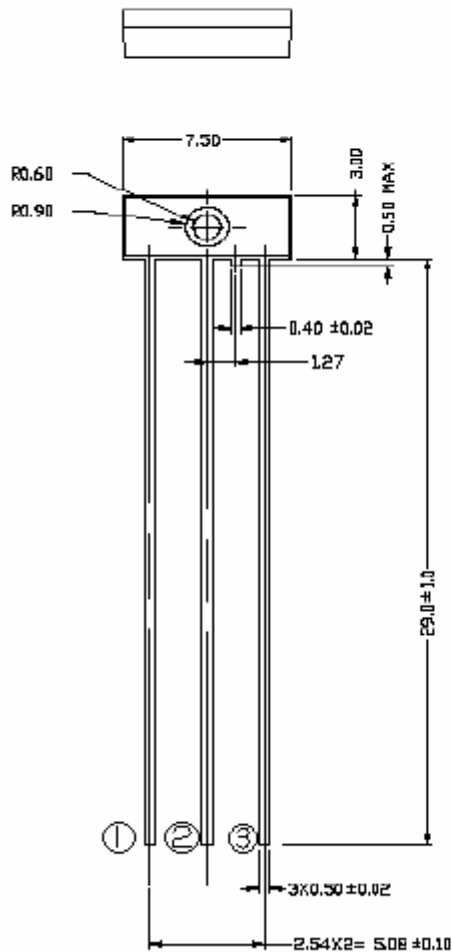
■ Feature

- * TTL interface compatible
- * 25Mbps data rate (NRZ Signal)
- * Directly connectable to demodulation IC
- * Supply voltage 3.3V/5V equipment

■ Applications

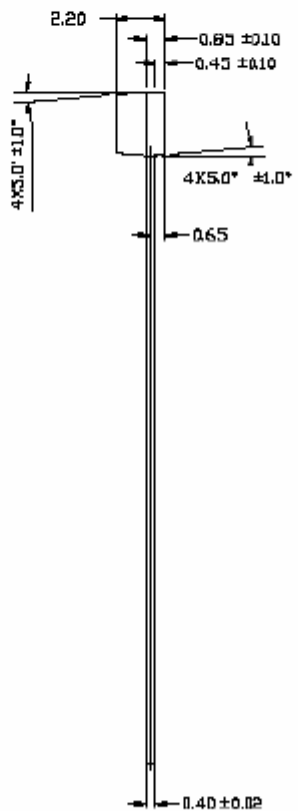
- * DVD, CD, MD player
- * Sound card
- * Audio Equipment
- * PC, notebook

■ Package Dimension



■ Pin Assignment

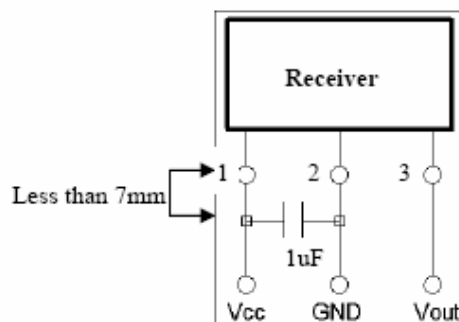
Pin	Name
1	Vcc
2	GND
3	Vout



Unit: mm

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■ Application Circuit



Note: High-frequency ceramic capacitor is recommended in application circuit

■ Absolute Maximum Ratings (Ta=25°C, Vcc=3.3V/5V)

Characteristics	Symbol	Rating	Unit
Storage Temperature	Tstg	-40 to 70	°C
Operating Temperature	Topr	-20 to 70	°C
Supply Voltage	Vcc	-0.5 to 7	V
Soldering Temperature	Tsol	260 (Note 1)	°C

Note 1: Soldering time $\leq$ 10 seconds (At distance of 1 mm from the package)

■ Recommended Operating Conditions (Ta=25°C, Vcc=3.3V/5V)

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	3.0	5.0	5.5	V
Operating transfer rate	T	0.1	—	25	Mbps
Input optical power level	P _I	-27	—	-14.5	dBm

■ Optic-electrical Characteristics: Receiver (Ta=25°C, Vcc=3.3V/5V)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating voltage	Vcc	-	3.0	5.0	5.5	V
Peak emission wavelength	λ_p	-		700		nm
Optical Input Sensitivity	P _I	-	-27		-14.5	dBm
Dissipation current	Icc	Refer to Fig.1		10	16	mA
High level output voltage	V _{OH}	Refer to Fig.2	2.4			V
Low level output voltage	V _{OL}	Refer to Fig.2			0.4	V
Low to High propagation delay time	t _{PLH}	Refer to Fig.2			60	ns

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High to Low propagation delay time	t_{PHL}	Refer to Fig.2			60	ns
Pulse width distortion	Δtw	Refer to Fig.2	-12		+12	ns
Rise time (10% → 90%)	t_r	Refer to Fig.2		10	17	ns
Fall time (90% → 10%)	t_f	Refer to Fig.2		10	17	ns
Jitter	Δtj	Refer to Fig.3			12	ns
Operating transfer rate	T	NRZ Signal	0.1		25	Mbps

■ Reliability Test Items

No.	Item	Test Condition	Test Hour/Cycle	Failure/Sample
1	Soldering heat	260°C±5°C	5 sec./2 times	0/22
2	High temp. & hum. storage	Ta=40°C, 90%RH	500	0/22
3	High temp. storage	Ta =80°C	500	0/22
4	Low temp. storage	Ta =-30°C	500	0/22
5	Temp. cycling	-30°C ~ 80°C (30min)(5min)(30min)	20	0/22
6	High temp. operation life time	Ta =90°C, V _{CC} =5V, ON	500	0/22
7	Mechanical shock	Acceleration: 1000m/s ² Pulse width: 6ms	3 times/X, Y, Z direction	0/22
8	Vibration	Frequency range: 10~55 Hz/sweep 1 min Overall amplitude: 1.5mm	2 hour/X, Y, Z direction	0/22

■ Judgment Criteria

I_{cc} (dissipation current) current difference<20%

t_{PLH} (propagation L to H delay time): delay time difference<20%

t_{PHL} (propagation H to L delay time): delay time difference<20%

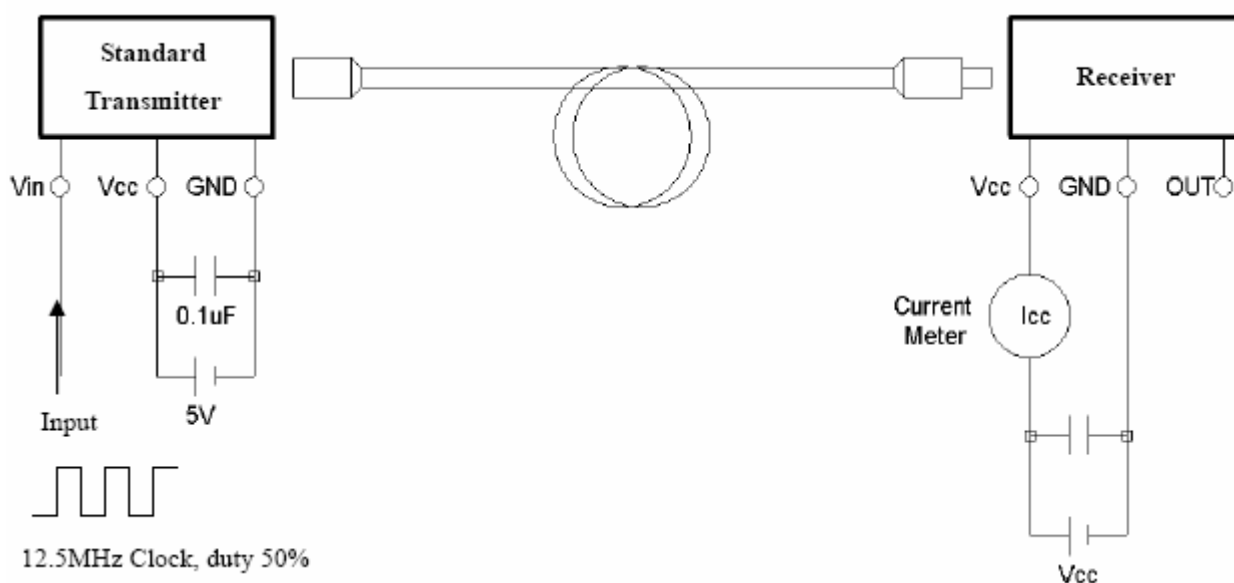
t_r (rising time): Time difference<20%

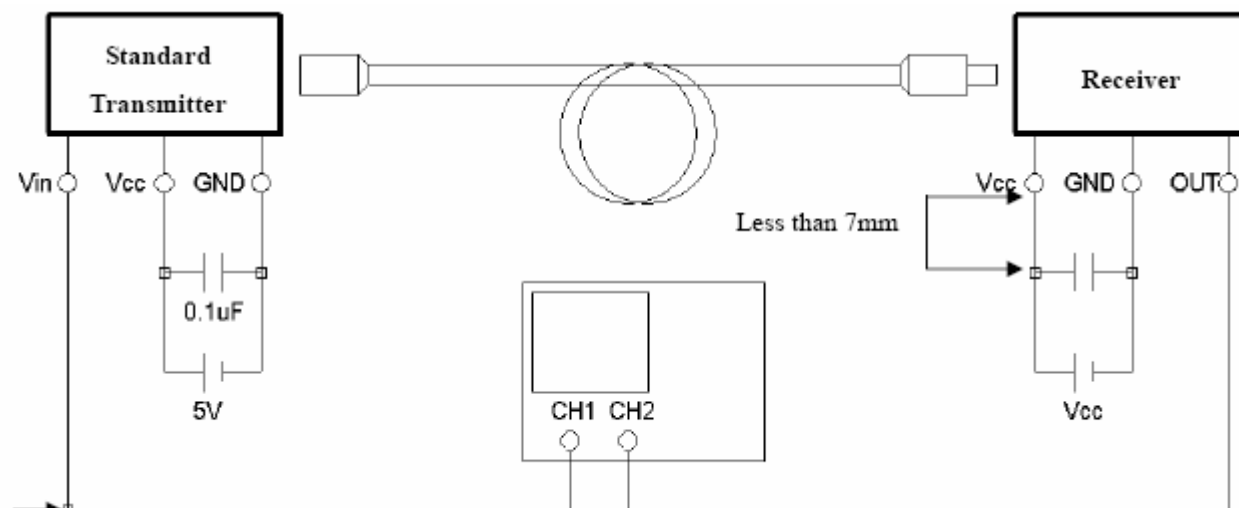
t_f (falling time): Time difference<20%

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Fig.1 Measuring Supply Current

Input Conditions		Measuring method
Supply Voltage	$V_{CC} = 5.0V$	DC average current
Fiber coupling light output	$P_C = -14.5dBm$ (or $35.6\mu W$)	
Standard transmitter input signal	25Mbps NRZ	





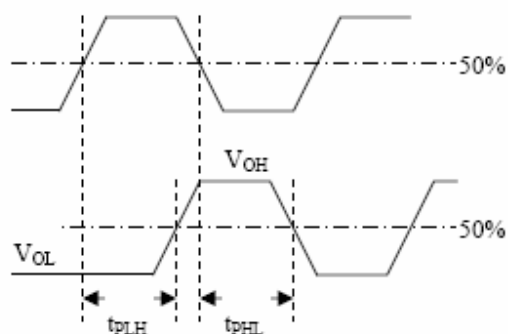
Input, 12.5MHz Clock, duty 50%

Pulse width distortion

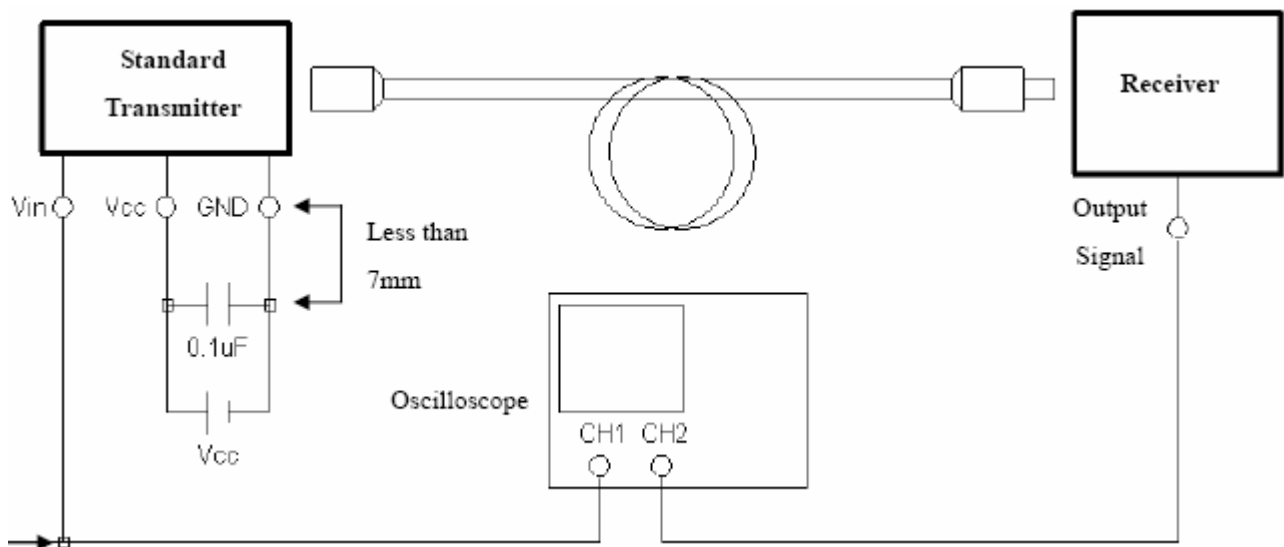
$$\Delta tw = t_{pHL} - t_{pLH}$$

Standard Transmitter
Input Signal (CH1)

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Output Signal (CH2)



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Input Signal



25Mbps NRZ random pattern

Output Signal
(CH2)

