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TX3009-A13

13.2Mbps POF Transmitter Optical Module

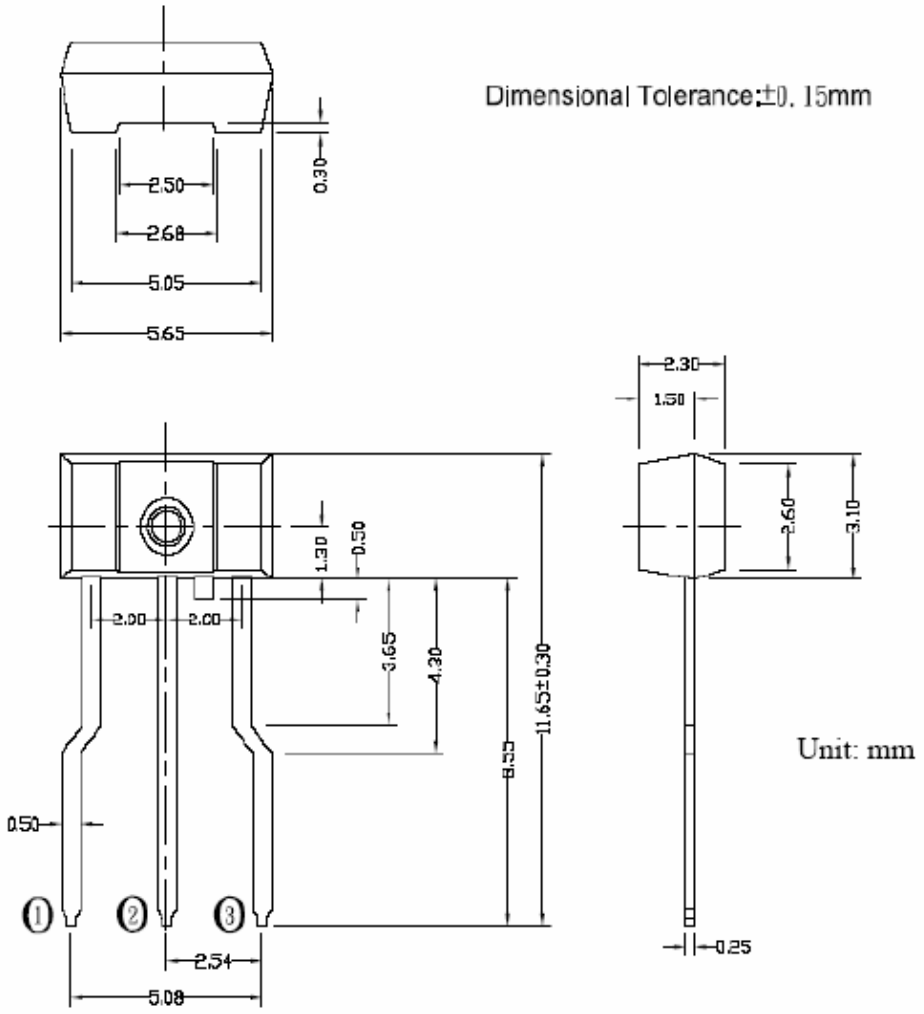
■ Feature

* TTL interface compatible
* High transfer rate:13.2Mbps (NRZ Signal)
* Build-in constant current LED driver
* Built-in pull-down resistor
* Low power consumption

■ Applications

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

■ Package Dimension



■ Pin Assignment

Pin	Name
1	VIN
2	VCC
3	GND

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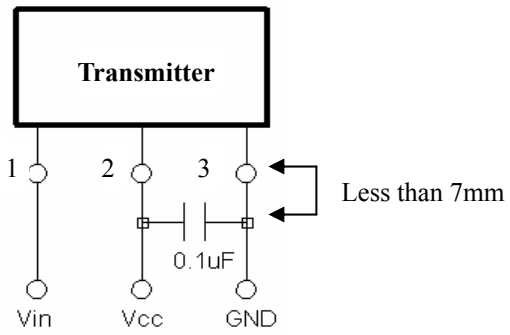
■ Application Circuit



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

■ Truth Table

1 2 3

V_{CC}	Vin	LED
2.7V~5.5V	HIGH	ON
2.7V~5.5V	LOW	OFF
2.7V~5.5V	FLOATING	OFF
FLOATING	0~VCC	OFF

■ Absolute Maximum Ratings (Ta=25°C, Vcc=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
Input Voltage	Vin	-0.5 to Vcc+0.5	V
Soldering Temperature	Tsol	260 (Note 1)	°C

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

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

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	2.7	5	5.5	V
High-Level input Voltage	V_{IH}	2.0	—	Vcc	V
Low-Level input Voltage	V_{IL}	0	—	0.8	V

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■ Electro-optical Characteristics: Transmitter (Ta=25°C, Vcc=5V)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating voltage	Vcc	-	2.7	5	5.5	V
Peak emission wavelength	λ_P	-	630	660	690	nm
Optical power output coupling with fiber	Pc	Refer to Fig.1	-21		-15	dBm
Dissipation current	Icc	Refer to Fig.2		5	10	mA
High level input voltage	V_{IH}	Refer to Fig.2	2.0			V
Low level input voltage	V_{IL}	Refer to Fig.2			0.8	V
Low ˍ High propagation delay time	t_{PLH}	Refer to Fig.3			100	ns
High ˍ Low propagation delay time	t_{PHL}	Refer to Fig.3			100	ns
Pulse width distortion	Δtw	Refer to Fig.3	-25		+25	ns
Jitter	Δtj	Refer to Fig.4			25	ns
Operating transfer rate	T	NRZ Signal	DC		13.2	Mbps

■ Reliability Test Items

No.	Item	Test Condition	Test Hour/Cycle	Failure/Sample
1	Soldering heat	260℃±5℃	5 sec./2 times	0/22
2	High temp. & hum. storage	Ta=40℃, 90%RH	500	0/22
3	High temp. storage	Ta =80℃	500	0/22
4	Low temp. storage	Ta =-30℃	500	0/22
5	Temp. cycling	-30℃ ~ 80℃(30min)(5min)(30min)	20	0/22
6	High temp. operation life time	Ta =90℃, 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

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■ Judgment Criteria

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

P_f (fiber output power) brightness attenuate 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%

tr (rising time): Time difference<20%

tf (falling time): Time difference<20%

Fig.1 Measuring Method of Optical Output Coupling With Fiber

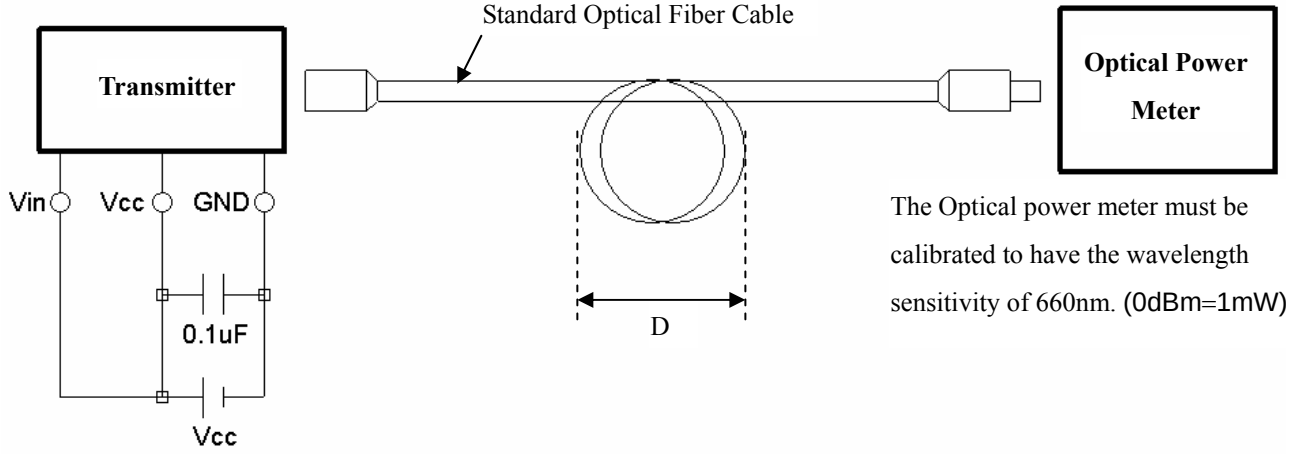
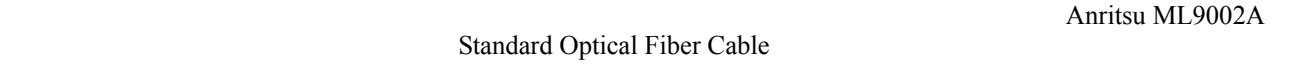


Fig.2 Input Voltage/Power Dissipation Measuring method



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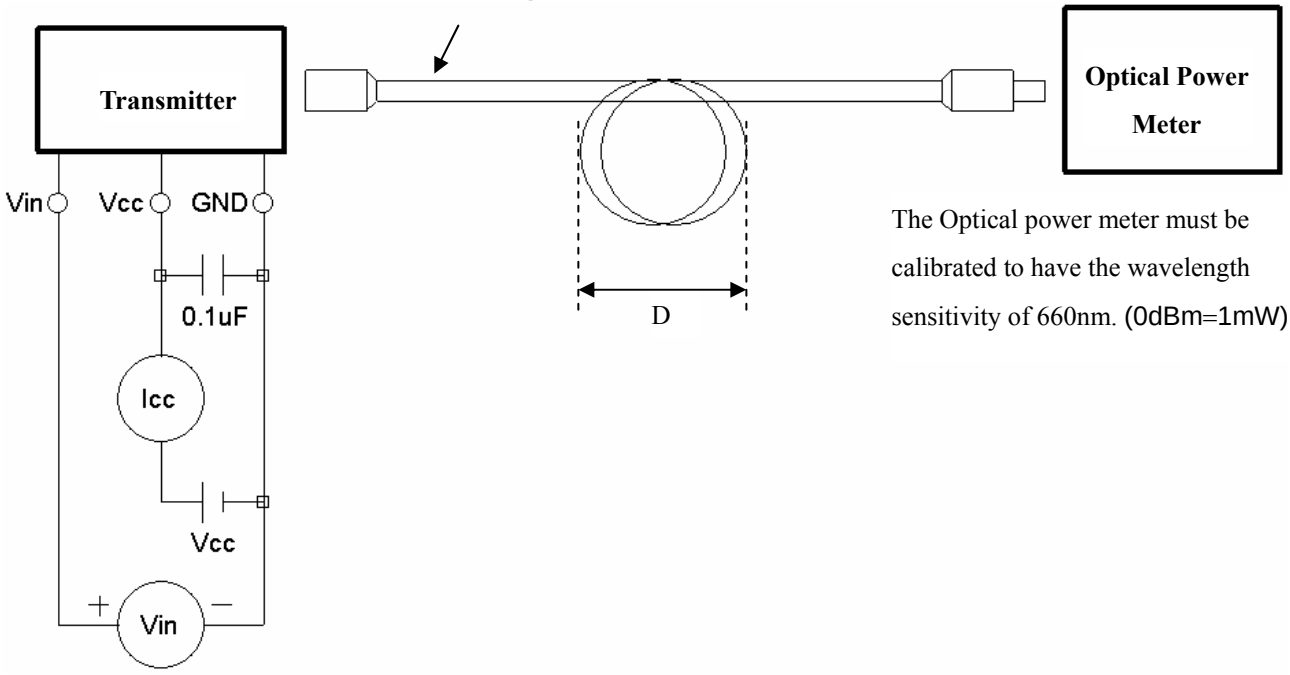

The Optical power meter must be calibrated to have the wavelength sensitivity of 660nm. (0dBm=1mW)

Input condition and measuring method

Input condition	Measuring method
V_{in} = 2.0V or more	**-21≤ Pc ≤-15dBm (or 8uw ≤ Pc ≤ 31.6uw)**
V_{in} = 0.8V or less	**Pc ≤-36dBm (or Pc ≤ 2.5uw)**

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Fig.3 Pulse Response Measuring Method

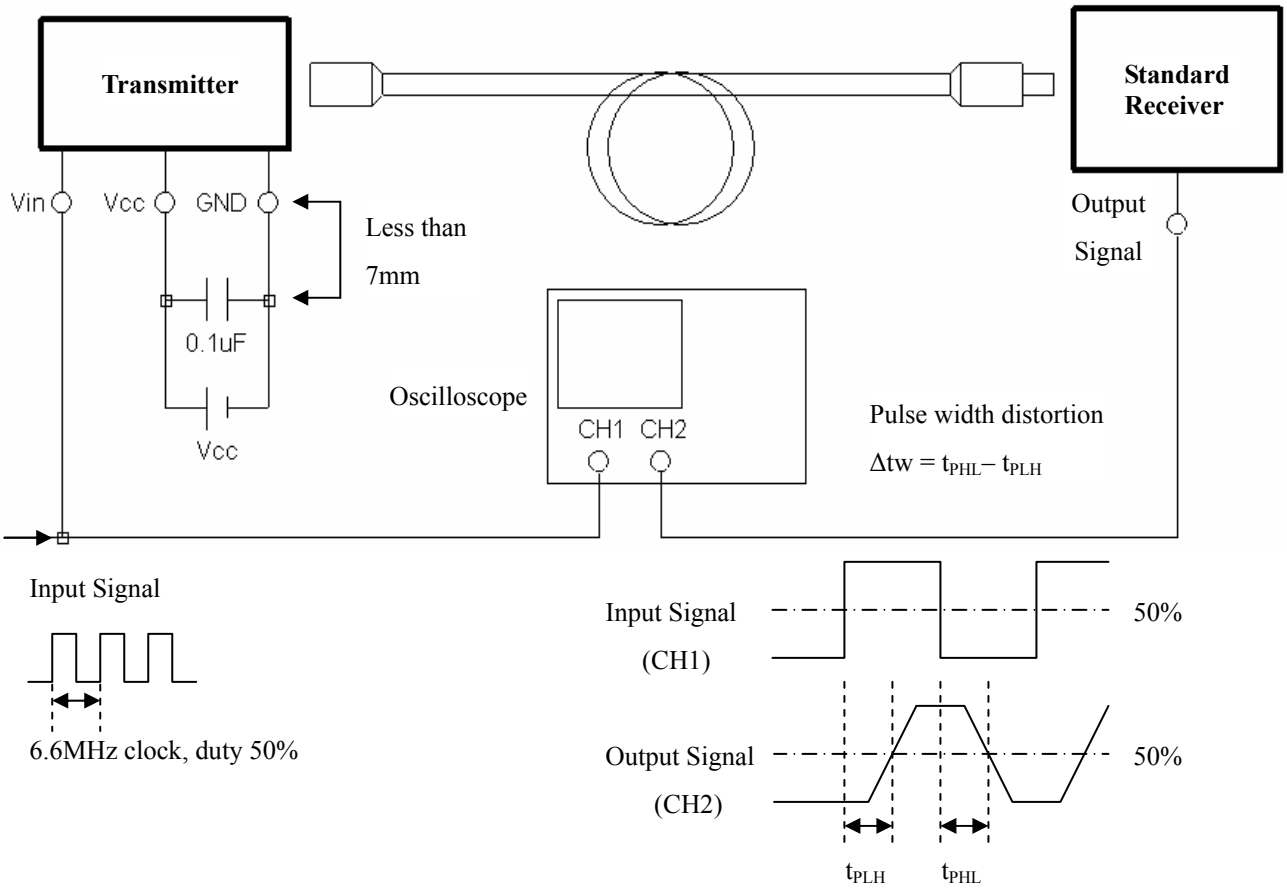

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Fig.4 Measuring Method of Jitter