

**FIBER OPTIC TRANSMITTING MODULE****FEATURES**

- 1) Conform to EIAJ standard CP-1201 (For Digital audio interfaces including fiber optic inter-connections).
- 2) TTL interface.
- 3) LED is driven by differential circuit.
- 4) +5V single power supply.
- 5) High speed signal transmission (12.5M NRZ signal).
- 6) ESD tolerance IC > 8KV.
- 7) Standard package (panel mount type).

**APPLICATIONS**

- 1) Digital audio equipment: CD, MD and DVD player to sound applications for personal computers and computer entertainment systems.
- 2) Navigation system.

**ABSOLUTE MAXIMUM RATINGS** ( $T_a=25^\circ\text{C}$ )

Characteristic	Symbol	Rating	Units
Supply Voltage	V <sub>CC</sub>	-0.5 to +7	V
Input Voltage	V <sub>IN</sub>	-0.5 to V <sub>CC</sub> +0.5	V
Operating Temperature	T <sub>opr</sub>	-20 to +70	°C
Storage Temperature	T <sub>stg</sub>	-30 to +80	°C
*Soldering Temperature	T <sub>sol</sub>	260	°C

\* T=5sec

## RECOMMENDED OPERATING CONDITIONS AND ELECTRICAL CHARACTERISTICS

(Ta=25 °C , Vcc=5V)

Characteristic	Symbol	Condition	Min	Typ	Max	Units
Operating Voltage	Vcc		2.7	5	5.5	V
Operating Current	Iop		-	8	13	mA
Transmitter Wavelength	$\lambda_p$		-	660	-	nm
Transmitter Light Power	Pf	*1	-21	-	-15	dBm
Data Rate	T	NRZ Code *2	DC	-	12.5	Mb/s
Pulse Width Distortion	$\Delta tw$	Pulse width 80ns Pulse cycle 160ns, CL=10pF Using HKRX178D	-25	-	25	ns
Jitter	$\Delta tj$		-	4	25	ns
Low to High Delay Time	tPLH		-	100	180	ns
High to Low Delay Time	tPHL		-	100	180	ns
High Level Input Voltage	VIH		2.0	-	-	V
Low Level Input Voltage	VIL		-	-	0.8	V
High Level Input Current	IiH		-	-	20	$\mu$ A
Low Level Input Current	IiL		-	-	-0.4	mA

\*1: Fiber insertion measure peak value.

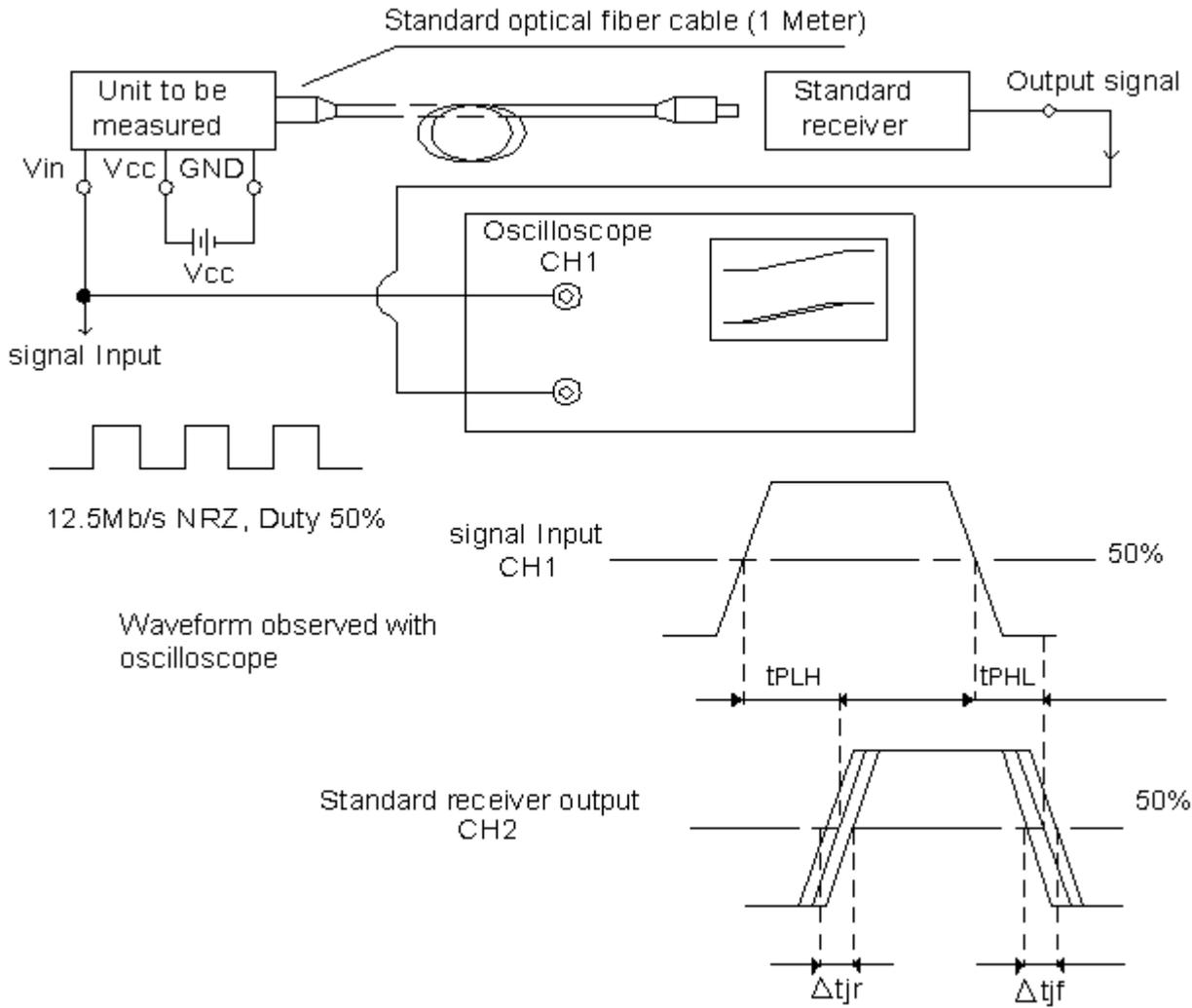
\*2: For data rate &gt; 12Mb/s(NRZ), the duty factor must be such as kept 25 to 75%.

## MECHANICAL CHARACTERISTICS (Ta=25 °C)

Characteristic	Symbol	Condition	Min	Typ	Max	Units
Insertion Force		*1	-	-	40	N
Withdrawal Force		*1	6	-	40	N
Torque for Self-Tap		Using self-tapping screw (M3*8)	60	-	100	N-cm

\*1: Using standard optical fiber cable. (970/1000  $\mu$ m)

TEST CIRCUIT

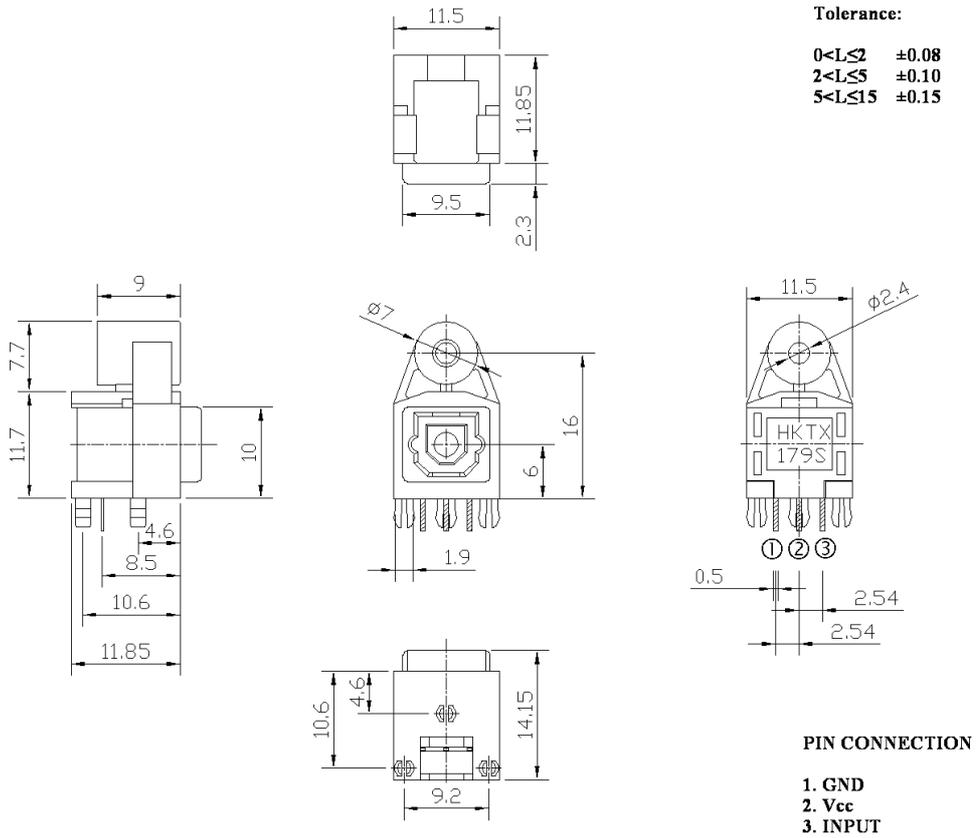


TEST PARAMETERS

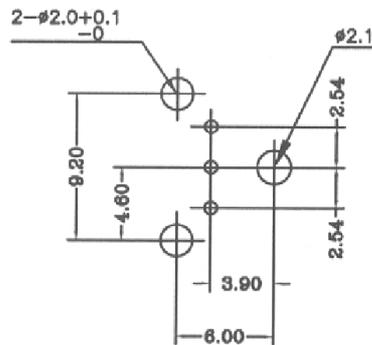
No.	Test Item	Symbol
1	Low to High Pulse Delay Time	$t_{PLH}$
2	High to Low Pulse Delay Time	$t_{PHL}$
3	Pulse Width Distortion $\Delta tw = t_{PHL} - t_{PLH}$	$\Delta tw$
4	High Level Output Voltage	$V_{OH}$
5	Low Level Output Voltage	$V_{OL}$

HKTX179S

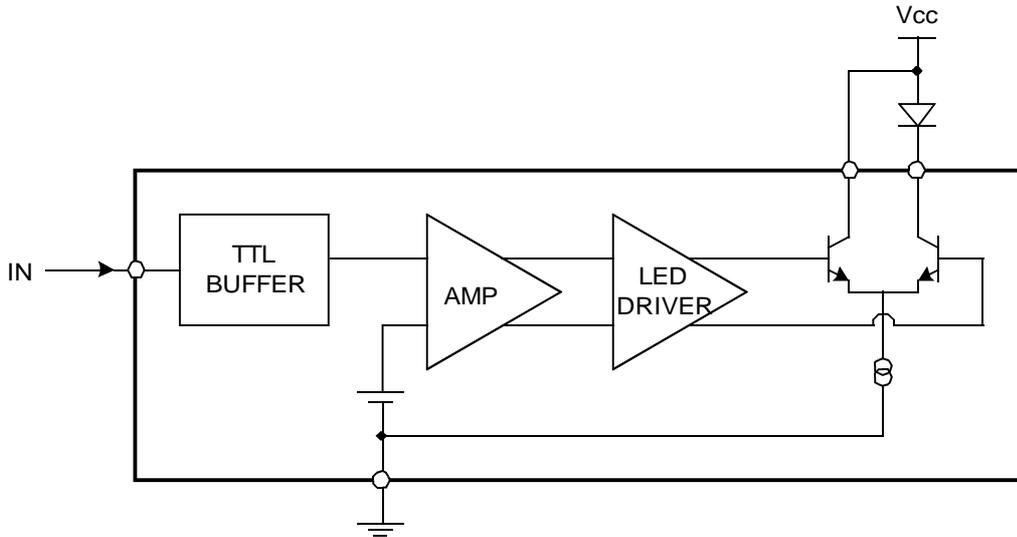
OUTLINE DIMENSION Unit: mm



RECOMMENDED DRILLING AS VIEWED FROM THE SOLDERING FACE



## BLOCK DIAGRAM



## PRECAUTIONS DURING INSTALLATION

**1) Fixing fiber optical transceiving module**

Insert the fiber optic transmitting module HKTX179S into the printed circuit board to fix the module to the board. Solder the fixed pin at 260°C or less within 5 seconds.

**2) Soldering**

Optical modules use semiconductor devices internally. However, in principle, optical modules are optical components. At soldering, take care that flux does not contact the emitting surface or detecting surface. Also take care at flux removal after soldering. Some optical modules come with protective cap. The protective cap is used to avoid malfunction when the optical module is not in use. Note that it is not dust or waterproof.

As mentioned before, optical modules are optical component. Thus, in principle, soldering where there may be flux residue or flux removal after soldering is not recommended. GOOD TAKE recommends that soldering be performed without the optical module mounted on the board. Then, after the board is cleaned, solder the optical module manually. Do not perform any further cleaning. If the optical module cannot be soldered manually, use non-halogen (chlorine-free) flux and make sure, without cleaning, there is no residue such as chlorine. This is one of the ways to eliminate the effects of flux. In such a case, check the reliability.

**3) Solvent**

When using solvent for flux removal, do not use a high acid or high alkali solvent. Be-careful not to pour solvent in the optical connector ports. If solvent is inadvertently poured there, clean with cotton tips.

**4) Protective cap**

When the fiber optic transmitting module HKTX179S is not in use, use the protective cap.

**5) Input voltage**

If a voltage exceeding the maximum rating value ( $V_{cc}+0.5V$ ) is applied to the transmitter Input, the internal IC may degrade causing some damage. If excessive voltage due to surge may be added to the input, insert a protective circuit.