

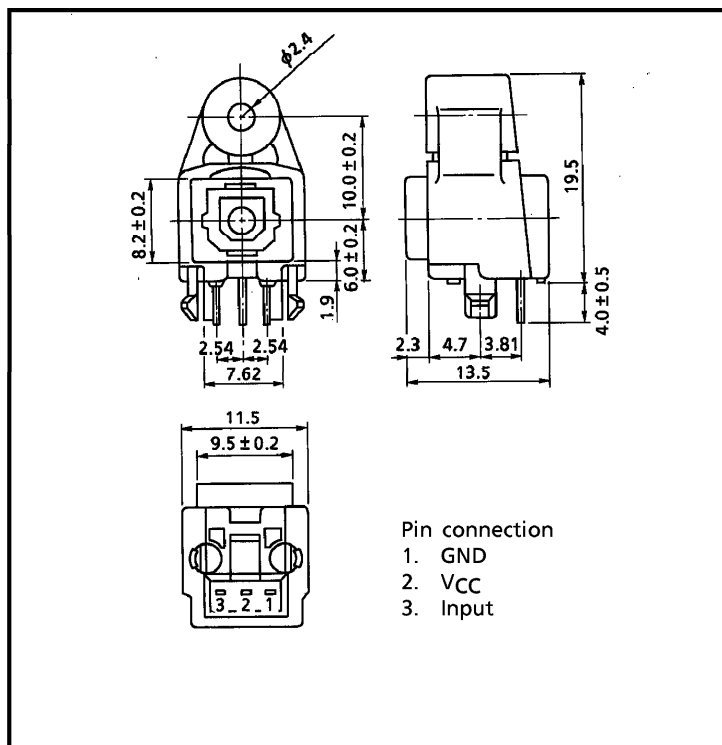
FIBER OPTIC TRANSMITTING MODULE

TOTX179

FIBER OPTIC TRANSMITTING MODULE FOR
DIGITAL AUDIO EQUIPMENT

Unit in mm

- Conforms to EIAJ Standard CP-1201 (For Digital Audio Interfaces including Fiber Optic inter-connections).
- TTL interface.
- LED is driven by differential circuit.
- A Self-tapping hole for easy attachment to Audio Equipment panels.



1. Maximum Ratings (Ta = 25°C)

PARAMETER	SYMBOL	RATING	UNIT
Storage Temperature	T _{stg}	-40~70	°C
Operating Temperature	T _{opr}	-20~70	°C
Supply Voltage	V _{CC}	-0.5~7	V
Input Voltage	V _{IN}	-0.5~V _{CC} + 0.5	V
Soldering Temperature	T _{sol}	260 ⁽¹⁾	°C

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

2. Recommended Operating Conditions

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT
Supply Voltage	V _{CC}	4.75	5.0	5.25	V
High-Level Input Voltage	V _{IH}	2.0	—	V _{CC}	V
Low-Level Input Voltage	V _{IL}	0	—	0.8	V

Handling precaution : The LED's used in this product contain GaAs (Gallium Arsenide). Care must be taken to protect the safety of people and the environment when scrapping or terminal processing.

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- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
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3. Electrical and Optical Characteristics (Ta = 25°C, VCC = 5 V)

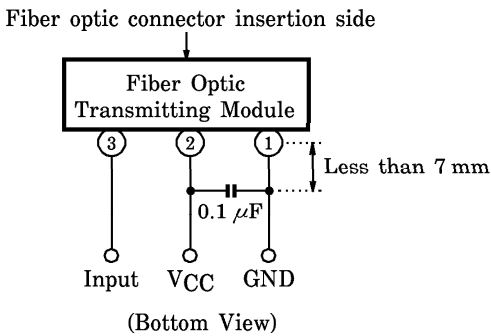
PARAMETER	SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT
Data Rate		NRZ Code ⁽²⁾	DC	—	12.8	Mb / s
Transmission Distance		Using APF ⁽³⁾ and TORX179	0.2	—	5	m
Pulse Width Distortion ⁽⁴⁾	Δtw	Pulse Width = 78 ns Pulse Cycle = 156 ns Using TORX179 $C_L = 10 \text{ pF}$	−25	—	25	ns
Fiber Optic Power ⁽⁵⁾	P_f		−21	—	−15	dBm
Center Emission Wavelength	λ_c		—	650	—	nm
Current Consumption	I_{CC}		—	15	20	mA
High Level Input Voltage	V_{IH}		2.0	—	—	V
Low Level Input Voltage	V_{IL}		—	—	0.8	V

- Note ⁽²⁾ : LED is on when input signal is high, and off when it is low.
The duty factor must be maintained between 25 to 75%.
- ⁽³⁾ : All Plastic Fiber (970 / 1000 μm).
- ⁽⁴⁾ : Between input of TOTX179 and output of fiber optic receiving module.
- ⁽⁵⁾ : Measure with a standard optical fiber, peak value.

4. Mechanical Characteristics (Ta = 25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT
Insertion Force		Using TOCP172, Initial value	—	—	39.2	N
Withdrawal Force		Using TOCP172, Initial value	5.9	—	39.2	N
Torque for Self-Tap		Using self-tapping screw (M3 × 8)	58.8	—	98	N·cm

5. Application Circuit



6. Required Optical Fiber with Fiber Optic Connectors

TOCP172-□□B

(4) Vibration and shock

This module is plastic sealed and has its wire fixed by resin. This structure is relatively resistant to vibration and shock. In actual equipment, there are sometime cases in which vibration, shock, or stress is applied to soldered parts or connected parts, resulting in lines cut. A care must be taken in the design of equipment which will be subject to high levels of vibration.

(5) Support pins

The optical transmission module TOTX179 has support pins in order to fix itself to the PCB temporarily. Please make the hole for these pins in the PCB under the condition described in board layout hole pattern.

(6) Panel attachment

TOTX179 has hole for panel attachment. Please be sure to attach it to panel with self-tapping screw.

(7) Solvent

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

(8) Protective cap

When the TOTX179 is not in use, attach the protective cap.

(9) Supply voltage

Use the supply voltage within the recommended operating condition ($V_{CC} = 5 \pm 0.25 \text{ V}$). Make sure that supply voltage does not exceed the maximum rating value of 7 V, even for an instant.

(10) Input voltage

If a voltage exceeding the maximum rating value ($V_{CC} + 0.5 \text{ V}$) is applied to the transmitters' input, the internal IC may suffer damage. If there is a possibility that excessive voltage due to surges may be added to the input terminal, insert a protective circuit.

(11) Soldering condition

Solder at 260°C or less for no more than ten seconds.

(12) Precautions when disposing of devices and packing materials.

When disposing devices and packing materials, follow the procedures stipulated by local regulations in order to protect the environment against contamination.

Compound semiconductors such as GaAs are used as LED materials in this module. When devices are disposed of, worker safety and protection of the environment must be taken into account.

(13) Precautions during use

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