TOSHIBA
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Toshiba Fiber-Coupler TOSLINK TM

Renewal Products Reference Guide

Optical Coupler Application Engineering Dept.
Discrete Semiconductor Div.
TOSHIBA CORPRATION Storage & Device Solution Company

Feature of Renewal Products

- CMOS(Receiving IC) and Bi-CMOS (Transmitting IC) Process.
- Same package and same pin layout with current 1900/2900 series.
- Same application circuit with current 1900/2900 series.
- Same specifications with current 1900/2900 series except interface level.

Current and Renewal Products Correspondence list

(1) Fiber Optic Transmitting Module

Current Product	Renewal Products	Reference Data
TOTX1950(F)	TOTX1950A(F)	Page 5 to 6
TOTX1951(F)	TOTX1951A(F)	Page 7 to 8
TOTX1952(F)	TOTX1952A(F)	Page 9 to 10
TOTX1960(F)	TOTX1960A(F)	Page 11 to 12

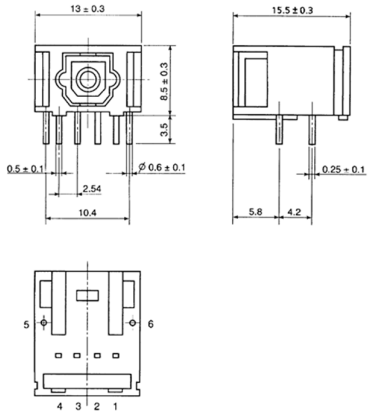
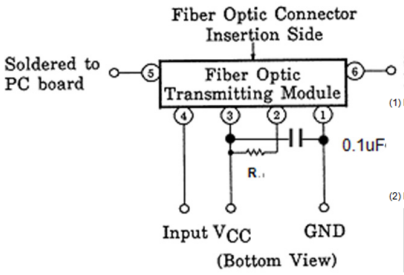
(2) Fiber Optic Receiving Module

Current Product	Renewal Products	Reference Data
TORX1950(F)	TORX1950A(F)	Page 13 to 16
TORX1951(F)	TORX1951A(F)	Page 17 to 18
TORX1952(F)	TORX1952A(F)	Page 19 to 20
TORX1350(F)	TORX1350A(F)	Page 21 to 22

(3) Fiber Optic Transceiving Module

Current Product	Renewal Products	Reference Data
TODX2950(F)	TODX2950A(F)	Page 23 to 26
TODX2951(F)	TODX2951A(F)	Page 27 to 30
TODX2952(F)	TODX2952A(F)	Page 31 to 34
TODX2960(F)	TODX2960A(F)	Page 35 to 38
TODX2850(F)	TODX2850A(F)	Page 39 to 42
TODX2860(F)	TODX2860A(F)	Page 43 to 46
TODX2350(F)	TODX2350A(F)	Page 47 to 49

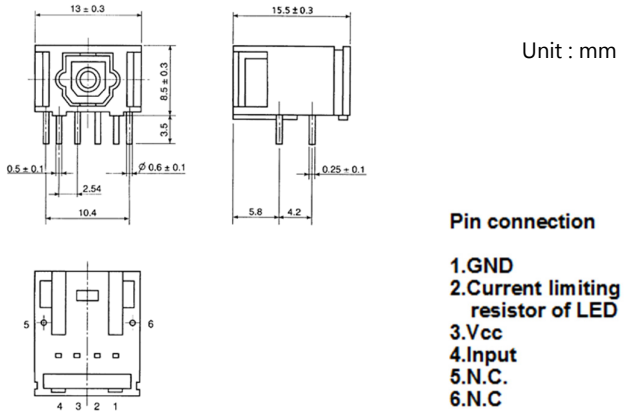
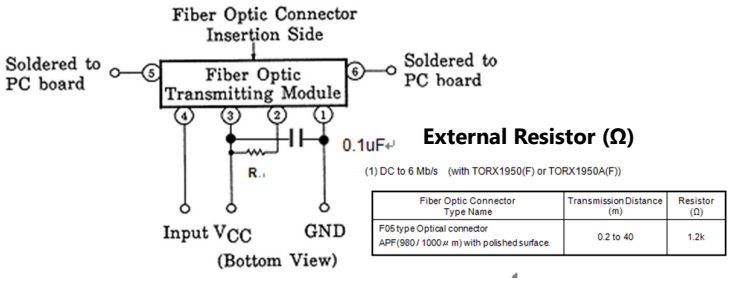
Current and Renewal Products Characteristics Comparison

Items of Specifications	TOTX1950(F)	TOTX1950A(F)
OUTLINE	 Unit : mm **Pin connection** 1.GND 2.Current limiting resistor of LED 3.Vcc 4.Input 5.N.C. 6.N.C	
Application Circuit	 **External Resistor (Ω)** (1) DC to 10 Mb/s (with TORX1950A(F) or TORX1950(F)) (2) DC to 6 Mb/s (with TORX1950A(F) or TORX1950(F))	

Items of Specifications	TOTX1950(F)	TOTX1950A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	up to 50 m (With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	- 15.0 to - 9.0 dBm@5.6kΩ	
Center Emission Wavelength	650 nm	
Current Consumption	30mA max. @5.6kΩ	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V

Optical Devices and IC	TOTX1950(F)	TOTX1950A(F)
Emission Device	650 nm LED (same LED chip)	
Transmitting IC Process	Bipolar	Bi-CMOS

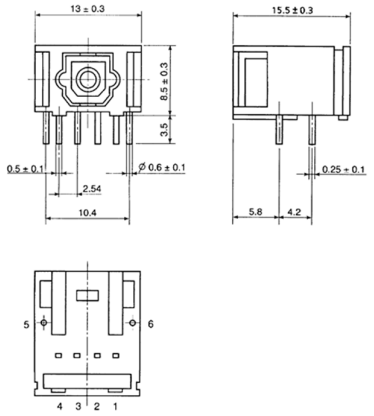
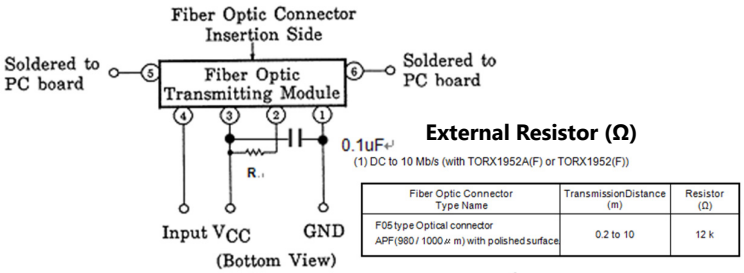
Current and Renewal Products Characteristics Comparison

Items of Specifications	TOTX1951(F)	TOTX1951A(F)
OUTLINE		
Application Circuit		

Items of Specifications	TOTX1951(F)	TOTX1951A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 6 Mb/s	
Transmission Distance	up to 40 m (With APF)	
Pulse Width Distortion	Les than ± 55 ns	
Fiber Output Power	- 15.0 to - 9.0 dBm@1.2kΩ	
Center Emission Wavelength	650 nm	
Current Consumption	40mA max. @1.2kΩ	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V

Optical Devices and IC	TOTX1951(F)	TOTX1951A(F)
Emission Device	650 nm LED (same LED chip)	
Transmitting IC Process	Bipolar	Bi-CMOS

Current and Renewal Products Characteristics Comparison

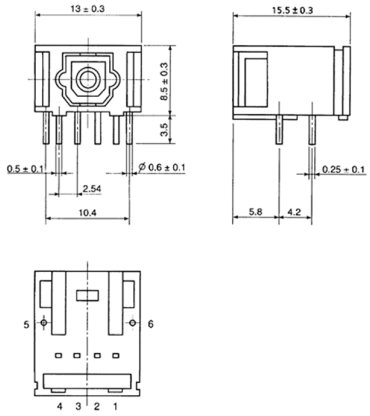
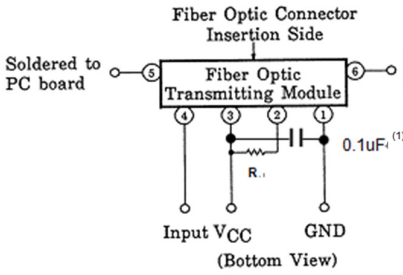
Items of Specifications	TOTX1952(F)	TOTX1952A(F)
OUTLINE	 Unit : mm Pin connection 1.GND 2.Current limiting resistor of LED 3.Vcc 4.Input 5.N.C. 6.N.C	
Application Circuit		

Fiber Optic Connector Type Name	TransmissionDistance (m)	Resistor (Ω)
F05 type Optical connector APF(980 / 1000 μ m) with polished surface	0.2 to 10	12 k

Items of Specifications	TOTX1952(F)	TOTX1952A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	up to 10 m (With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	- 21.0 to -15.0 dBm@12kΩ	
Center Emission Wavelength	650 nm	
Current Consumption	20mA max. @12kΩ	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V

Optical Devices and IC	TOTX1952(F)	TOTX1952A(F)
Emission Device	650 nm LED (same LED chip)	
Transmitting IC Process	Bipolar	Bi-CMOS

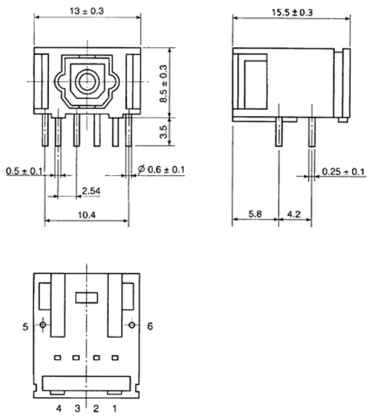
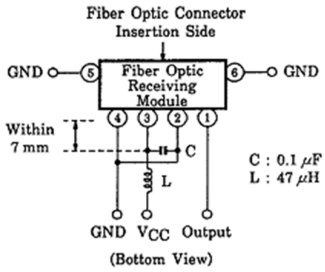
Current and Renewal Products Characteristics Comparison

Items of Specifications	TOTX1960(F)	TOTX1960A(F)
OUTLINE	 Unit : mm **Pin connection** 1.GND 2.Current limiting resistor of LED 3.Vcc 4.Input 5.N.C. 6.N.C	
Application Circuit	 **External Resistor (Ω)** (1) DC to 10 Mb/s (with TORX1950A(F) or TORX1950(F)) Fiber Optic Connector Type Name / Transmission Distance (m) / Resistor (Ω) F05 type Optical Connector with H-PCF (200 / 230 μm) polished surface. / 0.2 to 1000 / 3.3k F05 type Optical onnector with H-PCF (200 /230 μm) non-polished surface. (cut by fiber cutter) / 0.2 to 700 / 3.3k	

Items of Specifications	TOTX1960(F)	TOTX1960A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	up to 1000 m (With H-PCF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	- 20.0 to - 14.0 dBm@3.3kΩ	
Center Emission Wavelength	770 nm	
Current Consumption	30mA max. @3.3kΩ	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V

Optical Devices and IC	TOTX1960(F)	TOTX1960A(F)
Emission Device	770 nm LED (same LED chip)	
Transmitting IC Process	Bipolar	Bi-CMOS

Current and Renewal Products Characteristics Comparison

Items of Specifications	TORX1950(F)	TORX1950A(F)
OUTLINE	 Unit : mm Pin connection 1.Output 2.GND1 3.Vcc 4.GND2 5.Case 6.Case	
Application Circuit		

Items of Specifications	TORX1950(F)	TORX1950A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 50 m (With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Current Consumption	20mA max.	
Maximum Receivable Power	- 9.0 dBm @ 10Mb/s	
Minimum Receivable Power	-27.0 dBm @ 10Mb/s	
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max. @4.75V	0.4 V max.@4.75V

Optical Devices and IC	TORX1950(F)	TORX1950A(F)
Receiving IC Process	Bipolar	CMOS

Items of Specifications	TORX1950(F)	TORX1950A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 1000 m (With H-PCF)	
Pulse Width Distortion	Less than ± 30 ns	
Current Consumption	20mA max.	
Maximum Receivable Power	- 14.0 dBm @ 10Mb/s	
Minimum Receivable Power	- 29.0 dBm @ 10Mb/s	
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max. @4.75V	0.4 V max.@4.75V

Optical Devices and IC	TORX1950(F)	TORX1950A(F)
Receiving IC Process	Bipolar	CMOS

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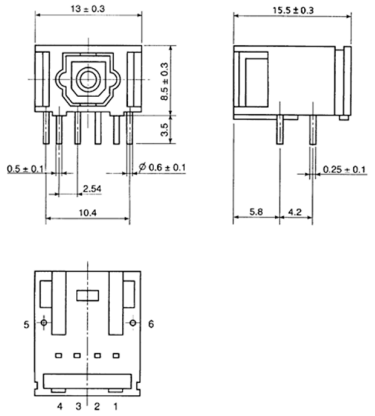
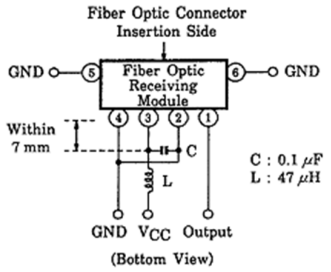
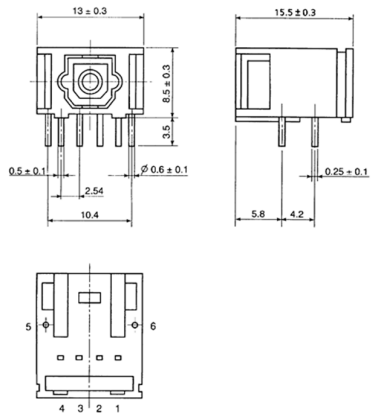
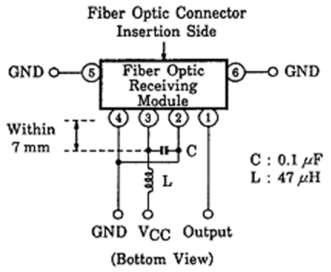
Current and Renewal Products Characteristics Comparison

Items of Specifications	TORX1951(F)	TORX1951A(F)
OUTLINE	 Unit : mm **Pin connection** 1.Output 2.GND1 3.Vcc 4.GND2 5.Case 6.Case	
Application Circuit		

Items of Specifications	TORX1951(F)	TORX1951A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 6 Mb/s	
Transmission Distance	Up to 40 m (With APF)	
Pulse Width Distortion	Less than ± 55 ns	
Current Consumption	20mA max.	
Maximum Receivable Power	- 9.0 dBm @ 6Mb/s	
Minimum Receivable Power	-27.0 dBm @ 6Mb/s	
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.4 V max.@4.75V

Optical Devices and IC	TORX1951(F)	TORX1951A(F)
Receiving IC Process	Bipolar	CMOS

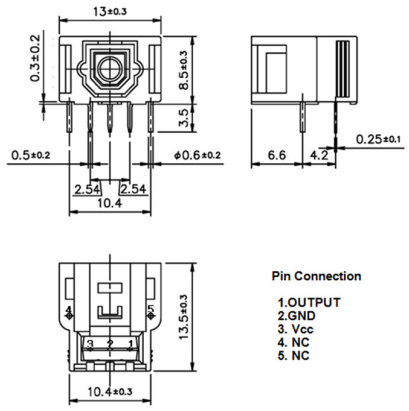
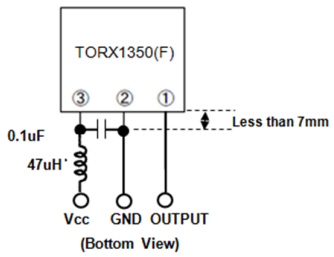
Current and Renewal Products Characteristics Comparison

Items of Specifications	TORX1952(F)	TORX1952A(F)
OUTLINE	 Unit : mm Pin connection 1.Output 2.GND1 3.Vcc 4.GND2 5.Case 6.Case	
Application Circuit		

Items of Specifications	TORX1952(F)	TORX1952A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 10 m (With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Current Consumption	20mA max.	
Maximum Receivable Power	-14.5 dBm @ 10Mb/s	
Minimum Receivable Power	-27.0 dBm @ 10Mb/s	
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.4 V max.@4.75V

Optical Devices and IC	TORX1952(F)	TORX1952A(F)
Receiving IC Process	Bipolar	CMOS

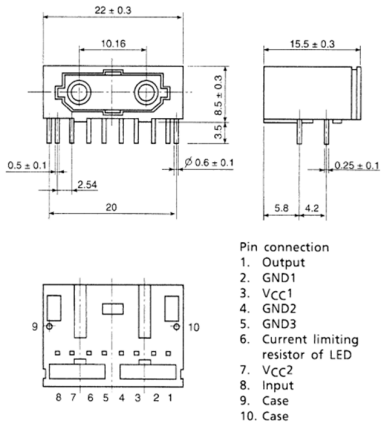
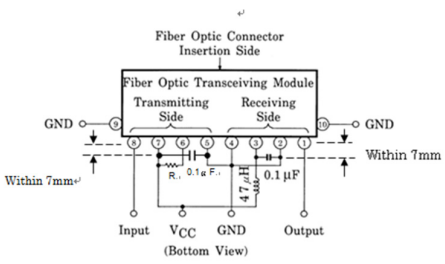
Current and Renewal Products Specification Comparison

Items of Specifications	TORX1350(F)	TORX1350A(F)
OUTLINE	 Unit : mm	
Application Circuit		

Items of Specifications	TORX1350(F)	TORX1350A(F)
Storage Temperature	-40 to 95 ℃	
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 100 m(With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Current Consumption	20mA max.	
Maximum Receivable Power	- 8.0 dBm @ 10Mb/s	
Minimum Receivable Power	-27.0 dBm @ 10Mb/s	
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.4 V max.@4.75V

Optical Devices and IC	TORX1350(F)	TORX1350A(F)
Receiving IC Process	Bipolar	CMOS

Current and Renewal Products Specification Comparison

Items of Specifications	TODX2950(F)	TODX2950A(F)
OUTLINE	 Unit : mm Pin connection 1. Output 2. GND1 3. $V_{CC}1$ 4. GND2 5. GND3 6. Current limiting resistor of LED 7. $V_{CC}2$ 8. Input 9. Case 10. Case	
Application Circuit		**External Resistor (Ω)** (1) DC to 10 Mb/s (with TODX2950A(F)) Fiber Optic Connector Type Name / Transmission Distance (m) / Resistor (Ω) F07 type Optical Connector with APF(980/1000 μ m) Polished Surface. — 0.2 to 40 — 5.6 k 10 to 50 — 3.3 k (2) DC to 6 Mb/s (with TODX2950A(F)) Fiber Optic Connector Type Name / Transmission Distance (m) / Resistor (Ω) F07 type Optical Connector with APF(980/1000 μ m) Polished Surface. — 0.2 to 50 — 5.6 k

Items of Specifications	TODX2950(F)	TODX2950A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 50 m (With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	-15.0 to -9.0 dBm@ 5.6kΩ	
Center Emission Wavelength	650 nm	
Current Consumption	50mA max. @ 5.6kΩ	
Maximum Receivable Power	-9.0 dBm @ 10Mb/s	
Minimum Receivable Power	-27.0 dBm @ 10Mb/s	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.4 V max.@4.75V

Items of Specifications	TODX2950(F)	TODX2950A(F)
Emission Device	650 nm LED (same LED chip)	
Transmitting IC Process	Bipolar	Bi-CMOS
Receiving IC Process	Bipolar	CMOS

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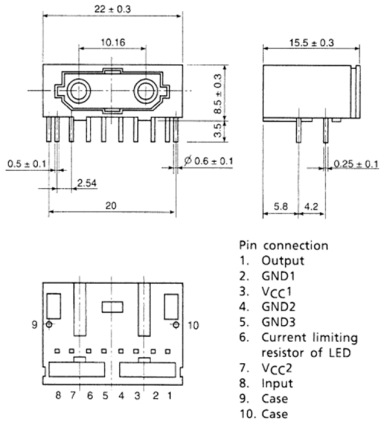
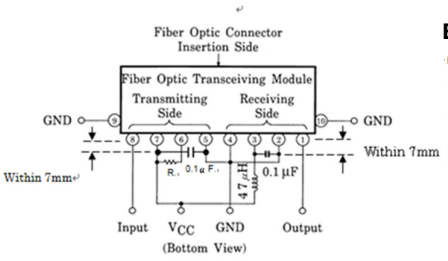
Current and Renewal Products Specification Comparison

Items of Specifications	TODX2951(F)	TODX2951A(F)
OUTLINE	 Unit : mm Pin connection 1. Output 2. GND1 3. $V_{CC}1$ 4. GND2 5. GND3 6. Current limiting resistor of LED 7. $V_{CC}2$ 8. Input 9. Case 10. Case	
Application Circuit		**External Resistor (Ω)** DC to 6 Mb/s Fiber Optic Connector Type Name: F07 type Optical Connector with APF(980/1000 μ m) Polished Surface. Transmission Distance (m): 0.2 to 40 Resistor (Ω): 1.2 k

Items of Specifications	TODX2951(F)	TODX2951A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 6 Mb/s	
Transmission Distance	Up to 40 m (With APF)	
Pulse Width Distortion	Less than ± 55 ns	
Fiber Output Power	-15.0 to -9.0 dBm@ 1.2kΩ	
Center Emission Wavelength	650 nm	
Current Consumption	60mA max. @ 1.2kΩ	
Maximum Receivable Power	-9.0 dBm @ 6Mb/s	
Minimum Receivable Power	-27.0 dBm @ 6Mb/s	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.4 V max.@4.75V

Items of Specifications	TODX2951(F)	TODX2951A(F)
Emission Device	650 nm LED (same LED chip)	
Transmitting IC Process	Bipolar	Bi-CMOS
Receiving IC Process	Bipolar	CMOS

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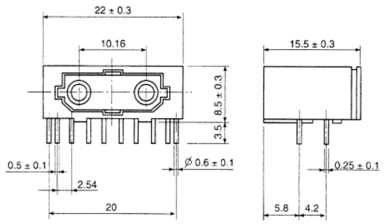
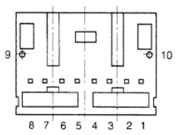
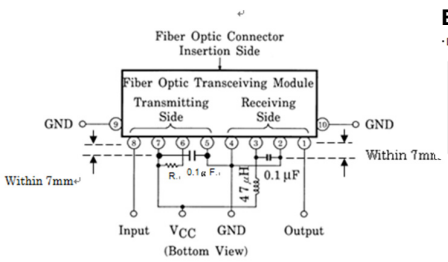
Current and Renewal Products Specification Comparison

Items of Specifications	TODX2952(F)	TODX2952A(F)
OUTLINE	 Unit : mm  Pin connection 1. Output 2. GND1 3. Vcc1 4. GND2 5. GND3 6. Current limiting resistor of LED 7. Vcc2 8. Input 9. Case 10. Case	
Application Circuit	 **External Resistor (Ω)** ・DC to 10 Mb/s Fiber Optic Connector Type Name: F07 type Optical Connector with APF(980/1000μm). Polished Surface. Transmission Distance (m): 0.2 to 10 Resistor (Ω): 12 k	

Items of Specifications	TODX2952(F)	TODX2952A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 10 m (With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	-21.0 to -15.0 dBm@ 12kΩ	
Center Emission Wavelength	650 nm	
Current Consumption	40mA max. @ 12kΩ	
Maximum Receivable Power	-14.5 dBm @ 10Mb/s	
Minimum Receivable Power	-27.0 dBm @ 10Mb/s	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.4 V max.@4.75V

Items of Specifications	TODX2952(F)	TODX2952A(F)
Emission Device	650 nm LED (same LED chip)	
Transmitting IC Process	Bipolar	Bi-CMOS
Receiving IC Process	Bipolar	CMOS

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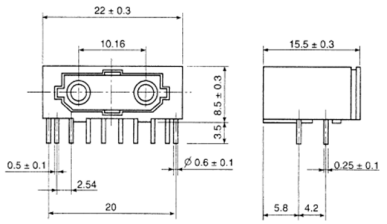
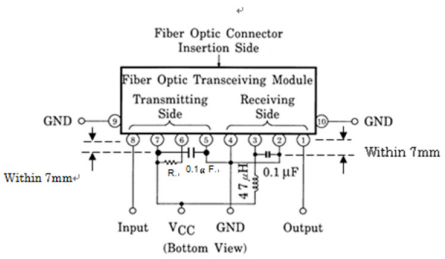
Current and Renewal Products Specification Comparison

Items of Specifications	TODX2960(F)	TODX2960A(F)
OUTLINE	 Unit : mm Pin connection 1. Output 2. GND1 3. $V_{CC}1$ 4. GND2 5. GND3 6. Current limiting resistor of LED 7. $V_{CC}2$ 8. Input 9. Case 10. Case	
Application Circuit		External Resistor (Ω) (1) DC to 10 Mb/s Fiber Optic Connector Type Name / Transmission Distance (m) / Resistor (Ω) F07 type Optical Connector with H-PCF(200/230 μ m). Polished Surface. / 0.2 to 1000 / 3.3 k F07 type Optical connector with H-PCF(200/230 μ m). non-Polished Surface. (cut by fiber cutter) / 0.2 to 700 / 3.3 k (2) DC to 6 Mb/s Fiber Optic Connector Type Name / Transmission Distance (m) / Resistor (Ω) F07 type Optical Connector with H-PCF(200/230 μ m). Polished Surface. / 0.2 to 1000 / 3.3 k F07 type Optical connector with H-PCF(200/230 μ m). non-Polished Surface. (cut by fiber cutter) / 0.2 to 800 / 3.3 k

Items of Specifications	TODX2960(F)	TODX2960A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 1000 m (With H-PCF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	-20.0 to -14.0 dBm@ 3.3kΩ	
Center Emission Wavelength	770 nm	
Current Consumption	50mA max. @ 3.3kΩ	
Maximum Receivable Power	-14.0 dBm @ 10Mb/s	
Minimum Receivable Power	-29.0 dBm @ 10Mb/s	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.4 V max.@4.75V

Items of Specifications	TODX2960(F)	TODX2960A(F)
Emission Device	770 nm LED (same LED chip)	
Transmitting IC Process	Bipolar	Bi-CMOS
Receiving IC Process	Bipolar	CMOS

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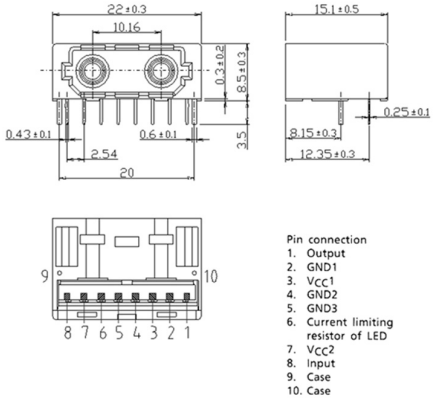
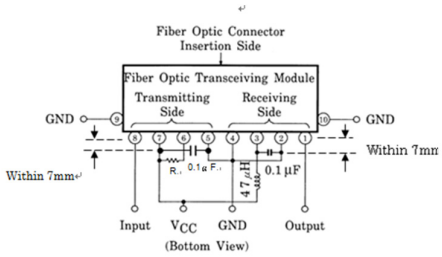
Current and Renewal Products Specification Comparison

Items of Specifications	TODX2850(F)	TODX2850A(F)
OUTLINE	 Unit : mm	
Application Circuit		**External Resistor (Ω)** (1) DC to 10 Mb/s Fiber Optic Connector Type Name: F07(PN) type Optical Connector with APF(980/1000μm) Polished Surface. — Transmission Distance (m): 0.2 to 20 — Resistor (kΩ): 8.2 Transmission Distance (m): 20 to 50 — Resistor (kΩ): 0 (2) DC to 3 Mb/s Fiber Optic Connector Type Name: F07(PN) type Optical Connector with APF(980/1000μm) Polished Surface. — Transmission Distance (m): 0.2 to 50 — Resistor (kΩ): 0

Items of Specifications	TODX2850(F)	TODX2850A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 50 m (With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	-15.0 to - 9.0 dBm@ 0 Ω	
Center Emission Wavelength	650 nm	
Current Consumption	95mA max. @ 0 Ω	
Maximum Receivable Power	-13.0 dBm @ 10Mb/s	
Minimum Receivable Power	-27.0 dBm @ 10Mb/s	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V
High Level Output Voltage	4.0 V min. @4.75V	4.5 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.5 V max.@4.75V

Items of Specifications	TODX2850(F)	TODX2850A(F)
Emission Device	650 nm LED (same LED chip)	
Detector	PD (Same Photo Diode chip)	
Transmitting IC Process	Bipolar	Bi-CMOS
Receiving IC Process	Bipolar	Bi-CMOS

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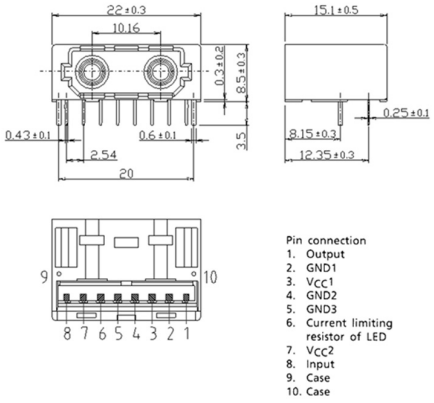
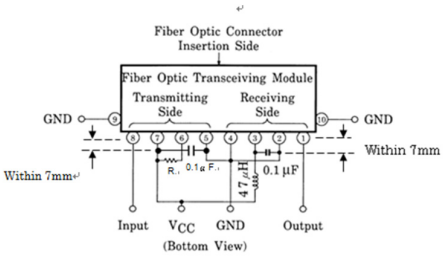
Current and Renewal Products Specification Comparison

Items of Specifications	TODX2860(F)	TODX2860A(F)
OUTLINE	 Unit : mm Pin connection 1. Output 2. GND1 3. $V_{CC}1$ 4. GND2 5. GND3 6. Current limiting resistor of LED 7. $V_{CC}2$ 8. Input 9. Case 10. Case	
Application Circuit		External Resistor (Ω) (1) DC to 10 Mb/s Fiber Optic Connector Type Name / Transmission Distance (m) / Resistor (kΩ) F07(PN) type Optical Connector with H-PCF(200/230μm). Polished Surface. — 0.2 to 500 — 3.9 500 to 1000 — 0 F07(PN) type Optical connector with H-PCF(200/230μm). non-Polished Surface. (cut by fiber cutter) — 0.2 to 300 — 3.9 300 to 700 — 0 (2) DC to 6 Mb/s Fiber Optic Connector Type Name / Transmission Distance (m) / Resistor (kΩ) F07(PN) type Optical Connector with H-PCF(200/230μm). Polished Surface. — 0.2 to 1000 — 0 F07 type Optical connector with H-PCF(200/230μm). non-Polished Surface. (cut by fiber cutter) — 0.2 to 800 — 0

Items of Specifications	TODX2860(F)	TODX2860A(F)
Storage Temperature	-40 to 85 ℃	-40 to 95 ℃
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 1000 m (With H-PCF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	-20.0 to -14.0 dBm@ 0 Ω	
Center Emission Wavelength	770 nm	
Current Consumption	95mA max. @ 0 Ω	
Maximum Receivable Power	-16.0 dBm @ 10Mb/s	
Minimum Receivable Power	-29.0 dBm @ 10Mb/s	
High Level Input Voltage	2.0 V min.@5.0V	3.5V min.@5.0V
Low Level Input Voltage	0.8 V max.@5.0V	1.5V max.@5.0V
High Level Output Voltage	4.0 V min. @4.75V	4.5 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.5 V max.@4.75V

Items of Specifications	TODX2860(F)	TODX2860A(F)
Emission Device	770 nm LED (same LED chip)	
Detector	PD (Same Photo Diode chip)	
Transmitting IC Process	Bipolar	Bi-CMOS
Receiving IC Process	Bipolar	Bi-CMOS

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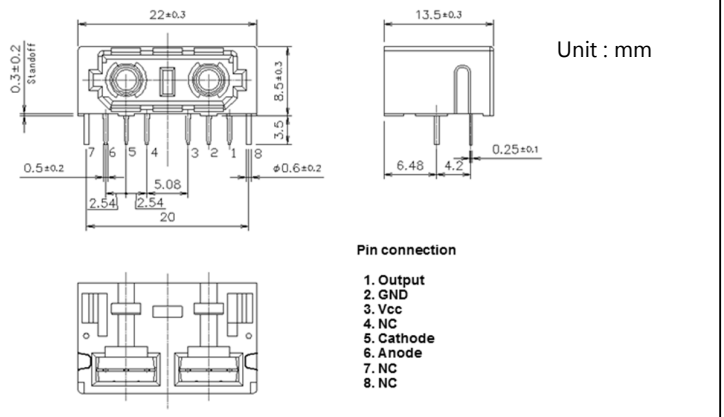
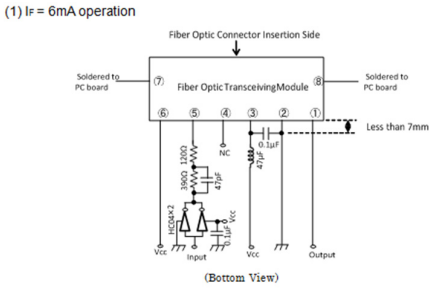
Current and Renewal Products Specification Comparison

Items of Specifications	TODX2350(F)	TODX2350A(F)
OUTLINE		
Application Circuit		

Items of Specifications	TODX2350(F)	TODX2350A(F)
Storage Temperature	-40 to 95 ℃	
Operating Temperature	-40 to 85 ℃	
Data Rate	DC to 10 Mb/s	
Transmission Distance	Up to 100 m (With APF)	
Pulse Width Distortion	Less than ± 30 ns	
Fiber Output Power	- 6.0 to - 2.0 dBm@ IF=6 mA	
Center Emission Wavelength	650 nm	
Current Consumption	20mA max. @ Receiver	
Maximum Receivable Power	- 8.0 dBm @ 10Mb/s	
Minimum Receivable Power	-27.0 dBm @ 10Mb/s	
High Level Output Voltage	3.5 V min. @4.75V	4.1 V min.@4.75V
Low Level Output Voltage	0.4 V max.@4.75V	0.4 V max.@4.75V

Optical Devices and IC	TODX2350(F)	TODX2350A(F)
Emission Device	650 nm LED (same LED chip)	
Receiving IC Process	Bipolar	CMOS

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