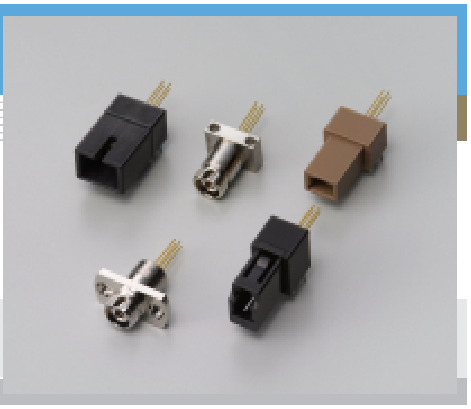
PHOTODIODE

# InGaAs PIN photodiode with preamp

# G8339/G8342/G7881/G8796 series

## Receptacle type, 1.3/1.55 µm, 156, 622 Mbps/1.25, 2.5 Gbps



G8339/G8342/G7881/G8796 series are high-speed receivers specifically developed for 1.3/1.55 µm band optical fiber communications. These devices incorporate a high-speed, high-sensitivity InGaAs PIN photodiode and a high-speed preamp integrated in a receptacle module. Packages are available with various connectors and mounting styles.

### Features

- Wide dynamic range
  G8339 series (156 Mbps) : -37 to -5 dBm
  G8342 series (622 Mbps) : -32 to -5 dBm
  G7881 series (1.25 Gbps) : -25 to -1 dBm
  G8796 series (2.5 Gbps) : -22 to +1 dBm
- Integrated with trans-impedance amplifier
- Supply voltage
  G8339/G8342 series: 3.3 V
  G7881/G8796 series: 3.3 V, 5 V
- Differential output

### Applications

- Optical fiber communications
- Fiber channel
- Gigabit Ethernet
- HDTV
- SDH

### ■ Absolute maximum ratings (Ta=25 °C)

| Parameter | Symbol | G8339 series | G8342 series | G7881 series | G8796 series | Unit |
|---|---|---|---|---|---|---|
| Supply voltage | Vcc | -0.3, +3.8 | -0.3, +3.8 | -0.3, +5.5 | -0.5, +6 | V |
| Operating temperature | Topr | -20 to +70 | | | | °C |
| Storage temperature | Tstg | -40 to +85 | | | | °C |

### ■ Specifications (Typ. Ta=25 °C, Vee=0 V, capacitive coupling, $\lambda$=1.31 µm, unless otherwise noted)

| Parameter | Symbol | Condition | G8339 series<br>Vcc=3.3 V<br>$R_L$=500 Ω *1 | G8342 series<br>Vcc=3.3 V<br>$R_L$=500 Ω *1 | G7881 series<br>Vcc=3.3/5 V<br>$R_L$=50 Ω | G8796 series<br>Vcc=3.3/5 V<br>$R_L$=50 Ω | Unit |
|---|---|---|---|---|---|---|---|
| Photo sensitivity | S | *2, *3 | 27 | 17 | 2.8 | 1.2 | V/mW |
| Supply current | Icc | dark state, $R_L$=∞ | 25 | 30 | 35 | 35 | mA |
| Output bias voltage | Vo | dark state, $R_L$=∞ | 1.5 | 1.65 | Vcc - 1.7 | Vcc - 0.25 | V |
| Rise time | tr | *3, 20 to 80 % | 2000 | 500 | 250 | 150 | ps |
| Data rate | B | | 156 M | 622 M | 1.25 G | 2.5 G | bps |

*1: G8339/G8342 series cannot be operated with $R_L$=50 Ω, so they should be used with a load resistance larger than 500 Ω.
*2: Single ended (Vout+) measurement using a single mode optical fiber with a master plug.
*3: G8339/G8342 series: Pin= -30 dBm
G7881 series: Pin= -22 dBm
G8796 series: Pin= -17 dBm

### ■ Package lineup

| Parameter | G8339/G8342/G7881/G8796 | | | | |
|---|---|---|---|---|---|
| | -21 | -22 | -23 | -32 | -44 |
| Mounting style | Board | | | Panel | Board & panel |
| Connector | SC | FC | MU | FC | LC |
| Dimensional outline | ① | ② | ③ | ④ | ⑤ |

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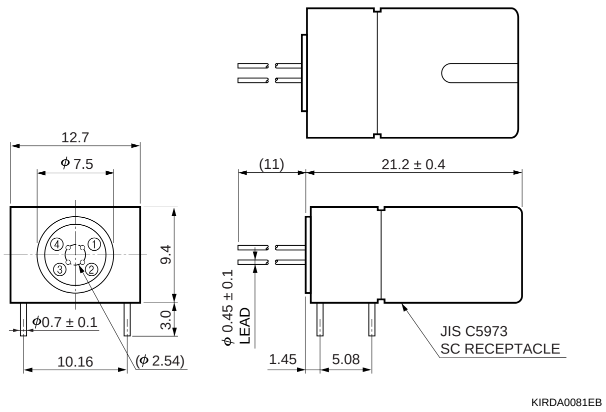
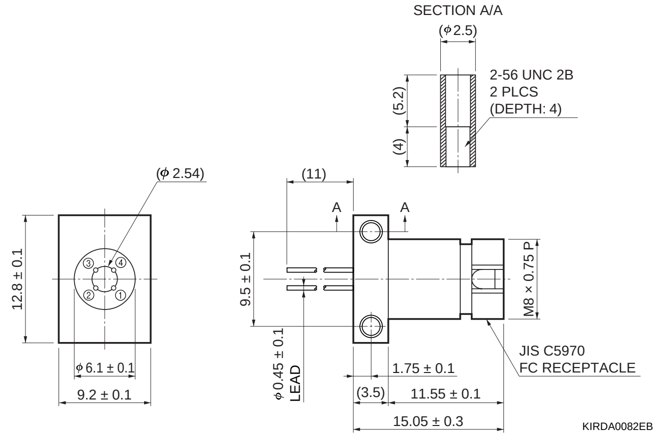
## ■ Dimensional outlines (unit: mm, tolerance unless otherwise noted: ±0.2 mm)

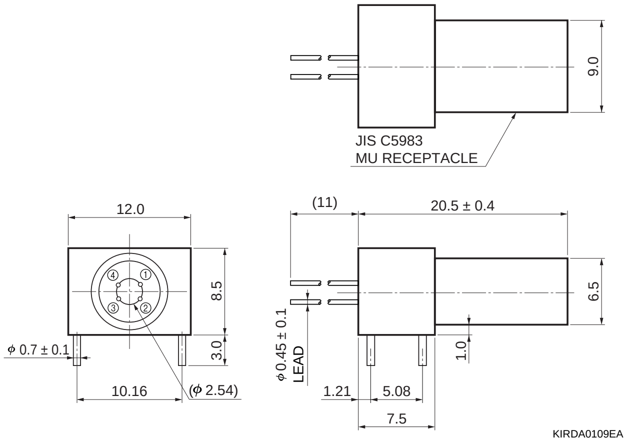
### ① G8339/G8342/G7881/G8796-21



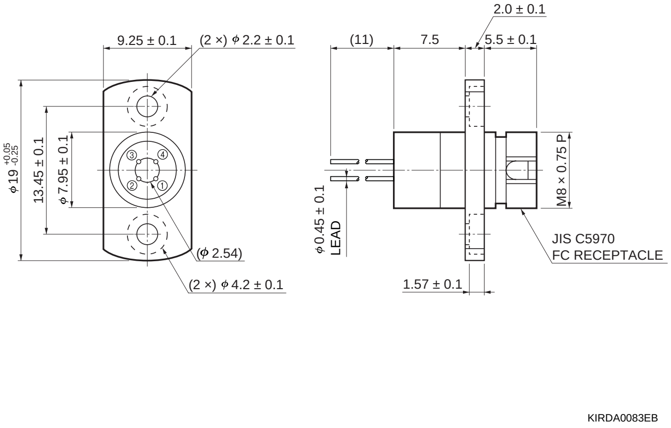
### ② G8339/G8342/G7881/G8796-22



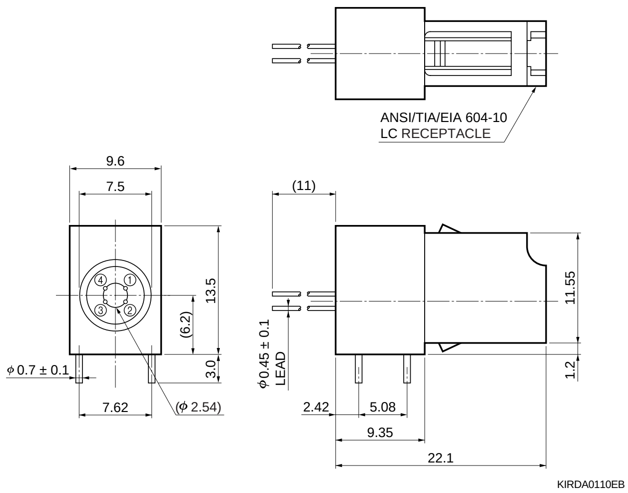
### ③ G8339/G8342/G7881/G8796-23



### ④ G8339/G8342/G7881/G8796-32



### ⑤ G8339/G8342/G7881/G8796-44



## ■ Pin connection

| Pin No. | G8339/G8342/ G8796 Series | G7881 Series |
|---|---|---|
| ① | Vcc | Vcc |
| ② | Vout - | Vout + |
| ③ | Vee | Vee |
| ④ | Vout + | Vout - |

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