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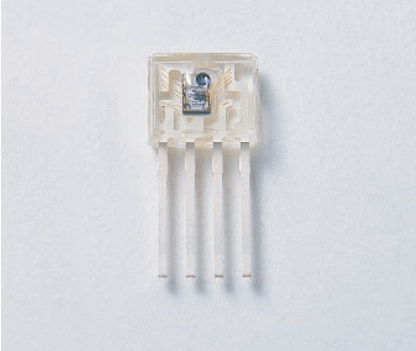
Photo IC for optical link



S7727

Receiver for 156 Mbps POF communications

S7726 is designed for high-speed POF (Plastic Optical Fiber) communications. Both devices are molded into miniature plastic packages with lenses, allowing easy and efficient coupling to a POF. S7727 uses a monolithic photo IC that ensures high resistance to external noise and high reliability, and provides P-ECL voltage conversion output.

Features

- **Photo IC receiver for POF data link**
- **Monolithic structure immune from external noise**
- **Data rates from 4 Mbps to 156 Mbps**
- **P-ECL voltage conversion output (Note: Unlike normal P-ECL output, S7727 output cannot be terminated with 50 Ω.)**
- **Designed to be used with L10881**

Applications

- **Plastic optical fiber communications (FA, office machine, home automation, LAN)**
- **Data transmission in locations subject to high electromagnetic noise**

Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Supply voltage	Vcc	Ta=25 °C	-0.5 to +7.0	V
Output voltage	Vo	Ta=25 °C	-0.5 to Vcc + 0.5	V
Output current	Io	Ta=25 °C	8	mA
Power dissipation	Pmax	Ta=25 °C	250*1	mW
Operating temperature	Topr		-20 to +70	°C
Storage temperature	Tstg		-40 to +85	°C
Soldering	-		230 °C, 5 s, at least 1.5 mm away from package surface	-

*1: Derate power dissipation at a rate of 1.7 mW/°C above Ta=25 °C

Electrical and optical characteristics (Ta=25 °C, Vcc=5.0 V)

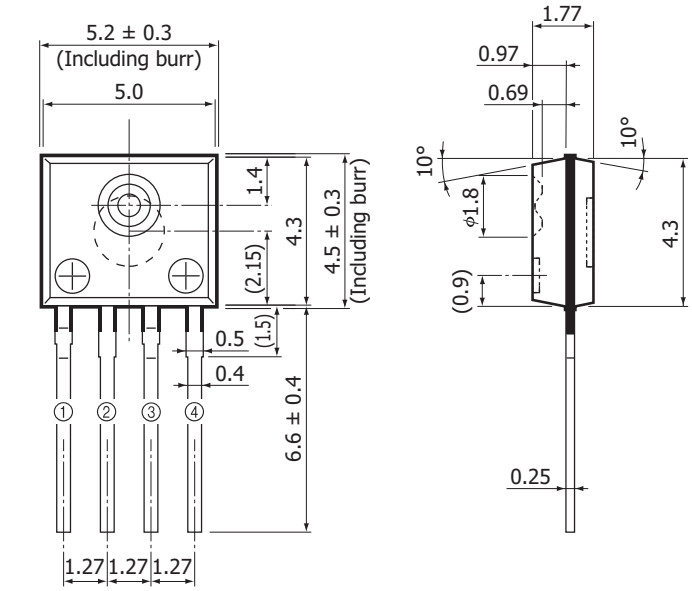
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Data rate	fD	Bi-phase signal NRZ conversion	4	-	156	Mbps
Current consumption	Icc	*2 *3 *6	-	-	40	mA
High level output voltage	Voh	Ioh= -1 mA *2 *3 *6	3.9	-	4.3	V
Low level output voltage	Vol	Iol= -0.5 µA *2 *3 *6	2.9	-	3.4	V
Minimum overload	Pimax	*2 *3 *4 *5 *6	-2	-	-	dBm
Minimum receiver input power	Pimin	*2 *3 *4 *5 *6	-	-	-22	dBm
Rise time	tr	10 to 90% *2 *3 *6	-	-	3	ns
Fall time	tf		-	-	3	ns
Pulse width distortion	ΔT	*2 *3 *4 *6	-3	-	3	ns
Jitter	Δtj	*2 *3 *4 *6	-	-	3	ns

*2: Measured with 156 Mbps input signal (Bi-phase signal)
*3: A 3 pF capacitor is connected to GND as a capacitive load (including parasitic capacitance such as probes, connectors and evaluation PCB patterns)
*4: An optical input waveform is generated with a Hamamatsu standard transmitter.
*5: A detectable signal level is an average value, measured using a plastic fiber (GH4001 made by Mitsubishi Rayon).
*6: A 3 kΩ resistor is externally connected between Q and GND and also between QB and GND.

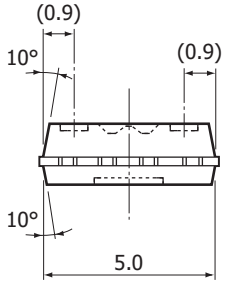
Note)

- A bypass capacitor (0.1 µF) connected at a position within 2 mm from the lead, and a 4.7 µF capacitor is also connected to the power supply line nearby.
- The optical axis of the package lens is exactly aligned with the center axis of the optical plug, and the gap between the lens surface and the optical reference plane of the plug is 0.1 mm.
- If modulated light at 4 Mbps or less (including DC light and no light input) is input to S7727, the high and low levels cannot be discerned.

Dimensional outline (unit: mm)



(Specified at the lead root)



① QB
② GND
③ Q
④ Vcc

Tolerance unless otherwise noted: ±0.1, ±2°
Shaded area indicates burr.
Values in parentheses indicate reference value.

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Information described in this material is current as of December, 2011.
Product specifications are subject to change without prior notice due to improvements or other reasons. Before assembly into final products, please contact us for the delivery specification sheet to check the latest information.

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