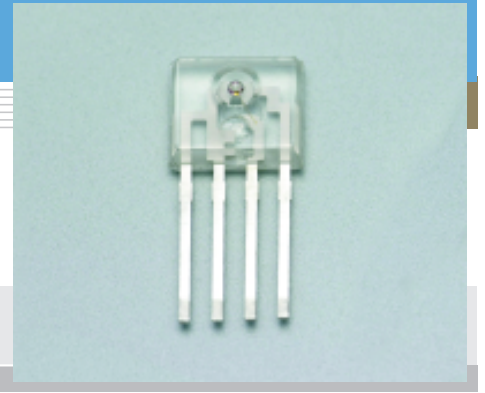


Red LED for optical link

L8045

Emitter for 50 Mbps optical link



L8045 is optical communication devices designed for POF (Plastic Optical Fiber) data links. L8045 is a highly reliable, high-power LED that emits red light with a peak at 650 nm optimized for POF. A mini-lens is molded on the package for efficient coupling to a POF. When used with our recommended driver circuit, a 50 Mbps transmitter can be configured at low cost.

Features

- Peak wavelength: 650 nm
- High reliability
- High output
- Designed to be used with S8046 or S7141-10

Applications

- High-speed data transmission even under poor environmental conditions with high noise

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Forward current	IF	40	mA
Reverse voltage	VR	5	V
Power dissipation *1	Pmax	250	mW
Operating temperature	Topr	-40 to +85	°C
Storage temperature	Tstg	-40 to +85	°C
Soldering	-	230 °C, 5 s, at least 1.8 mm away from package surface	-

*1: Derate power dissipation at a rate of -1.75 mW/°C above Ta=25 °C

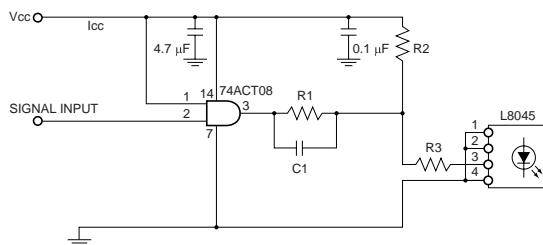
■ Electrical and optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Data rate	fD	NRZ	DC	-	50	Mbps
Forward voltage	VF	IF=20 mA	-	1.9	2.3	V
Reverse current	IR	VR=5 V	-	-	10	μA
Peak wavelength	λp	IF=20 mA	-	650	-	nm
Spectral half width (FWHM)	Δλ	IF=20 mA	-	20	-	nm
Fiber-coupled optical output	Po	*2	-13	-	-8	dBm
Rise time at pulse drive	tr	*2 20 to 80 %	-	-	8	ns
Fall time at pulse drive	tf	*2 80 to 20 %	-	-	8	ns
Pulse distortion	ΔT	*2	-3	-	+1	ns
Jitter	Δtj	*2	-	-	3	ns

*2: Input is a pseudo-random bi-phase signal at 50 Mbps.

Average value (duty ratio 50 %) measured by using a plastic fiber of φ1 mm. SI-POF and NA=0.5 (GH4001 made by Mitsubishi Rayon).

Measured with the recommended driver circuit shown below. (Measurement conditions: Vcc=4.5 to 5.5 V, R1=750 Ω, R2=2.2 kΩ, R3=22 Ω, C1=35 pF)



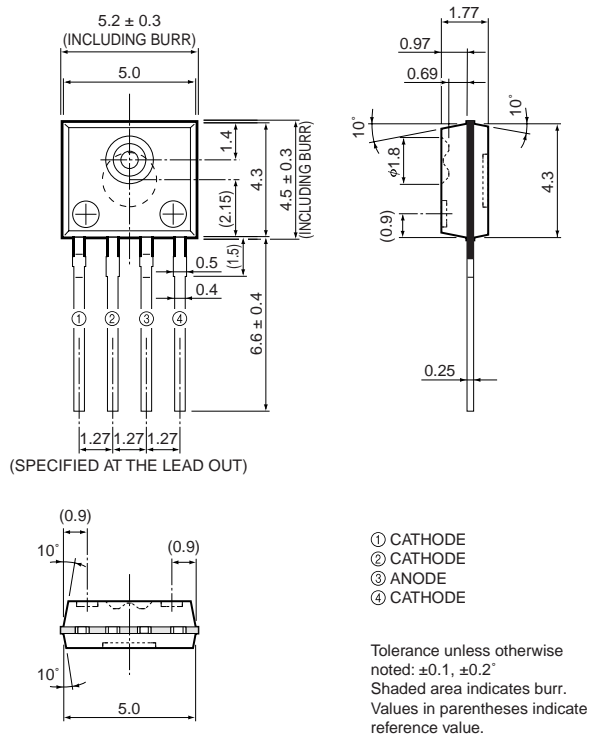
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Note:

- A bypass capacitor (0.1 μF) and another capacitor (4.7 μF) are connected between Vcc and GND at a position within 3 mm from the lead.
- The center of the optical fiber is aligned with the center of the lens on the package. The distance between the fiber end and the lens is 0.1 mm.

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■ Dimensional outline (unit: mm)



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