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, highpower 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.

Applications

Features

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

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

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Forward current	lF	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

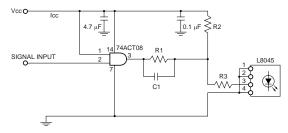
■ Electrical and optical characteristics (Ta=25 °C)

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Parameter	Symbol	Condition	Min.	Тур.	Max.	Unit
Data rate	fD	NRZ	DC	-	50	Mbps
Forward voltage	VF	IF=20 mA	-	1.9	2.3	V
Reverse current	lR	VR=5 V	-	-	10	μA
Peak wavelength	λр	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	ΔΤ	*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 \$\phi\$1 mm. SI-POF and NA=0.5 (GH4001 made by Mitsubishi Ravon).

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

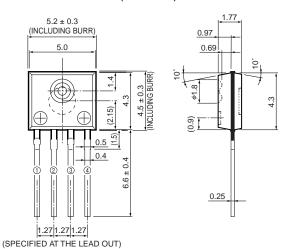


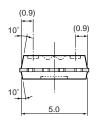
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- · A bypass capacitor (0.1 µF) and another capacitor (4.7 µF) are connected between Vcc and GND at a position within 3 mm from
- · The center of the optical fiber is aligned with the center of the lens on the package. The distance between the fiber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



■ Dimensional outline (unit: mm)





- ① CATHODE
- ② CATHODE
 ③ ANODE
- 4 CATHODE
- Tolerance unless otherwise noted: ±0.1, ±0.2° Shaded area indicates burr. Values in parentheses indicate reference value.

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