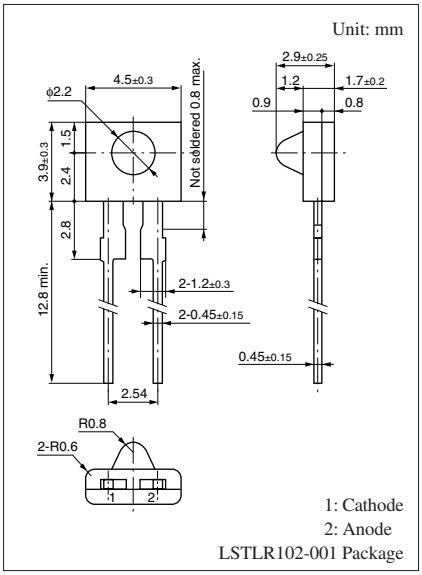
LN54

GaAs Infrared Light Emitting Diode

For optical control systems



■ Features

- High-power output, high-efficiency: P_O = 4.6 mW (typ.)
- Emitted light spectrum suited for silicon photodetectors
- Infrared light emission close to monochromatic light: λ_P = 950 nm (typ.)
- Small size, thin side-view type package

■ Absolute Maximum Ratings T_a = 25°C

Parameter	Symbol	Rating	Unit
Reverse voltage	V_R	3	V
Forward current	I_F	50	mA
Pulse forward current *	I_{FP}	1	A
Power dissipation	P_D	75	mW
Operating ambient temperature	T_{opr}	−25 to +85	°C
Storage temperature	T_{stg}	−30 to +100	°C

Note) ∗: f = 100 Hz, Duty Cycle = 0.1%

■ Electrical-Optical Characteristics T_a = 25°C ± 3°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	I_F = 50 mA			1.5	V
Reverse current	I_R	V_R = 3 V			10	μA
Radiant power *	P_O	I_F = 50 mA	2.5	4.6		mW
Peak emission wavelength	λ_P	I_F = 50 mA		950		nm
Spectral half band width	$\Delta\lambda$	I_F = 50 mA		50		nm
Terminal capacitance	C_t	V_R = 0 V, f = 1 MHz		35		pF
Half-power angle	θ	The angle when the radiant power is halved		17		°

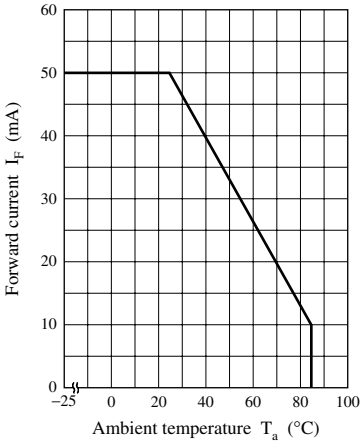
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

2. Cutoff frequency: 1 MHz

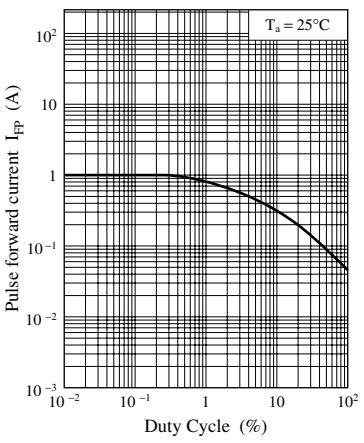
$$f_C: 10 \times \log \frac{P_O \text{ at } f = f_C}{P_O \text{ at } f = 50 \text{ kHz}} = -3$$

3. ∗: A light detection element uses a silicon diode have proofread a load with a standard device.

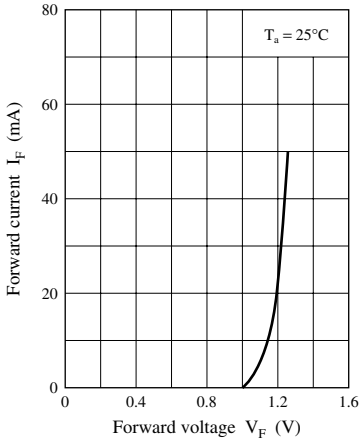
I_F — T_a



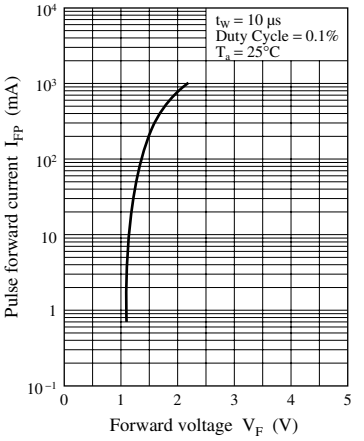
I_{FP} — Duty Cycle



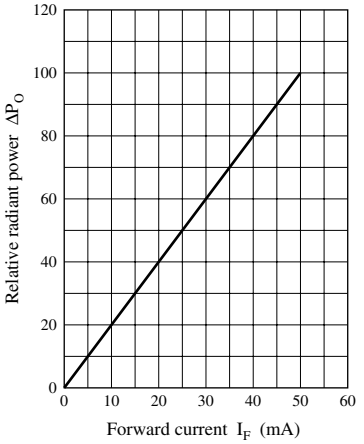
I_F — V_F



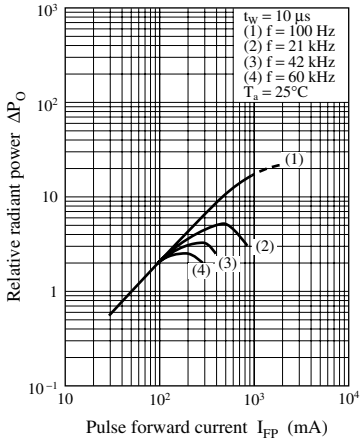
I_{FP} — V_F



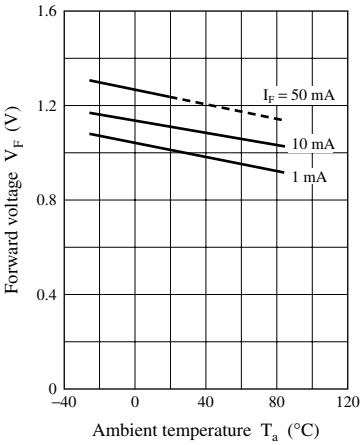
ΔP_O — I_F



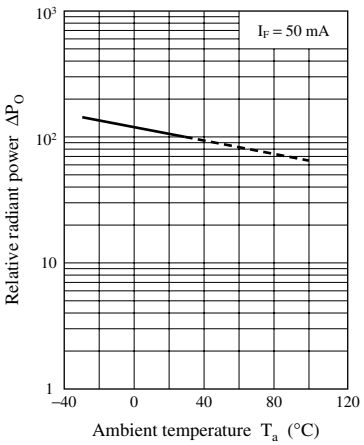
ΔP_O — I_{FP}



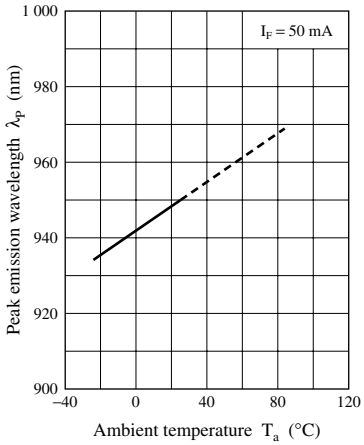
V_F — T_a



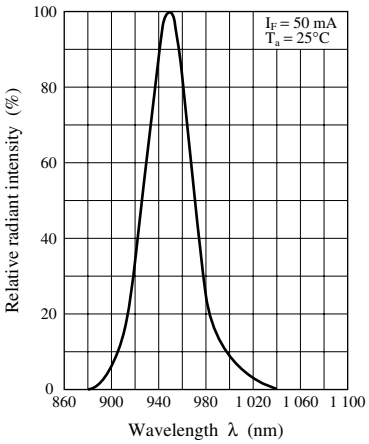
ΔP_O — T_a



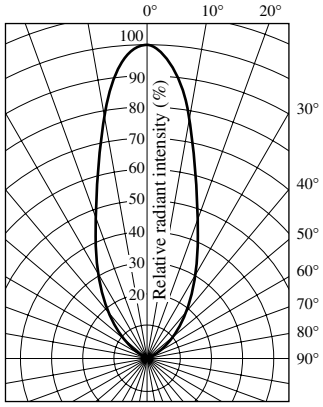
λ_P — T_a



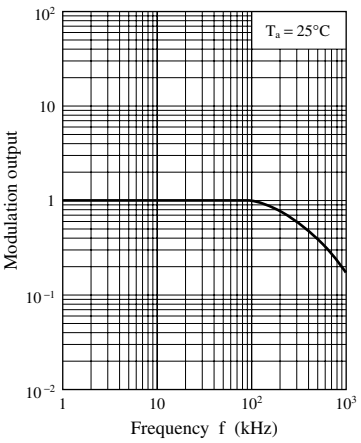
Spectral characteristics



Directivity characteristics



Frequency characteristics



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⚠ DANGER

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GaAs powder and vapor are hazardous to human health if inhaled or ingested. Do not burn, destroy, cut, cleave off, or chemically dissolve the product. Follow related laws and ordinances for disposal. The product should be excluded form general industrial waste or household garbage.

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