

# LN175

## GaAlAs Infrared Light Emitting Diode

For optical control systems

### ■ Features

- High-power output, high-efficiency:  $P_O = 12$  mW (typ.)
- Emitted light spectrum suited for silicon photodetectors:  $\lambda_p = 900$  nm (typ.)
- Good radiant power output linearity with respect to input current
- Wide directivity:  $\theta = 120^\circ$  (typ.)

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Power dissipation	$P_D$	170	mW
Forward current	$I_F$	100	mA
Pulse forward current *	$I_{FP}$	2	A
Reverse voltage	$V_R$	3	V
Operating ambient temperature	$T_{opr}$	-25 to +85	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-40 to +100	$^\circ\text{C}$

Note) \*:  $f = 100$  Hz, Duty cycle = 0.1%

### ■ Electro-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

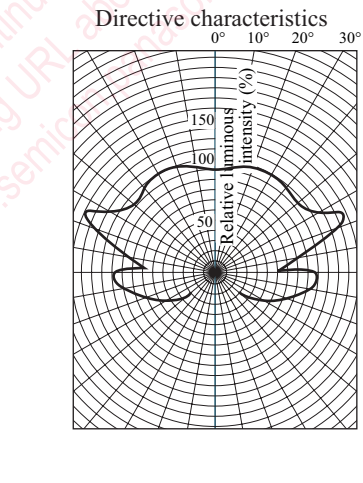
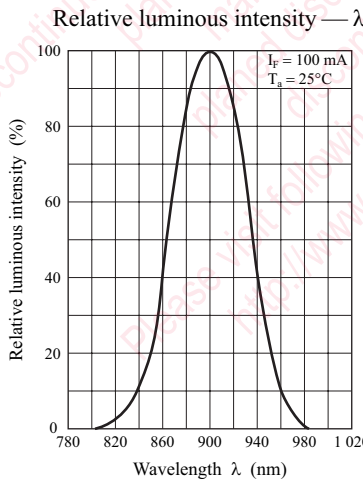
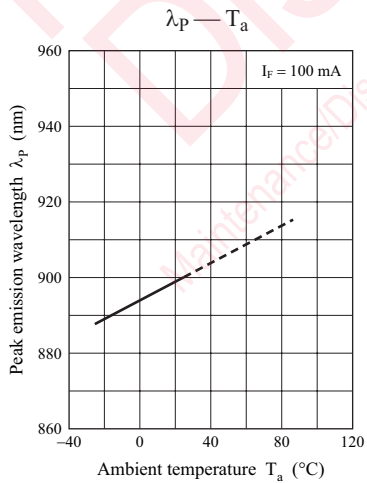
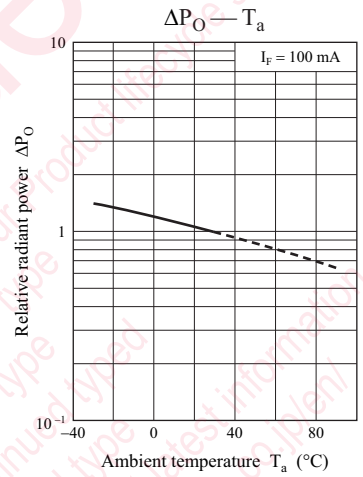
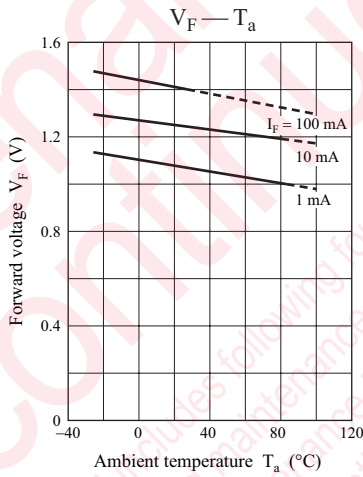
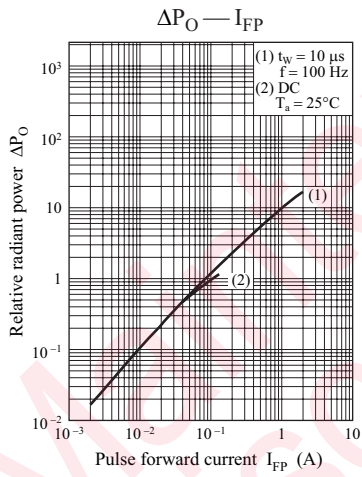
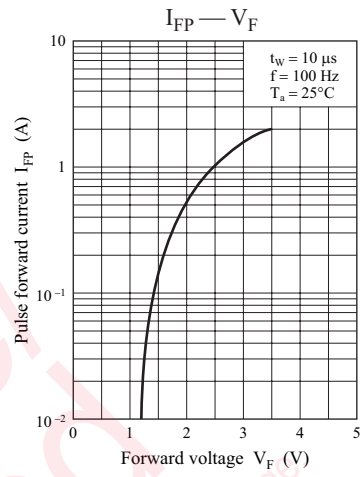
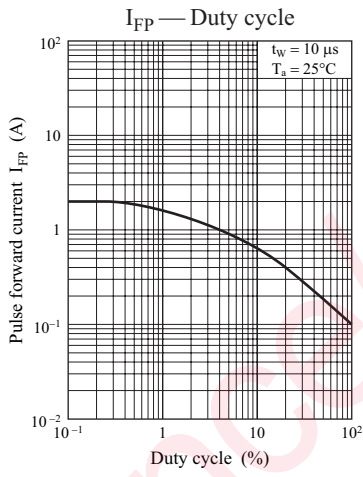
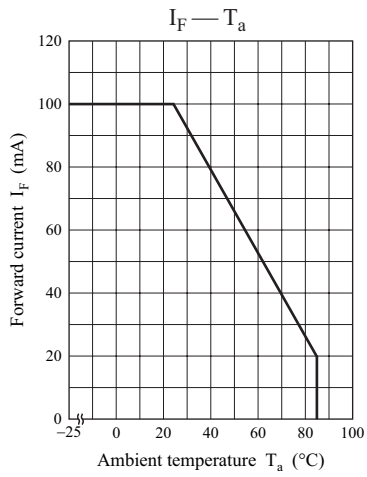
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Radiant power *	$P_O$	$I_F = 100$ mA	7.0	12.0		mW
Reverse current	$I_R$	$V_R = 3$ V			10	$\mu\text{A}$
Forward voltage	$V_F$	$I_F = 100$ mA		1.4	1.7	V
Terminal capacitance	$C_t$	$V_R = 0$ V, $f = 1$ MHz		50		pF
Peak emission wavelength	$\lambda_p$	$I_F = 100$ mA		900		nm
Spectral half band width	$\Delta\lambda$	$I_F = 100$ mA		70		nm
Rise time	$t_r$	$I_{FP} = 100$ mA		700		ns
Fall time	$t_f$	$I_{FP} = 100$ mA		700		ns
Half-power angle	$\theta$	The angle when the radiant power is halved.		120		$^\circ$

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

2. Cutoff frequency: 0.55 MHz

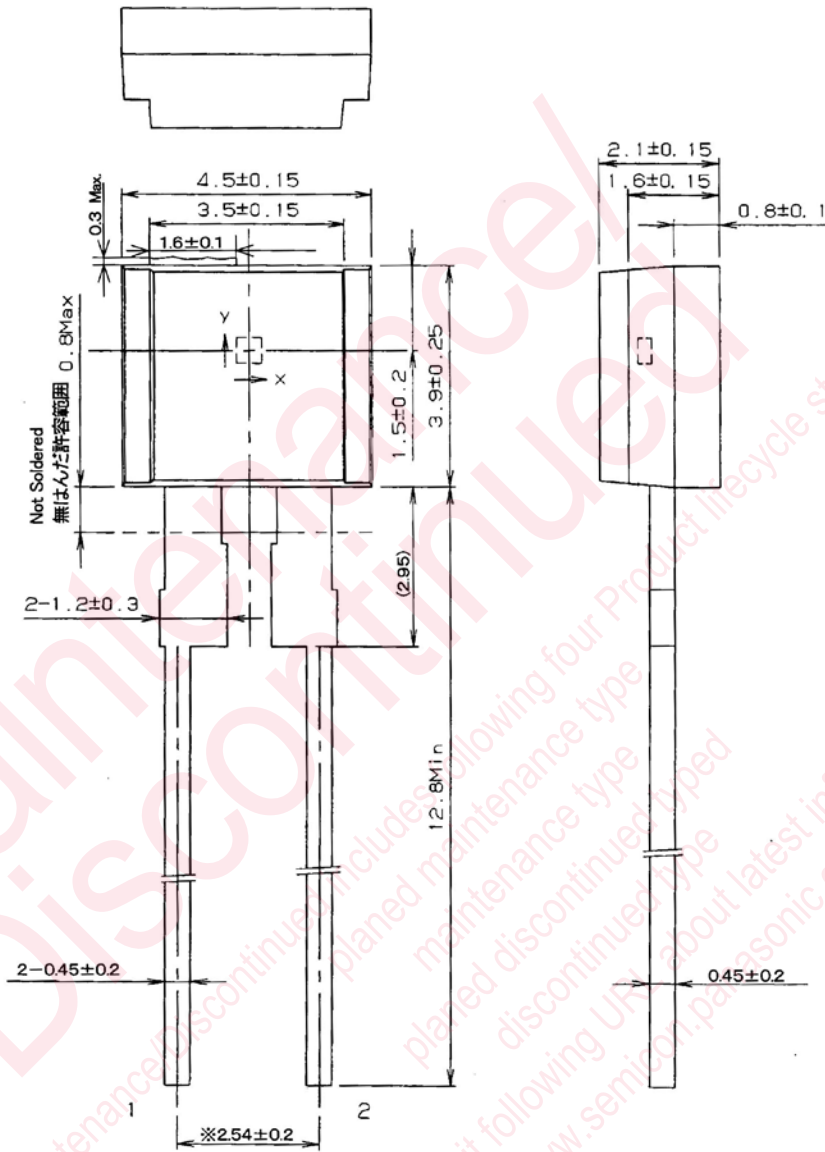
$$f_c : 10 \times \log \frac{P_O \text{ at } f = f_c}{P_O \text{ at } f = 1 \text{ MHz}} = -3$$

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



■ Package (Unit: mm)

LETFSN2S0001



- Pin name
- 1: Cathode
- 2: Anode

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