

LN51F, LN51L

GaAs Infrared Light Emitting Diodes

For optical control systems

Features

- High-power output, high-efficiency : $P_O = 6 \text{ mW (typ.)}$
- Fast response : $t_r, t_f = 1 \mu\text{s (typ.)}$
- Infrared light emission close to monochromatic light :
 $\lambda_p = 950 \text{ nm (typ.)}$
- Narrow directivity, suitable for effective use of optical output :
 $\theta = 8 \text{ deg. (LN51L)}$
- Wide directivity, matched for external optical systems :
 $\theta = 32 \text{ deg. (LN51F)}$
- TO-18 standard type package

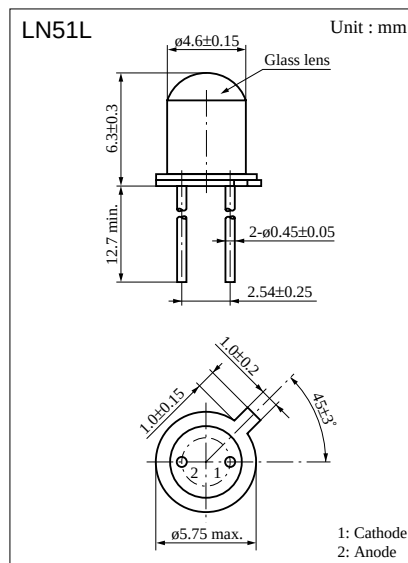
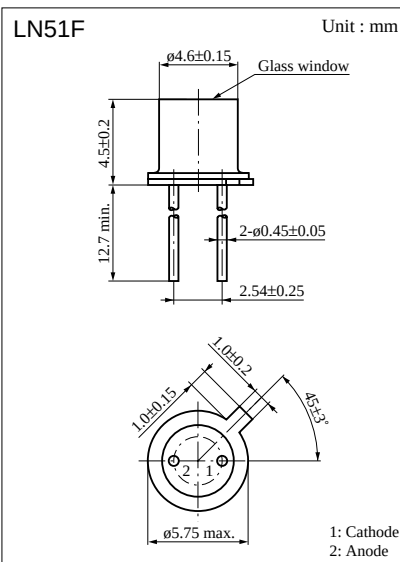
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

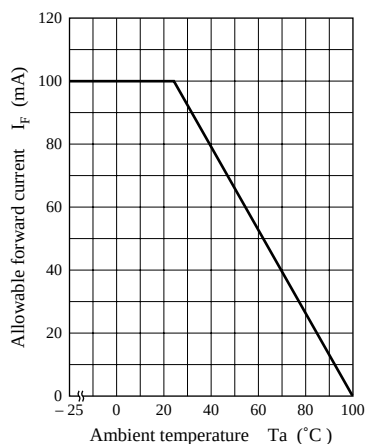
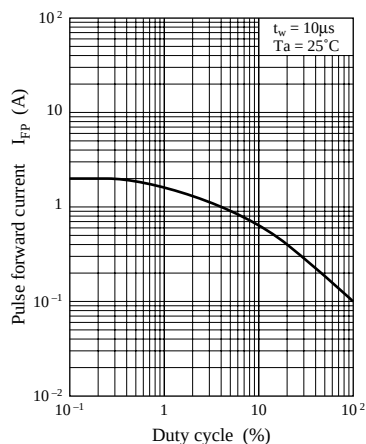
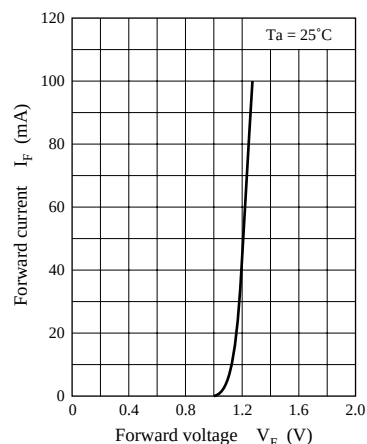
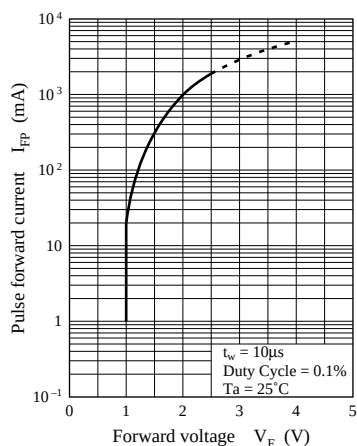
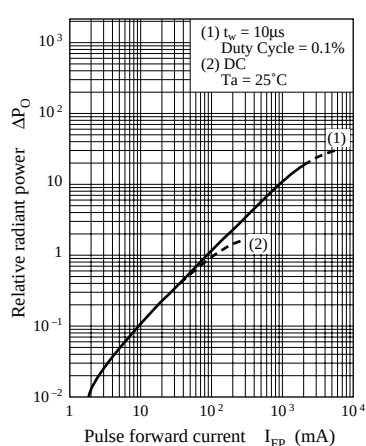
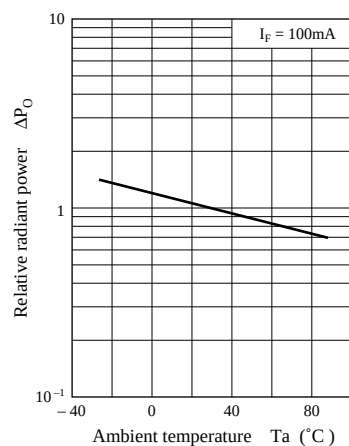
Parameter	Symbol	Ratings	Unit
Power dissipation	P_D	150	mW
Forward current (DC)	I_F	100	mA
Pulse forward current	I_{FP}^*	2	A
Reverse voltage (DC)	V_R	5	V
Operating ambient temperature	T_{opr}	-25 to +100	$^\circ\text{C}$
Storage temperature	T_{stg}	-30 to +100	$^\circ\text{C}$

* $f = 100 \text{ Hz}$, Duty cycle = 0.1 %

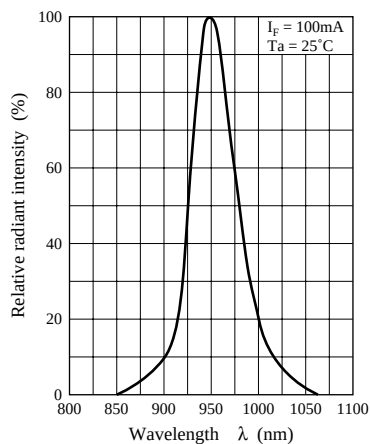
Electro-Optical Characteristics ($T_a = 25^\circ\text{C}$)

Parameter		Symbol	Conditions	min	typ	max	Unit
Radiant power		P_O	$I_F = 100\text{mA}$	3	6		mW
Peak emission wavelength		λ_p	$I_F = 100\text{mA}$		950		nm
Spectral half band width		$\Delta\lambda$	$I_F = 100\text{mA}$		50		nm
Forward voltage (DC)		V_F	$I_F = 100\text{mA}$		1.25	1.5	V
Reverse current (DC)		I_R	$V_R = 5\text{V}$		0.005	10	μA
Capacitance between pins		C_t	$V_R = 0\text{V}$, $f = 1\text{MHz}$		50		pF
Rise time		t_r	$I_{FP} = 100\text{mA}$		1		μs
Fall time		t_f			1		μs
Half-power angle	LN51F	θ	The angle in which radiant intensity is 50%		32		deg.
	LN51L				8		deg.

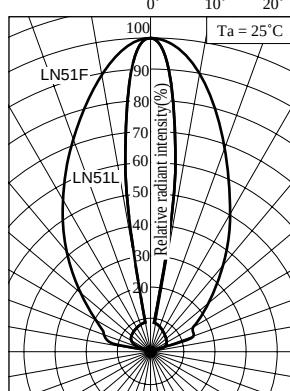


$I_F - T_a$  $I_{FP} - \text{Duty cycle}$  $I_F - V_F$  $I_{FP} - V_F$  $\Delta P_O - I_{FP}$  $\Delta P_O - T_a$ 

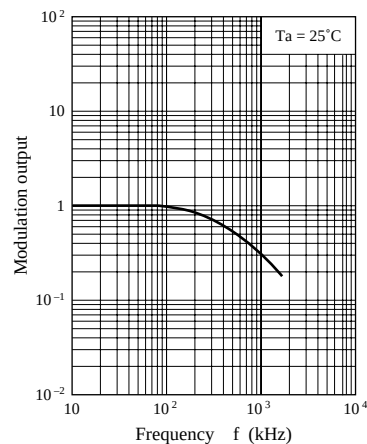
Spectral characteristics



Directivity characteristics



Frequency characteristics



Caution for Safety

 **DANGER**

Gallium arsenide material (GaAs) is used in this product.

Therefore, do not burn, destroy, cut, crush, or chemically decompose the product, since gallium arsenide material in powder or vapor form is harmful to human health.

Observe the relevant laws and regulations when disposing of the products. Do not mix them with ordinary industrial waste or household refuse when disposing of GaAs-containing products.

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