

# LN78

## GaAlAs Infrared Light Emitting Diode

For optical control systems

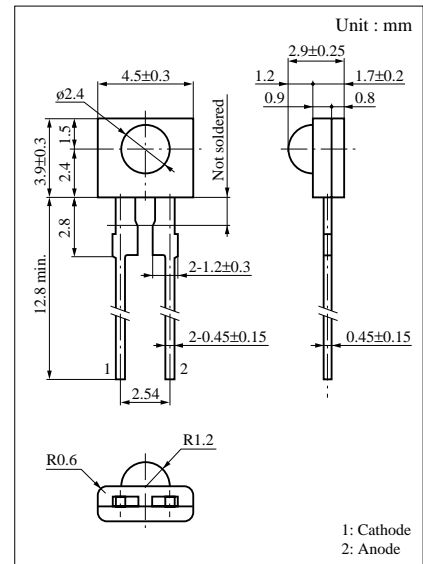
### ■ Features

- High-power output, high-efficiency :  $P_O = 10 \text{ mW}$  (typ.)
- High-speed modulation capability :  $f_C = 12 \text{ MHz}$

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

Parameter	Symbol	Ratings	Unit
Power dissipation	$P_D$	180	mW
Forward current (DC)	$I_F$	100	mA
Pulse forward current	$I_{FP}^*$	1	A
Reverse voltage (DC)	$V_R$	3	V
Operating ambient temperature	$T_{opr}$	-25 to +85	$^\circ\text{C}$
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	$P_O$	$I_F = 50 \text{ mA}$	6	10		mW
Peak emission wavelength	$\lambda_P$	$I_F = 50 \text{ mA}$		880		nm
Spectral half band width	$\Delta\lambda$	$I_F = 50 \text{ mA}$		50		nm
Forward voltage (DC)	$V_F$	$I_F = 100 \text{ mA}$		1.5	1.8	V
Reverse current (DC)	$I_R$	$V_R = 3 \text{ V}$			10	$\mu\text{A}$
Capacitance between pins	$C_t$	$V_R = 0 \text{ V}$ , $f = 1 \text{ MHz}$		50		pF
Half-power angle	$\theta$	The angle in which radiant intensity is 50%		40		deg.
Cutoff frequency	$f_C^*$	$I_{FP} = 50 \text{ mA} + 10 \text{ mA}_{p-p}$		12		MHz

\* Frequency when modulation optical power decreases by 3dB from 1MHz.  $\left(10 \log \frac{P_O(f_C \text{ MHz})}{P_O(1 \text{ MHz})} = -3\right)$

