HL7801E

Laser Diode

Description

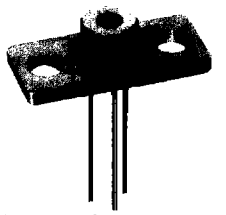
HL7801E is a 0.78 μm GaAlAs laser diode with double heterojunction structure.

It is suitable as a light source in laser beam printers, laser levelers and various other types of optical equipment.

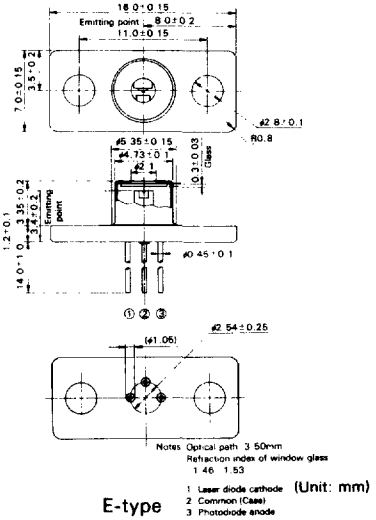
A screw-on type package facilitates the adjustment of optical components. Hermetic sealing of the package achieves high reliability.

Features

- Visible light output: λ_p = 760–800 nm
- Built-in photodiode for monitoring laser output
- Low astigmatism: As = 2 μm typ.
- Small beam ellipticity:
  $\theta_{//}$ = 15 deg., $\theta_{\perp}$ = 30 deg. typ.
- Single longitudinal mode

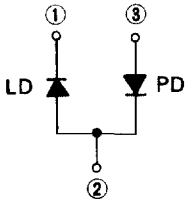


Package Dimensions



E-type

Internal Circuit



Absolute Maximum Ratings (T_C = 25°C)

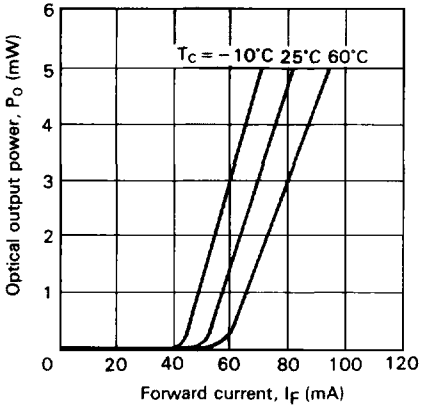
Items	Symbols	Values	Units
Optical output power	P_O	5	mW
Laser diode reverse voltage	$V_{R(LD)}$	2	V
Photodiode reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	T_{opr}	−10 to +60	°C
Storage temperature	T_{stg}	−40 to +80	°C

The absolute maximum ratings are limiting values, to be applied individually, beyond which the device may be permanently damaged. Functional operation under any of these conditions is not guaranteed. Exposing a circuit to its absolute maximum rating for extended periods of time may affect the device's reliability.

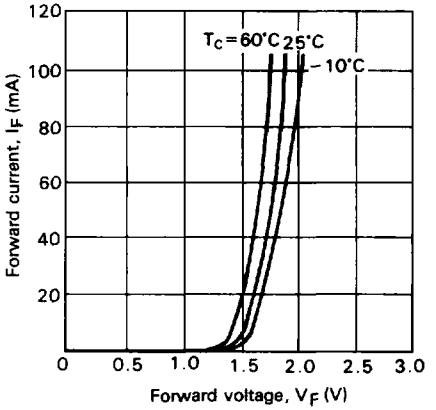
Optical and Electrical Characteristics (T_C = 25°C)

Items	Symbols	min.	typ.	max.	Units	Test conditions
Threshold current	I_{th}		50	90	mA	
Optical output power	P_O	5			mW	Kink free
Slope efficiency	η	0.13	0.25		mW/mA	$\frac{3(mW)}{I(4\ mW) - I(1\ mW)}$
Lasing wavelength	λ_p	760	780	800	nm	P_O = 3 mW
Beam divergence parallel to the junction	$\theta_{//}$	10	15	20	deg.	P_O = 3 mW
Beam divergence perpendicular to the junction	$\theta_{\perp}$	20	30	40	deg.	P_O = 3 mW
Monitor current	I_S	0.1	0.3		mA	P_O = 3 mW

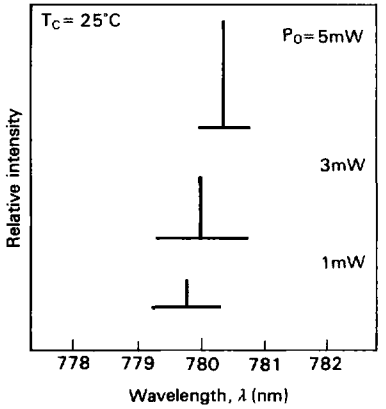
Optical Output Power vs. Forward Current



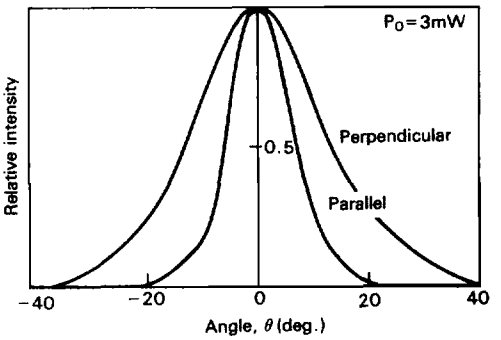
Forward Current vs. Forward Voltage



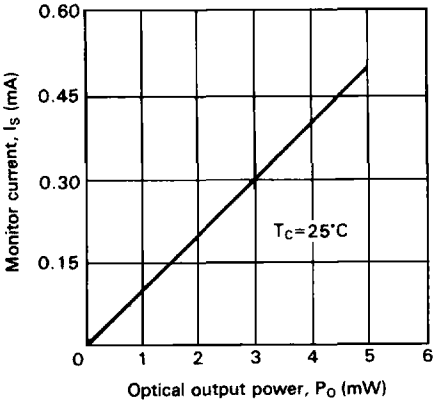
Lasing Spectrum



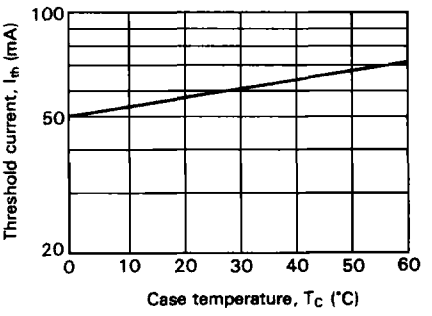
Far Field Pattern



Monitor Current vs. Optical Output Power



Threshold Current vs. Case Temperature



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