



QL78M6SA

- Infrared Laser Diode
- 780 nm, 90 mW
- Single transverse mode
- TO18 package, Flat Window



Description

QL78M6SA is a MOCVD grown AlGaAs laser diode with quantum well structure, typically emitting at 780 nm, with a nominal output power of 10 mW. It features single mode emission and wide operating temperature range of up to 60°C. It is an efficient radiation source for many industrial applications. **QL78M6SA** comes in 5.6 mm TO-Can package **with integrated PD**.

Maximum Rating* ($T_{CASE} = 25^{\circ}C$)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Optical Output Power*1	$P_O(CW)$		90	mW
LD Reverse Voltage	V_{RLD}		2	V
PD Reverse Voltage	V_{RPD}		30	V
Operating Temperature*1	T_{OPR}	- 10	+ 60	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C
Soldering Temperature (max. 3s)	T_{SOL}		+ 260	°C

* operating outside these conditions may damage the device

*1 operating at maximum ratings may influence the life time



Electro-Optical Characteristics ($T_{CASE} = 25^{\circ}C, P_O=90\text{ mW}$)

Parameter	Symbol	Values			Unit	
		Min.	Typ.	Max.		
Peak Wavelength	λ_P	770	780	790	nm	
Optical Output Power	P_O		90		mW	
Operating Voltage	V_F		2.2	2.5	V	
Threshold Current	I_{th}		30	50	mA	
Operating Current	I_F		120	160	mA	
Monitor Current	I_M	0.1	0.3	0.8	mA	
Slope Efficiency	CW	0.7	1.0	1.3	W/A	
Chip Positioning Accuracy	$\Delta X, \Delta Y, \Delta Z,$			± 60	μm	
Beam Divergence (FWHM)	parallel	$\theta_{ }$	8	10	12	deg.
	perpendicular	θ_{\perp}	18	22	26	deg.
Beam Angle	parallel	$\Delta\theta_{ }$			± 2	deg.
	perpendicular	$\Delta\theta_{\perp}$			± 3	deg.

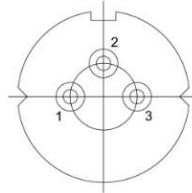
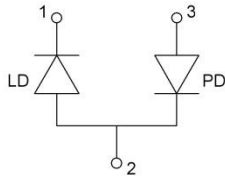


Electrical Connection

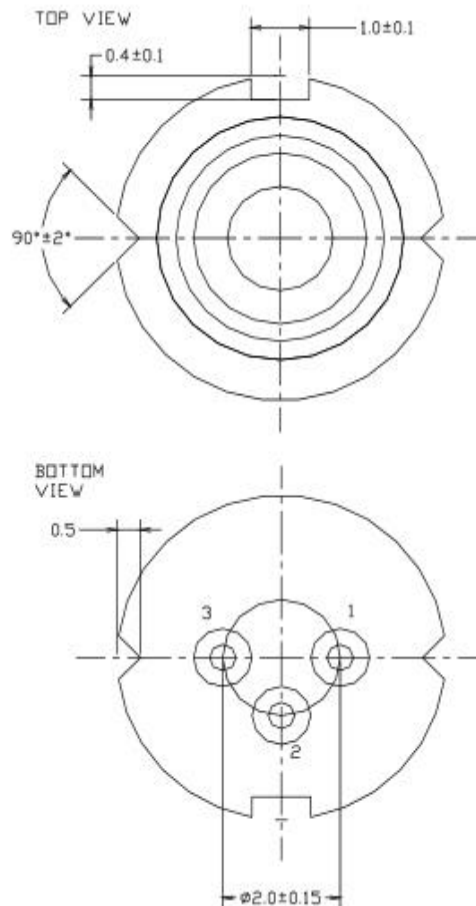
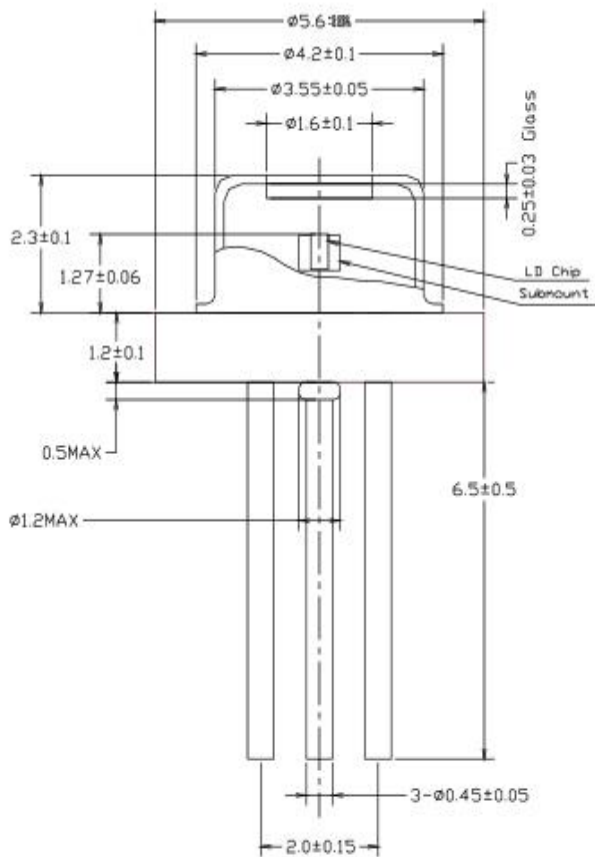
Pin Configuration

Bottom View

Pin #	Function
Pin 1	LD Cathode
Pin 2	LD Anode, PD Cathode
Pin 3	PD Anode



Outline Dimensions



All dimensions in mm



Precautions

Safety

Caution: Laser light emitted from any laser diode may be **harmful to the human eye**. Avoid looking directly into the laser diode's aperture when the diode is in operation.

Note: The use of optical lenses with this laser diode will increase eye hazard

ESD caution

Always do handle laser diodes with extreme care to **prevent electrostatic discharge**, the primary cause of unexpected diode failure. To prevent ESD related failures, it is strongly advised to always **wearing wrist straps**, and **grounding all applicable work surfaces**, when handling laser diodes

Operating Considerations

It is strongly advised to only operate this laser diode with a current source. The current of a laser diode is an exponential function of the voltage across it. **Usage of current regulated drive circuits is mandatory.** Laser diodes may be damaged by excessive drive currents or switching transients

It is advised, to operate the laser diode at the lowest temperature possible, and to never exceed maximum specifications as outlined in the datasheet. Device degradation will accelerate with increased temperature.

Proper heat sinking will greatly enhance stability and life time of the laser diode

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The above specifications are for reference purpose only and subjected to change without prior notice.