



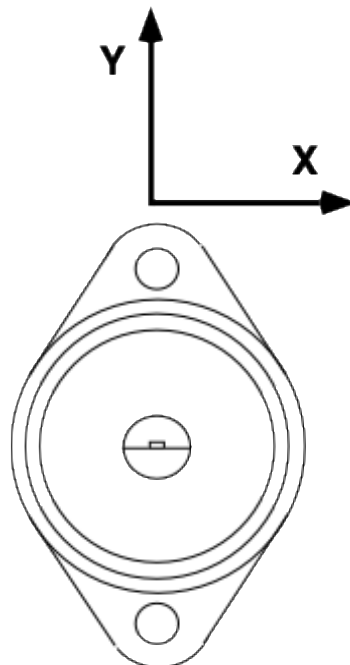
AN-09 LASER DIODES IN THE TO-3 PACKAGE

The package must be screwed down to the heatsink, which dissipates the heat generated by the laser and the TE-cooler (if equipped). In the case of a TO-3 package with an internal TE cooler, the heatsink should be sufficiently cooled so that the temperature does not exceed $\sim 45^{\circ}\text{C}$ during operation.

The heatsink surface should be machined flat and smooth so that the package base is not bent when the screws are tightened. The entire base of the TO-3 package is made of Copper for efficient heat transfer. But Copper is soft, and screwing the package to a non-flat heatsink could potentially damage the TE-cooler or laser or compromise the hermetic seal. A layer of thermal grease between the package and the heatsink can improve heat transfer. When using thermal grease, tighten the fastening screws gently at first to allow excess grease to squeeze out the edges.

The laser chip is oriented so that the wide dimension ($\sim 150\ \mu\text{m}$) is along the X-direction. The narrow dimension ($\sim 1\ \mu\text{m}$) is along the Y-direction. The light diverges at $\sim 6\text{-}10^{\circ}$ FWHM in the X-direction, and at $\sim 25\text{-}45^{\circ}$ FWHM in the Y-direction. (FWHM = full width at half-maximum)

The light is linearly polarized with the electric field vector along the X-direction for a TE-polarized laser, or along the Y-direction for a TM-polarized laser.



TOP VIEW