# Fundamental characteristics

(1) Optical output vs. forward current

This is the most fundamental characteristic of a laser diode. Fig. 20 shows the optical output vs. forward current curve of the RLD-78MA, and Fig. 21 shows the dependence of threshold current on temperature. As the temperature rises, the threshold current and operating current increase.

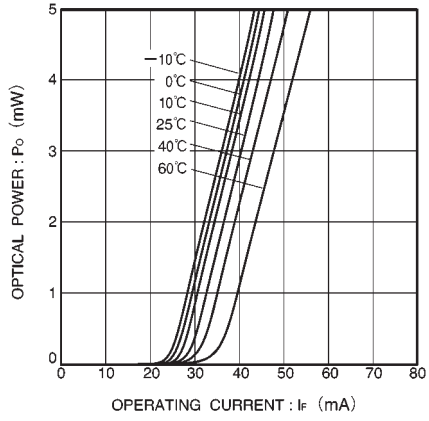


Fig. 20 Optical output vs. forward current

(2) Emission spectrum

The emission spectrum of a laser (longitudinal mode) is an important characteristic when actually using the laser. Before using a laser, consideration must be given to the dependence of the wavelength on temperature and the dependence of the emission spectrum on optical output. Fig. 22 shows the dependence of the wavelength of the RLD-78MA on temperature, and Fig. 23 shows the dependence of its emission spectrum on optical output.

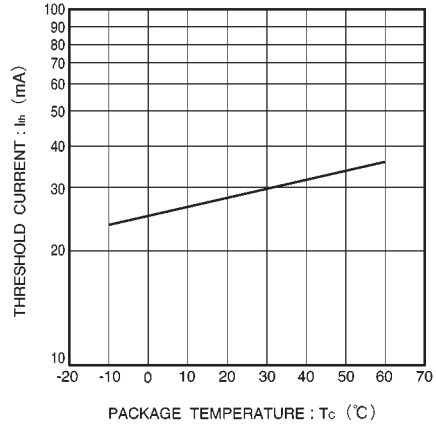


Fig. 21 Dependence of threshold current on temperature

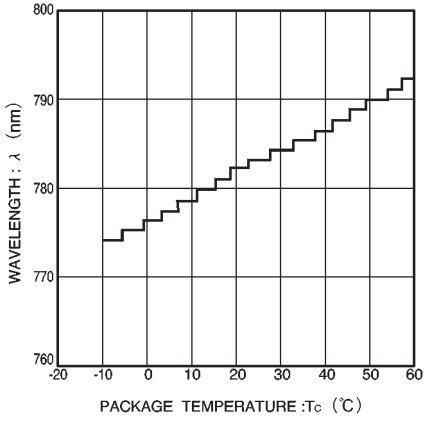


Fig. 22 Dependence of wavelength on temperature

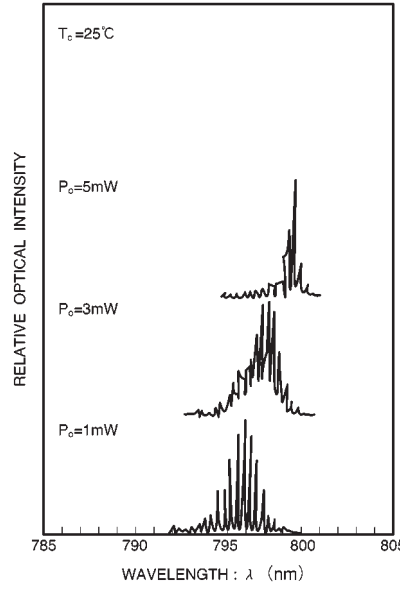


Fig. 23 Dependence of emission spectrum on optical output

(3) Far-field pattern

In addition to the longitudinal mode, lasers have a transverse mode. The optical intensity distribution of the transverse mode appearing at the laser facet is called the near-field pattern, and the optical intensity distribution at a sufficient distance from the facet is called the far-field pattern.

The dependence of the far-field pattern of the RLD-78MA on optical output is shown in Fig. 24. Due to its stable single transverse mode, there are no deviations of peak points or variations in the optical intensity distribution when operating within rated values.

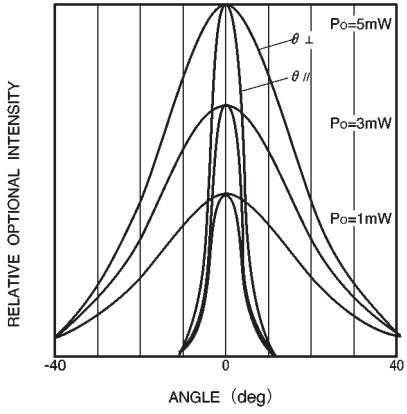


Fig. 24 Far-field pattern

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