

# **Optoelectronic Devices Reliability**

## **Light Sources**

Light source failure rate models ( $\lambda_p$ ) for LEDs and laser diodes are contained in the reliability prediction criteria contained in MIL-HDBK-217, Reliability Prediction of Electronic Equipment. LEDs are generally considered to be more reliable than laser diode devices.

## **Optical Fibers, Cables and Connectors**

Optical fibers, cables and connectors are generally not considered the reliability-limiting factors in optoelectronic applications. Adherence to the manufacturer's recommendations is encouraged. Exposure to extreme environments, such as salt, heat and vibration (flexing and chaffing) can have adverse effects on optical cables. The life cycle and environmental considerations for electrical connectors reliability are applicable to like portions of the optical connector assembly (see Connectors). It is recommended that fibers specified in MIL-PRF-85045, and optical cables specified in MIL-PRF-49291, be given consideration as these established products may be the most reliable and cost effective choices.

## **Detector and Couplers**

Detector and coupler failure rate models ( $\lambda_p$ ) for photodiodes, phototransistors, and optocouplers are contained in the reliability prediction criteria contained in MIL-HDBK-217, Reliability Prediction of Electronic Equipment.