

Introduction:

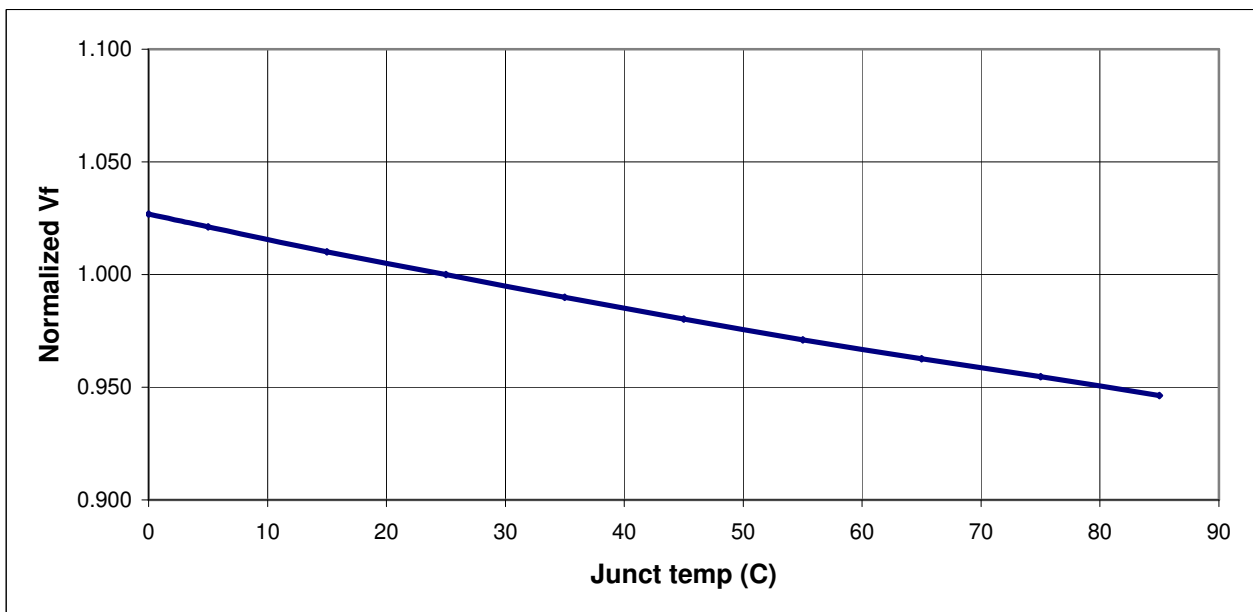
Light emitting diode's (LED) operational characteristics are very dependent on the operating temperature. As current flows through the LED, the junction temperature will increase until a steady state is reached. The final steady state temperature will depend on the ambient temperature and the thermal properties of the surrounding materials. Luminous intensity, dominant wavelength and forward voltage are the major parameters that will shift according to the junction temperature of the LED. This variation is mainly due to the natural behavior of III-IV compound semiconductor material used in the fabrication of the LED chip.



This document intends to describe the characteristics of the shift associated to junction temperature shift.

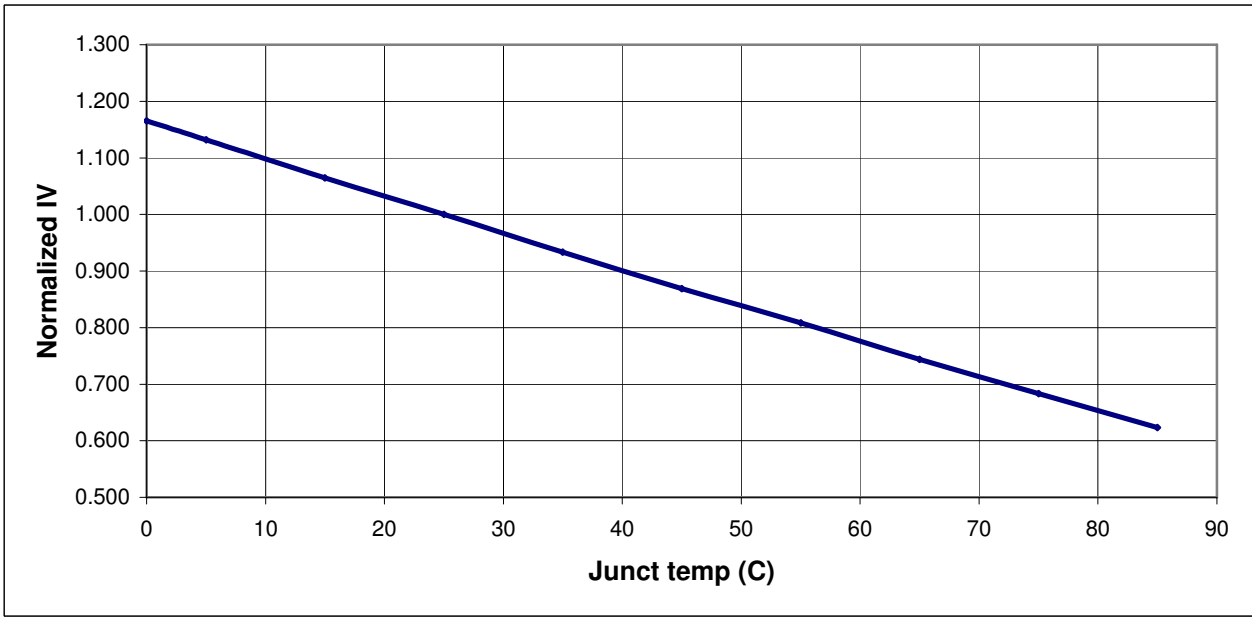
Device: DWS-EJS

Forward Voltage Shift



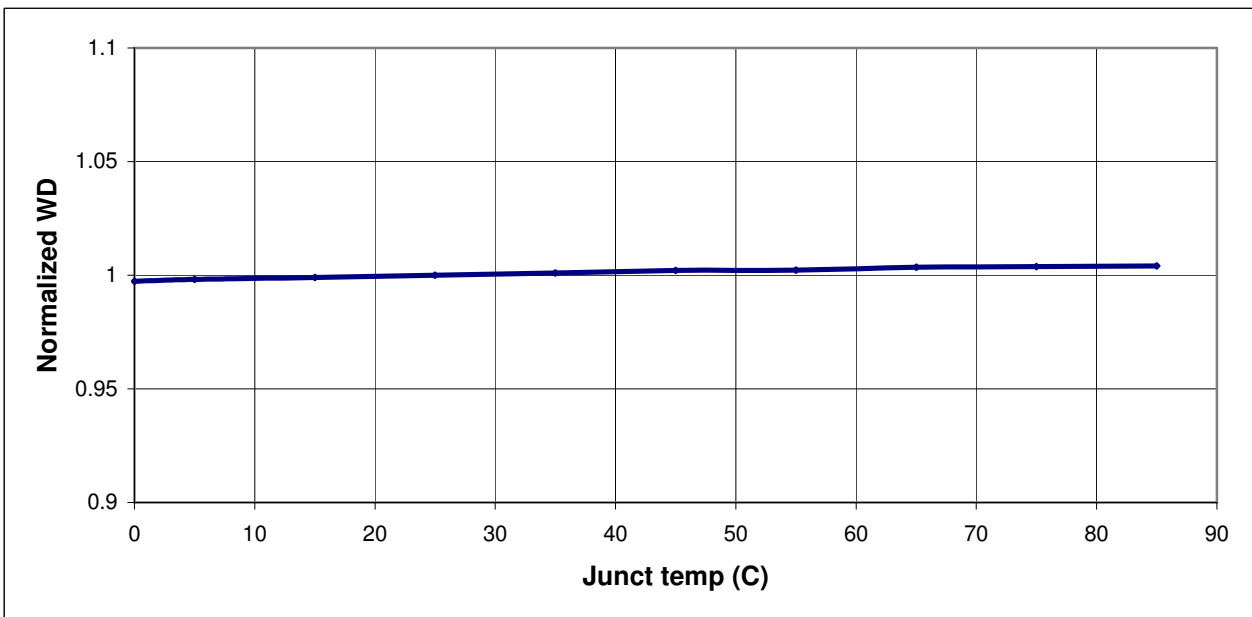
Forward Voltage Shift Vs Junction Temperature

Luminous Intensity Shift



Luminous Output Vs. Junction Temperature

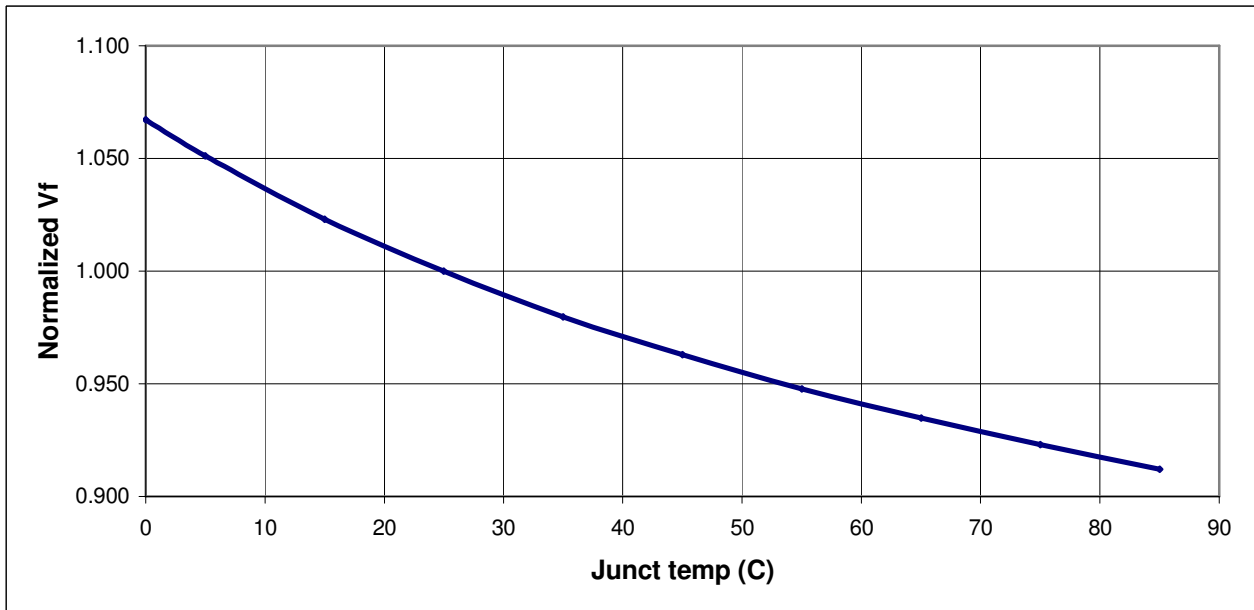
Dominant Wavelength Shift



WD Shift Vs Junction Temperature

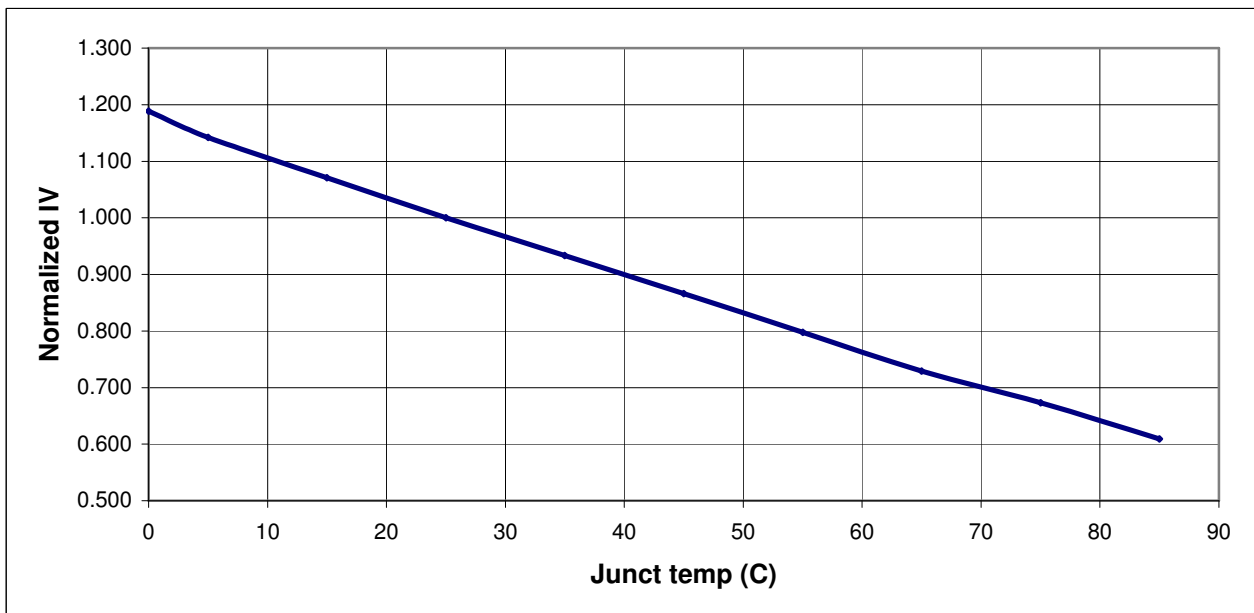
Device: DWR-EJS

Forward Voltage Shift



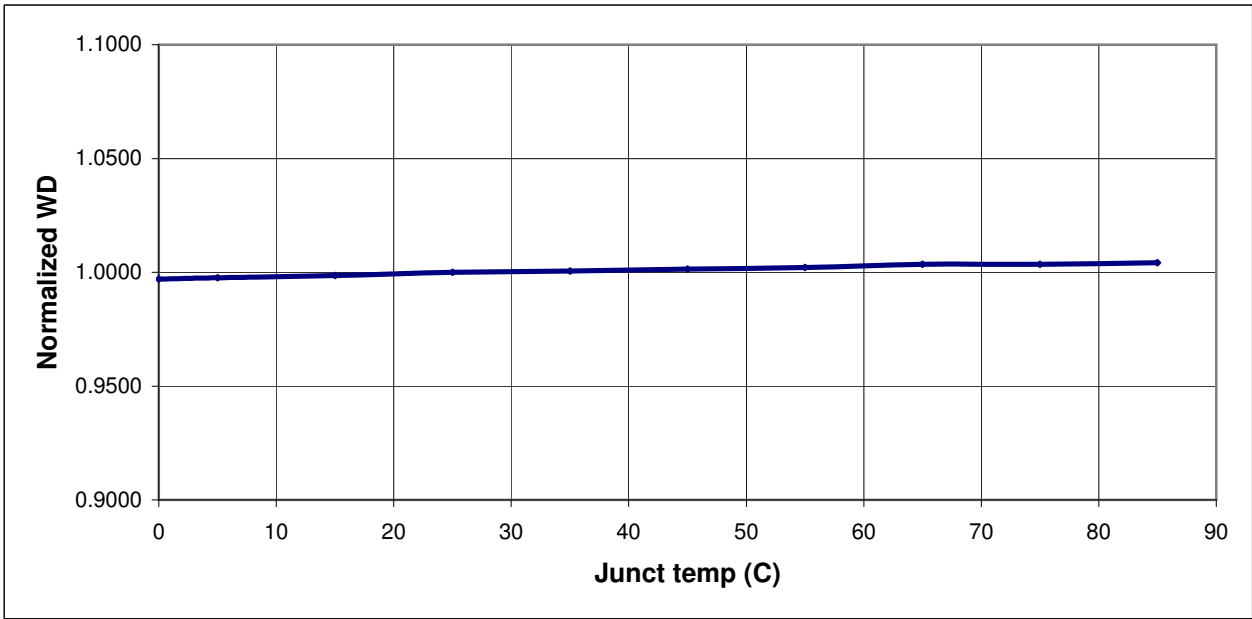
Forward Voltage Shift Vs Junction Temperature

Luminous Intensity Shift



Luminous Output Vs. Junction Temperature

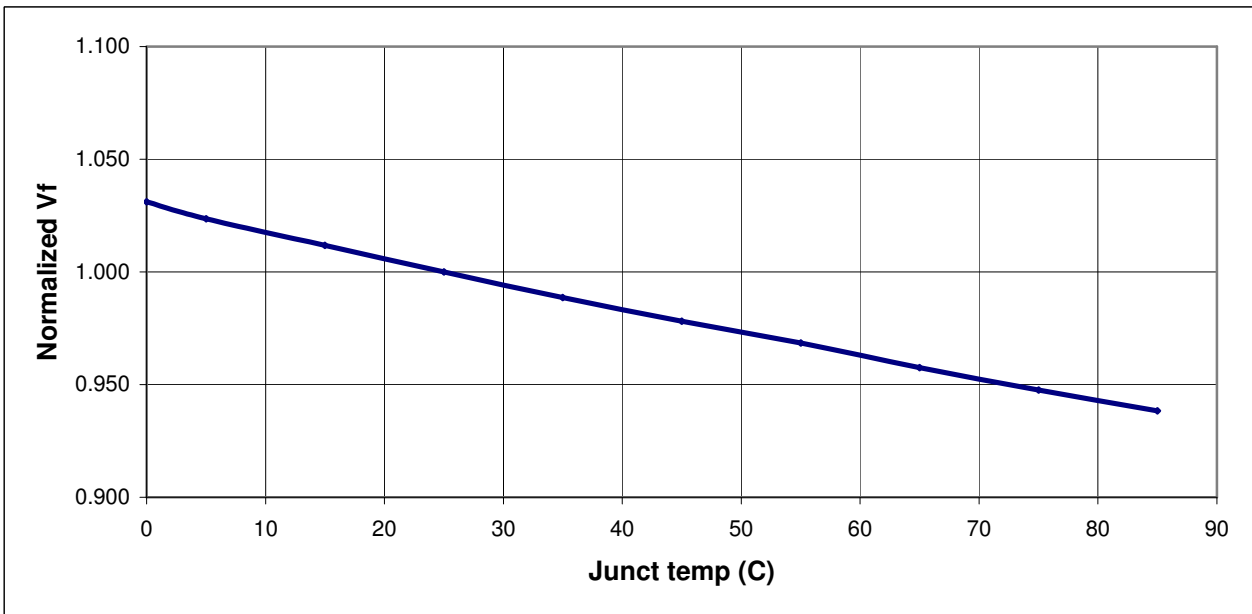
Dominant Wavelength Shift



WD Shift Vs Junction Temperature

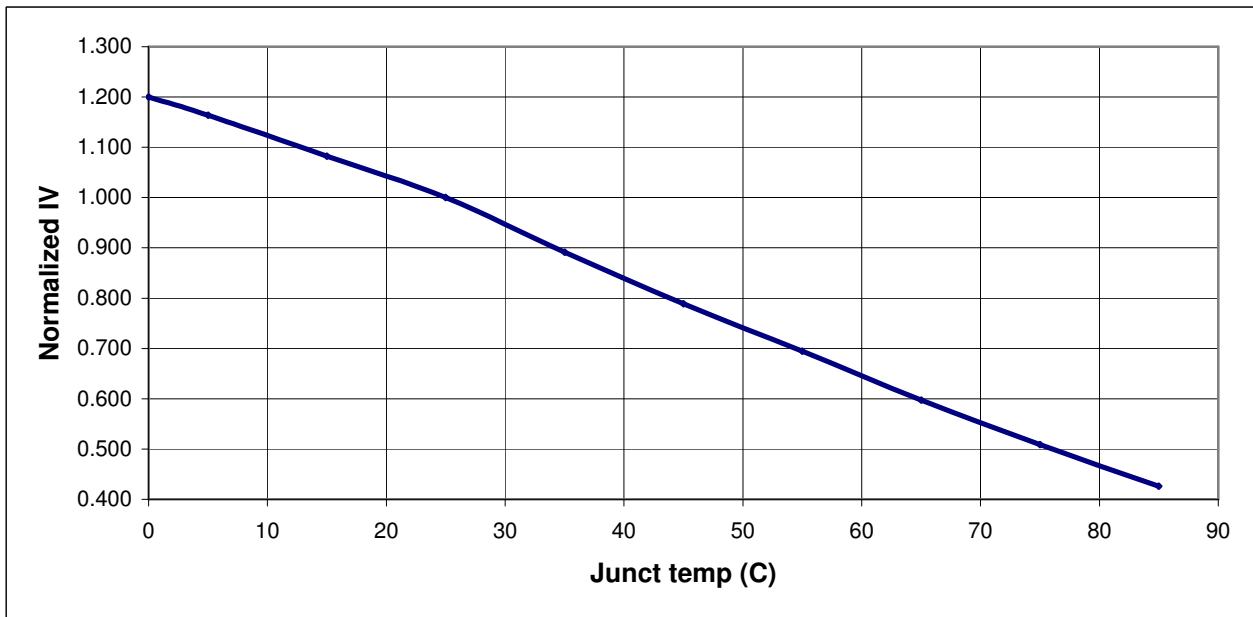
Device: DWA-EJS

Forward Voltage Shift



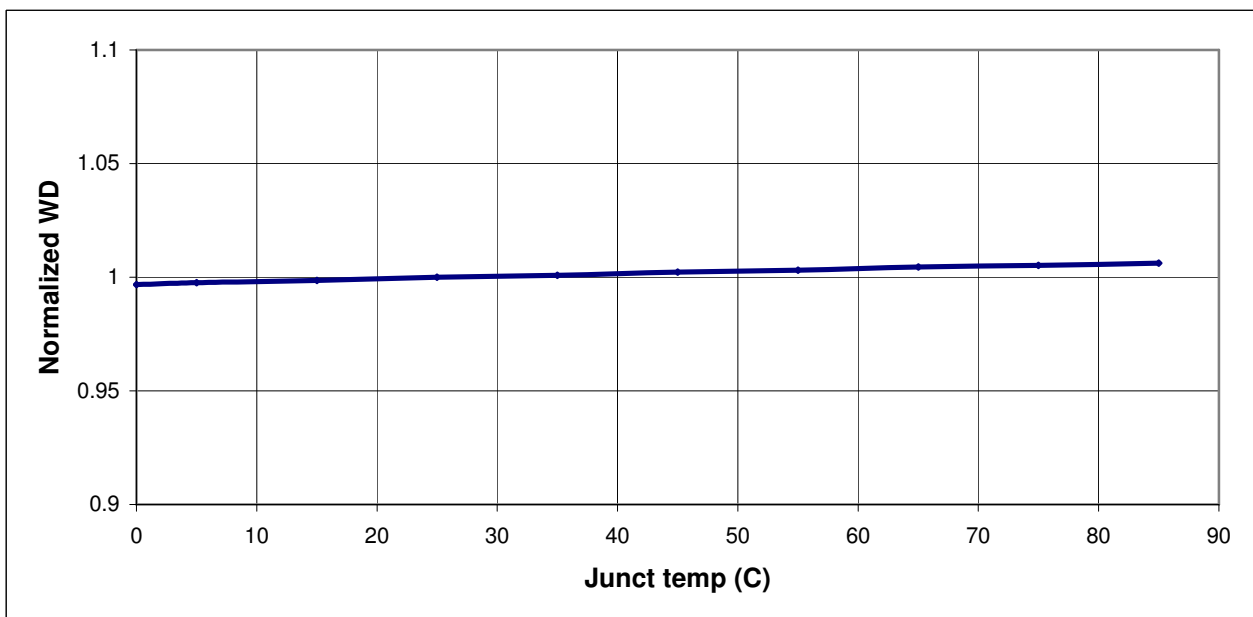
Forward Voltage Shift Vs Junction Temperature

Luminous Intensity Shift



Luminous Output Vs. Junction Temperature

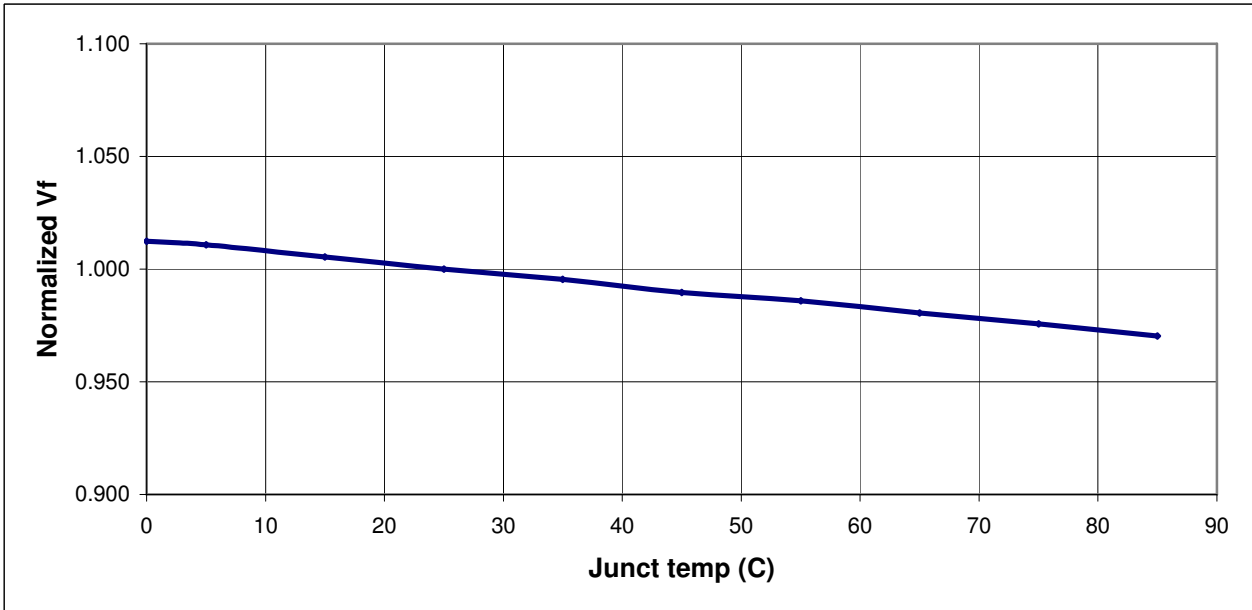
Dominant Wavelength Shift



WD Shift Vs Junction Temperature

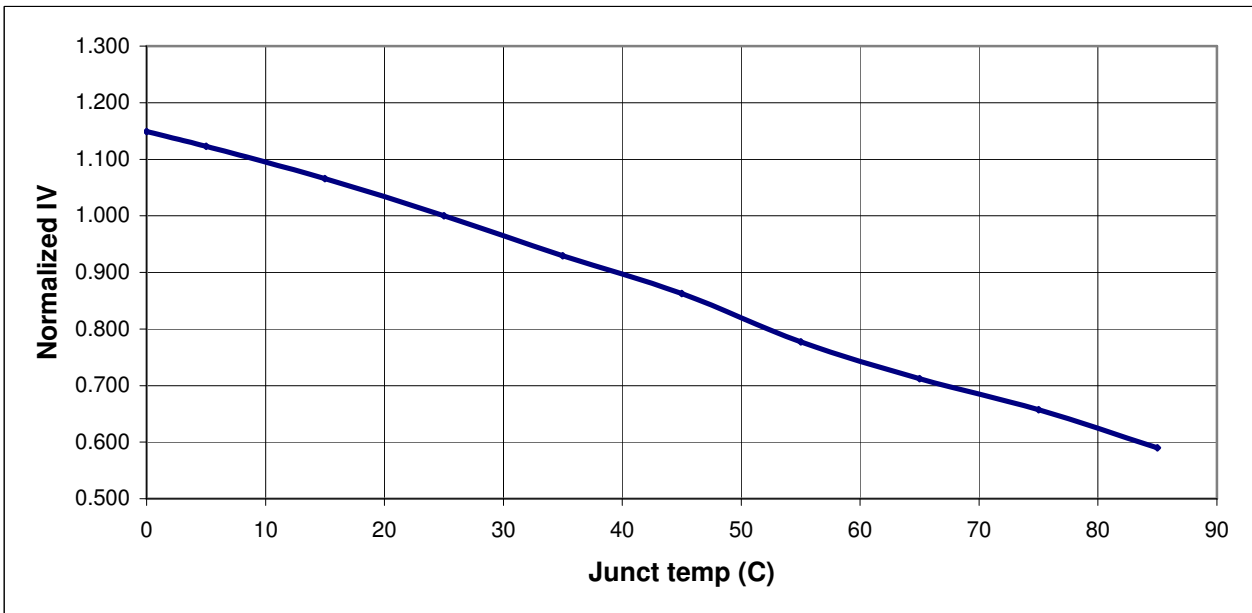
Device: DWO-EJS

Forward Voltage Shift



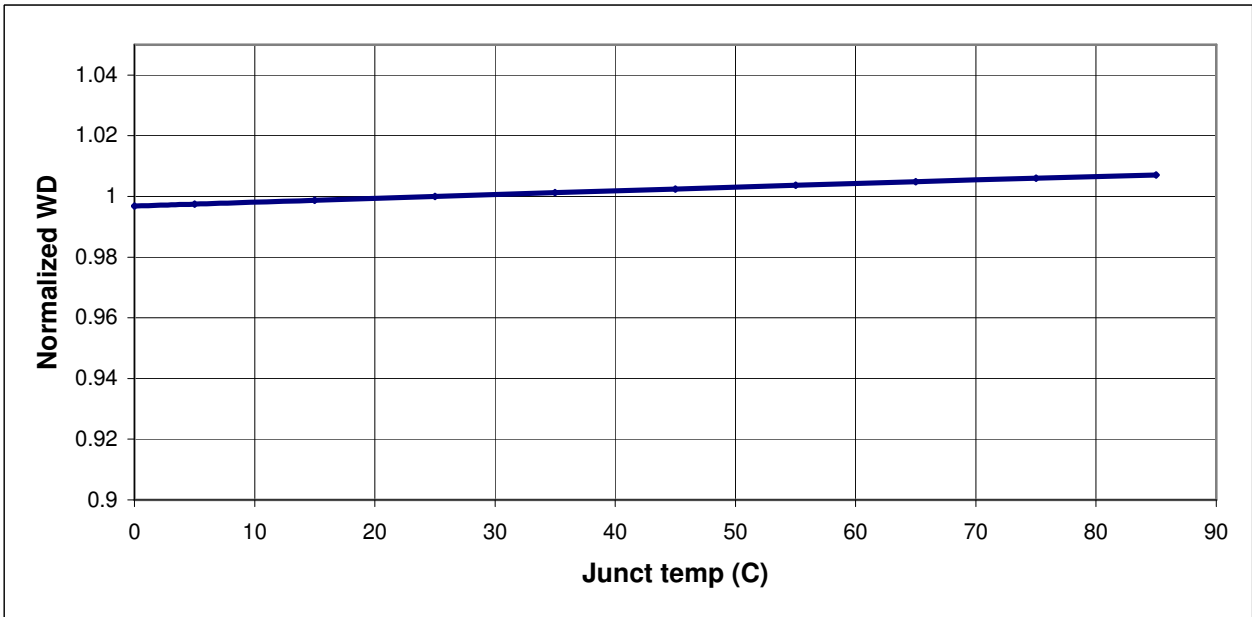
Forward Voltage Shift Vs Junction Temperature

Luminous Intensity Shift



Luminous Output Vs. Junction Temperature

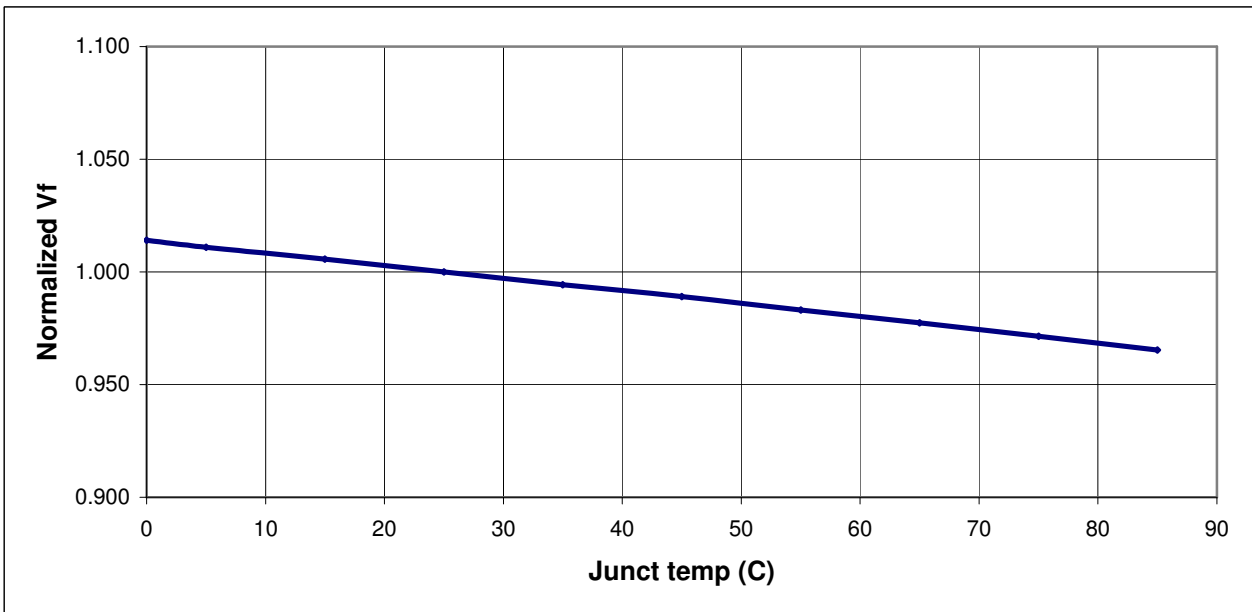
Dominant Wavelength Shift



WD Shift Vs Junction Temperature

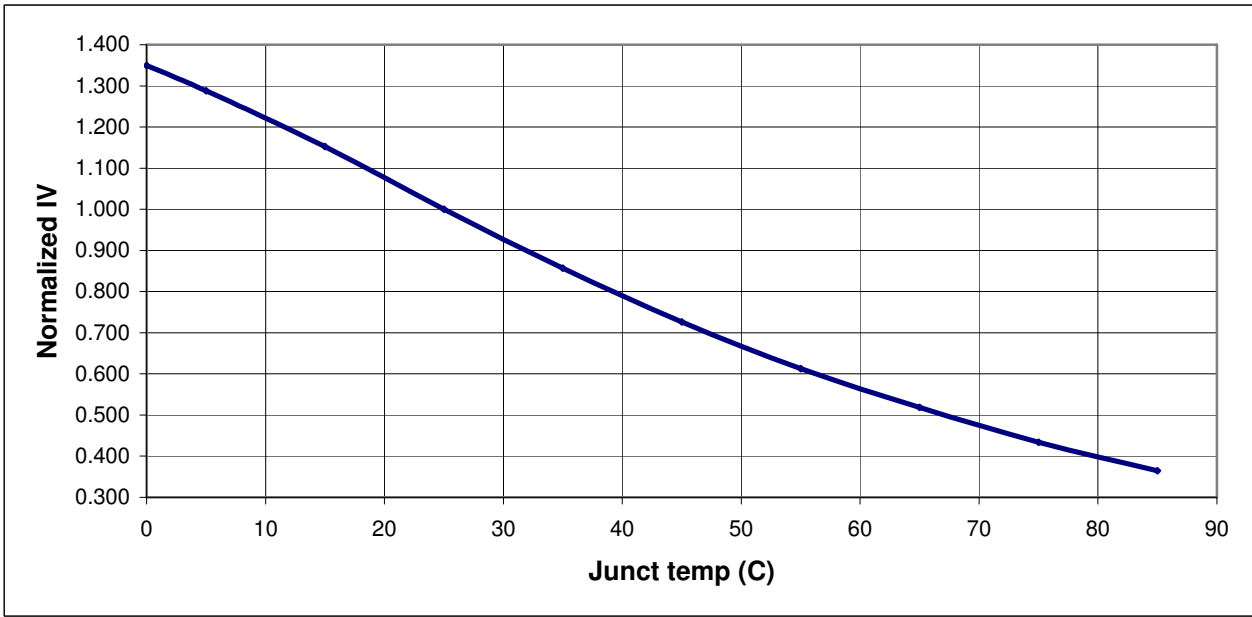
Device: DWY-EJS

Forward Voltage Shift



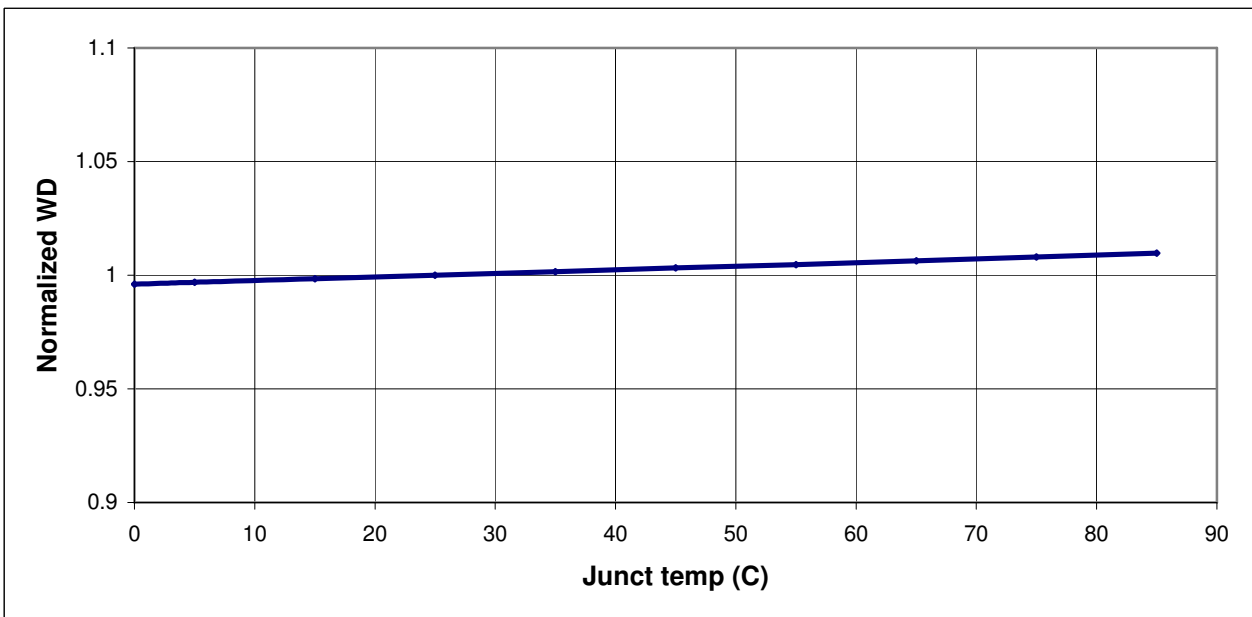
Forward Voltage Shift Vs Junction Temperature

Luminous Intensity Shift



Luminous Output Vs. Junction Temperature

Dominant Wavelength Shift



WD Shift Vs Junction Temperature

Note: All data are normalized to read at 25°C