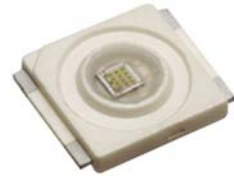


## SPNova InGaN - Optical And Electrical Characteristics Across Operational Temperature Range

### Introduction:

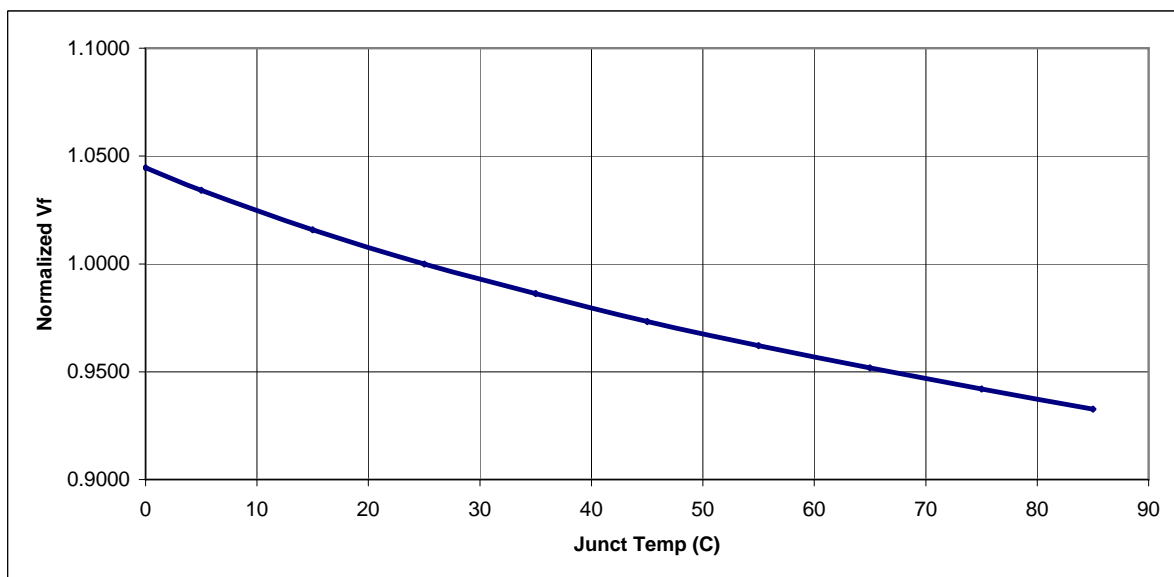
Light emitting diode's (LED) operational characteristics are very dependent on the operating temperature. As current flows through the LED, the junction temperature will increase until a steady state is reached. The final steady state temperature will depend on the ambient temperature and the thermal 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.

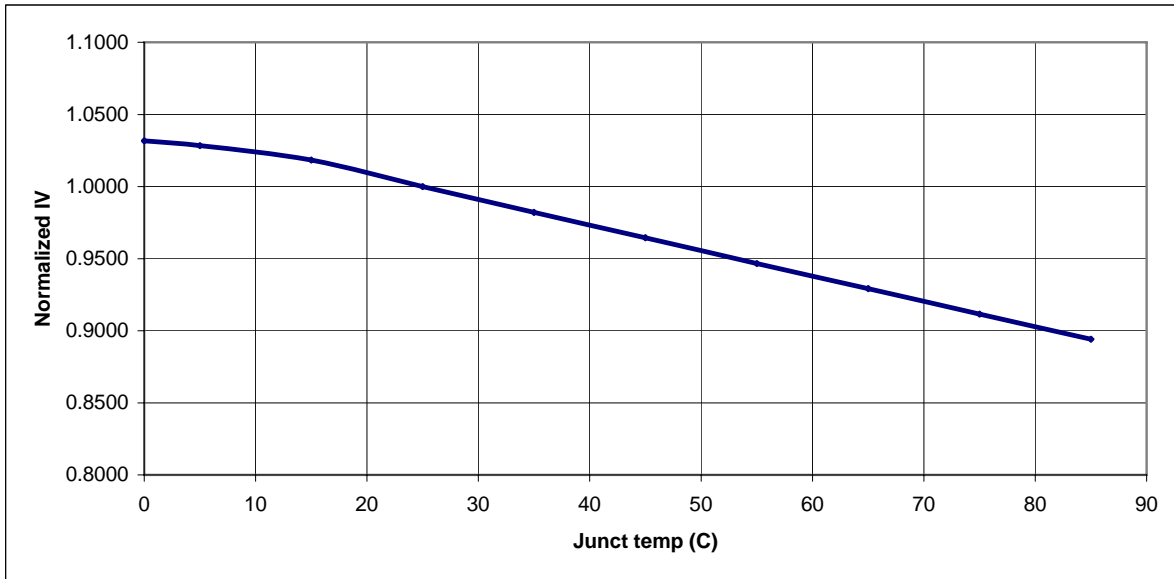
### Device: NPT-USS

#### Forward Voltage Shift



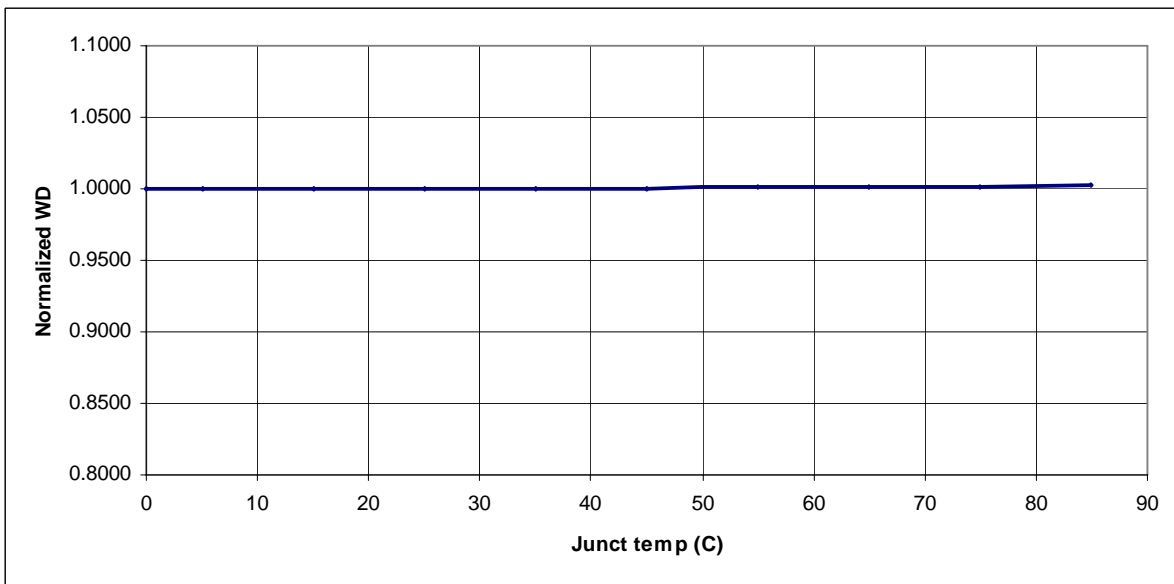
**Forward Voltage Shift Vs Junction Temperature**

### Luminous Intensity Shift



**Luminous Output Vs. Junction Temperature**

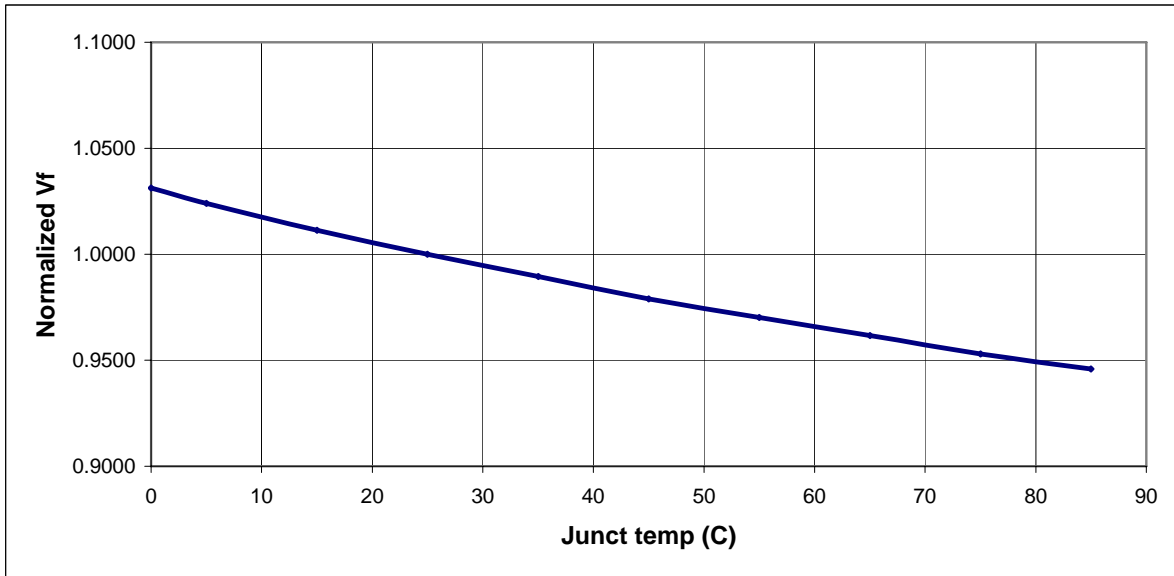
### Dominant Wavelength Shift



**WD Shift Vs Junction Temperature**

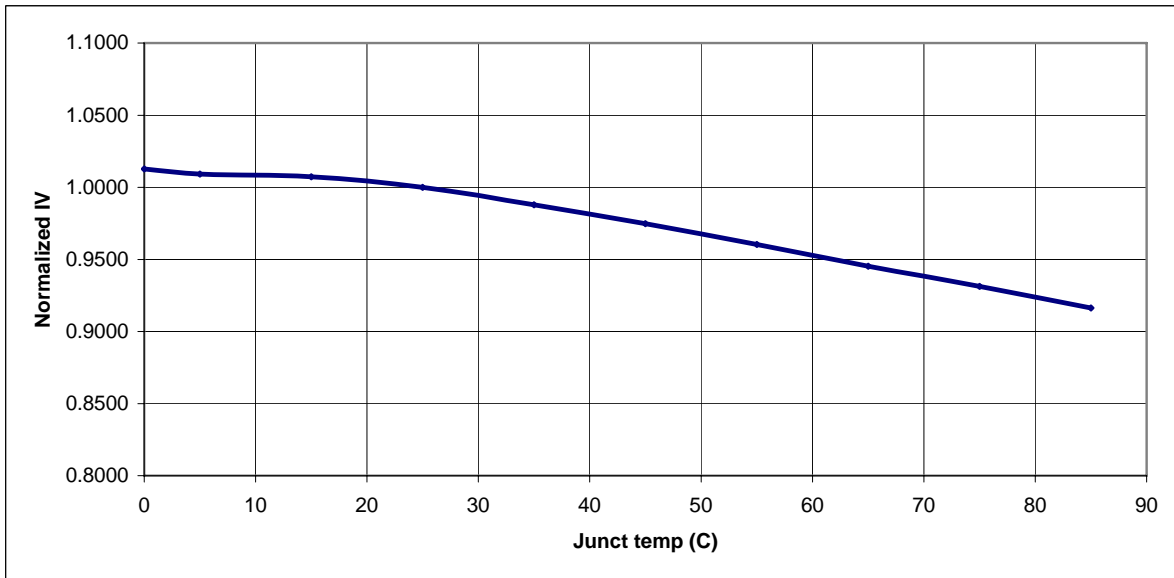
**Device: NPC-USS**

**Forward Voltage Shift**



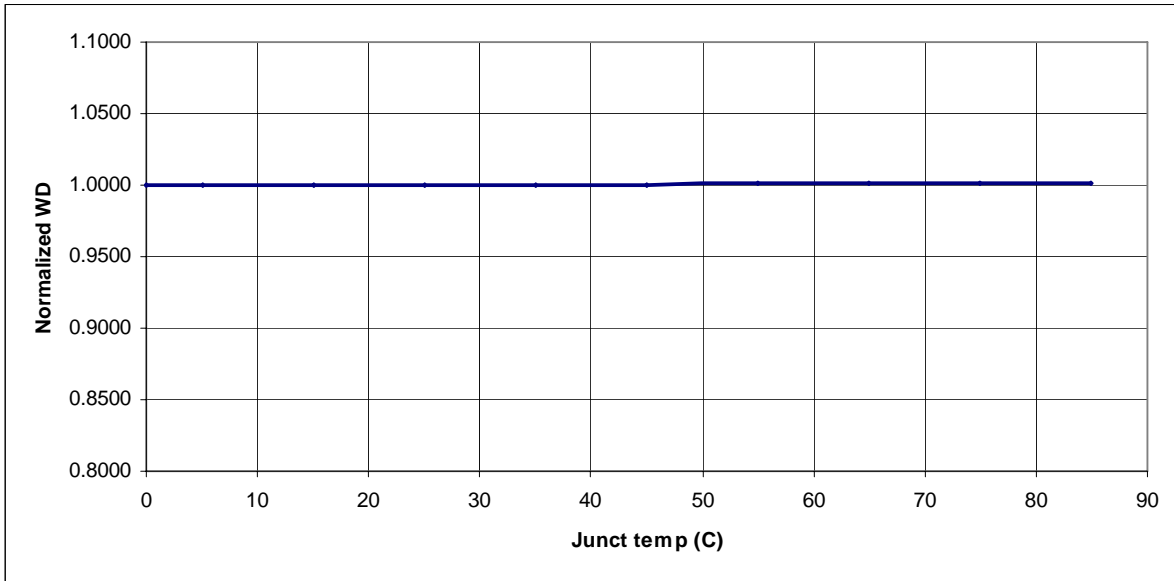
**Forward Voltage Shift Vs Junction Temperature**

**Luminous Intensity Shift**



**Luminous Output Vs. Junction Temperature**

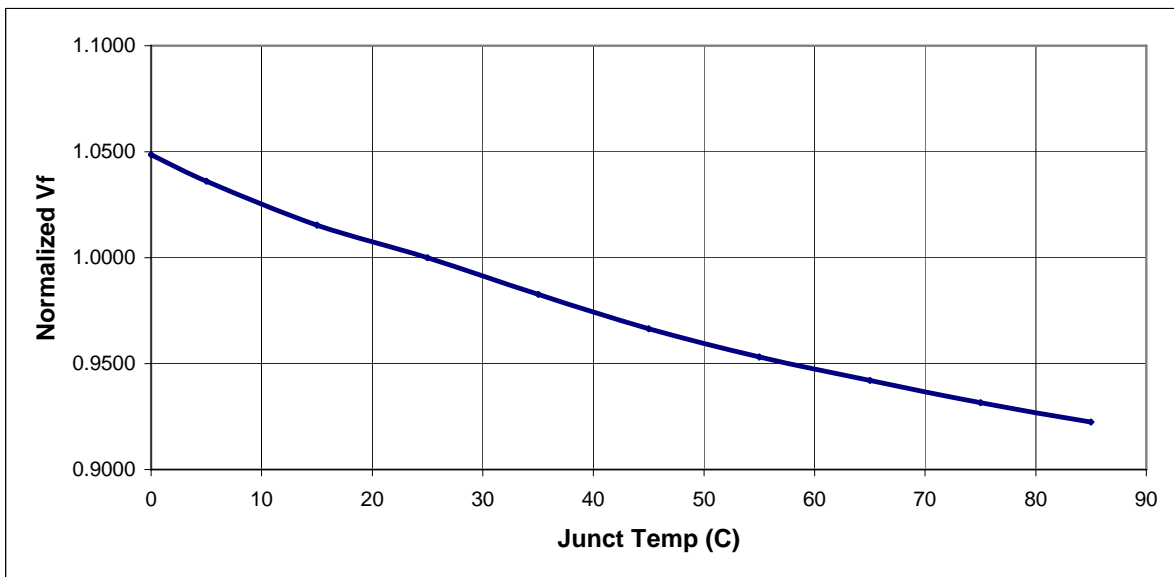
### Dominant Wavelength Shift



**WD Shift Vs Junction Temperature**

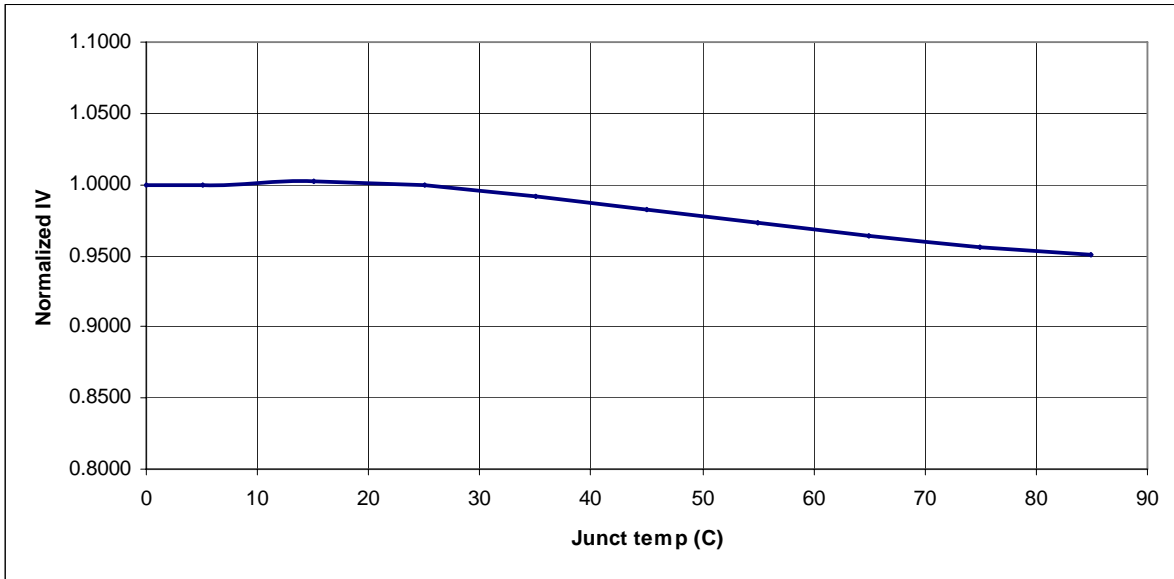
Device: NPB-USS

### Forward Voltage Shift



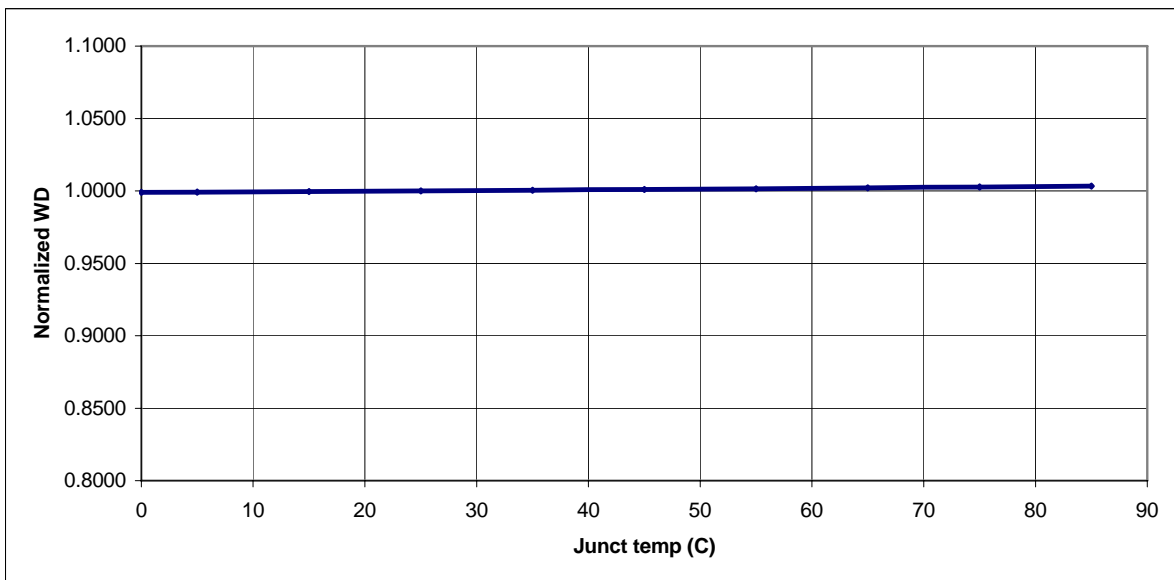
**Forward Voltage Shift Vs Junction Temperature**

### 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