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Abstract
In this thesis, the reliability of GaN MSM photodetectors with TiW electrode was analyzed and characterized under different stressing condition. The result showed that the dark current and responsivity of devices decayed with the aging temperature and aging current. Moreover, the aging current density was a key factor for device at room temperature.
The failure mode was also studied in this thesis. It was found that the burned-fail electrode was one of the failure reasons using optical microscope inspection.
The other reason for reliability is the decadation of GaN film. It were found that the PL intensity and XRD FWHM of GaN film were significant decayed after stressing.
Therefore, both electrode and GaN film will suffer electrical input during the stressing.
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