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## **AlGa<sub>N</sub>/Ga<sub>N</sub> HEMT's photoresponse to high intensity THz radiation**

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### **Abstract:**

We report on the photoresponse dependence on the terahertz radiation intensity in AlGa<sub>N</sub>/Ga<sub>N</sub> HEMTs. We show that the AlGa<sub>N</sub>/Ga<sub>N</sub> HEMT can be used as a THz detector in CW and in pulsed regime up to radiation intensity of several kW/cm<sup>2</sup>. The dynamic range in the pulsed regime of detection can be more than 2 decades. We observed that the photoresponse of the HEMT could have a compound composition if two independent parts of the transistor are involved in the detection process; this result indicates that a more simple one channel device may be preferable on the detection purpose.