Global Symposium on Millimeter Waves (GSMM) & ESA Workshop on Millimetre-Wave Technology and Applications
Proceedings
6-8 June 2016, Espoo, Finland
pag. 1-3

89 GHz Schottky detector modules for MetOp-SG

Matthias Hoefle, Oleg Cojocari, Martin Rickes, Mykola Sobornytskyy, Javier Montero-de-Paz, Thibaut Decoopman, Mikko Kantanen, Marie-Genevieve Périchaud, Petri Piironen

https://doi.org/10.1109/GSMM.2016.7500337

Abstract

Presented is an 89 GHz waveguide coupled direct detector based on ACST low-barrier Schottky diodes. Signal-to-noise ratio (SNR) values above 35 dB within 6 dB input power dynamic are achieved with high voltage responsivity of 3000 V/W and significant white and 1/f noise reduction. The fabricated detector is characterized and compared to simulation results, proving a high accuracy level of the design and fabrication process, as well as excellent knowledge of the applied Schottky diodes. In a preliminary reliability assessment, the ACST low-barrier Schottky technology has proven very good stability without any diode failure during step stress tests, life tests, and environmental tests. The results demonstrate the suitability of the detector to be implemented in the 89 GHz receiver for the second European meteorological operational satellite programme (MetOp-SG).