Global Symposium on Millimeter Waves (GSMM) & ESA Workshop on Millimetre-Wave Technology and Applications
Proceedings
6-8 June 2016, St. Espoo, Finland
pag. 1-4

High power 150 GHz Schottky based varactor doubler

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https://doi.org/10.1109/GSMM.2016.7500328

Abstract

Presented is the design, simulation and characterization of a high power 150 GHz Schottky based varactor doubler. The designed doubler works in the 67.5 GHz-82 GHz input frequency band with an input power of 25 dBm (315 mW), providing 19 dBm (82 mW) output power (more than 25% efficiency) in the 135 GHz-164 GHz output frequency band (20% relative bandwidth). The design is based on new high power diamond substrate Schottky varactor diodes designed and manufactured by ACST GmbH.