A mm-Wave Cascaded Traveling Wave Amplifier Topology for Imaging and Communication Applications

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TECHNOLOGY DESCRIPTION

This invention is a wide-band, high-gain millimeter wave amplifier for imaging and communication applications.

The developed prototype has set a record for wideband and high-gain operation. It utilizes a novel topology based on a hybridization of traveling wave on-chip propagation for high-bandwidth that is cascaded for high-gain. To our knowledge, this is the first time that a traveling wave cascaded topology has been demonstrated. Fundamentally, we believe this circuit can outperform any design based on traditional circuit topologies.

APPLICATIONS

This work could open new avenues to implement mm-wave communication and imaging systems on a silicon chip. This invention realizes a high-gain, wideband amplifier that is necessary for silicon implementations of both types of systems. A great deal of commercial interest is invested in 60GHz video transmission (SiBeam, Panasonic, MediaTek). Additionally, companies have become interested in 77GHz radar applications (MaCOM, Infineon). A next generation interest has formed at 80-90GHz for point-to-point wideband communication (Gigabeam) and the invention may become extremely useful to companies developing hardware for these applications, which traditionally rely on more expensive InP and GaAs technologies.

INTELLECTUAL PROPERTY INFO

This work is patent pending with U.S. and international rights available for licensing.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,258,873	09/04/2012	2009-069

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OTHER INFORMATION

CATEGORIZED AS

- Communications
  - Other
- Imaging
  - Other

RELATED CASES

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