TECHNOLOGY

Superconducting Active Lumped Components for Microwave Device Applications

OVERVIEW

In general, the size advantage of normal or superconducting lumped components over distributed components makes them attractive for low-frequency (~0.1 - 20GHz) and broad-band microwave circuits.

For some applications with more stringent requirements, the use of metal-oxide superconducting materials such as YBa2Cu3O7 is expected to be advantageous over that of conventional metals such as Au or semiconductors such as GaAs, since the dissipation and dispersion in quality metal-oxide films can be considerably smaller than those in conventional materials at low microwave frequencies (20GHz) and low temperatures (77K). Also, due to their small size, lumped circuit elements can be easily combined with other distributed or lumped-components on a single chip yielding enhanced versatility. Furthermore, lumped components made of superconductor / insulator metal-oxide heterostructures have the unique property that their microwave response can be modulated by electric fields, thus they can form a new class of active microwave components.

A U.S. patent # 5,604,375, has issued on this invention.

For additional information please contact the Office of Technology Commercialization, University of Maryland, College Park, MD 20742. Phone (301) 405-3947. E-mail: otc@umd.edu

CONTACT INFO

UM Ventures
0134 Lee Building
7809 Regents Drive
College Park, MD 20742
Email: umdtechtransfer@umd.edu
Phone: (301) 405-3947 | Fax: (301) 314-9502

Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

A U.S. patent, # 5,604,375, has issued

LICENSE STATUS

Available for non-exclusive license

EXTERNAL RESOURCES

UM-93-071