

Patent Abstracts

These Patent Abstracts of recently issued patents are intended to provide the minimum information necessary for readers to determine if they are interested in examining the patent in more detail. Complete copies of patents are available for a small fee by writing: U.S. Patent and Trademark Office, Box 9, Washington, DC, 20231.

4,373,775

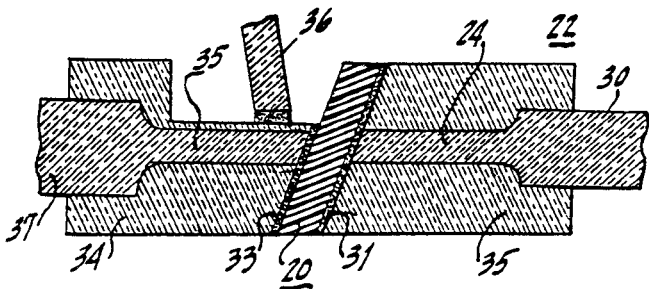
Feb. 15, 1983

Fiber Dichroic Coupler

Inventor: George A. Gasparian.
Assignee: International Telephone and
Telegraph Corporation.
Filed: June 23, 1980.

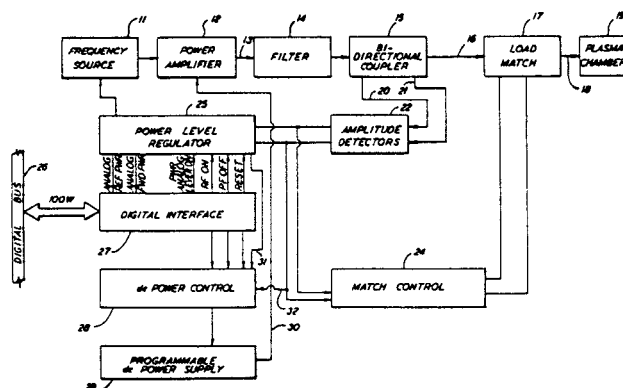
Abstract—An assembly for a bidirectional wavelength dependent beam splitter is disclosed together with a method of fabricating a thin film dichroic element. A dichroic material is applied to the surface of a suitable substrate. The substrate with this applied coating is then immersed in a solvent bath such that the dichroic thin film is either lifted off the substrate or the substrate is dissolved in the solvent bath, thus leaving an extremely thin film comprising the dichroic coating. The dichroic coating is positioned over the end face of a polished fiber beam splitter half and secured thereto by a thin layer of an optical grade epoxy. In the beam splitter configuration, a second polished fiber is secured in a similar manner to the opposite side of the thin film to form a beam splitter structure and hence, to provide a bidirectional wavelength dependent optical coupling device.

21 Claims, 2 Drawing Figures



power are utilized to control a load match circuit to cause load impedance to equal transmission line impedance. Feedback loop means are also provided to maintain net load power at an externally commanded level.

17 Claims, 9 Drawing Figures



4,375,621

Mar. 1, 1983

4,375,051

Feb. 22, 1983

Automatic Impedance Matching Between Source and Load

Inventor: C. Earle Theall.
Assignee: The Perkin-Elmer Corporation.
Filed: Feb. 19, 1981.

Abstract—An R.F. generator for providing power to a load via a transmission line wherein load impedance is automatically matched to the surge impedance of the transmission to provide maximum transfer of energy from the generator to the load. Voltages representative of input power and reflected

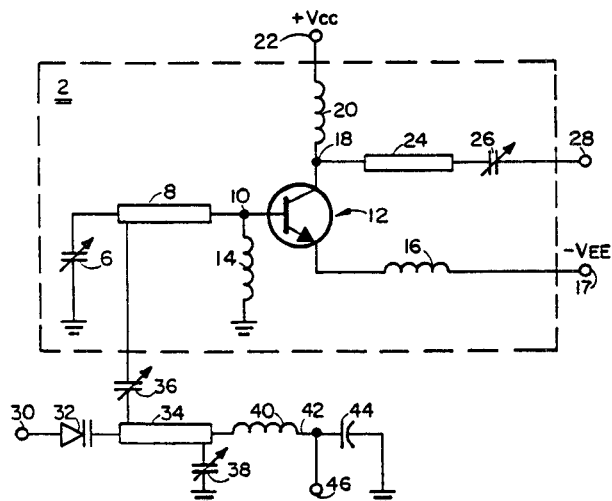
Circuit for Linearizing Frequency Modulated Oscillators on Microstrip

Inventors: Andres F. Schneiter, Josef L. Fikart.
Assignee: AEL Microtel, Ltd.
Filed: Mar. 2, 1981.

Abstract—In a microstrip frequency modulated oscillator, the linearity of the modulating circuit incorporating a varactor diode is adjusted by using a microstrip transmission line as a secondary resonator in conjunction with a variable reactor. The varactor is connected to one end of this resonator which end is also connected to the main resonator of the microstrip oscillator. The

variable reactor is connected between the other end of the secondary resonator and ground.

4 Claims, 2 Drawing Figures



4,375,622

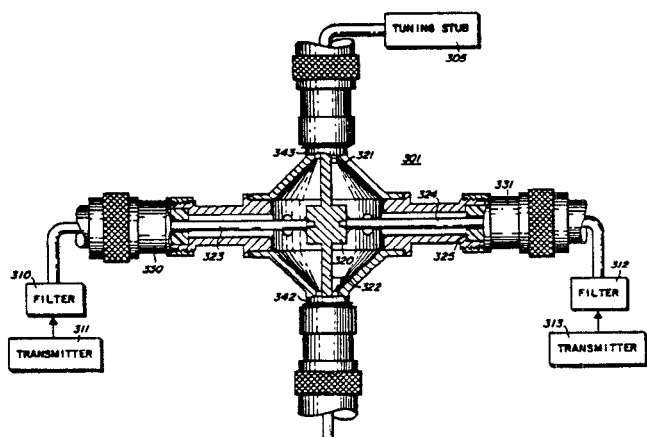
Mar. 1, 1983

Multiport Radio Frequency Signal Combiner

Inventors: Allen H. Hollingsworth; Alan G. Deutsche.
Assignee: Motorola, Inc.
Filed: Apr. 20, 1981.

Abstract—A multiport radio frequency (RF) signal combiner is described for combining three or more RF signals for application to an antenna. The combiner includes an input port for each RF signal, an output port coupled to the antenna, and a tuning port coupled to a tuning transmission line. The input ports, output port and tuning port are connected to a terminating element. The tuning transmission line is terminated by a fixed or adjustable short-circuit impedance for substantially eliminating the capacitive discontinuity created by interconnecting the input ports. The RF signal combiner can be advantageously utilized in any radio system where it is necessary to multiplex the RF signals from three or more transmitters to a single antenna.

23 Claims, 4 Drawing Figures



4,375,699

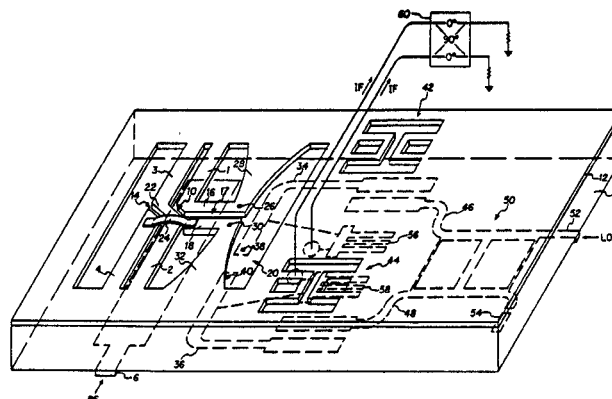
Mar. 1, 1983

Microwave Frequency Converter with Dual Balun Port

Inventor: Ben R. Hallford.
Assignee: Rockwell International Corporation.
Filed: Mar. 13, 1981.

Abstract—A microwave frequency converter is provided with a diode mixer bridge having a balanced port connected to a dual balun. The dual balun is provided by two pairs of balanced secondary conductors juxtaposed a common primary conductor, each pair contributing to the field between balanced conductors leading to the mixer bridge. The dual balun and microstrip circuit layout enable a wider gap to be used between the balanced conductors to the bridge, which enables manufacturably cost efficient implementation.

4 Claims, 8 Drawing Figures



4,376,285

Mar. 8, 1983

High Speed Optoelectronic Switch

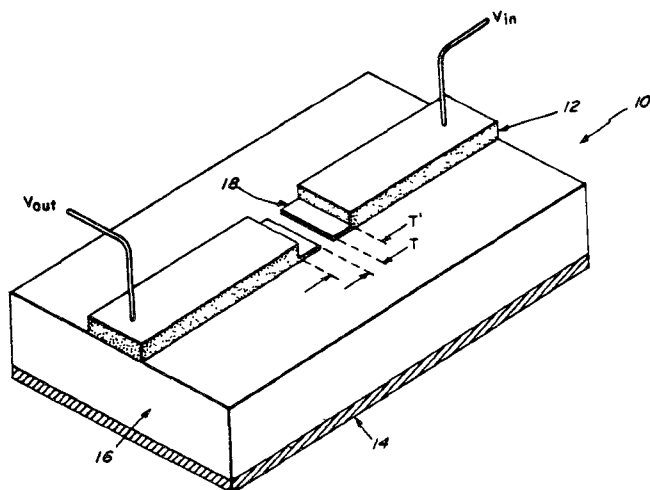
Inventors: Frederick J. Leonberger;
Frederick J. O'Donnell.
Assignee: Massachusetts Institute of Technology.
Filed: June 23, 1980.

Abstract—An optoelectronic switch has been formed from a semiinsulating substrate of indium phosphide doped with a deep level impurity and disposed intermediate a microstrip transmission line. One conductor of the transmission line has a small gap in its metallization. Upon illumination of the gap by laser pulses which are absorbed near the semiconductor surface, a photogenerated electron-hole plasma forms thereby providing a conducting path across the gap turning the switch "on."

A process of fabricating the switch is described, an important feature of which is a heat-treatment process which improves the response time of the switch to ~ 50 picoseconds. Another important part of the invention is the

formation of an optically semi-transparent metallic film at the gap surface. This provides greater efficiency in the coupling of light into the device at the gap while at the same time maintaining a short electronically nonconductive gap and thus a relatively low ON-state impedance for the switch.

16 Claims, 17 Drawing Figures



4,376,287

Mar. 8, 1983

Microwave Power Circuit with an Active Device Mounted on a Heat Dissipating Substrate

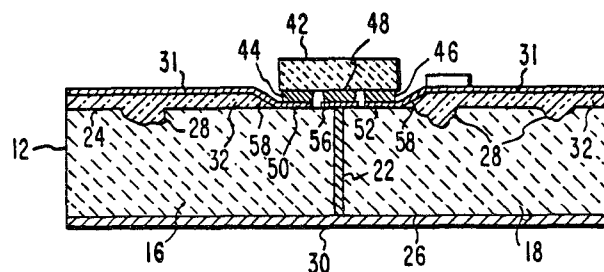
Inventor: Franco N. Sechi.

Assignee: RCA Corporation.

Filed: Oct. 29, 1980.

Abstract—A microwave power circuit includes a thermally conductive, electrically insulating substrate such as beryllium oxide which has a relatively rough surface, a layer of dielectric material such as glass on a portion of the rough surface which layer has a relatively smooth surface, a conductive material on the relatively smooth surface, and a heat dissipating amplifying device having at least two terminals, one of which is connected to the conductive material and one of which is thermally connected to the substrate in a manner to pass heat thereto.

8 Claims, 4 Drawing Figures



Asian Abstracts

Papers from Journals Published in Australia, India, and Japan in 1982

Compiled by Prof. E. Yamashita (with the assistance of Dr. Y. Suzuki), University of Electro-Communications, Tokyo, 182 Japan.

The periodicals investigated are: 1) Transactions of the Institute of Electronics and Communication Engineers of Japan (Trans. IECEJ), 2) Journal of the Institution of Engineers, Electronics and Telecommunication Engineering Division, India, (JIE, Part ET), 3) Journal of the Institution of Electronics and Telecommunication Engineers, India, (JIETE), 4) Journal of Electrical and Electronics Engineering, Australia, (JEEE), and 5) Australian Telecommunication Research (ATR).

As for the Japanese papers in the *Trans. IECEJ*, which carry volume numbers J65-B or J65-C, short English summaries are found in the *Trans. IECEJ*, vol. E65, issued in the same month. Papers carrying volume number E65 are papers originally written in English. These issues are published from the IECEJ, Kikai-Shinko-Kaikan, 3-5-8, Minato-ku, Tokyo 105, Japan.

The full translations of some Japanese papers will appear in *Electronics and Communications in Japan*, published by Scripta Publishing Co., 7961 Eastern Avenue, Silver Spring, MD 20910.

The abstracts of these papers are grouped as follows:

- 1) Active Microwave Devices
- 2) Passive Microwave Devices
- 3) Transmission Lines and Waveguides