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Jones et al.

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[54] **METAL INCLOSED RESISTOR USED AS A STRIPLINE TERMINATOR**

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[73] Assignee: **United States of America as represented by the Secretary of the Army**

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[52] **U.S. Cl.** ..... **333/22 R**

[51] **Int. Cl.** **H01p 1/26**

[58] **Field of Search** ..... 333/22 R, 22 F, 84 M

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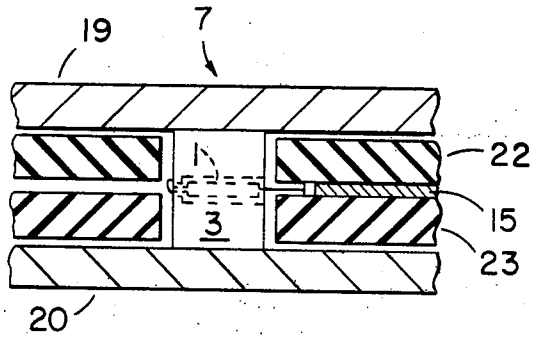
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[57] **ABSTRACT**

A resistor inclosed in a brass block having one end connected to the brass block and the other end connected to terminate a stripline.

1 Claim, 4 Drawing Figures



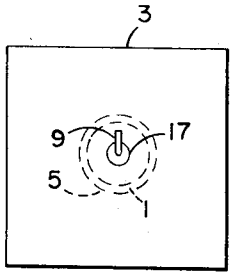


FIG. 1

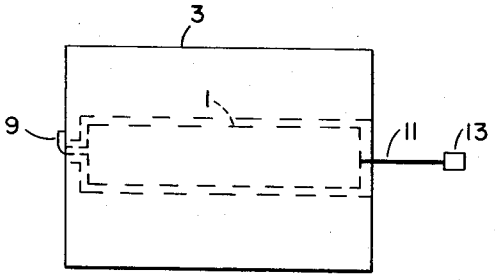


FIG. 2

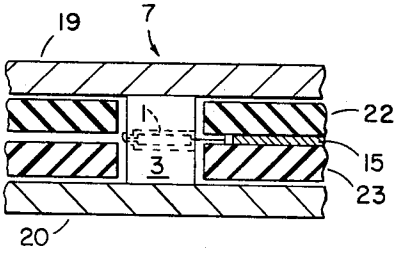


FIG. 3

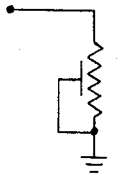


FIG. 4

METAL INCLOSED RESISTOR USED AS A STRIPLINE TERMINATOR

BACKGROUND OF THE INVENTION

This invention is related to the field of stripline termination. There are presently many resistive terminations in the prior art using thick film, thin film, lumped constant and distributed constant techniques. Some of these devices are built in coaxial structures for mounting externally to a stripline board. Other are designed to mount internally in the stripline in a square or cylindrical hole. A common technique is to deposit a thin or thick film resistive pad on a dielectric cylinder which is a good heat transfer agent. The termination of the present invention has the advantage of the prior art or rugged construction and a cost which is considerably less.

SUMMARY OF THE INVENTION

The termination consists of a one-half watt carbon resistor inserted in a brass block with one end of the resistor soldered to the block. The other lead of the resistor is then flattened and adapted so that it can be connected to the end of the stripline to be terminated. The brass block will be of the size that will fit between the two ground planes of the stripline and make contact therewith.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a front view of the preferred embodiment of the present invention;

FIG. 2 shows a side view of the preferred embodiment;

FIG. 3 shows the invention inserted in a stripline; and

FIG. 4 is a schematic representation of the electric circuit of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1, 2, and 3 there is shown a one-half carbon resistor 1 which is inserted into a brass block 3. The brass block has a hole 5 drilled almost all the way through and is of a size which will accept the resistor 1. The size of the drilled hole in the brass block is critical and affects the impedance match of the termination. The size of the drilled hole 5 is selected such that it will be an impedance match to the stripline 7.

One lead 9 of the carbon resistor 1 is soldered to the brass block 3. The other lead 11 of the resistor is flattened at its end 13 so that it will be able to be inserted and make good connection with the center conductor 15 of the stripline 7. A hole 17 may be drilled in the brass block 3 in order to solder lead 9 to the outside of the block.

The device is capable of dissipating several times the microwave energy that the resistor alone is rated for. It has been shown in an actual test that the device has dissipated up to eight watts of microwave energy at UHF frequencies over long periods of time with no measureable degradation of performance.

FIG. 3 shows the terminater inserted into a stripline 7. The stripline has two ground planes 19 and 20 made of aluminum plates, and two stripline boards 22 and 23 which sandwich the center conductor 15. The terminator of FIG. 1 and FIG. 2 is inserted directly into a slot in the stripline between the two ground planes 19 and 20. The slot is machined to fit and precisely locate block 3. The lead 11 with its flattened end 13 extends into the center conductor and makes contact therewith. At the same time the brass block will make contact with the two ground planes.

FIG. 4 shows a schematic representation of the circuit of the terminator. The resistance of the circuit will be 50 ohms, and the distributed capacitance of the circuit will be determined by the size of hole 5, the size of the block 3, etc.

We claim:

1. A stripline terminator comprising a brass block having a hole therein; a resistor having first and second leads inserted into said hole; said first lead being connected to said metal block; said second lead being adapted for connection to a stripline; said stripline containing two ground planes and a center conductor; said metal block fitting between said two ground planes and making contact therewith; said second lead of said resistor making contact with said center conductor; said hole in said block not extending all the way through; a further smaller hole extending all the way through so as to allow said first lead of the resistor to extend therethrough; said first lead extending through said smaller hole and being soldered to the outside of the brass block; said second lead of the resistor being flattened so as to make contact with said center conductor; and said hole being of such a size that the terminator will be an impedance match to the stripline.

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