

Re: Mircostrip directional coupler???

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On Apr 29, 2:26 pm, "Jeff L" <levy_j...@xxxxxxxxxxxx> wrote:

I'm looking for information on designing what I believe is a microstrip directional coupler. I don't want to do stripline, since I would like to keep this to a 2 layer PCB. Google is not turning up anything overly useful other than typical stripline / microstrip stuff and GHz stuff.

Basically it is a largish microstrip which carries the RF energy, and it linearly couples slightly to two smaller microstrips, one on each side of the largish microstrip. The small microstrip outputs are rectified with a diode and filtered with a cap. The output is given as a DC voltage dependant on power. One of the small microstrips is used to measure forward power, and the other is arranged so that the diode is forward biased when the power flows in the other direction giving the reverse / return power.

Here is a website selling such a device as an expensive adaptor for an RF connector:www.pcs-electronics.com/output-board-with-swrpwr-pickup-p-1116.html?o...599c60544bc43b72f8135084c1ac540 Note that they call it a stripline when it is actually a micropstrip, and I'd love to see the stated 500w or even 1kW flowing through it continuously.

Application:

Forward and reverse (return / SWR) power indicator.
Hobbyist use low power (fractional watt) ~100 MHz personal FM transmitter.
The material will be standard FR4 with solder mask.
The dielectric constant of the FR4 will not be held to tight tolerance like some more exotic RF materials.

The purpose is more of an educational one than the actual use.

RFSim99 (freeware); tools-->component-->coupler. What it doesn't tell you is that for the given coupling, the coupled section needs to be 1/4 wave long. But if it's shorter, you just get lower coupling; it's still directional. If you want more coupling at 100MHz, I'd suggest you use one of the other coupler circuits in RFSim99: the lumped or transformer, for example. Lumped is probably best for you. The design assumes the coils are not coupled.

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Cheers,
Tom

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