

# A Shoe for 5760 MHz

by

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When hams turn on their HF amplifiers, I've often heard it referred to as "putting the boots on". This circuit isn't quite so powerful, but it is a nice device for driving a solid state amplifier or TWT. Since it isn't boot level, I call it a "shoe"!

I use the KK7B design for my 5760 MHz transverter. This unit is a basic oscillator and multiplier that feeds a mixer. The RF output from the mixer is around -7 dBm. All of the solid state amplifiers and TWT's I'm familiar with require approximately 0 dBm (1 mW) input for full rated output within their designed frequency range. I had obtained a 5900 MHz solid state amplifier a few years ago and wanted to realize the maximum potential of the unit. After some research on available devices, I chose to experiment with the Hewlett Packard MGA-64135 MMIC. This device is designed for use as a general purpose 50 $\Omega$  gain block in the 2 to 6 GHz frequency range. Theoretically, this device provides a power gain of 13 dB at 5.7 GHz.

I picked up a couple of MGA-86576 experimentation boards at a CSVHF Conference which had been donated by Al Ward at HP, and used this as the base for my project. The MGA-64135 operates at a drain voltage of 10 VDC with a typical device current of 50 mA. I had constructed my transverter to operate from 13.8 VDC, and would be using this amplifier stage on the same supply. Since the device operates on 10 VDC at 50 mA, I would be dropping 3.8 volts across the bias resistor. A quick Ohm's Law calculation produced a resistor value of 76 $\Omega$ . An 82 $\Omega$  resistor is a common value, and one I had readily available, so I selected that value for this circuit.

Two of these units were constructed and subsequently tested at a Microwave Update Conference. Each produced a gain of 8 dB, just what I was looking for !

This unit works very well with the KK7B transverter driving that big pair of "boots"!

