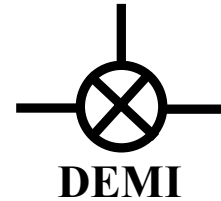


Design Note

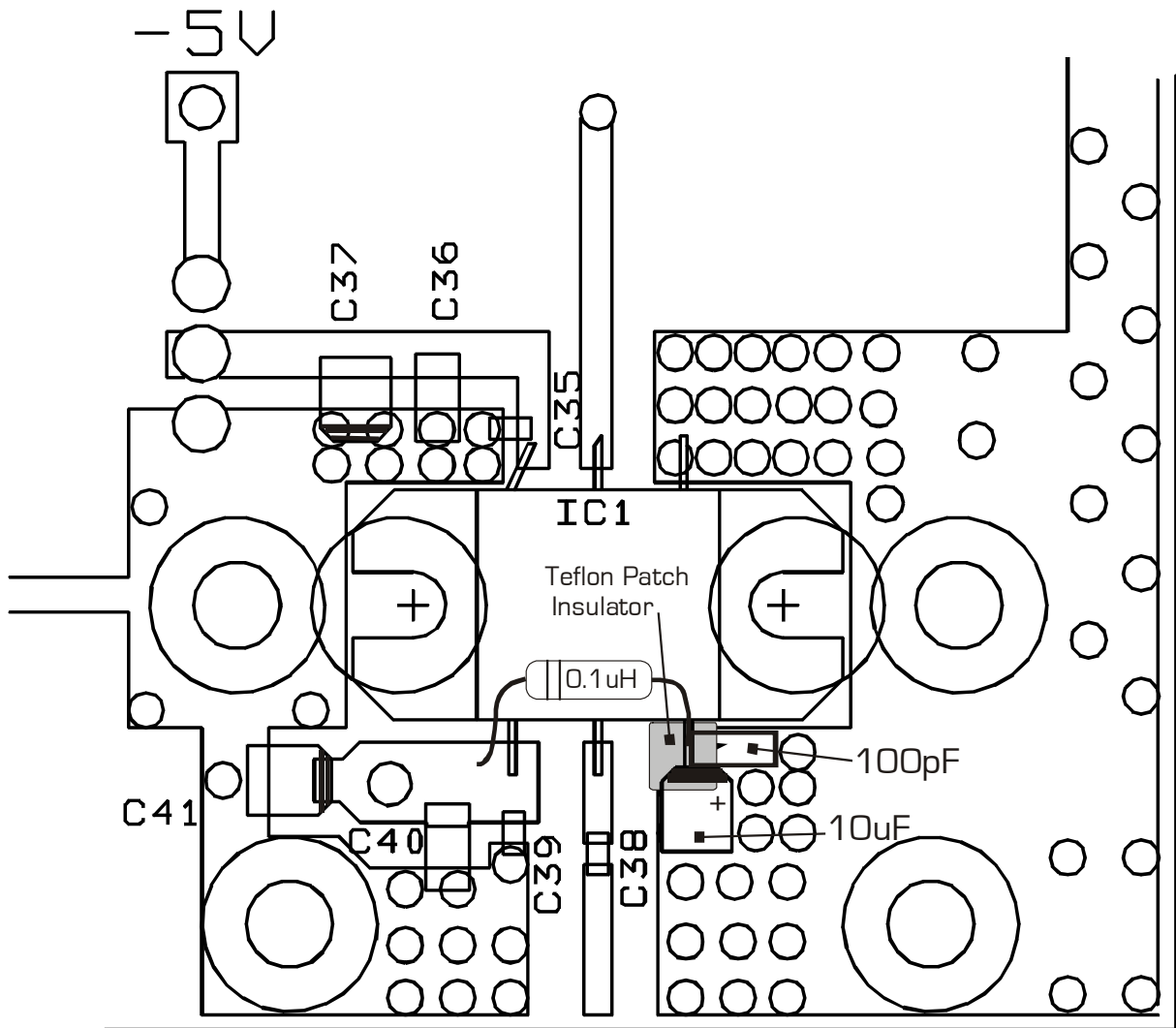


From: DEMI R & D Dept.
DN#: 021
Date: December 22, 2006
Re: FMM5061VF Retrofit in 10368-144 two watt transverter

PREFACE: With the obsolesces of the Toshiba TMD 1013-1, the 2 watt 10 GHz MMIC in our two watt 10 GHz. transverter, we have been asked to provide retrofitting information utilizing the new three watt Eudyna FMM5061VF in case of failure or desire of upgrade. This design note is also provided with the new 3 watt transverter kits. All components used for the retrofit are included in the kit.

RETROFIT CIRCUIT: The new FMM5061VF mechanically drops in to the circuit. Before replacing, solder wick all pads after the removal of the TMD1013. Clean all thermal compound off the pallet. When installing the FMM5061VF, use minimal amount of thermal compound, align the input pin (Pin 2, angle cut lead) and screw down with the original #3-48 screws. You will notice that the gate supply lead (pin 1.) does not line up. Simply bend the lead to position. Its not that critical as long as it doesn't short to ground. Solder pins 2, 3, 5 and 6 in place. Using a small piece of 5-10 mill Teflon, cut it to approximately .150" square. Slip it under Pin 4 to insulate the pin from ground and push Pin 4 down to form a friction fit. Solder both the 10 uF and 100 pF capacitors from Pin 4 to ground. Then install a small body 0.1uH choke from Pin 6 to Pin 4. The choke used needs to have a current rating of 1 amp. Do not use a hand wound coil or ferrite bead-wire combination. Be sure to form the body of the choke so that it lays across the ceramic package and not across the output lead, Pin 5, of the MMIC. If you wish to check your work with an ohm meter, do so. Pin 1 should be a high resistance to ground. Pin 4 and 6 are the drain connections and will measure some where around 1 ohm so unless you have an excellent meter, it will be difficult to tell if you have a solder short or not.

TESTING: On the topside of the pallet, remove the 2 ohm, 10 watt resistor. Apply power to the transverter and test the negative voltage supply to Pin 1 of the MMIC. Set the pot to produce the maximum negative voltage possible (-5 VDC) Replace the 2 ohm resistor with a 3 ohm unit and connect the wires. Key the transverter with a load on the output. Measure the voltage on the feed thru capacitor. It should be between 7 and 9 volts. Total current consumption of the transverter will increase by as much as 400-500 mA over original. Apply IF drive and set output power to desired level of up to 3 watts out.



TX RF

Pin Out:

1	VGG, Gate Supply
2	RF in
3:	N.C.
4:	VDD, Drain Supply
5:	RF Output
6:	VDD, Drain Supply

