

June 4, 2016

# 10 GHz PA

#### PHOTOS & RESULTS



K5TRA

# **PA Details**

- TGA-2625-CP GaN MMIC from Triquint / Qorvo
- Milled Aluminum 2.7" x 1.7" x 0.75" housing
- Sequenced negative before positive bias circuit
- 12 W linear power output
- +28 V power supply
- Thermal design provides < 147°C channel temp.

#### PA Module Floor Plan



### Packaged MMIC



#### TGA2625-CP

10 to 11 GHz, 17 W GaN Power Amplifier

#### Applications

- Radar
- Communications



#### **Product Features**

- Frequency Range: 10 11 GHz
- Pout: 42.5 dBm (at P<sub>IN</sub> = 15 dBm)
- PAE: > 40 %
- Power Gain: 28 dB (at PIN = 15 dBm)
- Bias: VD = 28 V, IDQ = 365 mA, VG = -2.6 V typical, pulsed (PW = 100 μs, DC = 10 %)
- Package Dimensions: 15.2 x 15.2 x 3.5 mm
- Package base is pure Cu offering superior thermal management

#### **Functional Block Diagram**



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## Schematic Diagram



### **Bias Sequencer Test**



# Completed PA



# Housing Bottom



## **Interior View**



## Interior - from another angle



### **Transverter Revision**



+26v SWITCHING FOR NEW PA and NEW Si530 x16 LO MODULE

#### Dish-feed with LNA and 12W PA



# **Results and Conclusions**

- TGA-2625-CP GaN MMIC from Triquint / Qorvo is awesome
- 14 dBm drive yields 10W, class AB Idd ~ 1.13A
- 15 dBm drive yields 12W, class AB Idd ~ 1.25A
- Great housing fab support from Ben and Chris
- Sequenced bias circuit works perfectly
- Homebrewing RF boards was a pain in the posterior
- Brass 1 mil foil was used to mitigate the ground transition between RF board edges and the MMIC flange
- Small tuning stubs on the output line matched transition reactance at SMA and MMIC
- Input attenuator (option) was not used

## Questo è Tutto

