MQ1080VP 650MHz 700W CW

Introduction

This amplifier is designed with Innogration LDMOS MQ1080VP to show its extremely high power at 650MHz.
For more product info, please check our website in the catalog of Multi Market 50V LDMOS

Demo and Transistor

Frequency band : 650MHz
Application : RF Energy
Configuration : Class AB
Test Signal : CW
Transistor : MQ1080VP
Date code : 172718S
PCB : 30mil RO4350B

The amplifier has been characterized under the following conditions:

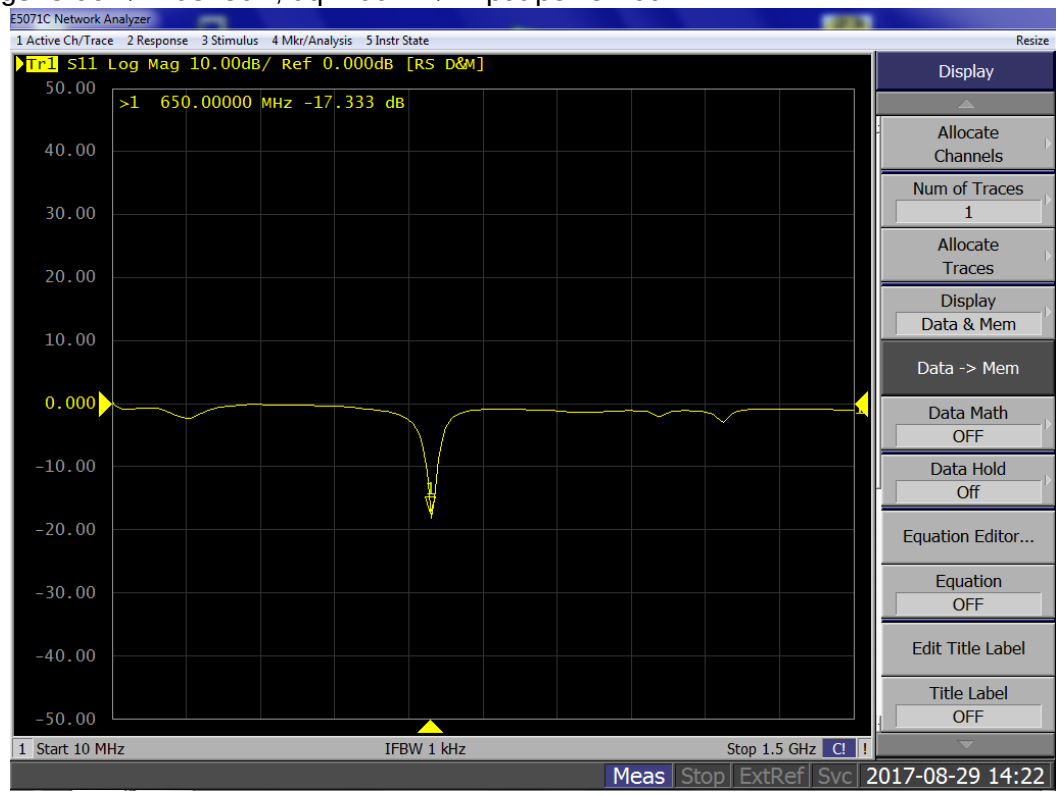
- Network Analyzer plots for S11
- The output power measurement using CW/Pulsed CW

Note: The PA is tested with a supply voltage of V_{DS}= 50 V, I_{DQ}=100 mA, all measurements unless otherwise noted.

Summary

1. Network Analyzer plots for S11

Vgs=3.06V，Vds=50V,Idq=100mA，input power=0dBm

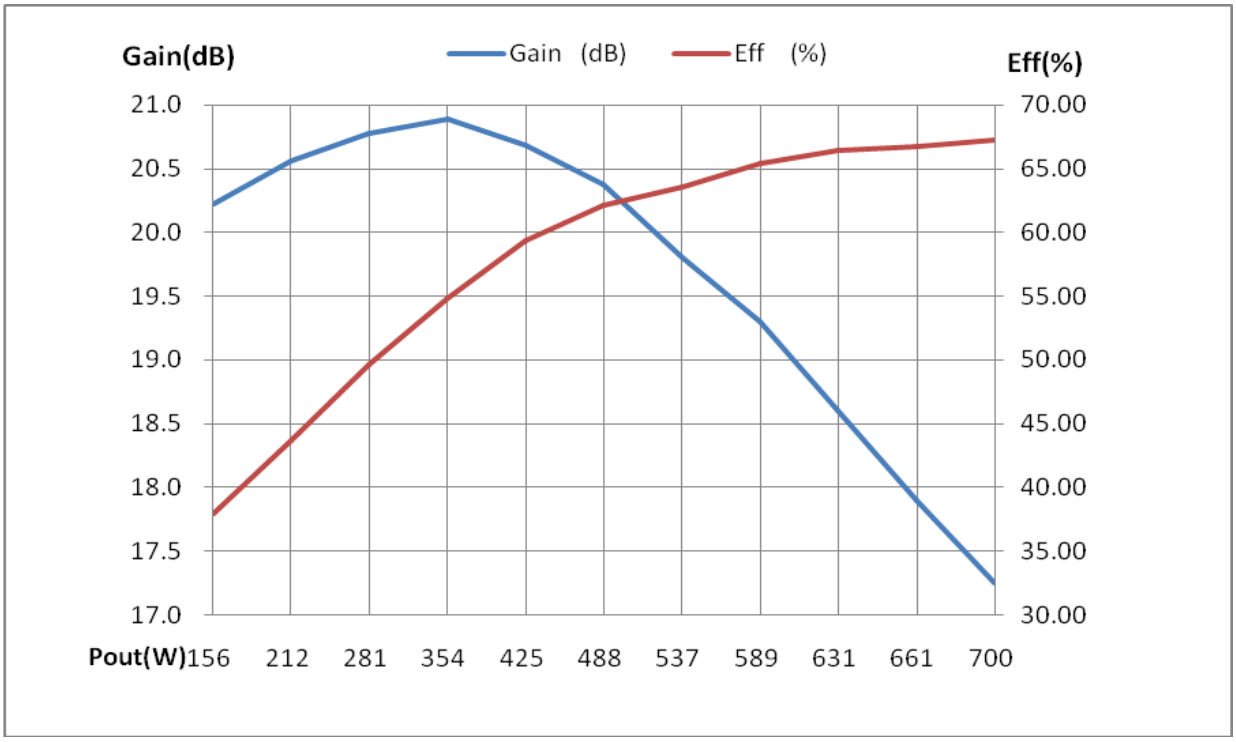


2. 650MHz CW performance

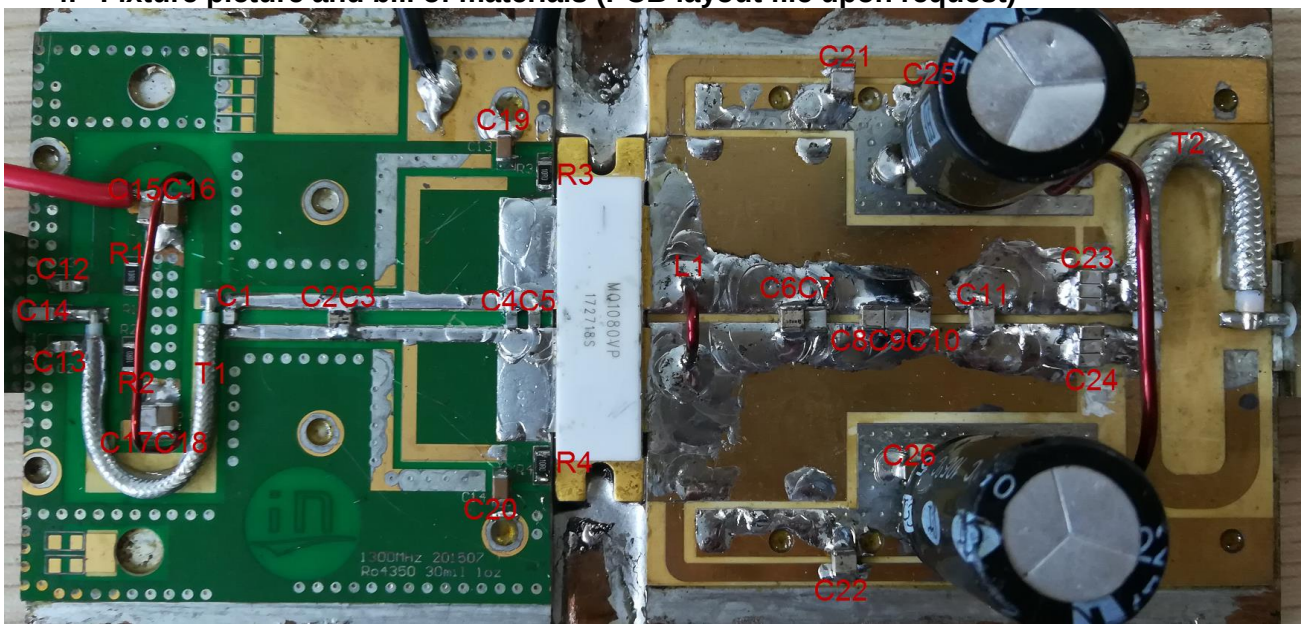
Signal:CW Vgs=3.06V,Vds=50v,Idq=100mA

Freq (MHz)	Pin (dBm)	Pout (dBm)	Pout (W)	Gain (dB)	Ids (A)	Eff (%)
650	31.7	51.92	156	20.2	8.2	37.95
650	32.7	53.26	212	20.6	9.7	43.68
650	33.7	54.48	281	20.8	11.3	49.65
650	34.6	55.49	354	20.9	12.9	54.88
650	35.6	56.28	425	20.7	14.3	59.39
650	36.5	56.88	488	20.4	15.7	62.11
650	37.5	57.30	537	19.8	16.9	63.55
650	38.4	57.70	589	19.3	18.0	65.43
650	39.4	58.00	631	18.6	19.0	66.42
650	40.3	58.20	661	17.9	19.8	66.74
650	41.2	58.45	700	17.3	20.8	67.29

3. CW gain and efficiency as a Function of Output Power



4. Fixture picture and bill of materials (PCB layout file upon request)



BOM		
C1,C2	3.0PF	ATC600F
C3	5.6PF	ATC600F
C4	18PF	ATC600F
C5	20PF	ATC600F
C6	8.2PF	ATC100B
C7	4.7PF	ATC800B
C8	5.6PF	ATC800B
C9,C10,C11	3.9PF	ATC800B
C12,C13	100PF	ATC600F
C14,C15,C17	100PF	ATC800B
C16,C18,C19,C20,C25,C26	10UF	
R1,R2,R3,R4	10Ω	
L1	1turns	diameter=8mm
T1	25Ω 54mm	
T2	25Ω 54mm	