

Asymmetrical 1:2 Doherty by ITEV10250C9 x 3 758-803MHz

Introduction

This amplifier is designed with Innogration 50V plastic open cavity LDMOS ITEV10250C9. In typical Doherty in form of 1:2 ratio, it has more than 650W Psat and can deliver 48% efficiency around 8.5dB back off at 100W average power, featured by low cost thanks to all by plastic devices

For more product information, please refer to product datasheet

Demo and Transistor

Frequency band : 758-803MHz
 Application : Telecom
 Configuration : Doherty
 Test Signal : Pulsed CW、 WCDMA
 Transistor : ITEV10250C9
 Date code : 234620S-02/03/04
 PCB : **20 Mil RO4350B**

The amplifier has been characterized under the following conditions:

- Network Analyzer plots for gain and IRL.
- P1 dB /P3dB Peak power measurement using the pulse, 20uS width, 10% duty cycle.
- RF Test Bench 4

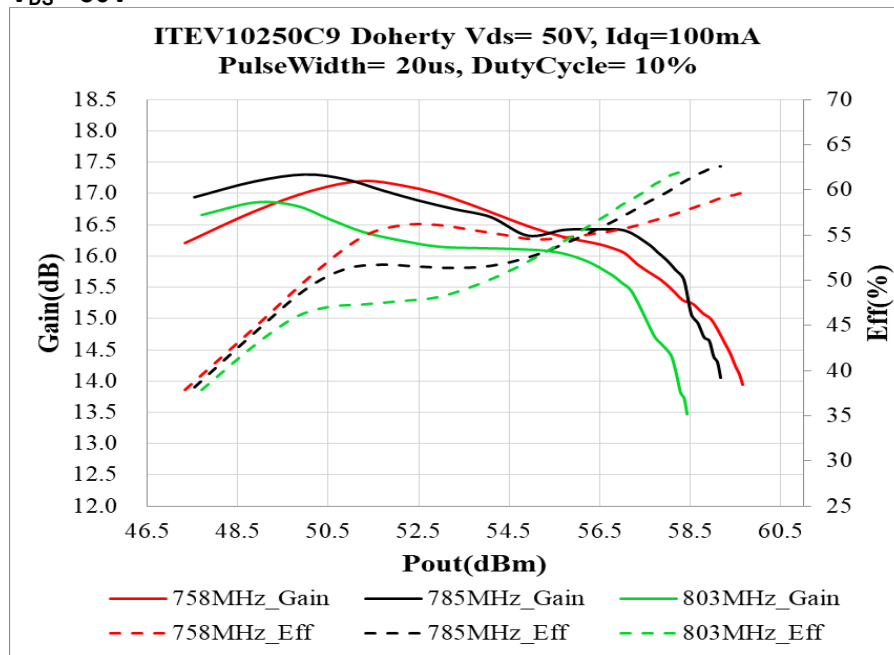
Note: The PA is tested with a supply voltage of $V_{DS}= 50V$, $I_{DQ}=100mA$ ($V_m= 3.22V$, $V_p=1.7V$), all measurements unless otherwise noted.

Test Results:

1. Summary

1) Pulse

$V_{DS}= 50V$

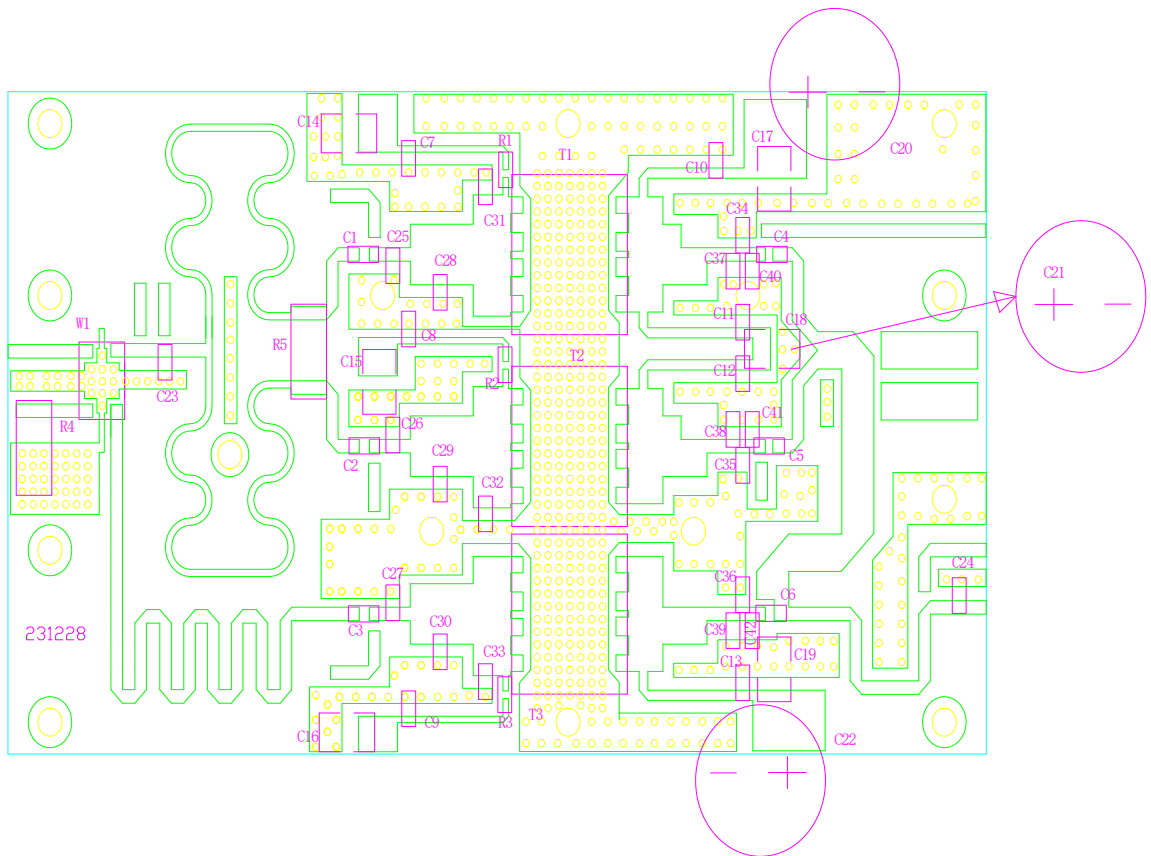


Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)
758	56.3	426.2	55.1	16.22	59.52	894.5	59.5
785	57.28	534.0	57.9	16.31	59.09	811.6	62.6
803	56.33	429.1	56.2	15.87	58.28	672.3	62.0

2) WCDMA

Freq (MHz)	Pout (dBm)	CCDF (dB)	ACPR (dBc)	Gain (dB)	Efficiency (%)
758	50.0	7.82	-29.2	16.5	49
785	50.0	7.93	-31.2	16.5	48
803	50.0	7.79	-31.8	16.1	47
758	50.5	7.59	-29.2	16.3	50
785	50.5	7.62	-31.0	16.6	49
803	50.5	7.39	-31.5	16.0	48

2. Demo PCB



BOM of Test Circuit (High Q capacitance)

Designator	Footprint	Comment	Quantity
C1, C2, C3, C4, C5, C7, C8, C9, C10, C11, C12, C13	0603	68 pF	12
C6, C40, C41, C42	0603	10 pF	4
C14, C15, C16, C17, C18, C19	1210	10uF/100V	6
C20, C21, C22		470uF/63V	3
C23	0603	1.2 pF	1
C24	0603	3.3 pF	1
C25, C26, C27	0603	12 pF	3
C28, C29, C30	0603	6.8 pF	3
C31, C32, C33	0603	3.0 pF	3
C34, C35, C36	0603	1.8 pF	3
C37, C38, C39	0603	8.2 pF	3
R1, R2, R3	0603	10Ω	3
R4	2512	51Ω	1
R5	2512	100Ω	1
W1		DC07F03 (YANTEL 3dB)	1
T1(peak), T2(peak), T3(main)		ITEV10250C9	3