

TA9410E

25 W CW 0.02 – 3.0 GHz GaN Power Transistor

Application Note: TA9410E EVB A

Application Note

20 MHz~525 MHz

50 V, 50 mA

Rev-2.2

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3. TA9410E-EVB-A Bill of Material

Component ID	Value	Manufacturer	Recommended Part Number
C11, C12	4.7 nF, 100 V	Murata	GCD188R72A472KA01
R31	3.6 Ω , 0.5 W	Panasonic	ERJ-P06J3R6V
L32	3.3 nH	Coil craft	0603HP-3N3XJLC
C33	8.2 pF	AVX	600S8R2CT250XT
L34	6.8 nH	Coil craft	0603HP-6N8XJLC
C35	4.7 pF	AVX	600S4R7BT250XT
L41	10 nH	Coil craft	0807SQ-10N
C42	2 pF	AVX	600S2R0CT250XT
L51	1.3 μ H	Coil craft	4310LC-132KEC
C52	0.1 μ F, 100 V	Murata	GRM31C5C2A104JA01
C53	4.7 μ F, 100 V	Murata	GCM32DC72A475KE02
C54	100 μ F, 63 V	Nichicon	UPW1J101MPD1TD
D71	7.5 V Zener	On Semiconductor	SZMMSZ5236BT1G
C72	0.1 μ F, 10 V	AVX	0603ZC104K4T2A
R73	24.9 Ω , 0.75 W	Vishay	CRCW121024R9FKEAHP
C78	47 μ F, 16 V	Murata	GRM32ER61C476ME15L
Q1	25 W GaN transistor	Tagore Tech	TA9410E
PCB	Rogers RO4350B, 20 mils, 2 oz copper		

Table 3.1 TA9410E-EVB-A BOM

4. TA9410E-EVB-A Biasing Sequence

Turn ON Device	Turn OFF Device
<ol style="list-style-type: none"> 1. Set V_G to -5 V 2. Set V_D to +50 V 3. Adjust V_G to reach required I_{DQ} current 4. Apply RF power 	<ol style="list-style-type: none"> 1. Turn RF power off 2. Turn off V_D 3. Turn off V_G

Table 4.1 TA9410E-EVB-A Bias and Sequencing

5. TA9410E-EVB-A Board Measurement Summary

Frequency (MHz)	S21 Gain(dB)	S11 (dB)	S22 (dB)	Psat (dBm)	PAE (%) @Psat
20	21.3	-11.3	-2.7	44.6	77
100	21.4	-10.7	-2.9	44.9	80
200	21.4	-9.0	-3.1	44.8	75
350	21.3	-8.5	-3.5	44.4	70
525	21.5	-11.0	-3.6	44.4	64

Table 5.1 TA9410E-EVB-A Electrical Characteristics Summary

6. TA9410E-EVB-A Test Results

All the tests are carried out at room temperature.

6.1. S parameters

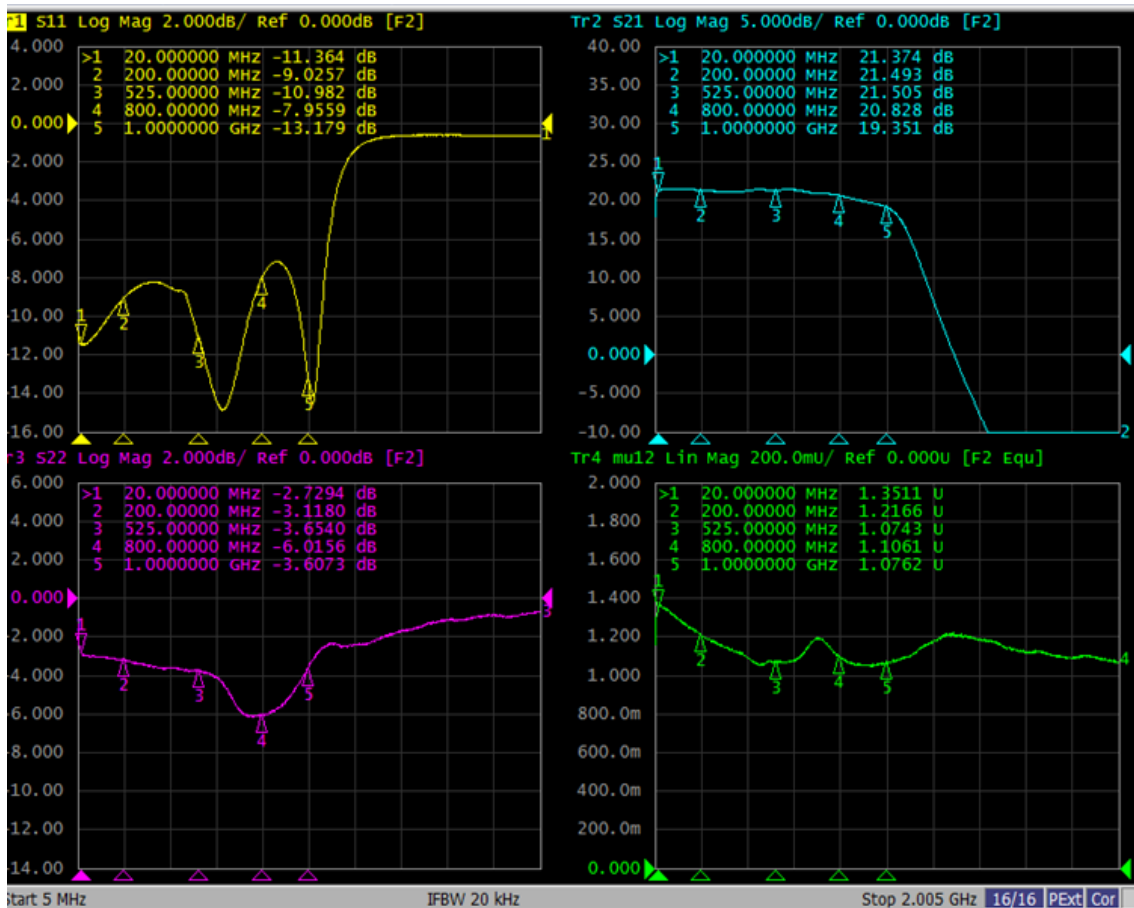


Figure 6.1.1. S parameters of TA9410E-EVB-A

6.2. Large Signal Test Results

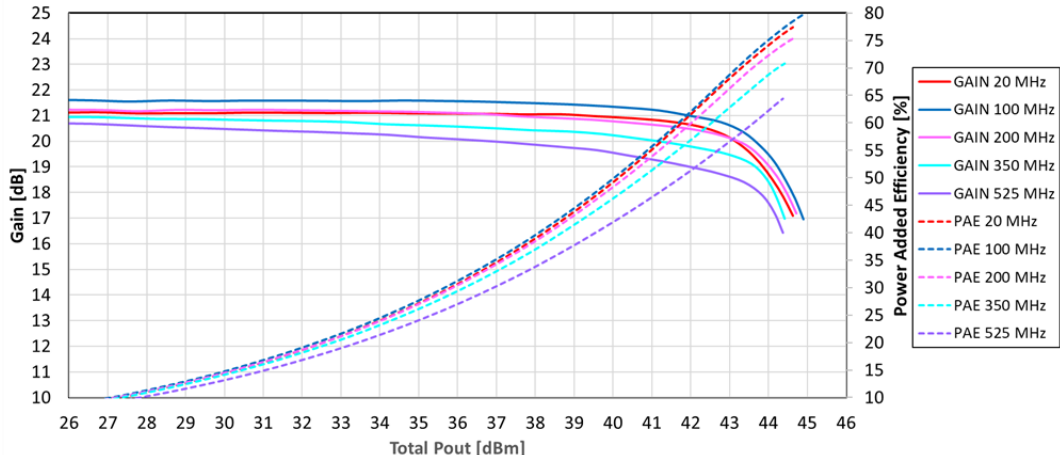


Figure 6.2.1. Gain and PAE Vs Pout of TA9410E-EVB-A

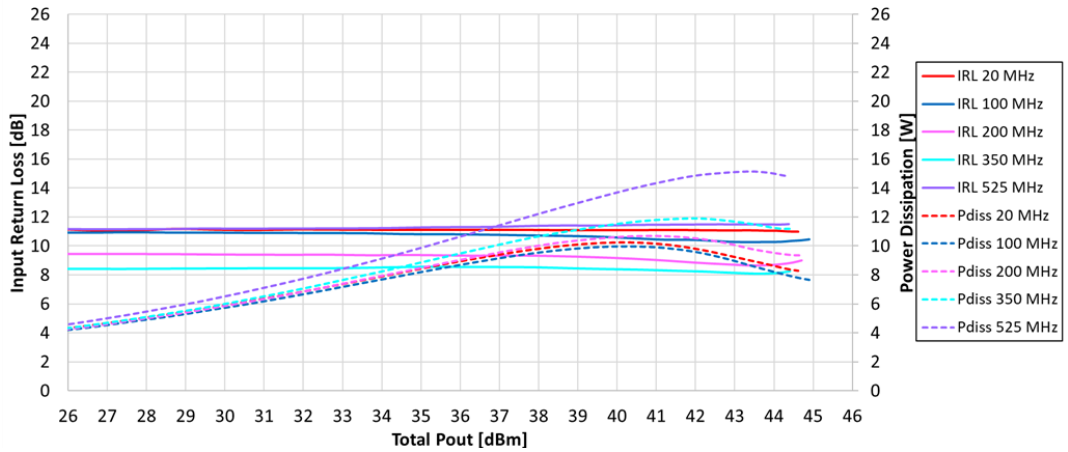


Figure 6.2.2. IRL and Pdiss Vs Pout of TA9410E-EVB-A

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601 W Campus Dr. Ste C1

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