

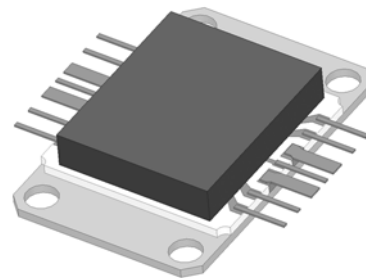
MR500XFL

50/80 W, 28/36 V, 8.0-10.5 GHz, GaN PA MMIC



Product Features

- Radar band 8.0-10.5 GHz
- Supply voltage 28 / 36 V
- Saturated output power 50 / 80 W
- Drain efficiency 35.3%
- Packaged 3-stage power amplifier
- 11.3×17.3 mm² size flange package



11.3 mm × 17.3 mm flange package

Applications

- Air Defense Radar
- Weather Radar

Description

The MR500XFL is a fully integrated flange-packaged 3-stage power amplifier designed for radar applications, covering frequency range from 8.0 GHz to 10.5 GHz. The device delivers saturated output power of 50 / 80 W and has more than 35.3% drain efficiency with operating drain voltage of 28 / 36 V.

Electrical Specifications

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	CONDITIONS
Frequency range	f	8.0		10.5	GHz	
Small signal gain	G		27.2 / 28.6		dB	
Gain flatness	ΔG	0.6		2.8	dB	Over any 1 GHz bandwidth
Input return loss	S ₁₁		10		dB	
Output return loss	S ₂₂		10		dB	
Saturated output power	P _{sat}	47.3 / 49.0		48.7 / 50.4	dBm	
Drain efficiency	η	35.3 / 37.2		42.0 / 41.7	%	

Note: V_{DD}=28/36 V, I_q=350/410 mA, T=+25°C, 100 μ s 10% pulsed CW signal

DC Characteristics

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	CONDITIONS
Gate threshold voltage	V_{GS_TH}		-2.85		V	
Gate quiescent voltage	V_{GS_Q}		-2.45		V	
Saturated drain current	I_{D_SAT}	5000		8000	mA	
Drain-source breakdown voltage	V_{D_B}		120		V	

Absolute Maximum Ratings

PARAMETER	SYMBOL	RATING	UNIT	CONDITIONS
Drain-source voltage	V_{DSS}	120	V_{DC}	
Gate-source voltage	V_{GS}	-10, +2	V_{DC}	

Electrostatic Discharge (ESD) Classifications

PARAMETER	SYMBOL	CLASS	TEST METHODOLOGY
Human body model	HBM	TBD	TBD
Charge device model	CDM	TBD	TBD

Figure 1. Gain and return losses vs. frequency

$V_{DD}=28\text{ V}$, $I_Q=350\text{ mA}$, $T=25^\circ\text{C}$

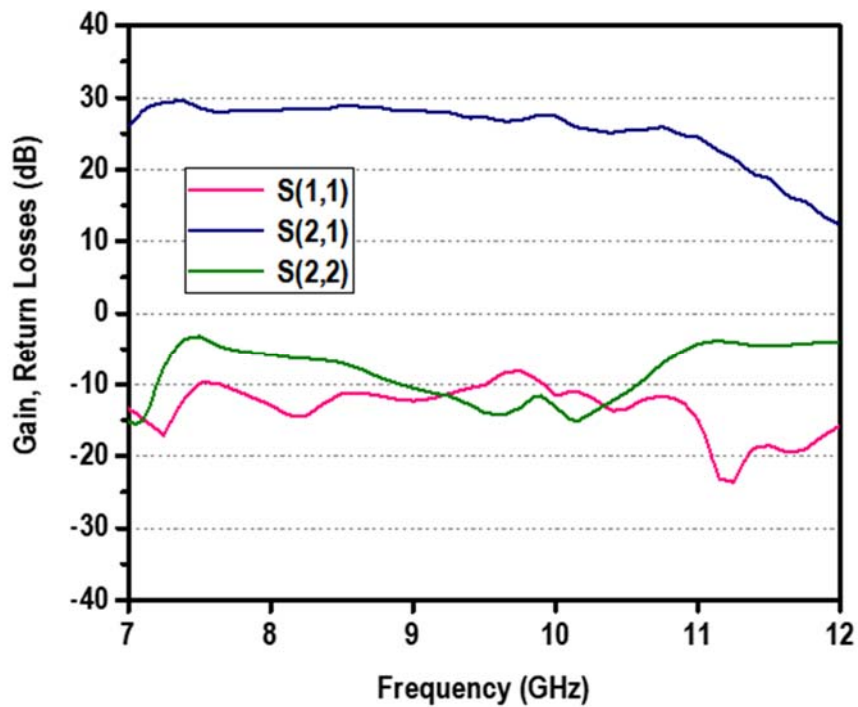


Figure 2. Gain and return losses vs. frequency

$V_{DD}=36\text{ V}$, $I_Q=410\text{ mA}$, $T=25^\circ\text{C}$

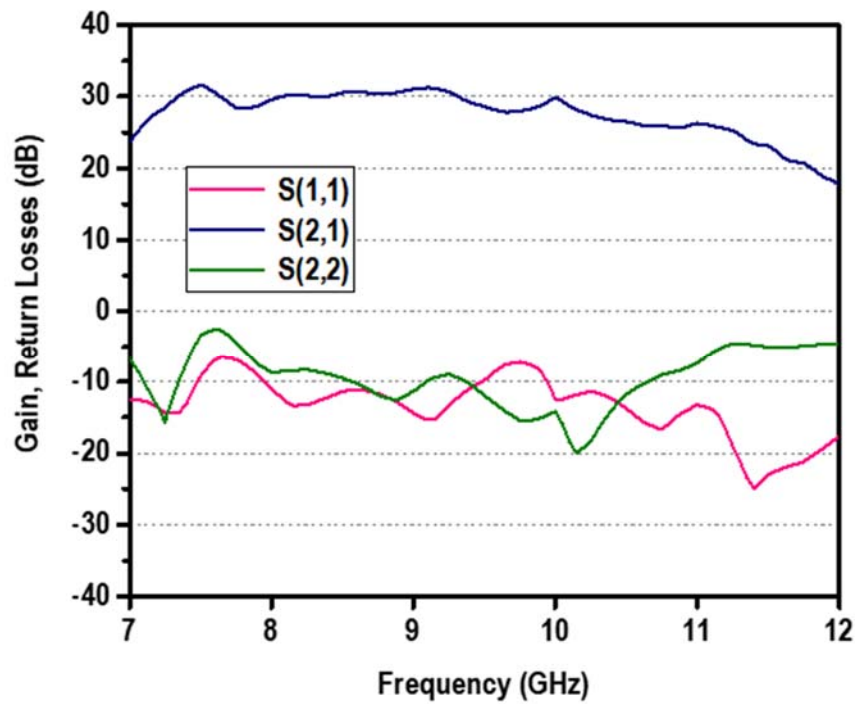


Figure 3. Output power, gain, and drain efficiency vs. frequency

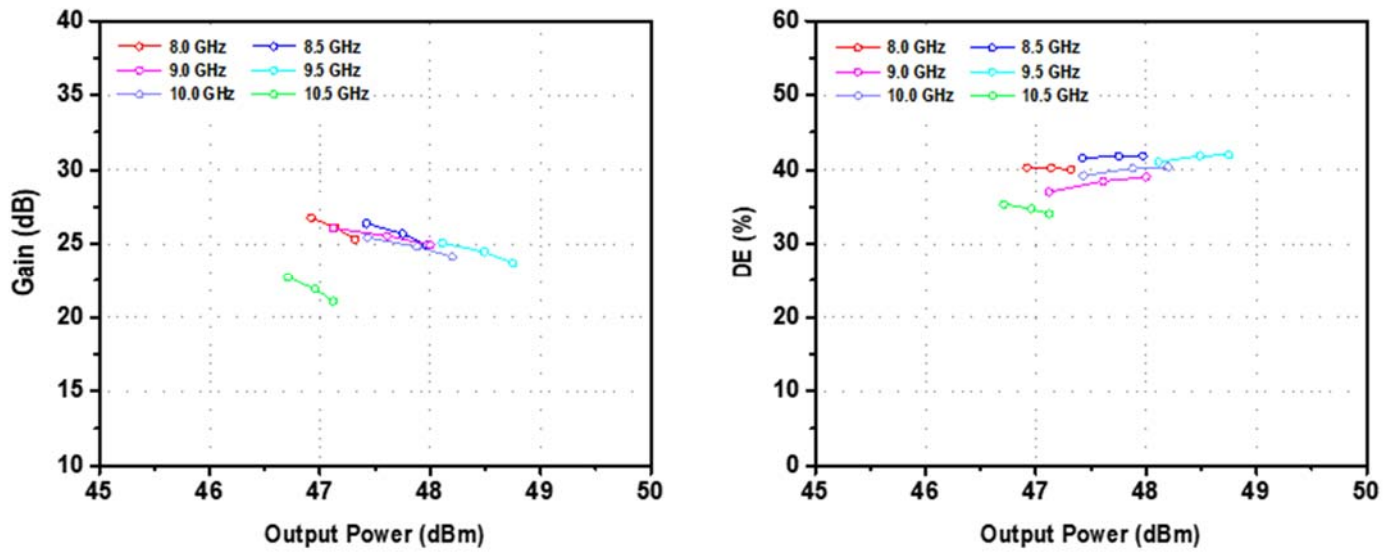
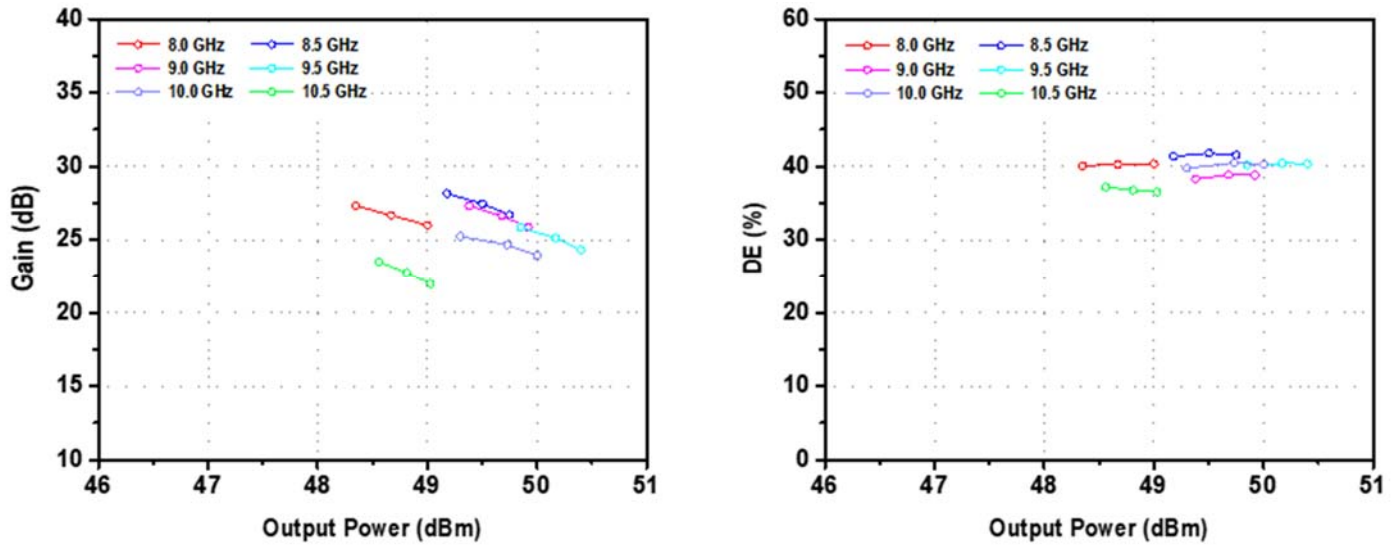
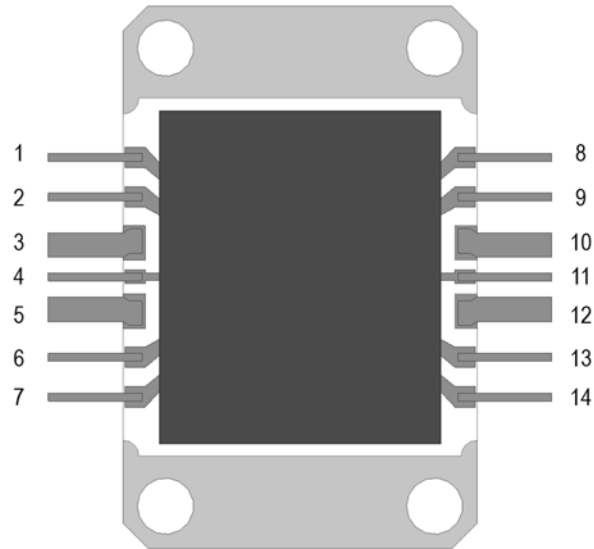
 $V_{DD}=28\text{ V}$, $I_Q=350\text{ mA}$, $T=25^\circ\text{C}$, pulse width=100 μs , duty cycle=10%


Figure 4. Output power, gain, and drain efficiency vs. frequency

 $V_{DD}=36\text{ V}$, $I_Q=410\text{ mA}$, $T=25^\circ\text{C}$, pulse width=100 μs , duty cycle=10%


MR500XFL Pin Map



PIN NO.	DESCRIPTION
1, 7	V_{GS}
2, 3, 5, 6, 9, 10, 12, 13	GND
4	RF input
8, 14	V_{DD}
11	RF output

For more information, please contact:

85517, Research Business Center
2066 Seobu-ro
Jangan-gu, Suwon-si, Gyeonggi-do, Korea
www.para-pa.com

Sales Contact
parapacompany@para-PA.com