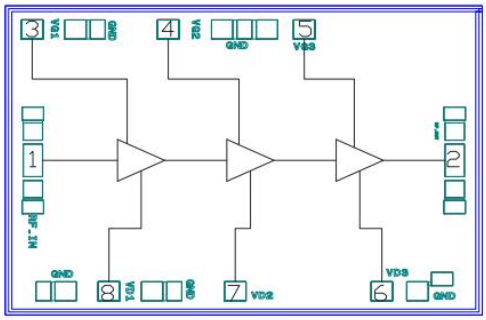
TFPA366-H
3.4~8.5 GHz GaAs MMIC Power Amplifier

★1.Product Features

- Frequency range: 3.4 ~ 8.5 GHz
- Gain: 28 dB
- Output P1dB: 26 dBm
- Input return loss: -15 dB
- Output return loss: -25 dB
- PAE at P1dB: 26 %
- Chip dimensions: 2.18 × 1.58 × 0.1 mm³
- Replacement for foreign model: EMM5078X

Functional block diagram



★2.Product Introduction

TFPA366-H is a GaAs power amplifier chip operating over the 3.4 ~ 8.5 GHz band with dual bias supplies. At a +6 V supply it delivers 28 dB gain and 26 dBm output power at the 1 dB compression point. Both its performance and its outline interface are interchangeable with the foreign product EMM5078X.

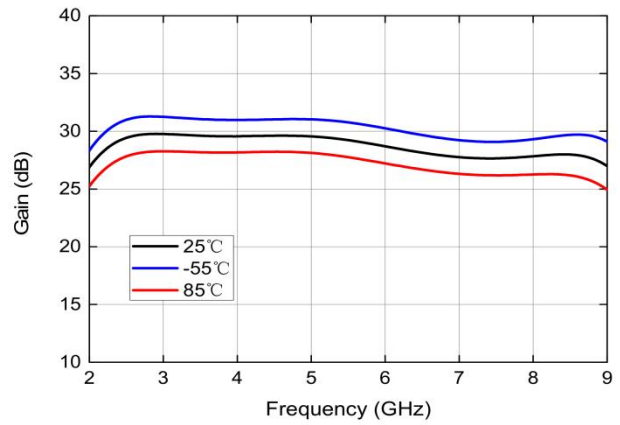
The backside of the chip is metalized and is therefore suitable for conductive adhesive bonding or eutectic soldering. On-chip metallized through-wafer vias ensure good grounding, so the chip is simple to use and requires no additional grounding measures.

★3.Microwave Electrical Parameters (TA=+25℃, 50 Ω system, VD=+6V)

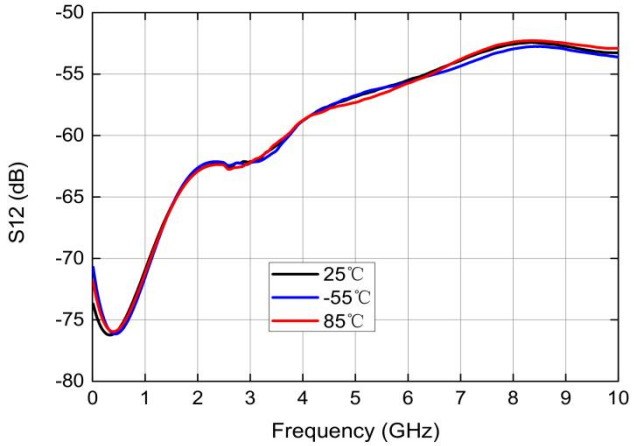
Parameter	Symbol	Min.	Typ.	Max.	Unit
Frequency range	Freq	3.4	—	8.5	GHz
Gain	Gain	—	28	—	dB
Gain flatness	δGain	—	±1.5	—	dB
Output P1dB	OP1dB	—	26	—	dBm
PAE at P1dB	PAE	—	26	—	%
Input return loss	RL_in	—	-15	—	dB
Output return loss	RL_out	—	-25	—	dB
Quiescent current	IDQ*	—	320	—	mA
* The VG voltage (-1.5 V ~ -0.5 V) shall be adjusted during use so that the quiescent current IDQ = 320 mA.					

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Website:ttfelectronic.com

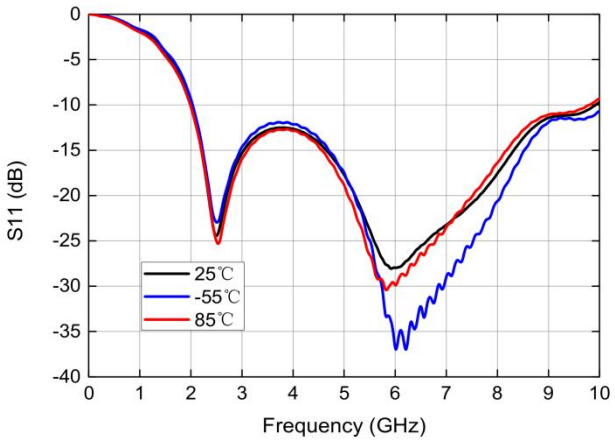
★4.Typical Test Curves



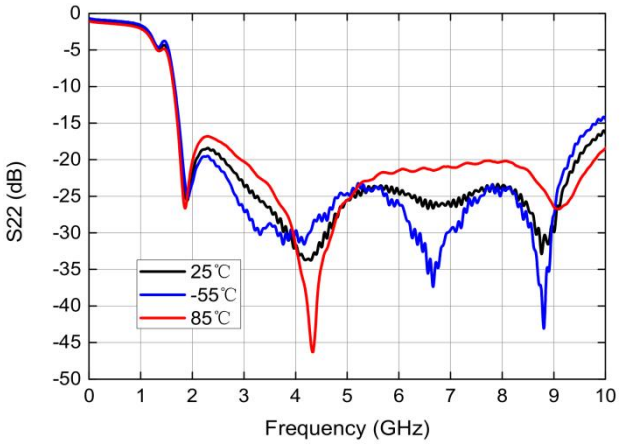
Gain vs frequency



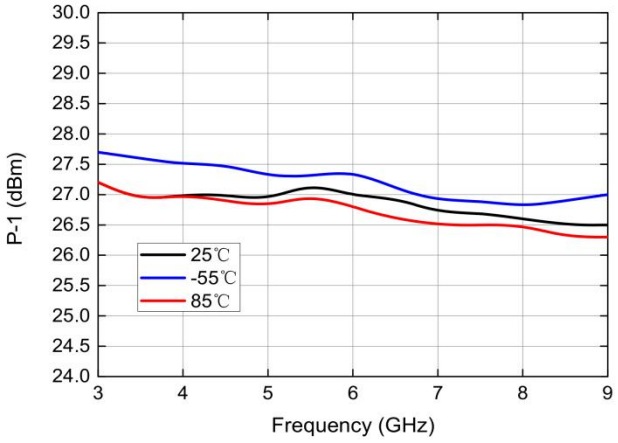
Reverse isolation vs frequency



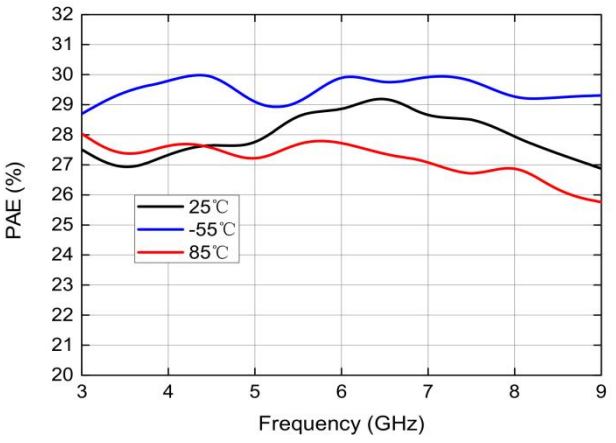
Input return loss vs frequency



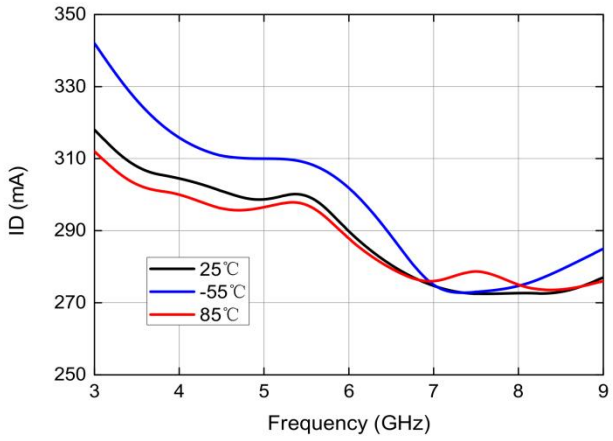
Output return loss vs frequency



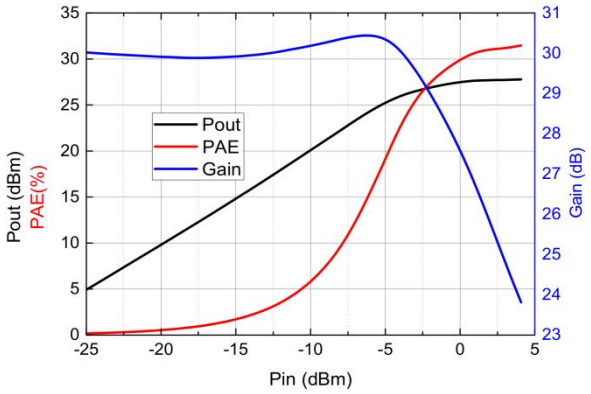
Output P1dB vs frequency



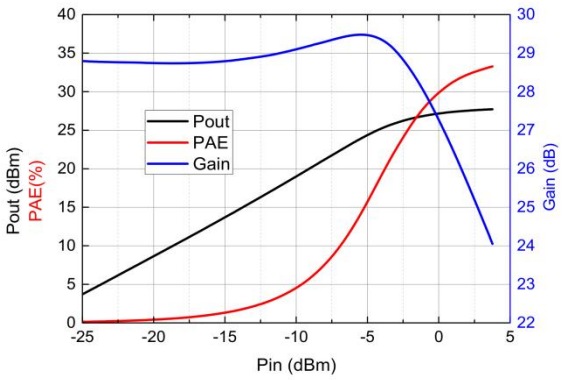
PAE at P1dB vs frequency



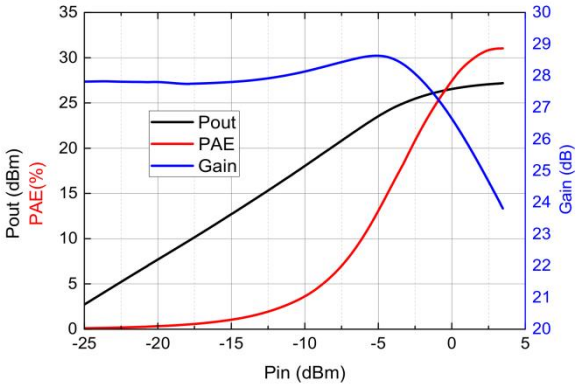
Dynamic current at P1dB vs frequency



Output power, power gain and PAE vs input power (@3.4 GHz, TA=25℃)

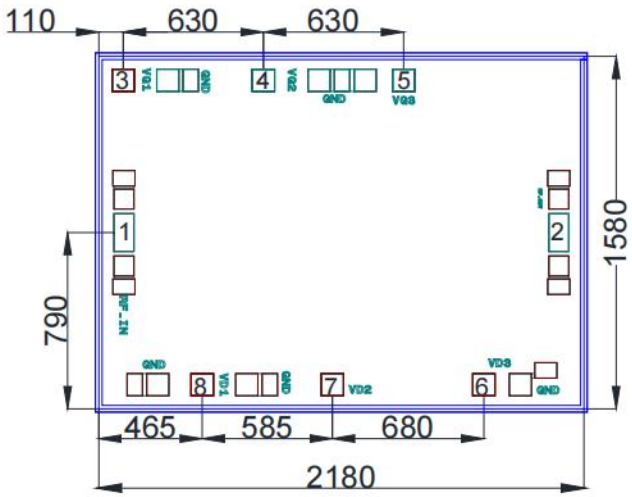


Output power, power gain and PAE vs input power (@6.0 GHz, TA=25℃)



Output power, power gain and PAE vs input power (@8.5 GHz, TA=25℃)

★5.Outline Dimensions

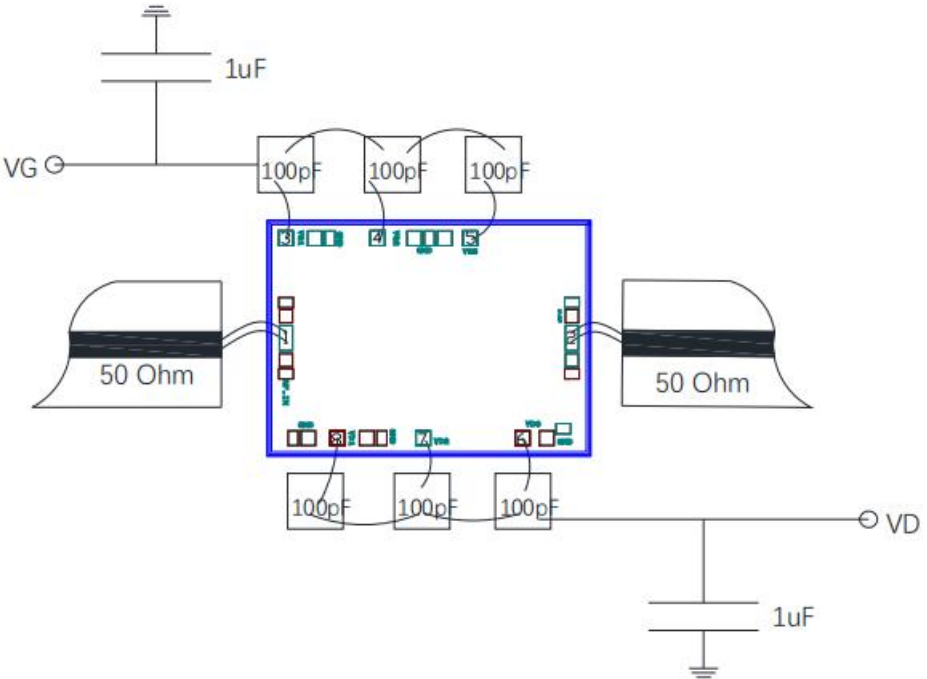


Notes:
1. Unit: μm
2. The backside of the chip is gold-plated for grounding
3. RF pad size: 150 μm × 100 μm
4. DC pad size: 100 μm × 100 μm
5. Outline dimension tolerance: ± 50 μm

★6.Bonding Pad Definition

Pad No.	Function	Description
1	RFin	RF signal input, connected to an external 50 Ω system, with internal DC block
2	RFout	RF signal output, connected to an external 50 Ω system, with internal DC block
3	VG1	Gate negative-voltage supply terminal 1
4	VG2	Gate negative-voltage supply terminal 2
5	VG3	Gate negative-voltage supply terminal 3
6	VD1	Drain 6 V supply terminal 1
7	VD2	Drain 6 V supply terminal 2
8	VD3	Drain 6 V supply terminal 3

★7.Reference Circuit



★8.Precautions

Absolute Maximum Ratings	Numerical value
Input power Pin, 50 Ω	10 dBm
Drain voltage	+10 V
Storage temperature	-65 ℃ ~ +150 ℃
Operating temperature	-55 ℃ ~ +85 ℃
Sintering temperature (30 s, N2 protection)	300 ℃
Exceeding any one of the above conditions may cause permanent damage to the chip.	



This product is sensitive to static electricity.

Please take precautions against static electricity during use.