

XT3109Q6



GaAs MMIC Power Amplifier
5GHz~6GHz 37dBm

Rev2.1

Features

- Frequency: 5GHz~6GHz
- Gain: 34dB
- Output P_{-1dB}: 35dBm@8V
- Supply Voltage: +5~8V
- Power-Added Efficiency: 40%@8V
- Package Size: 6mm×6mm×1.1mm

Typical Applications

- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

General Description

The XT3109Q6 is a C-band GaAs MMIC power amplifier. The XT3109Q6 provides 34 dB of gain, and +35 dBm of output power for 1dB compression and 40% PAE from a +8V supply.

Electrical Performance ($T_A=25^{\circ}\text{C}$, $V_D=+8\text{V}$, $I_D=1.1\text{A}$, $Z_0=50\Omega$)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	5 ~ 6			GHz
Small Signal Gain	25	34	—	dB
Small Signal Gain Flatness	—	±1.5	—	dB
Reverse Isolation	—	-40	—	dB
Input Return Loss	—	-22	—	dB
Power-Added Efficiency	—	40	—	%
Output Power for 1 dB Compression (OP _{-1dB})	35.5	35	—	dBm
Drain Voltage(V _D)	—	8	—	V
Supply Current(I _D)	—	1.5	2.2	A

Absolute Maximum Ratings

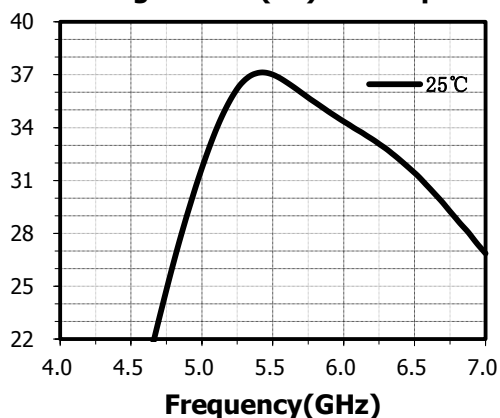
Maximum Input Power	+20dBm	Operating Temperature	-55°C~+85°C
Junction Temperature	+150°C	Storage Temperature	-65°C~+150°C
Maximum V _D	+9V	Maximum V _G	-1.2V

Typical Performance Curve

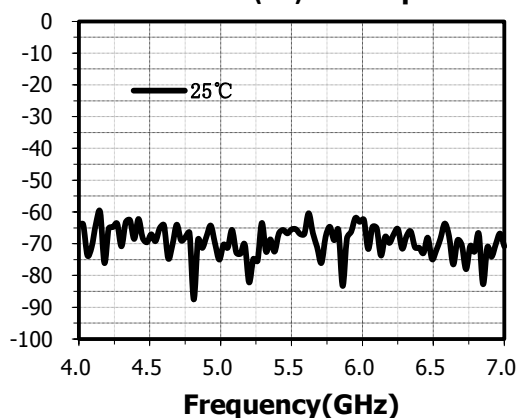
S-parameters

$V_D=8V$ $I_{DQ}=1.1A$ $T_A=25^{\circ}C$

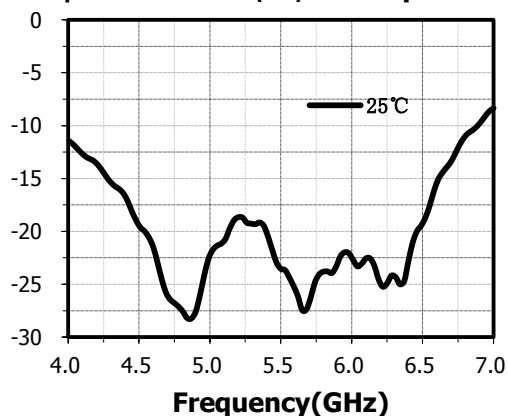
Small Signal Gain(dB) vs.Temperature



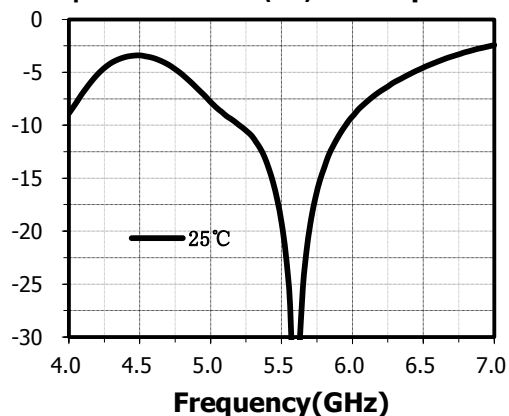
Reverse Isolation(dB) vs.Temperature



Input Return Loss(dB) vs.Temperature



Output Return Loss(dB) vs.Temperature



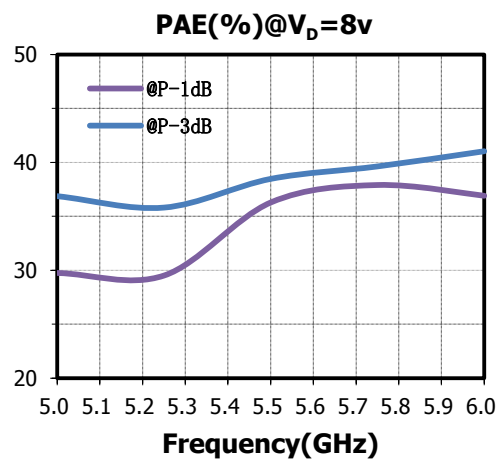
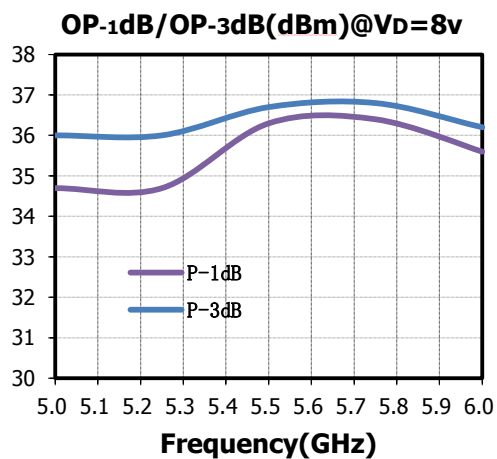
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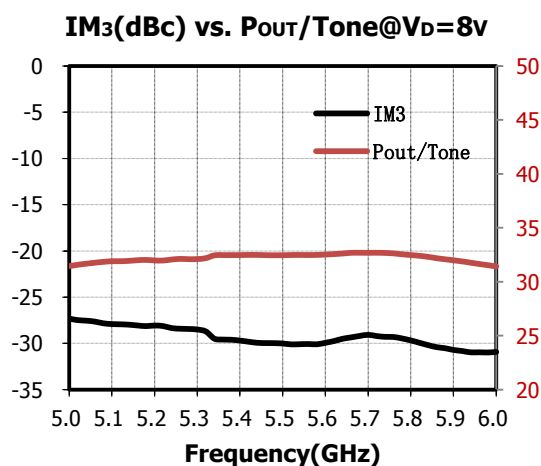
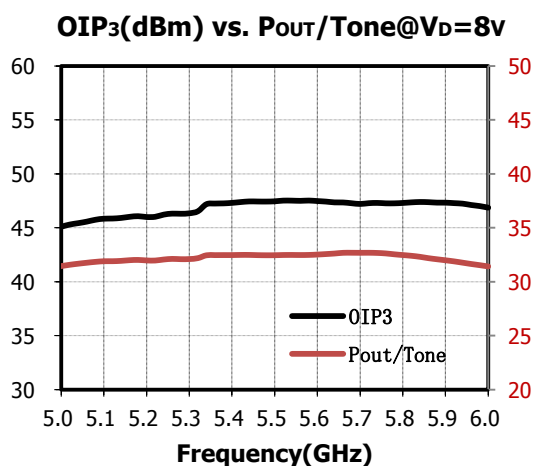
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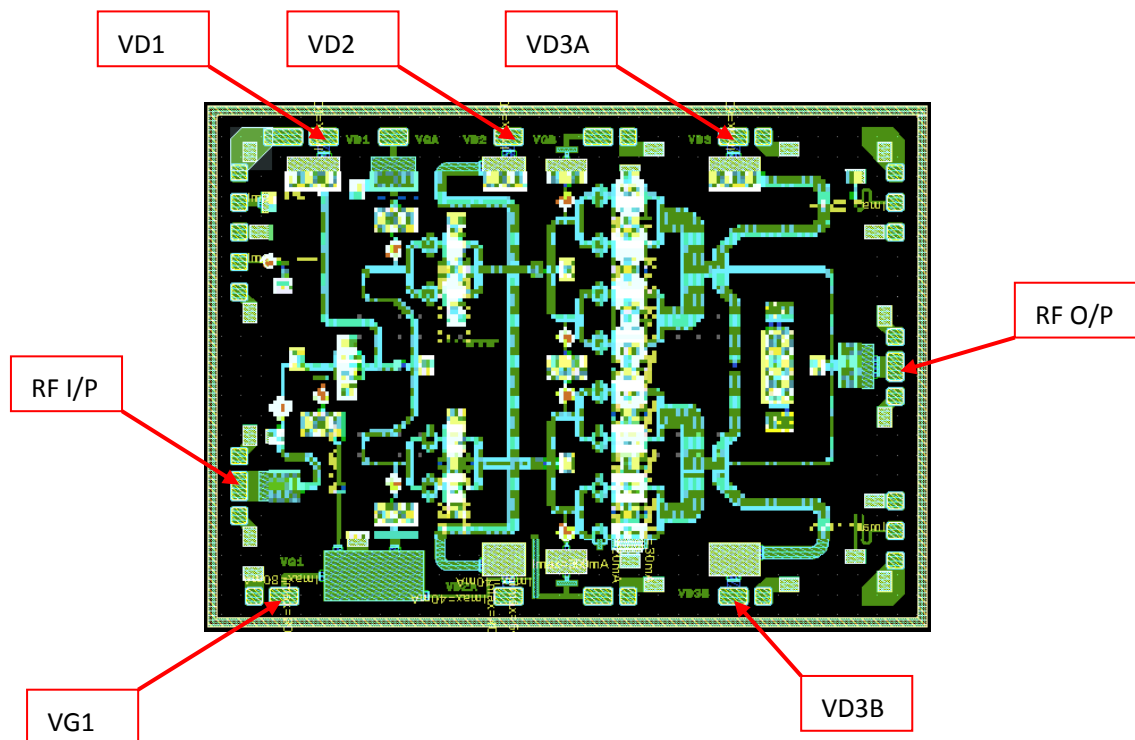
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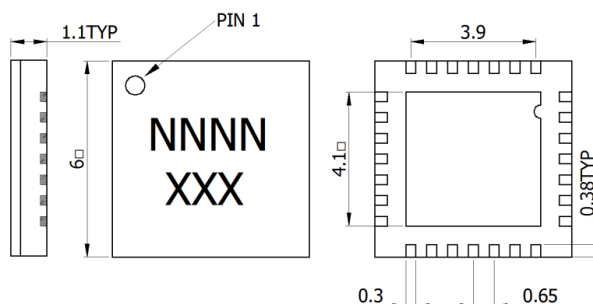
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Bare die physical layout



QFN 6x6 Outline Drawing

Lead-Free 6mm 28-Lead PQFN (all dimensions in mm)



Attention:

GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.