XT3010

GaAs MMIC Low Noise Amplifier
0.7GHz～6GHz

Rev 2.0

Features

- Frequency：0.7GHz～6GHz
- Gain：16dB
- OutputP_{-1}dB：16.5dBm
- Supply Voltage：+5V@45mA
- Die Size：1.2mm×1.25 mm×0.1 mm

Typical Applications

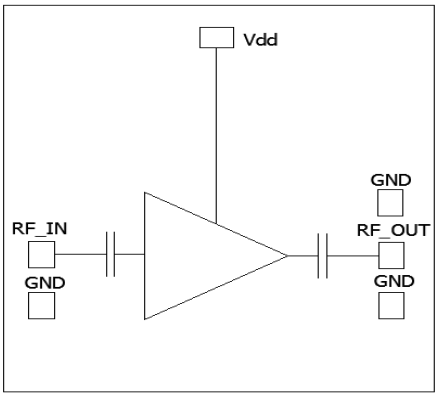
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

XT3010 is a GaAs MMIC low noise amplifier die which operates between 0.7GHz～6GHz. The amplifier can provide 16dB gain, 16.5dBm OutputP_{-1}dB and 2.3dB noise figure from a 45 mA supply current.

The chip offers full passivation for increased reliability and moisture protection. This amplifier is the perfect alternative to higher cost hybrid amplifiers.

Functional Diagram



Electrical Performance (T_A=25℃,V_D=+5V,I_D=45mA,Z_0=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range		0.7～6		GHz
Gain	—	16	—	dB
Gain Flatness	—	1.8	—	dB
Reverse Isolation	—	-25	—	dB
Input/Output VSWR	—	1.7	—	： 1
Noise Figure	—	2	—	dB
Output Power for 1 dB Compression (OP$_{-1}$dB)	—	16.5	—	dBm
Output Third Order Intercept (OIP$_3$)	—	27	—	dBm
Supply Current(I_D)	—	45	—	mA

Absolute Maximum Ratings

Maximum Input Power	+18dBm	Operating Temperature	-55℃～+85℃
Channel Temperature	+150℃	Storage Temperature	-65℃～+150℃

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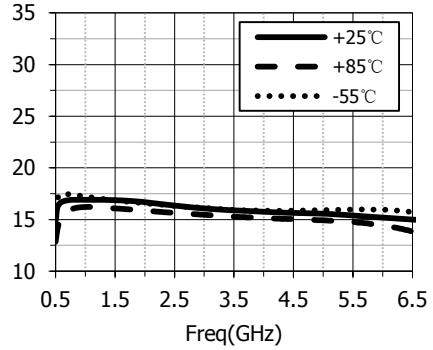
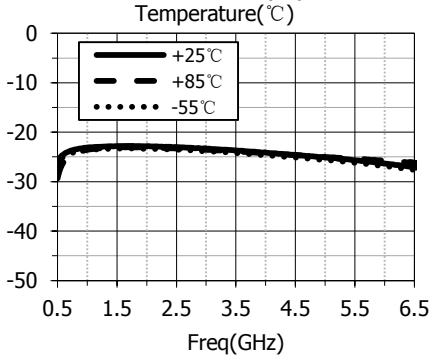
Typical Performance Curve

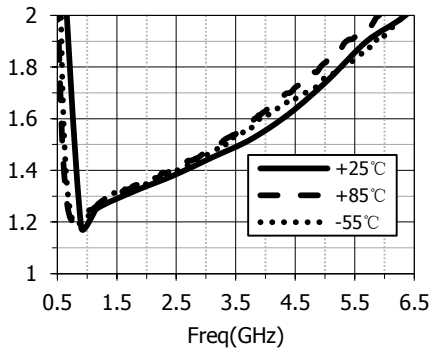
Gain (dB)vs.Temperature(℃)



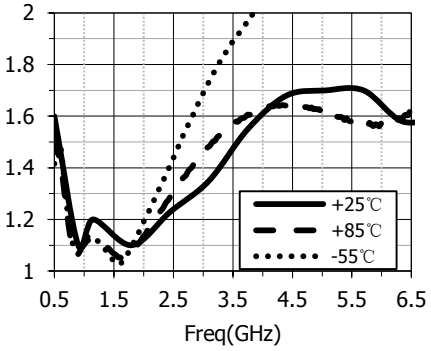
Reverse Isolation (dB)vs. Temperature(℃)



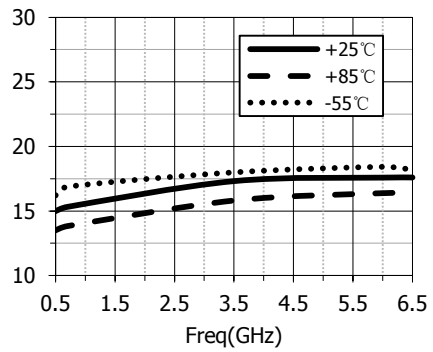
Input VSWR(:1)vs. Temperature(℃)



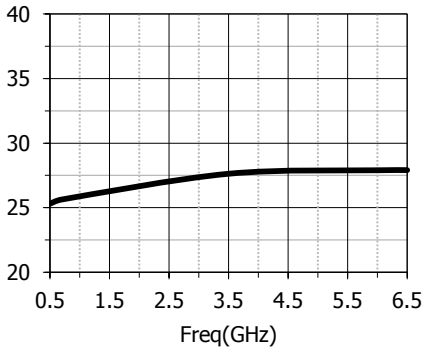
Output VSWR (:1)vs.Temperature(℃)



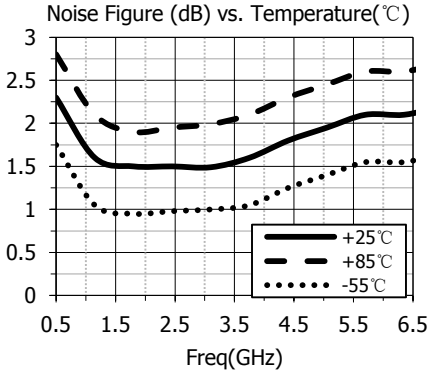
Output P_{-1}dB (dBm)vs.Temperature(℃)



Output IP_3(dBm)

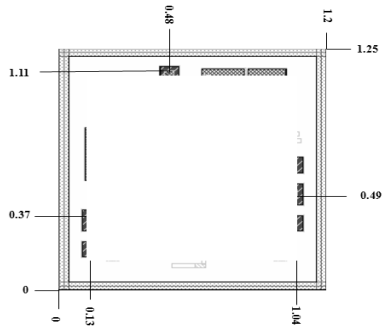


Noise Figure (dB) vs. Temperature(℃)

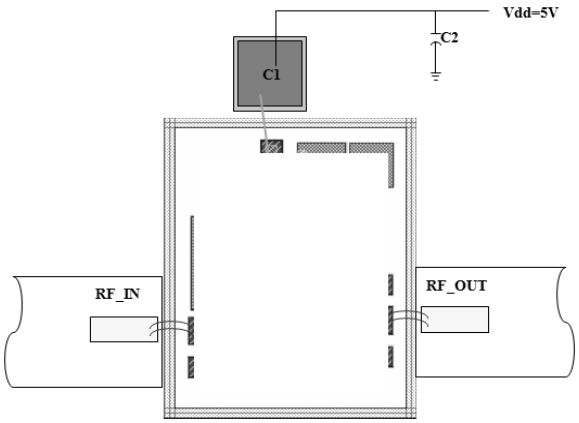


Die Outline

(all dimensions in mm)



Assembly Diagram



Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	300pF	CHIP CAPACITOR	RADVISTA	—
C2	10nF	GRM155R71H103KA88D	MURATA	0402

Attention:

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