

Features

- Frequency: 6~8.5GHz
- Gain: 24dB
- Noise Figure: 0.7 dB typ. 0.85dB max.
- Single Power Supply: +4V/55mA
- Output P₁dB: 15dBm@8GHz
- Die Size: 1.5mm×1.24mm×0.1mm

Typical Applications

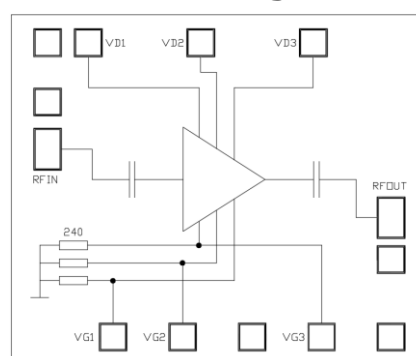
- Radar and ECM
- RF/ Microwave Radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

XT3075 is a GaAs MMIC low noise amplifier die which operates between 6~8.5GHz. The amplifier can provide 24dB gain, 15dBm Output P₁dB and 0.8dB noise figure from a 55mA 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°C,V_d=+4V,I_D=55mA,Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	6~8.5			GHz
Gain	22	24	27	dB
Gain Flatness	—	±0.75	—	dB
Reverse Isolation	—	-50	—	dB
Input VSWR/ Output VSWR	—	1.5	2	: 1
Noise Figure	—	0.7	0.9	dB
Output P ₁ dB	13	15	—	dBm
Output IP ₃	—	22*	—	dBm
Supply Current(I _D)	—	40	70	mA
Supply Voltage(V _D)	3	—	4	V

- Pout/Tone=0dBm Fc=8GHz,Δf=1MHz

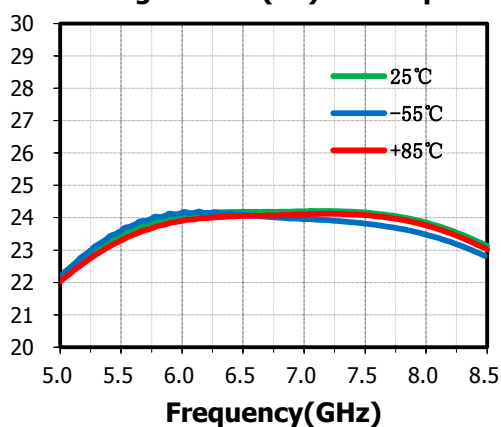
Absolute Maximum Ratings

Maximum Input Power	+13dBm, CW, 1min	Operating Temperature	-55℃~+85℃
Channel Temperature	+150℃	Storage Temperature	-65℃~+150℃
Supply Voltage	5V		

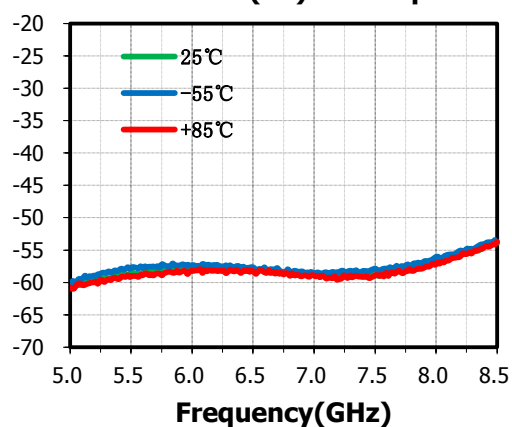
Typical Performance Curve

VD=+3V, IDQ=45mA

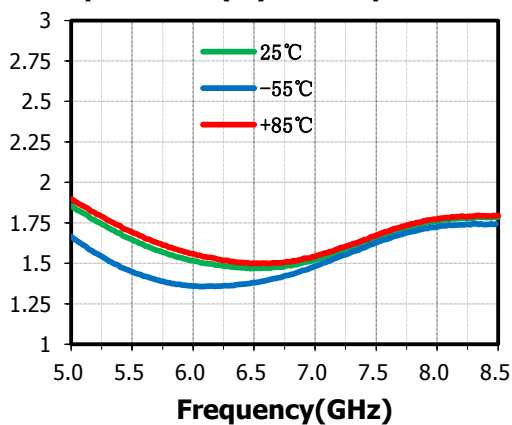
Small Signal Gain(dB) vs.Temperature



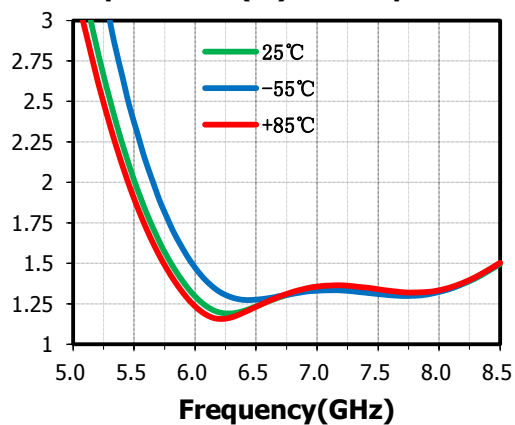
Reverse Isolation(dB) vs.Temperature



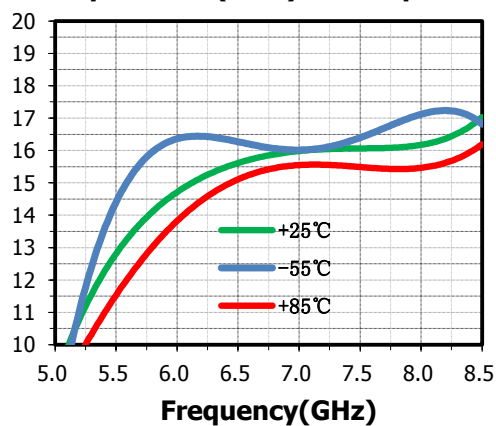
Input VSWR(:1) vs.Temperature



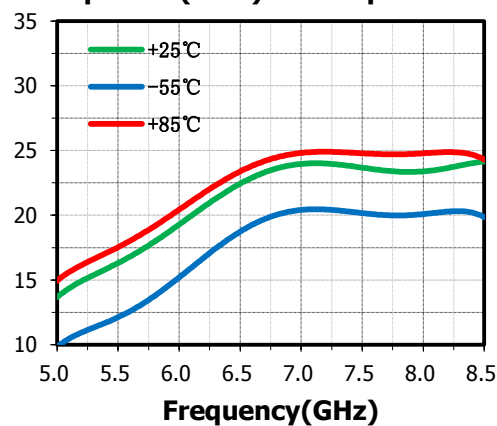
Output VSWR(:1) vs.Temperature



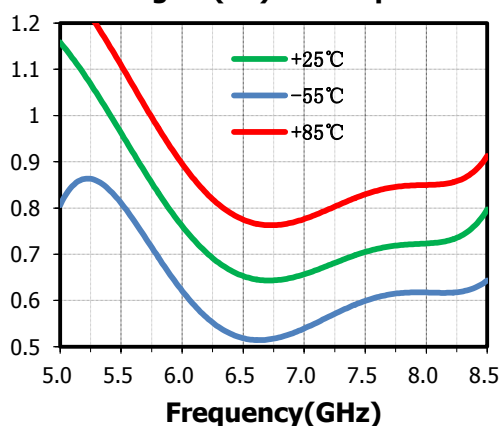
Output P_{1dB}(dBm) vs.Temperature



Output IP₃(dBm) vs.Temperature

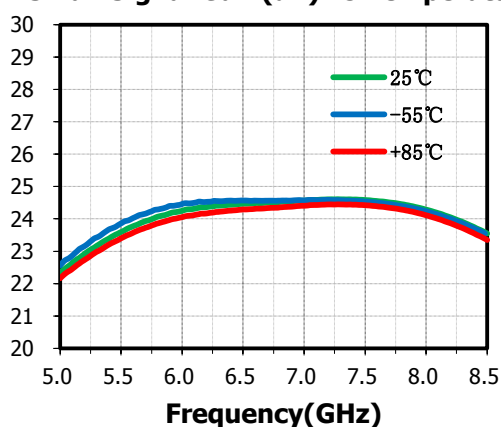


Noise figure(dB) vs.Temperature

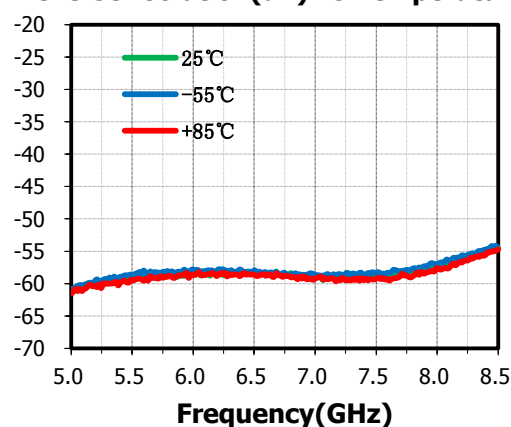


VD=+4V, IDQ=55mA

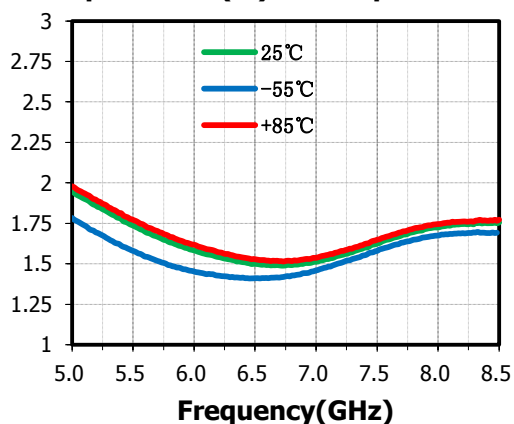
Small Signal Gain(dB) vs.Temperature



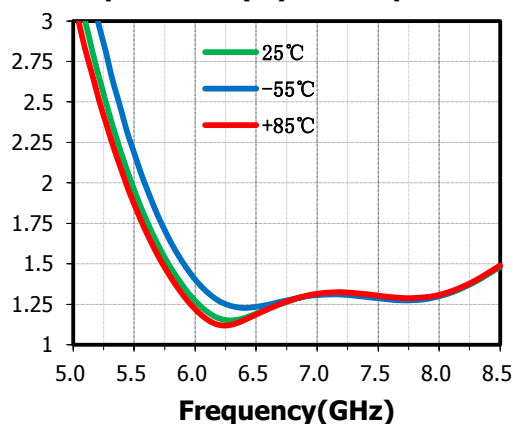
Reverse Isolation(dB) vs.Temperature



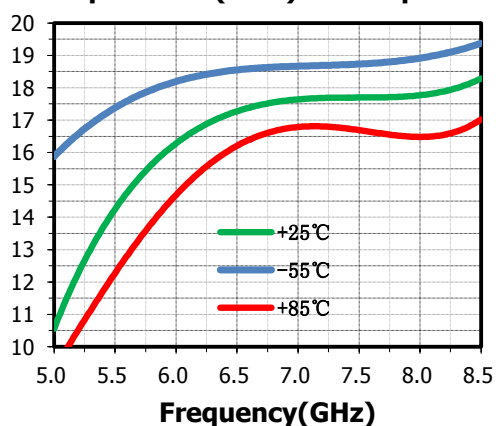
Input VSWR(:1) vs.Temperature



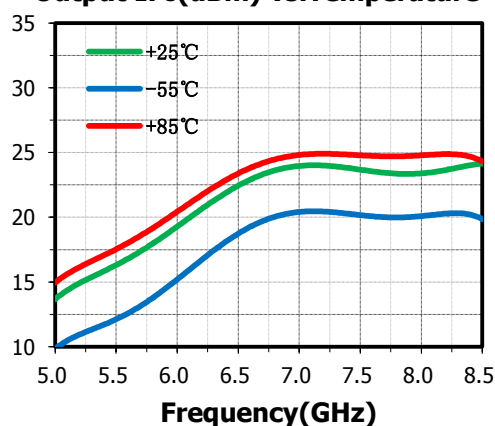
Output VSWR(:1) vs.Temperature



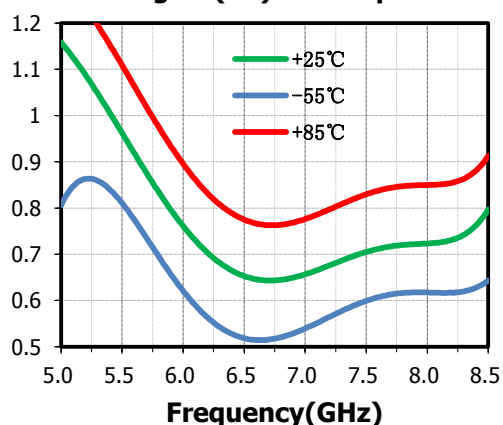
Output P-1dB(dBm) vs.Temperature



Output IP₃(dBm) vs.Temperature



Noise figure(dB) vs.Temperature



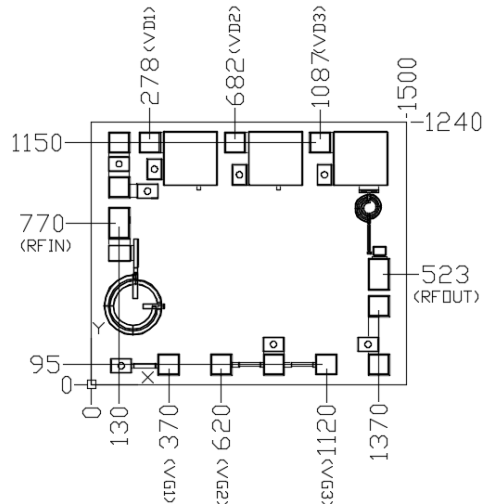
XT3075



GaAs MMIC Low Noise Amplifier
6~8.5GHz

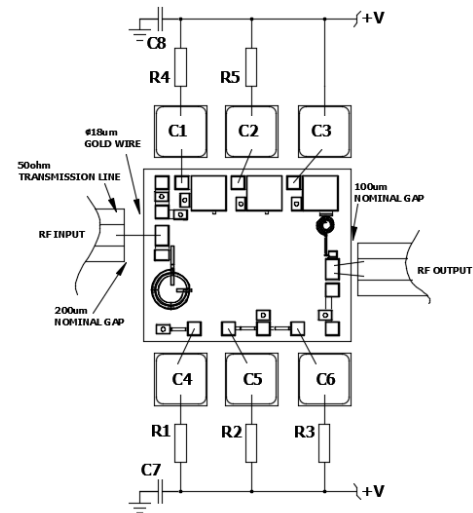
Rev 1.1

Outline (all dimensions in μm)



Pads Size: VD1~VD3, VG1~VG3 90*90 μm
RFIN,RFOUT:90*130 μm

Assembly Diagram



Components List

Reference Des.	Value	Part Number	Manuf.	Size
R1~R3	1K	—	ANY	0603
C1~C6	100pF	SLC	ANY	—
R4	22R	—	ANY	0603
R5	2.2R	—	ANY	0603

Attention:

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