

SAC3122QP4



GaAs MMIC Power Amplifier
1MHz~3000MHz 30dBm

Rev 1.1

Features

- Frequency : 1MHz~3000MHz
- Gain: 25.5dB
- Output P₁dB: 30dBm
- Supply Voltage: +10~+14V
- Package Size: 4mm×4mm×1.2mm

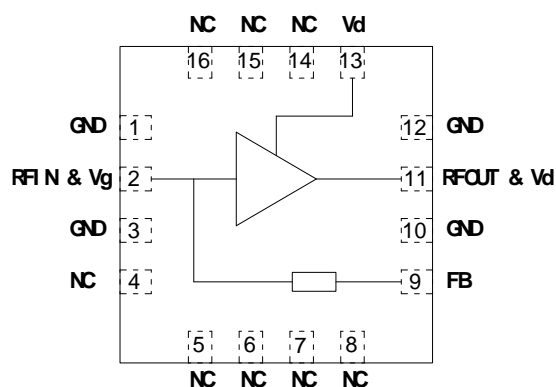
Typical Applications

- Point-to-Point Radios
- SATCOM
- Military and Space
- Test and Measurement
- Radar

General Description

SAC3122QP4 is a wideband medium power amplifier which operates between 1MHz~3000MHz. The amplifier provides 25.5dB of gain, 30dBm P₁dB power and 40% PAE from a +10~+12V supply voltage, making it an ideal driver amplifier for high efficiency applications.

Functional Diagram



Electrical Performance (T_A=25°C, V_d=12V, Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	1~3000			MHz
Small Signal Gain	—	25.5	—	dB
Small Signal Gain Flatness	—	±0.5	—	dB
Reverse Isolation	—	-28	—	dB
Input VSWR	—	2	—	:1
Output VSWR	—	2.5	—	:1
Power-Added Efficiency	—	40	—	%
Output Power for 1 dB Compression (OP ₁ dB)	—	31	—	dBm
OIP3	—	42	—	dBm
Drain Voltage(V _D)	10	—	14	V
Supply Current(I _D)	—	240	340	mA

V_g=-1~0V,-0.7V Typ.

Absolute Maximum Ratings

Maximum Input Power	+20dBm	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Maximum V _D	+15V	Maximum I _D	400mA

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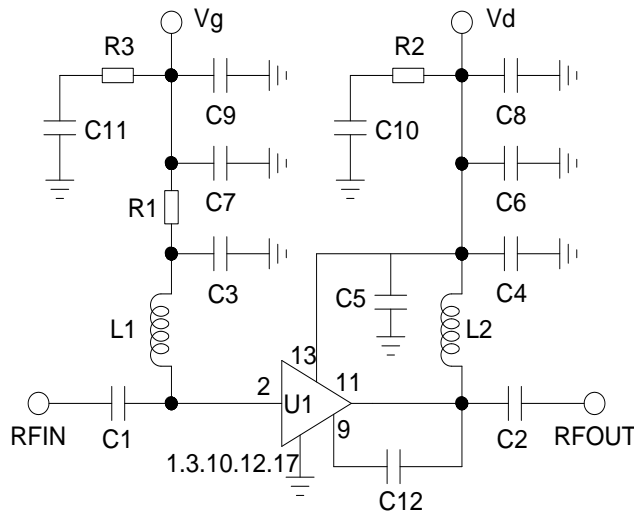
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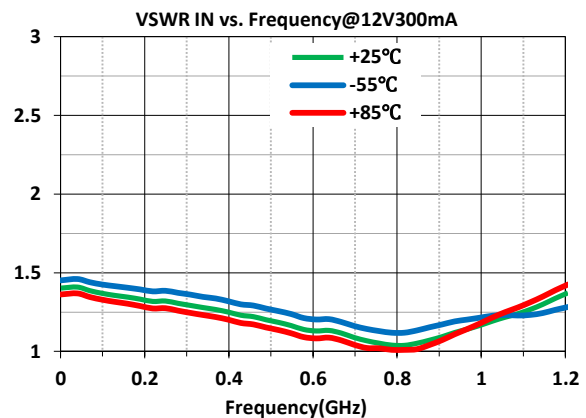
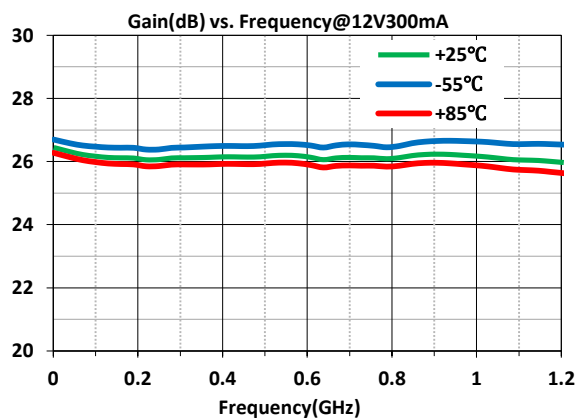
Application Circuit Configuration – 1 to 1000 MHz



Bill of Material - SAC3122Q4-1 to 1000 MHz

Reference Designation	Part Number	Description	Manuf.
U1	SAC3122Q4	SAC3122Q4	—
C1,C2,C3,C4,C5,C10,C11	0402YC473KAT2A	0.047uF ,Cap,0402	AVX
C6,C7	08053C105K4Z2A	1uF,Cap,0805	AVX
C8,C9	1206YD226KAT2A	22uF,Cap,0805	AVX
C12	04025C472JAT2A	4700pF,Cap,0402	AVX
L1	1812LS223	Ind,22uH,1812	COILCRAFT
L2	1812LS123	Ind,12uH,1812	COILCRAFT
R1,R2,R3	CRCW080551R0FKEA	Res,0805	Vishay

Typical Performance Curve 1 to 1000 MHz



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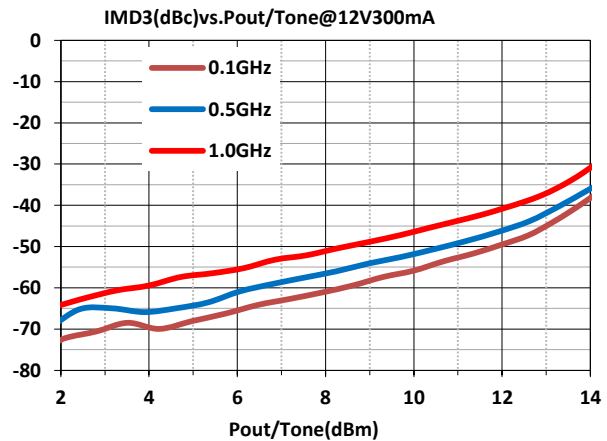
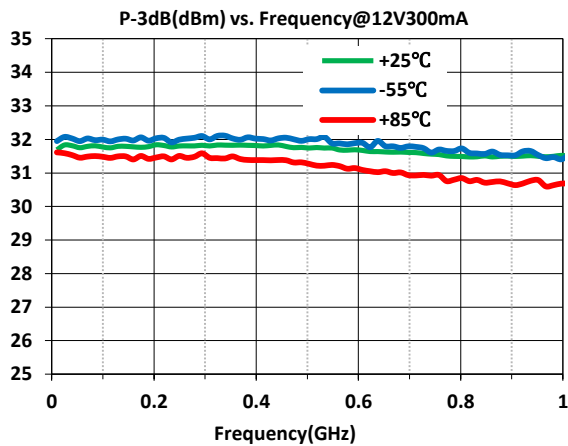
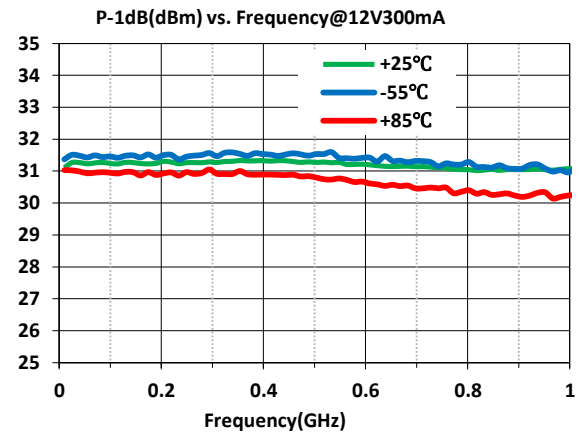
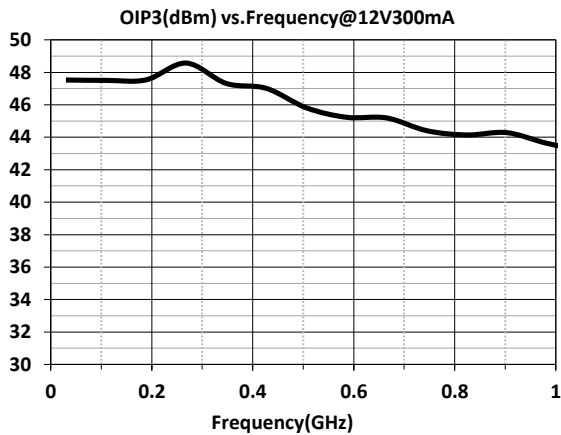
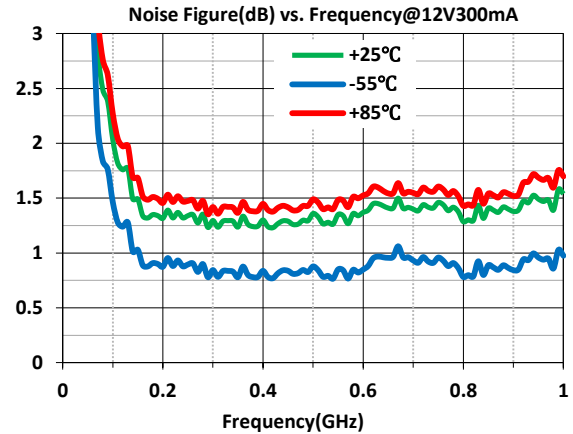
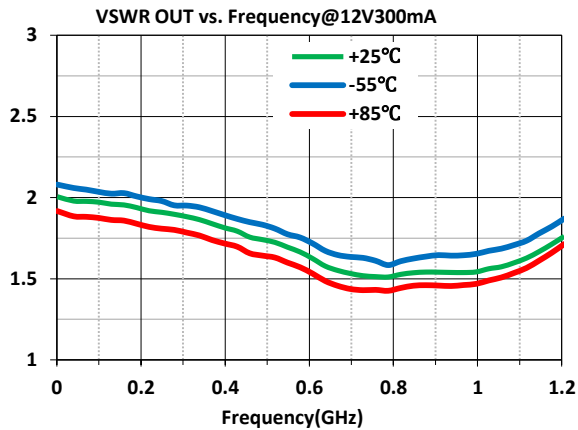
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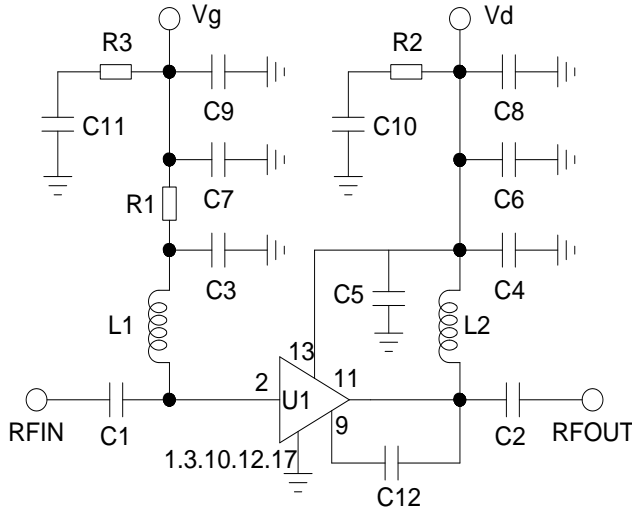
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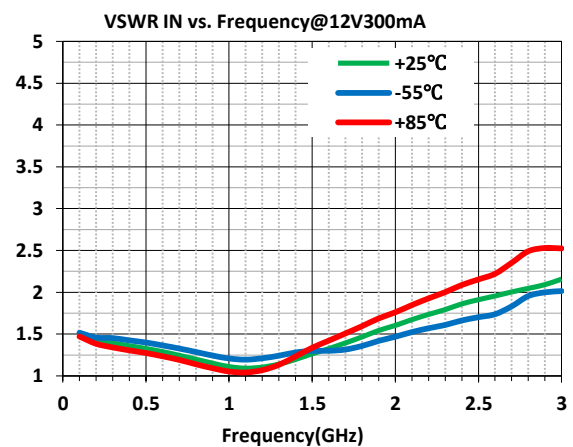
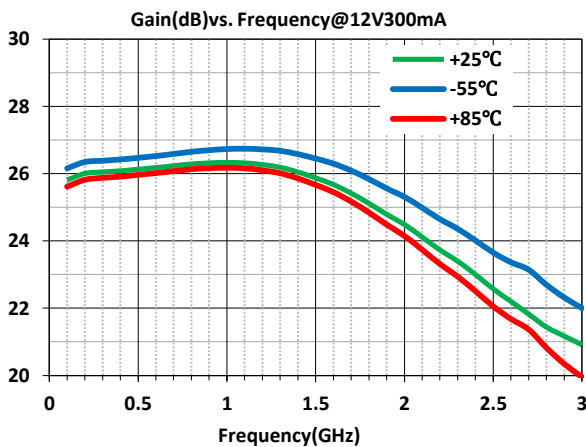
Application Circuit Configuration – 100 to 3000 MHz



Bill of Material - SAC3122Q4-100 to 3000 MHz

Reference Designation	Part Number	Description	Manuf.
U1	SAC3122Q4	SAC3122Q4	—
C1,C2,C3,C4,C5,C10,C11,C12	GRM1555C1H102JA01D	1nF ,Cap,0402	AVX
C6,C7	08053C105K4Z2A	1uF,Cap,0805	AVX
C8,C9	1206YD226KAT2A	22uF,Cap,0805	AVX
L1,L2	0805CS-101XJLC	Ind,100nH,0805	COILCRAFT
R1,R2,R3	CRCW080551R0FKEA	Res,0805	Vishay

Typical Performance Curve 100 MHz to 3000 MHz



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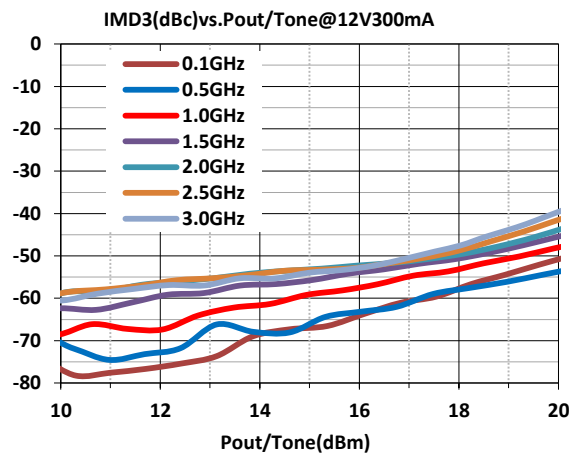
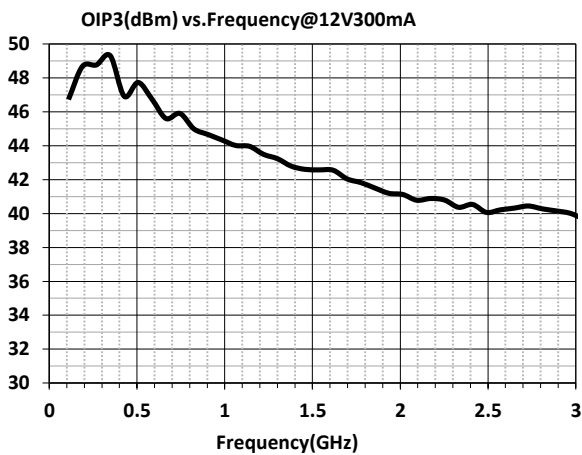
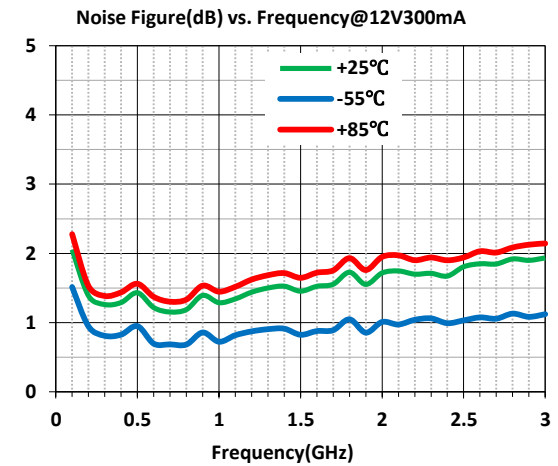
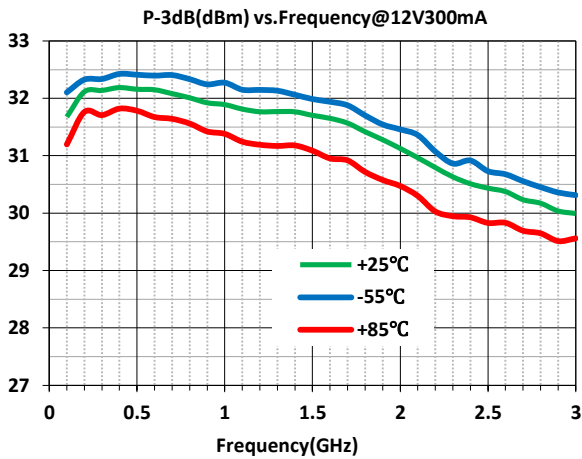
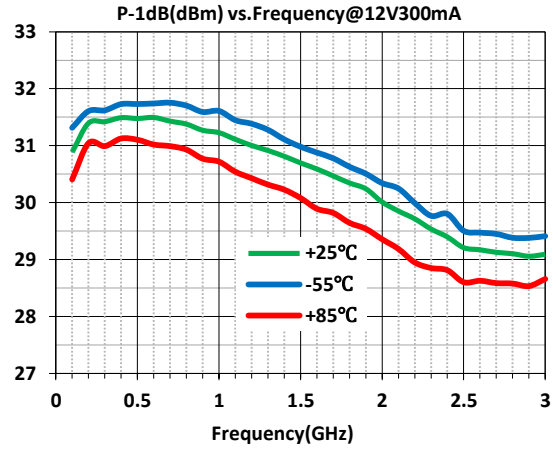
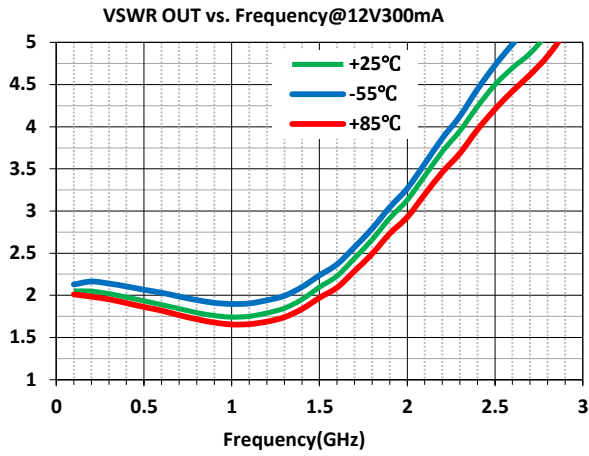
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