

Features

- Freq: 0.1~8GHz
- Output IP₃: 33dBm
- Output P_{-1dB}: 17dBm
- Gain: 21dB
- Noise Figure: 0.8dB
- Die Size: 0.62mm×0.45mm×0.1mm

Typical Applications

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

General Description

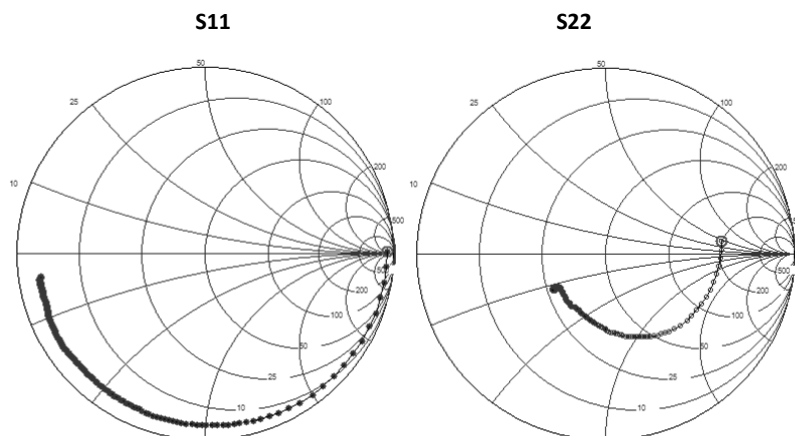
SAC2502 is a high dynamic range, low noise, E-pHEMT transistor. SAC2502 is ideal for cellular/PCS base stations, MMDS, and other systems in the 450 MHz to 6 GHz frequency range.

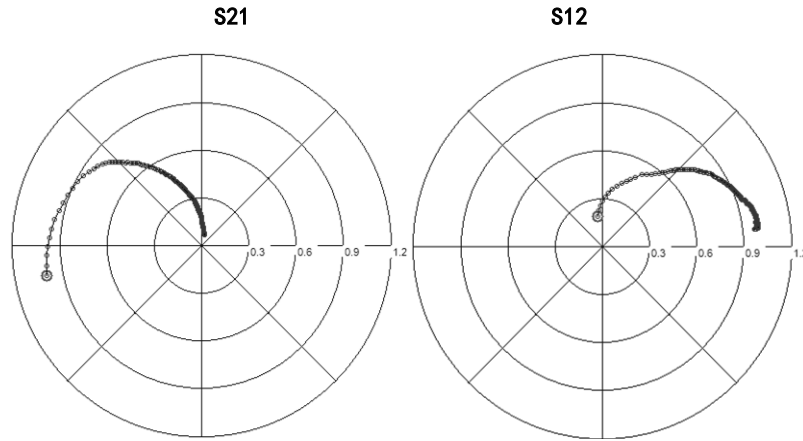
Electrical Performance

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
I _{DSS}	Saturated Drain Current	V _{ds} = 3V, V _{GS} = 0V	120	180	280	mA
g _m	Trans-conductance	V _{ds} = 3V	220	310	390	mmho
V _{gs}	Operational Gate Voltage	V _{ds} = 3V, I _{ds} = 60mA	—	0.61	—	V
V _{th}	Voltage Threshold	V _{ds} = 3V, I _{ds} = 30mA	210	—	550	mV
NF	Noise Figure	f=1GHz V _{ds} = 3V, I _{ds} = 60mA, Z ₀ = 50Ω	—	0.6	—	dB
OIP ₃	Output 3rd Order Intercept Point	f=1GHz V _{ds} = 3V, I _{ds} = 60mA	—	32	—	dBm
OP _{-1dB}	1dB Compressed Output Power	f=4 GHz V _{ds} = 3V, I _{dq} = 60mA	—	18	—	dBm
		f=4 GHz V _{ds} = 5V, I _{dq} = 80mA		24		
		f=4 GHz V _{ds} = 8V, I _{dq} = 80mA		26		

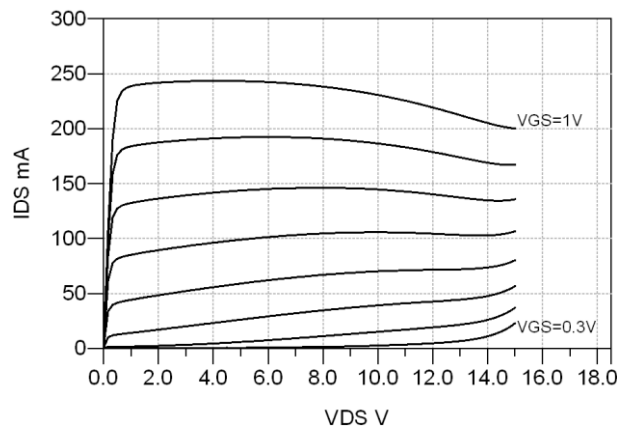
S-parameter Curves

V_{DS} = 3V I_{DS} = 60mA Fre. 0.1 ~ 8GHz





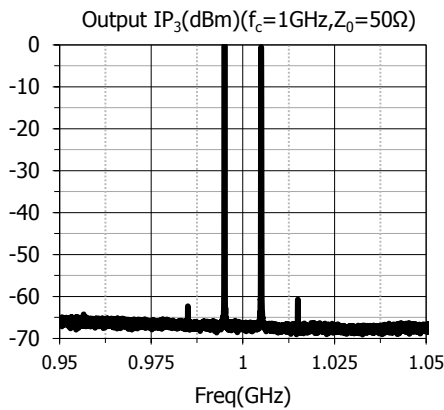
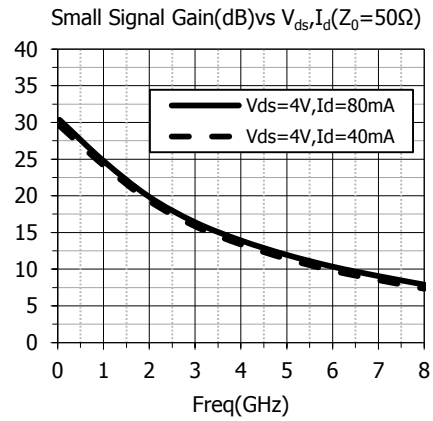
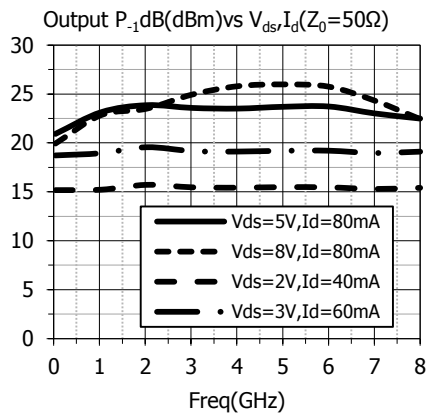
Typical I-V Curves



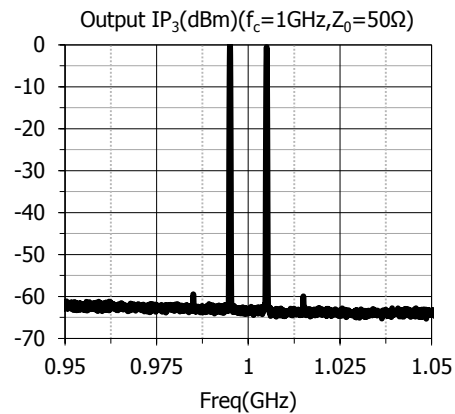
Absolute Maximum Ratings

Symbol	Parameter	Absolute Maximum	Units
V_{GS}	Gate - Source Voltage	-5~1.2	V
V_{GD}	Gate - Drain Voltage	15	V
I_{DS}	Drain Current	330	mA
P_{diss}	Total Power Dissipation	900	mW
$P_{in\ max}$	RF Input Power	16	dBm
I_{GS}	Gate Source Current	2	mA
T_{CH}	Channel Temperature	150	°C
T_{STG}	Storage Temperature	-60~125	°C
θ_{JC}	Thermal Resistance	TBD	°C/W

Typical Performance Curve



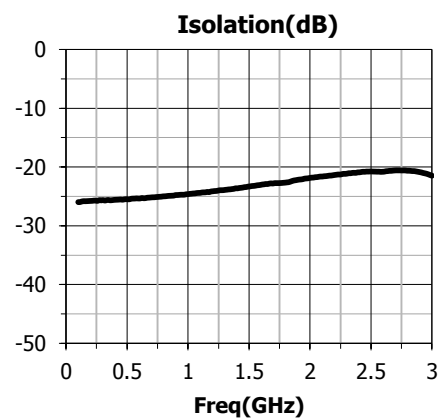
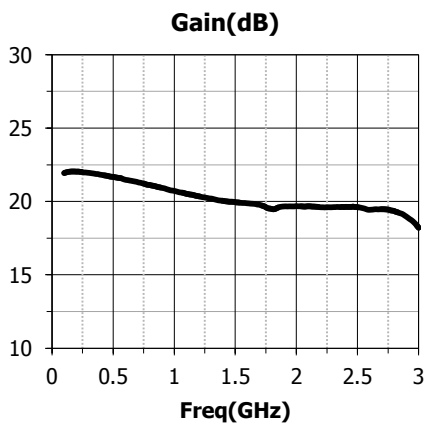
V_{ds}=5V, I_d=80mA



V_{ds}=3V, I_d=60mA

Typical Performance Curves

SAC1010 is an amplifier demo board using SAC2502. The operation frequency is from 0.1 to 3GHz and DC operation point is set to V_{DS}=3V & I_{DQ}=60mA. The following are measured curves from VNA directly.

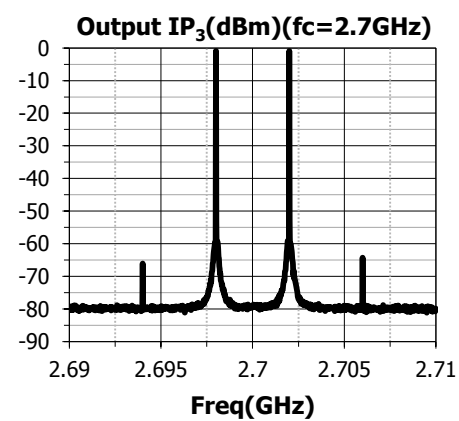
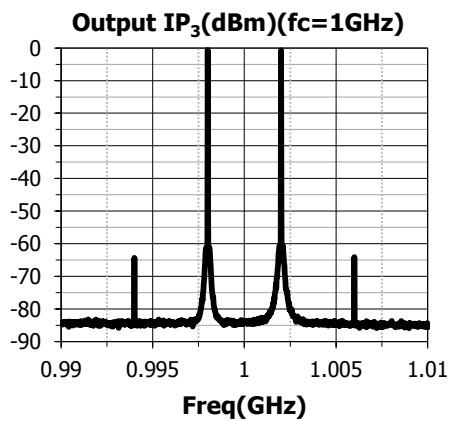
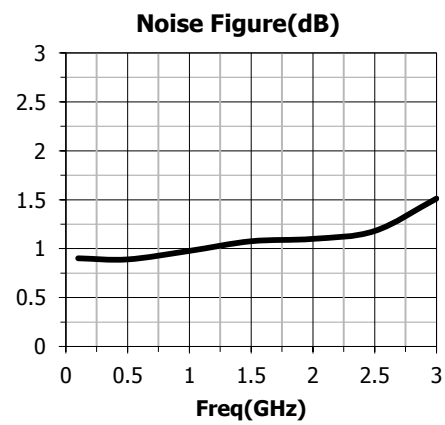
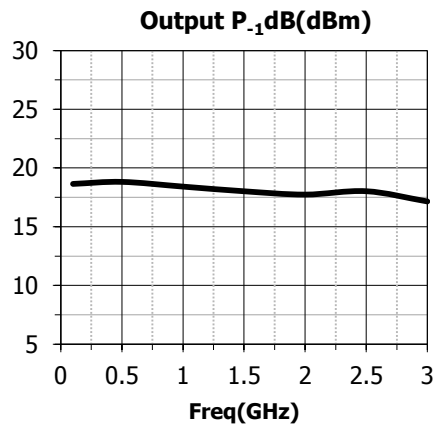
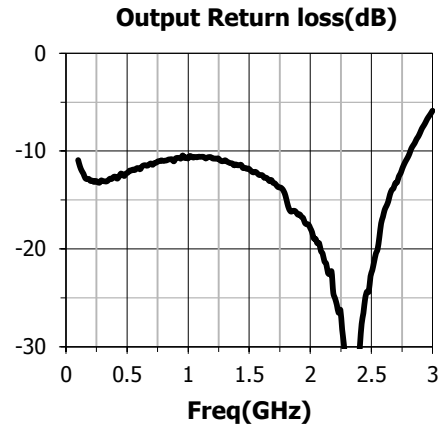
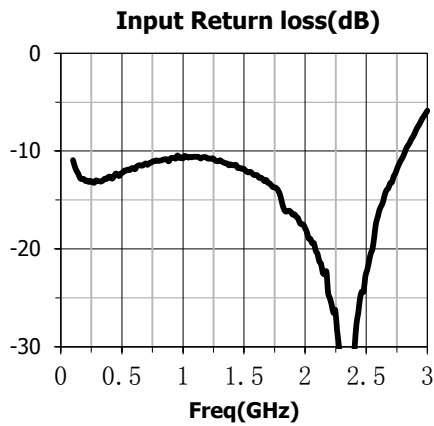


SAC2502

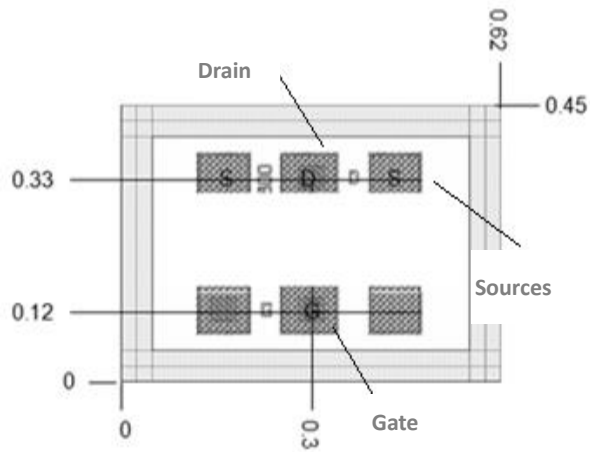


GaAs E-pHEMT Low Noise Transistor

Rev 2.0



Assembly Diagram



Bonding Pads Size: 100×90um

Attention:

GaAs devices are susceptible to damage from electrostatic discharge. Proper precautions should be observed during handling, assembly and test.