MGFS52BN2122A

2.1 - 2.2 GHz BAND 160W GaAs FET

DESCRIPTION

The MGFS52BN2122A is a 160W push-pull type GaAs Power FET especially designed for use in 2.1 - 2.2GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Push-pull configuration
- High output power
  Pout = 160W (TYP.) @ f=2.17 GHz
- High power gain
  GLP = 12 dB (TYP.) @ f=2.17GHz
- High power added efficiency
  P.A.E. = 48 % (TYP.) @ f=2.17GHz

APPLICATION

2.1-2.2GHz band power amplifier for W-CDMA Base Station

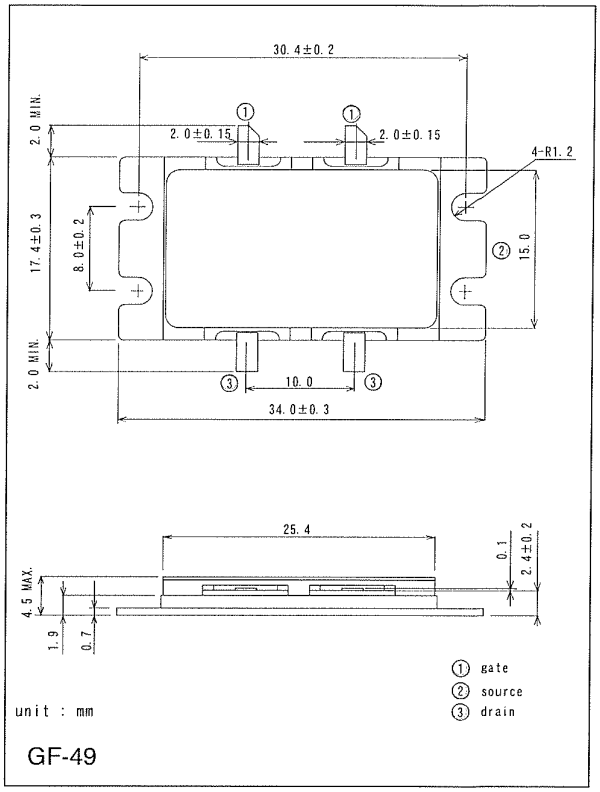
QUALITY GRADE

IG

RECOMMENDED BIAS CONDITIONS

VDS = 12 (V)
ID = 4.0 (A)
RG=5 (ohm) for each gate

OUTLINE



GF-49

ABSOLUTE MAXIMUM RATINGS (Ta=25deg.C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-20	V
VGSO	Gate to source voltage	-10	V
PT *1	Total power dissipation	187.5	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

*1 : Tc=25deg.C

< Keep safety first in your circuit designs! >
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ELECTRICAL CHARACTERISTICS (Ta=25deg.C)

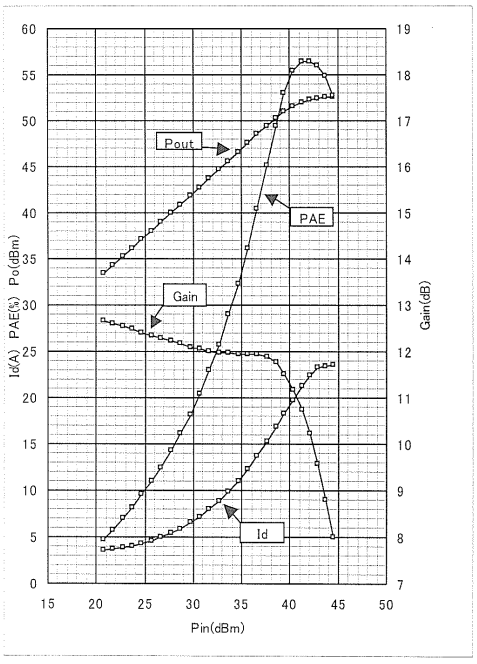
Symbol	Parameter	Test conditions		Limits			Unit
				Min.	Typ.	Max.	
GLP	Linear power gain	Pin=32dBm	VDS=12V, ID(RF off)=4.0A, f=2.17GHz	11	12	-	dB
Pout	Output power	Pin=43dBm		50.8	51.8	-	dBm
ID(RF)	Drain current			-	23	30	A
P.A.E.	Power added efficiency			-	48	-	%
Rth (ch-c)	Thermal resistance	Channel to Case		-	0.55	0.8	deg.C/W

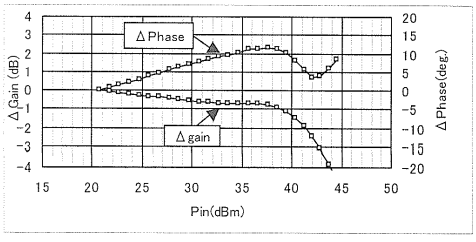
MITSUBISHI ELECTRIC

MGFS52BN2122A RF TEST DATA (CW)

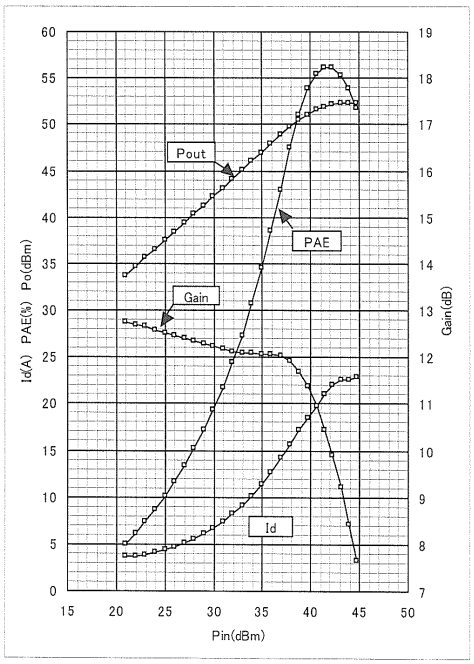
Fig.1 Pin vs. Pout , Id , PAE , Gain , Δgain , Δphase (CW 1-tone)
Bias conditions Vd=12V , Idq=4A

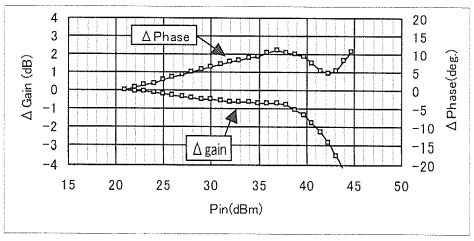
f=2.11GHz



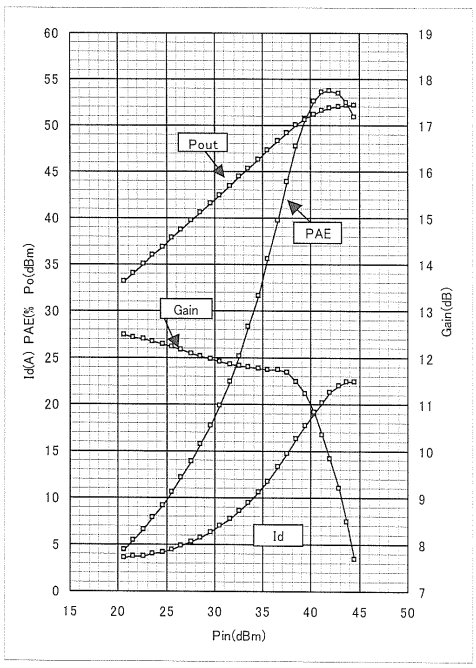


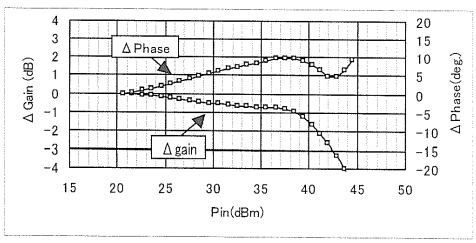
f=2.14GHz





f=2.17GHz

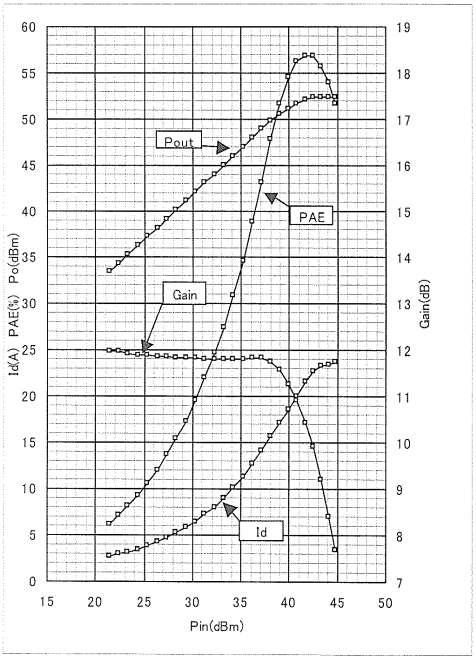


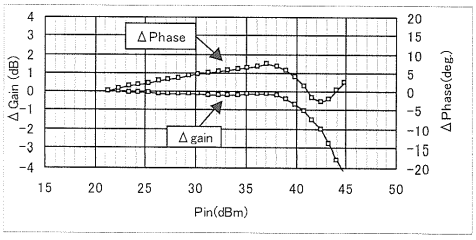


MGFS52BN2122A RF TEST DATA (CW)

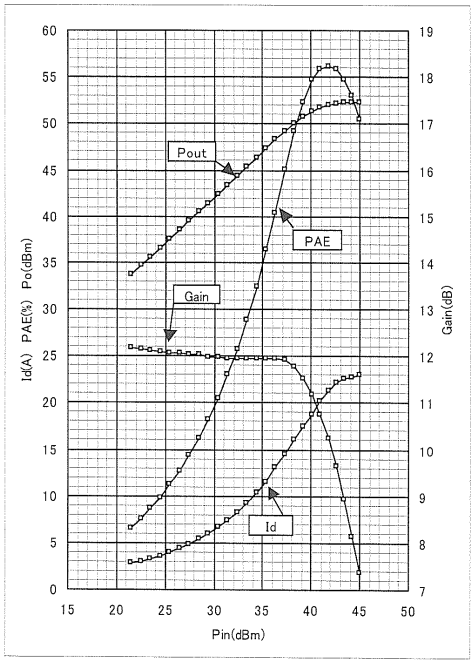
Fig.2 MGFS52BN2122A Pin vs. Pout , Id , PAE , Gain , Δgain , Δphase (CW 1-tpne)
Bias conditions Vd=12V , Idq=2A

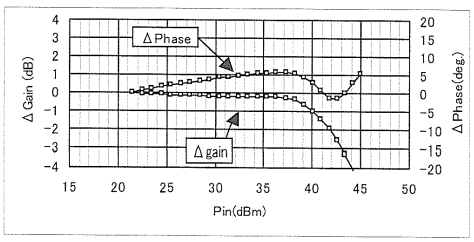
f=2.11GHz



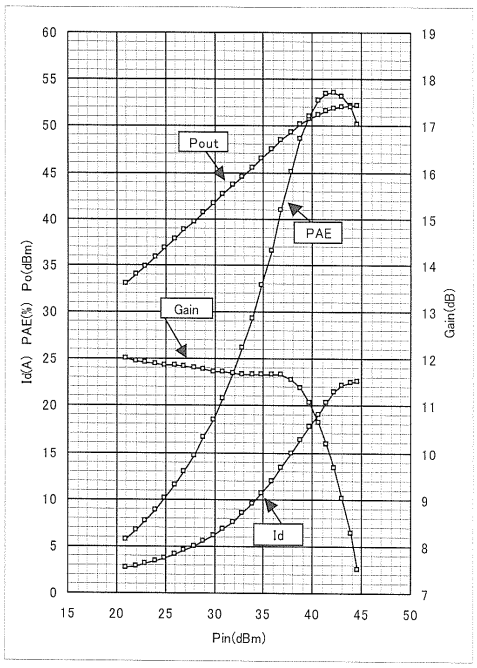


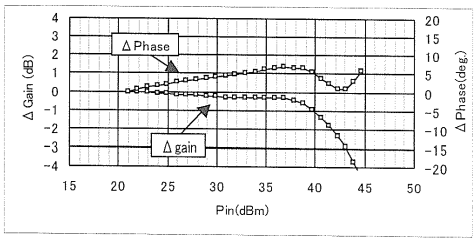
f=2.14GHz





f=2.17GHz

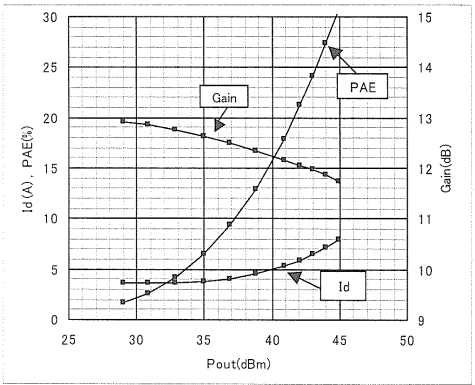


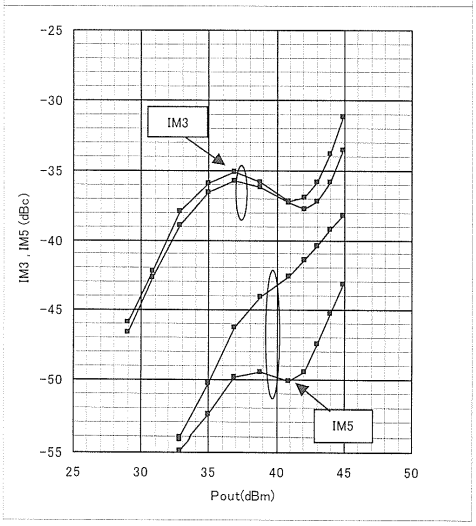


MGFS52BN2122A RF TEST DATA (W-CDMA signal ,2-tone)

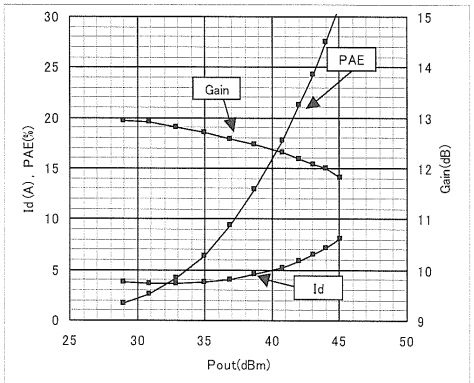
Fig.3 Pout vs. IM3,IM5,Id,PAE,Gain (W-CDMA signal , 2-tone 3GPP test model 1 w/64DPCH)
Bias conditions Vd=12V , Idq=4A

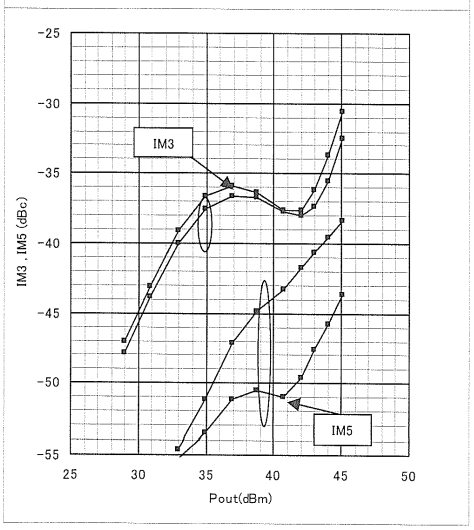
f=2.11GHz



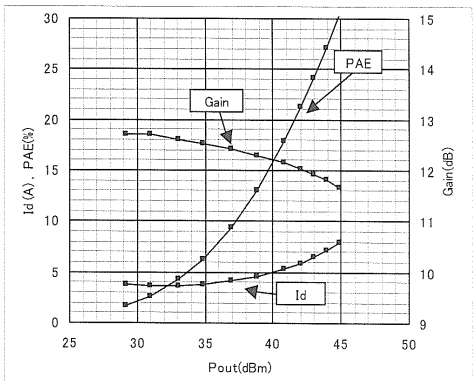


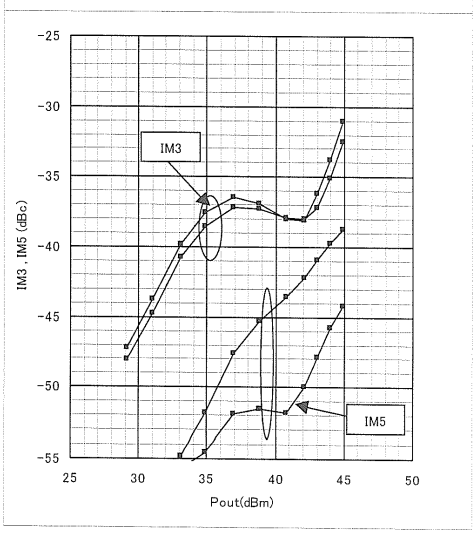
f=2.14GHz





f=2.17GHz

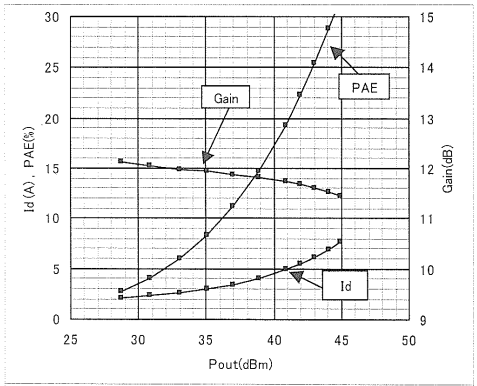


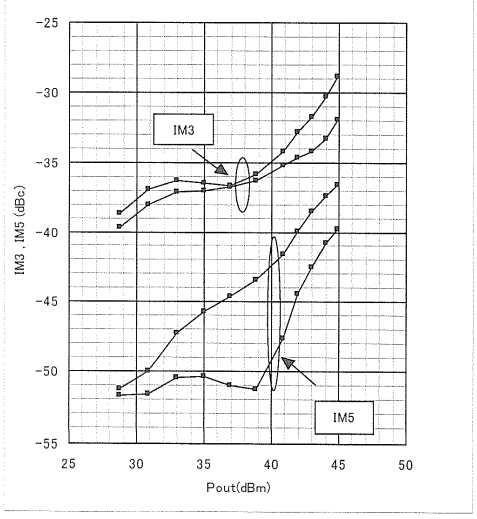


MGFS52BN2122A RF TEST DATA (W-CDMA signal ,2-tone)

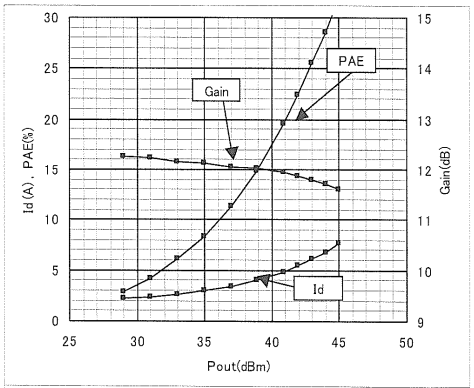
Fig.4 Pout vs. IM3,IM5,Id,PAE,Gain (W-CDMA signal , 2-tone 3GPP test model 1 w/64DPCH)
Bias conditions Vd=12V , Idq=2A

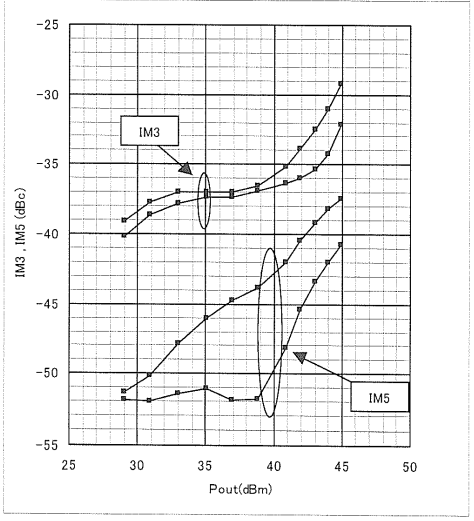
f=2.11GHz



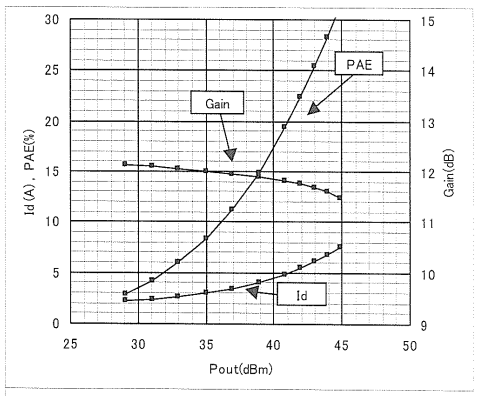


f=2.14GHz





f=2.17GHz



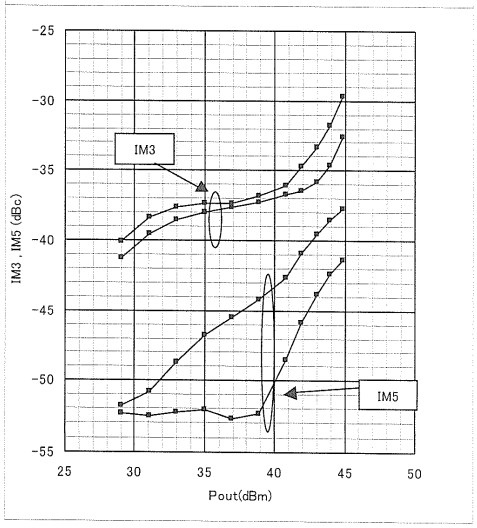
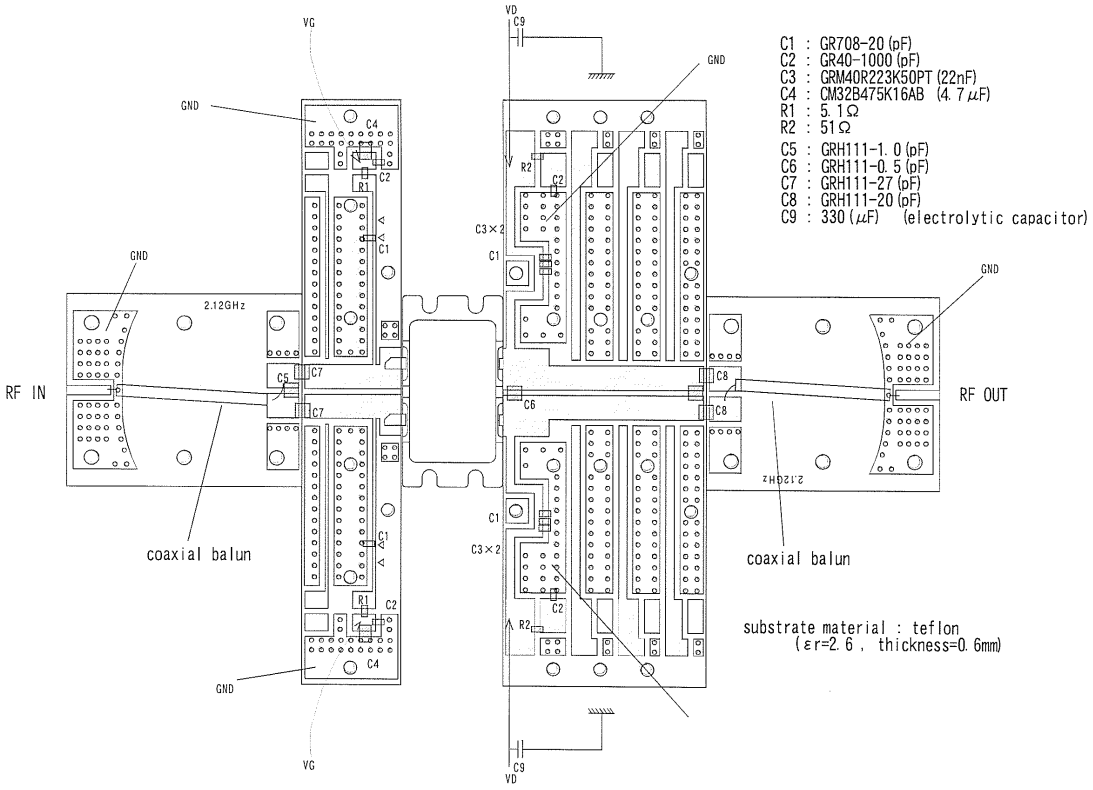
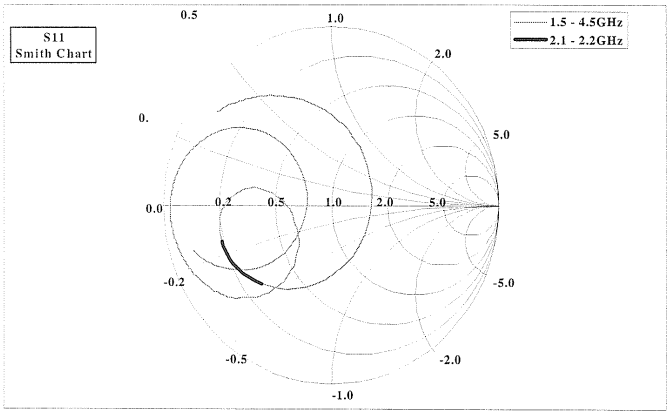


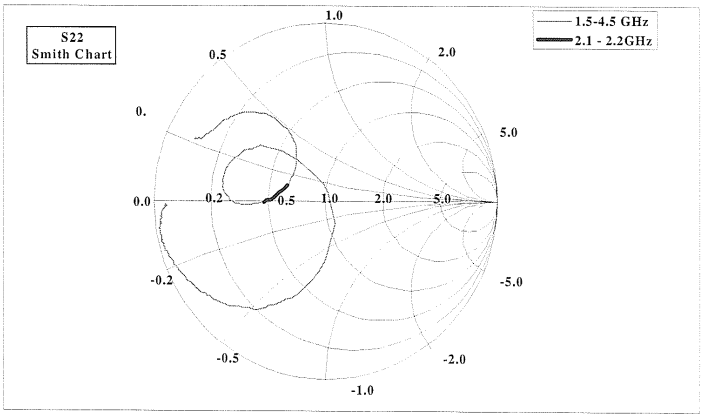
Fig.5 RF TEST FIXTURE



MGFS52BN2122A small signal S-parameters

Fig.6 MGFS52BN2122A S11 , S22 (small signal)
Vd=12V , Idq=2A for one side FET





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