

L & S BAND GaAs FET [Plastic Mold Lead-less PKG]**DESCRIPTION**

The MGF0952P GaAs FET with an N-channel schottky Gate, is designed for use L/S band amplifiers.

FEATURES

- High output power
Po=36.5dBm(TYP.) @f=2.15GHz,Pin=25Bm
- High power gain
Glp=13.5dB(TYP.) @f=2.15GHz
- High power added efficiency
 η_{add} =50%(TYP.) @f=2.15GHz,Pin=25dBm
- Plastic Mold Lead-less PKG

APPLICATION

- For L/S Band power amplifiers

QUALITY

- GG

RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=700mA • Rg=100 Ω

Delivery Tape & Reel(1.5K)

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGSO	Gate to source breakdown voltage	-15	V
VGDO	Gate to drain breakdown voltage	-15	V
ID	Drain current	3.5	A
IGR	Reverse gate current	-10	mA
IGF	Forward gate current	21	mA
PT	Total power dissipation	20.0	W
Tch	Channel temperature	150	°C
Tstg	Storage temperature	-40 to +150	°C

Recommended maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
Tch	Channel temperature	150	°C

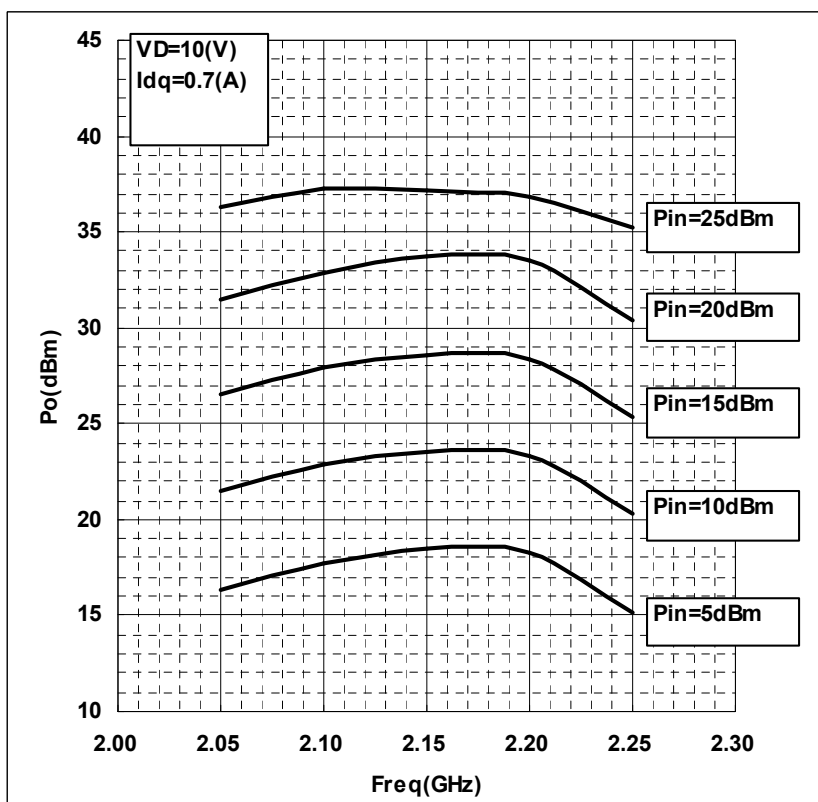
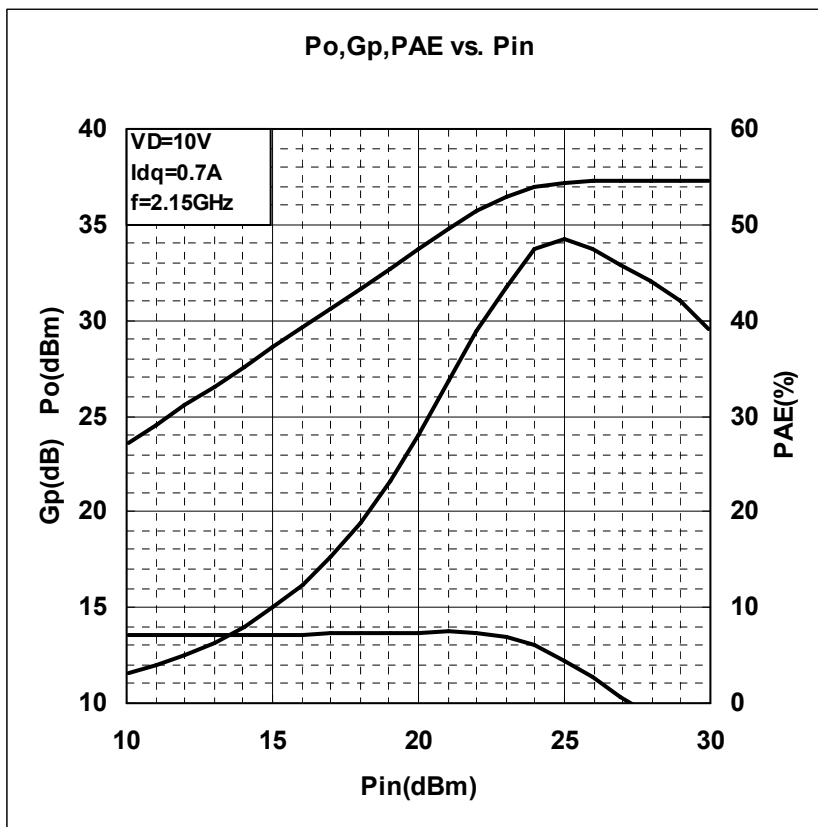
Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=12.6mA	-1	-3	-5	V
Po *1	Output power	VDS=10V, ID=700mA, f=2.15GHz	35.0	36.5	--	dBm
η_{add} *1	Power added Efficiency	*1:Pin=25dBm, *2:Pin=15dBm	--	50	--	%
GLP *2	Linear Power Gain	*3:f1=2.15GHz, f2=2.16GHz	11	13.5	--	dB
IM3 *3	3 rd order Modulation Distortion	Po(SCL)=25dBm	--	-42	--	dBc
Rth(ch-c)	Thermal Resistance *1	Δ Vf Method	--	4.5	6.5	°C/W

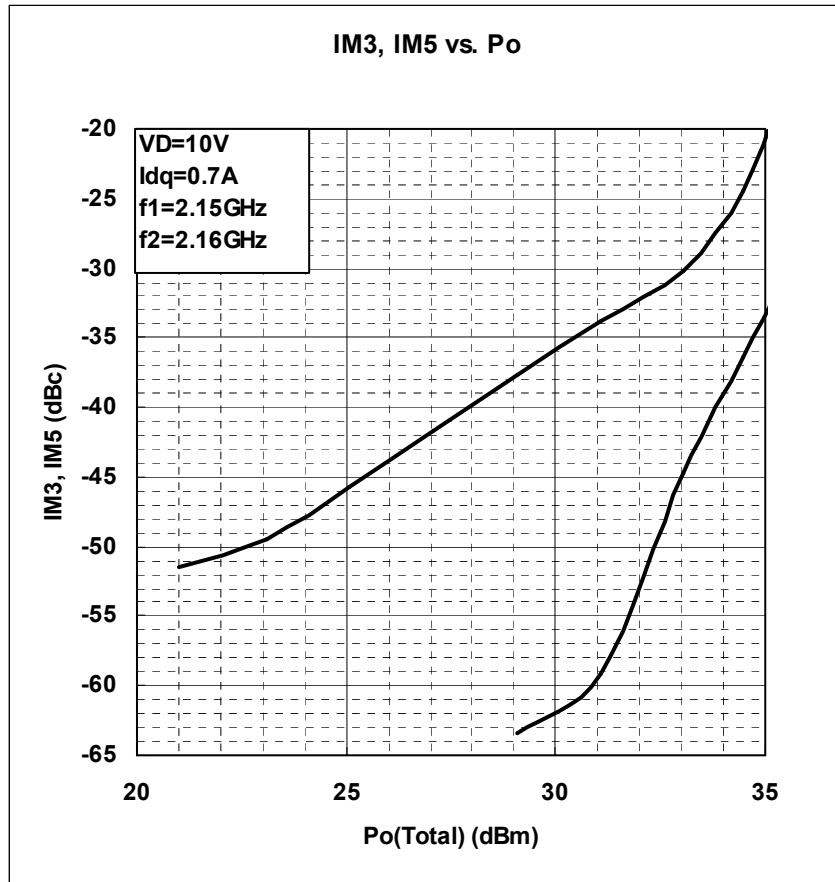
*1: Channel to case / Above parameters, ratings, limits are subject to change.

Fig.1

MGF0952P TYPICAL CHARACTERISTICS



MGF0952P TYPICAL CHARACTERISTICS



MGF0952P S PARAMETERS (Ta=25°C,VD=10V,ID=700mA)

lfreq. !(GHz)	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
0.60	0.941	-155.46	3.198	95.74	0.020	14.53	0.775	-176.77
0.80	0.945	-161.45	2.434	90.37	0.020	12.33	0.777	-176.95
1.00	0.945	-165.05	1.970	86.23	0.021	12.00	0.777	-176.88
1.20	0.946	-167.53	1.656	82.72	0.021	10.97	0.776	-176.62
1.40	0.948	-169.74	1.383	79.43	0.020	11.07	0.784	-176.51
1.60	0.949	-170.98	1.223	76.56	0.020	11.75	0.783	-176.15
1.80	0.945	-172.20	1.097	73.77	0.020	9.96	0.782	-175.84
2.00	0.943	-173.14	0.998	71.28	0.020	10.52	0.783	-175.41
2.20	0.944	-173.68	0.918	68.77	0.020	11.92	0.782	-174.89
2.40	0.946	-174.29	0.855	66.48	0.020	12.32	0.782	-174.38
2.60	0.946	-174.91	0.802	64.21	0.020	11.26	0.781	-173.87
2.80	0.945	-175.53	0.755	61.97	0.020	10.49	0.781	-173.41
3.00	0.945	-176.04	0.717	59.85	0.021	10.21	0.780	-172.87
3.20	0.942	-176.30	0.681	57.82	0.021	8.73	0.780	-172.57
3.40	0.950	-176.75	0.658	55.70	0.020	5.23	0.785	-172.11
3.60	0.945	-178.34	0.624	53.05	0.018	4.47	0.783	-172.82
3.80	0.942	-178.98	0.600	51.01	0.018	12.59	0.778	-172.69
4.00	0.940	-179.40	0.581	48.78	0.019	16.08	0.776	-172.55
4.20	0.942	179.63	0.562	46.21	0.020	13.00	0.776	-173.07
4.40	0.942	178.51	0.543	43.59	0.021	12.22	0.778	-173.71
4.60	0.941	177.39	0.525	40.94	0.020	9.78	0.779	-174.47
4.80	0.941	176.53	0.511	38.30	0.021	8.54	0.779	-175.57
5.00	0.940	175.20	0.495	35.58	0.022	6.78	0.780	-176.58
5.20	0.939	173.69	0.481	32.70	0.021	4.96	0.783	-177.54
5.40	0.938	172.28	0.467	30.04	0.021	3.17	0.784	-178.54
5.60	0.936	171.29	0.457	27.42	0.022	1.75	0.786	-179.32
5.80	0.936	169.82	0.449	24.82	0.022	0.51	0.790	179.87
6.00	0.933	167.83	0.440	21.94	0.023	-0.94	0.792	178.97
6.20	0.932	166.34	0.430	19.46	0.023	-1.38	0.794	178.44
6.40	0.933	165.13	0.424	17.22	0.023	-2.56	0.797	178.03
6.60	0.931	163.73	0.421	14.95	0.024	-2.05	0.801	177.89
6.80	0.930	162.01	0.420	12.61	0.024	-3.27	0.804	177.64
7.00	0.931	160.33	0.418	10.17	0.025	-2.88	0.807	177.45

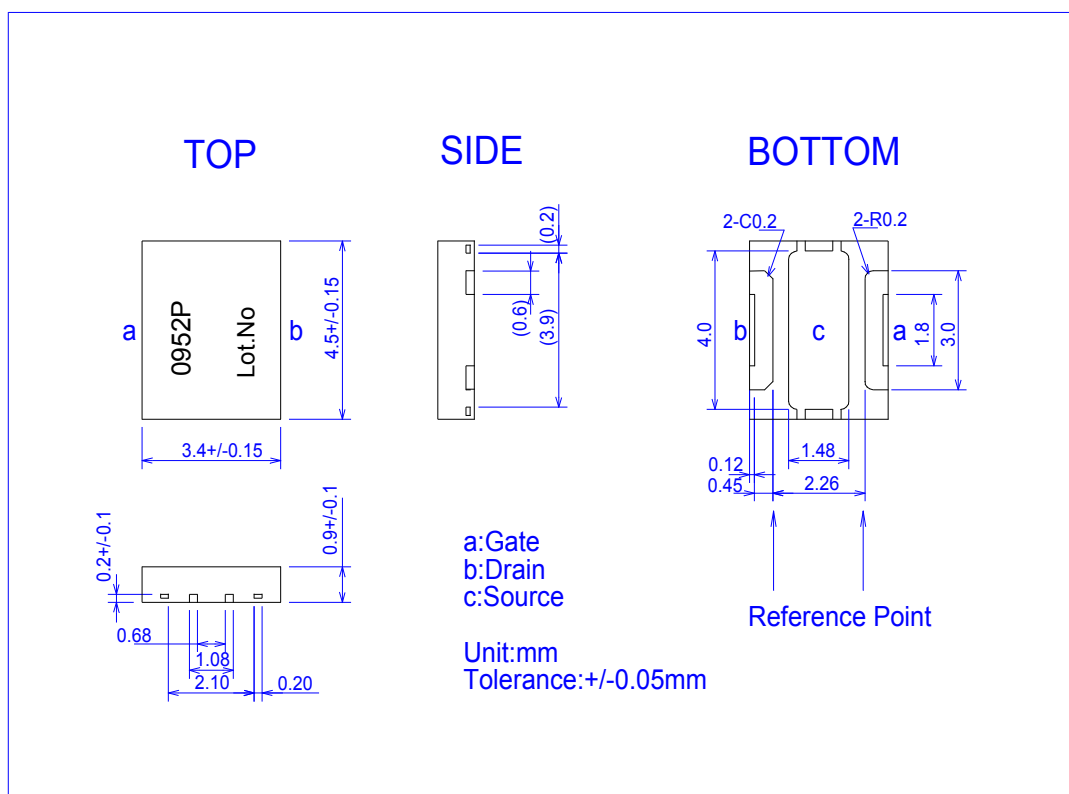
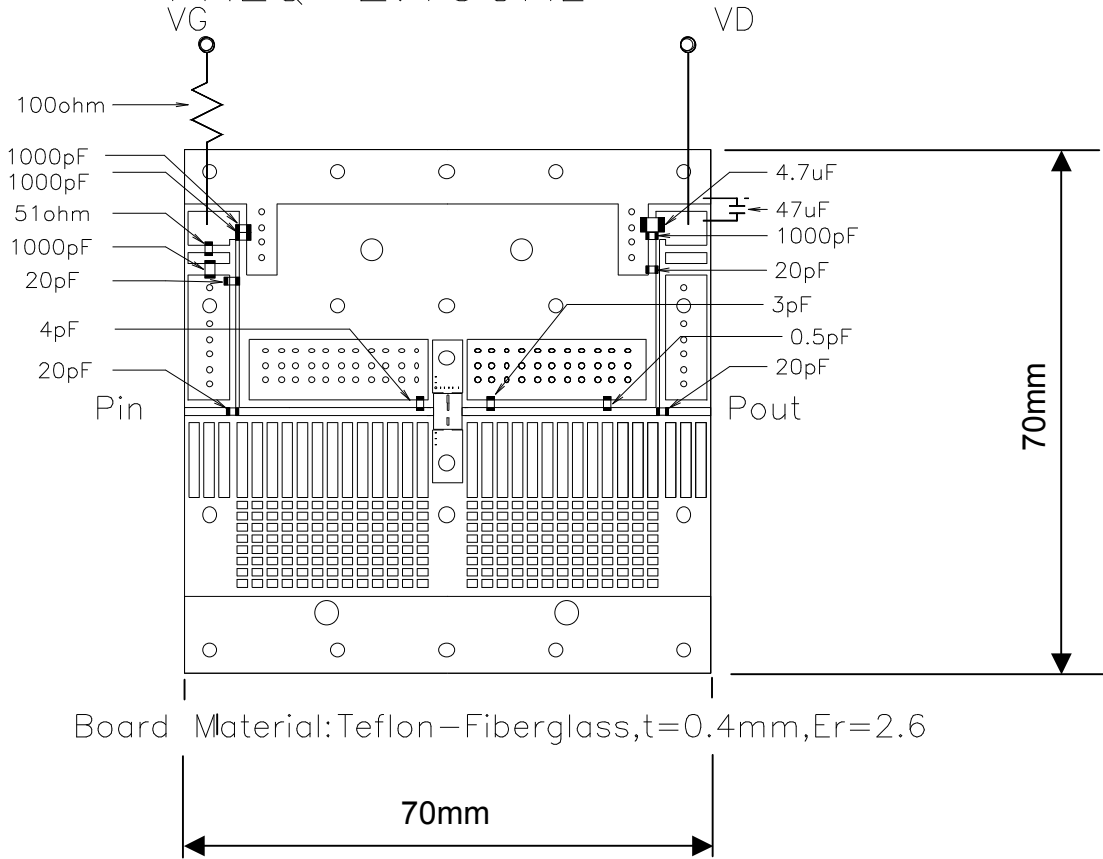


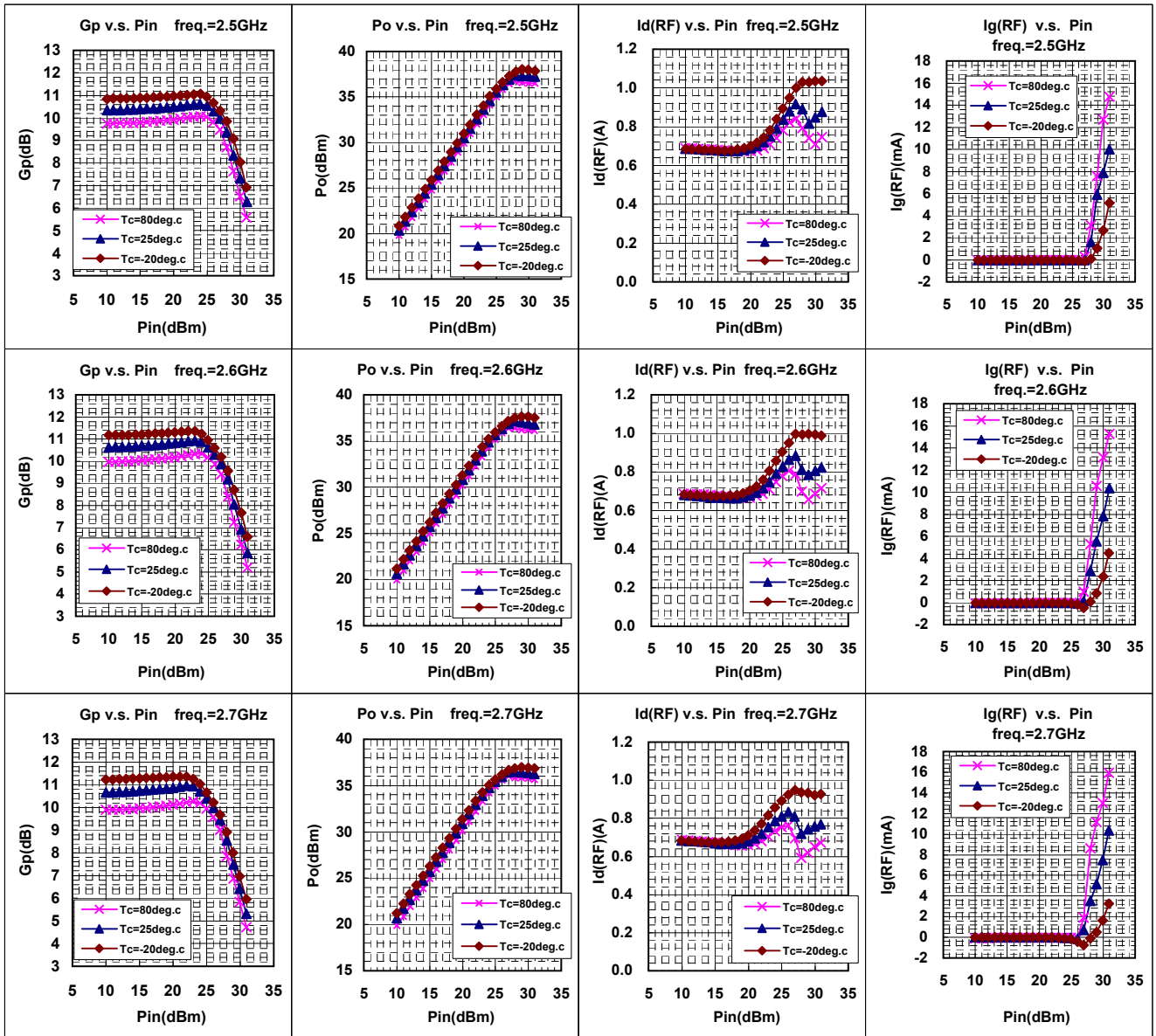
Fig1. OUTLINE DRAWING

MGF0952P TESTFIXTURE

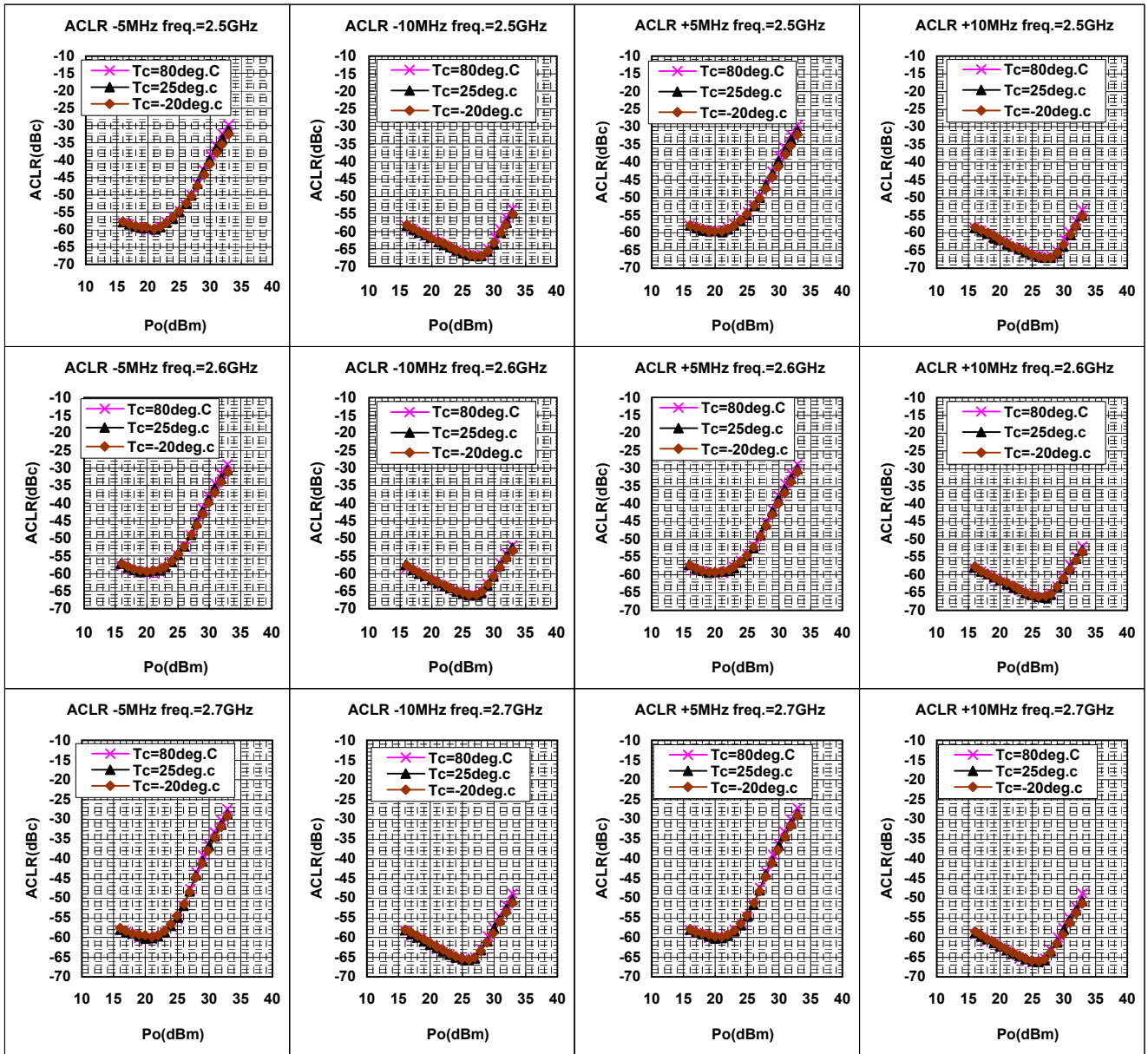
FREQ=2.15GHz



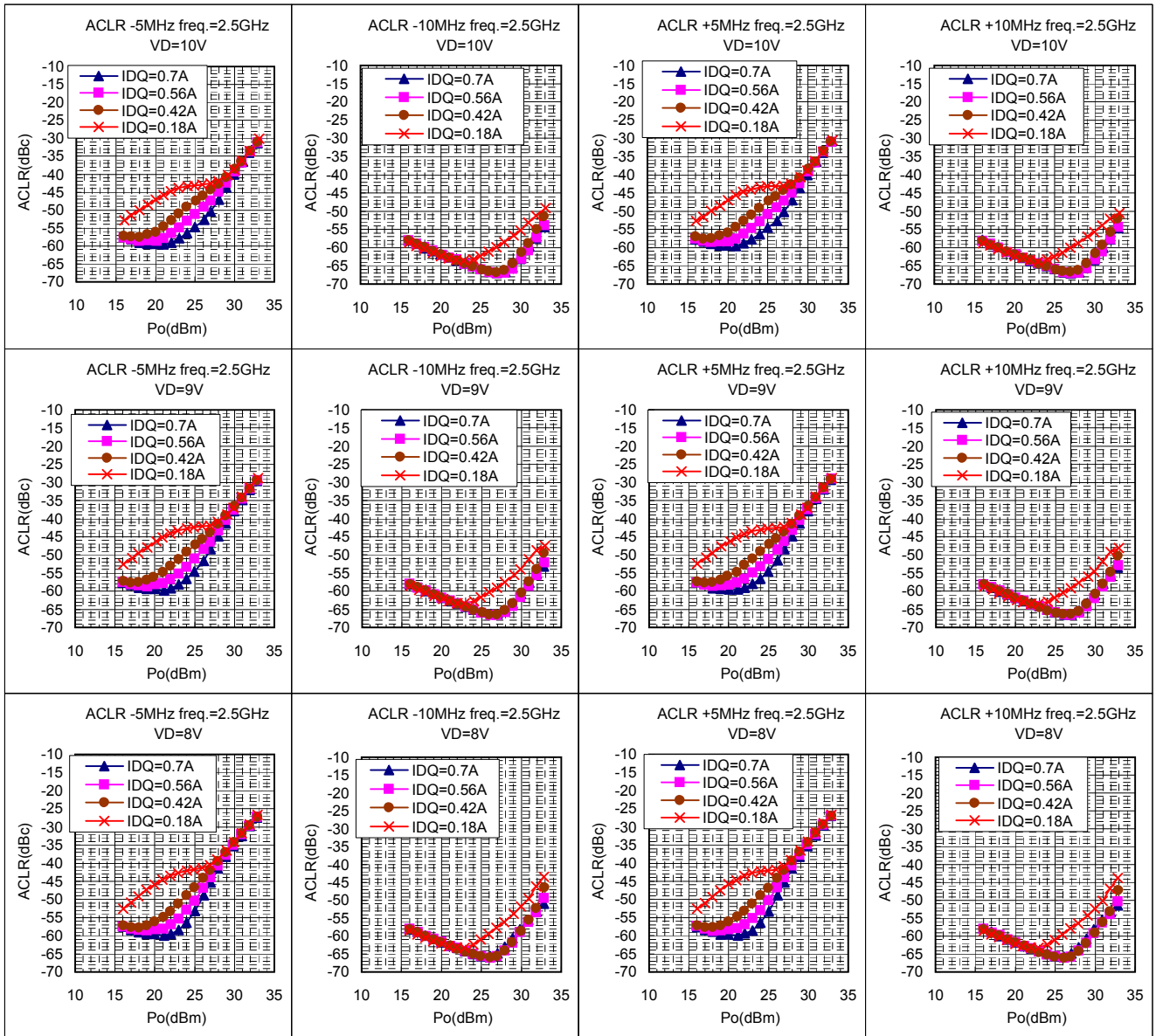
MGF0952P RF TEST DATA(CW) VD=10V,Idq=0.7A
Gp,Po,Id(RF),I_g(RF) v.s. Pin



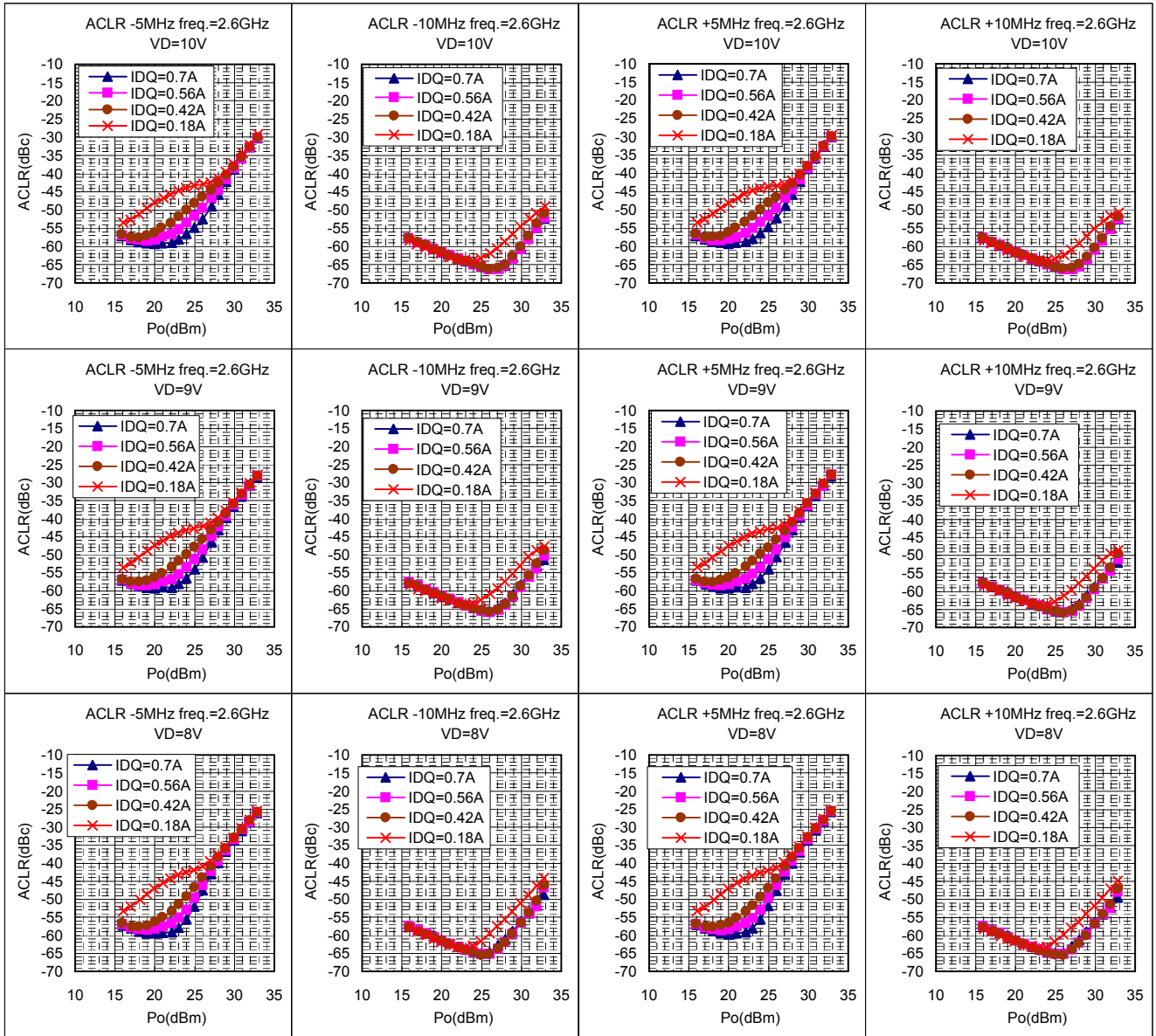
MGF0952P RF TEST DATA(W-CDMA) VD=10V,Idq=0.7A
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



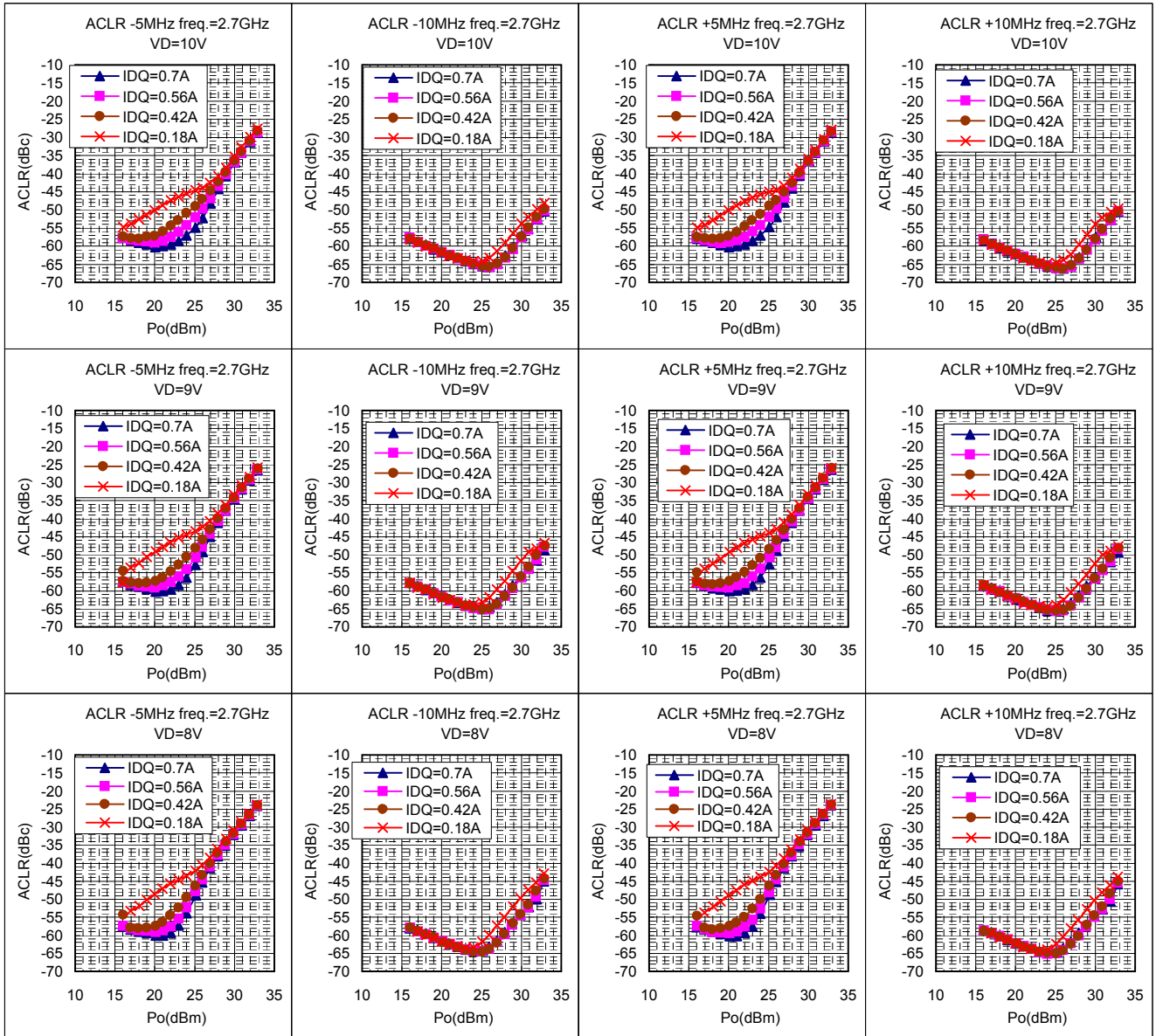
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



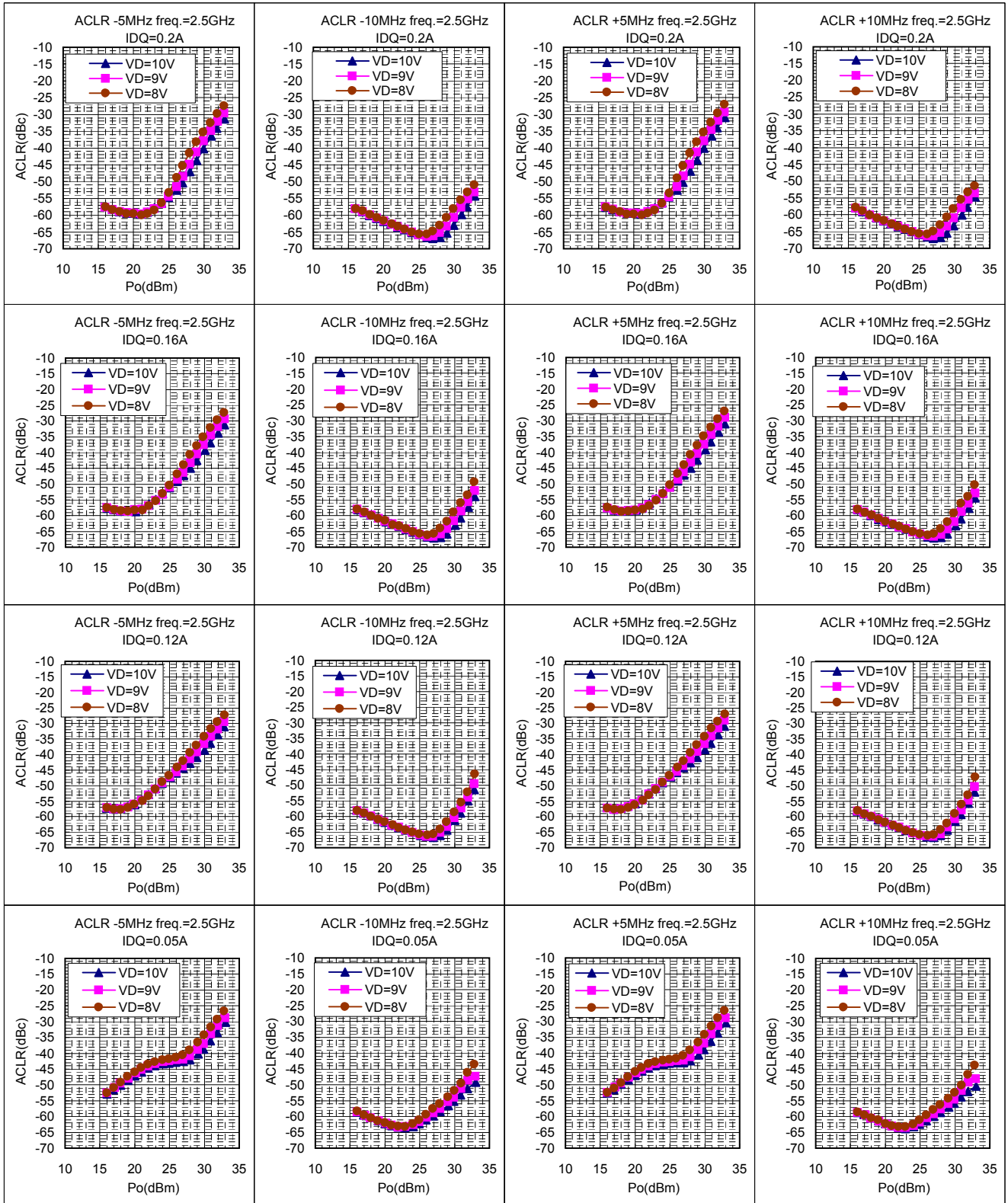
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



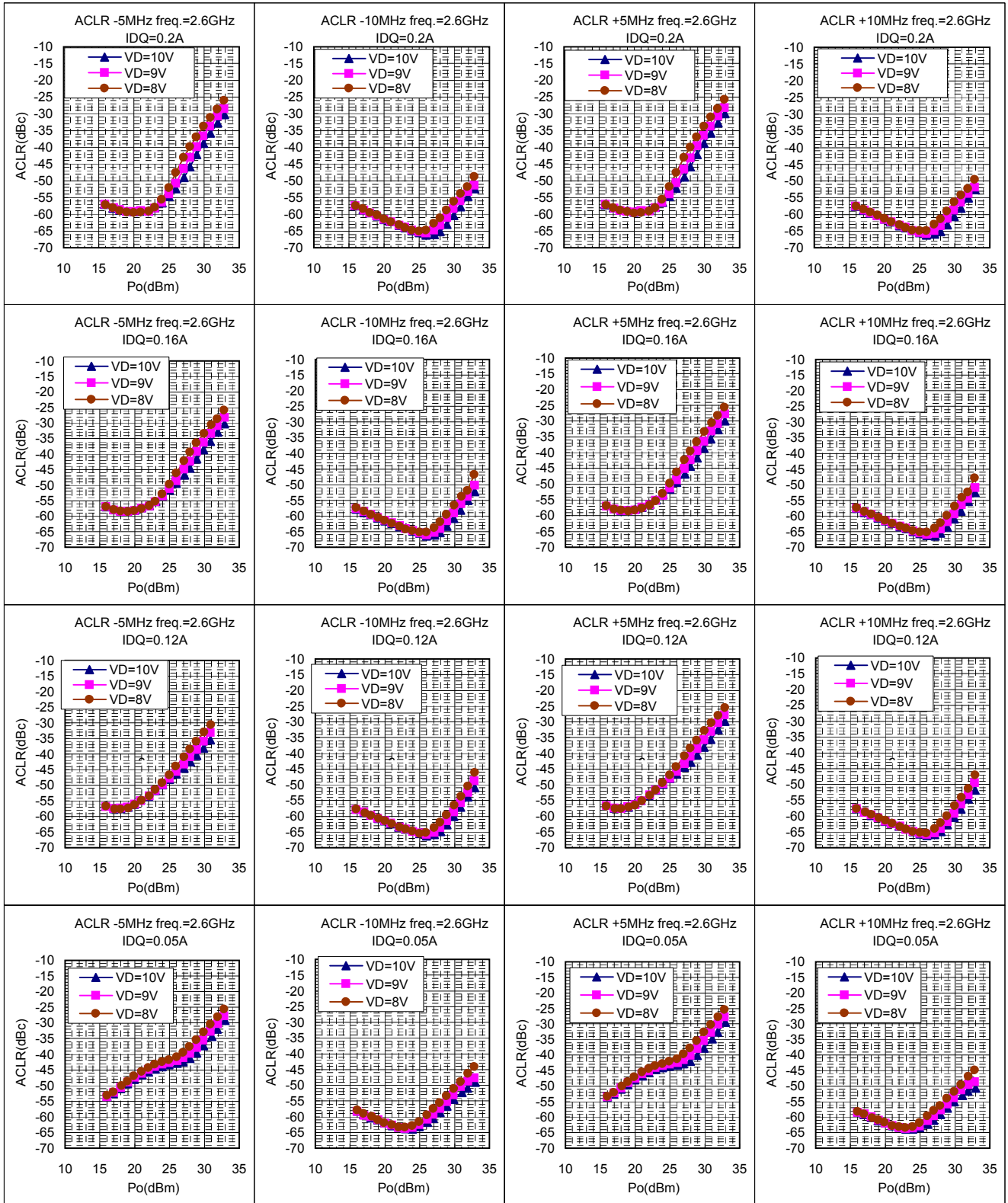
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal

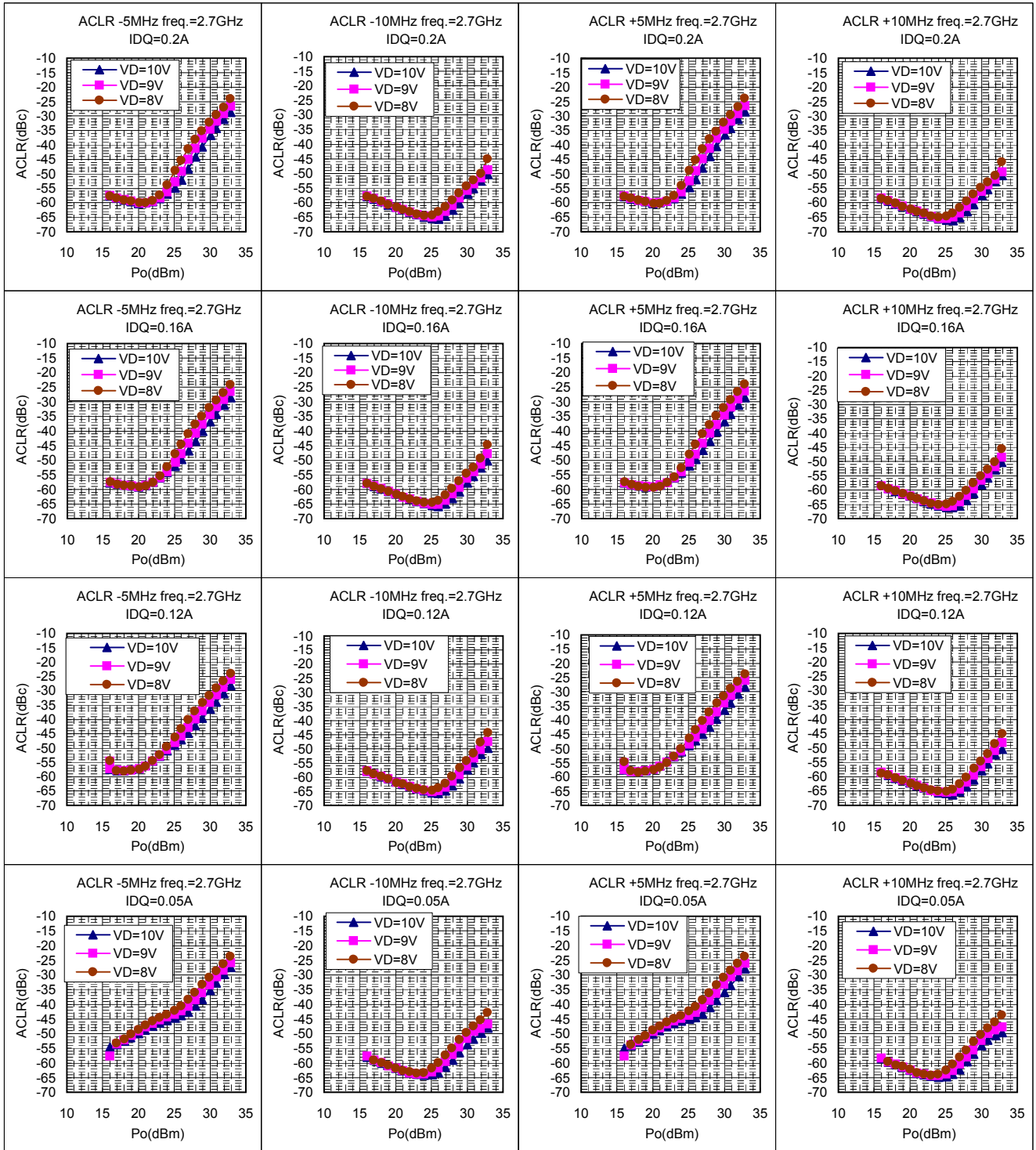


MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



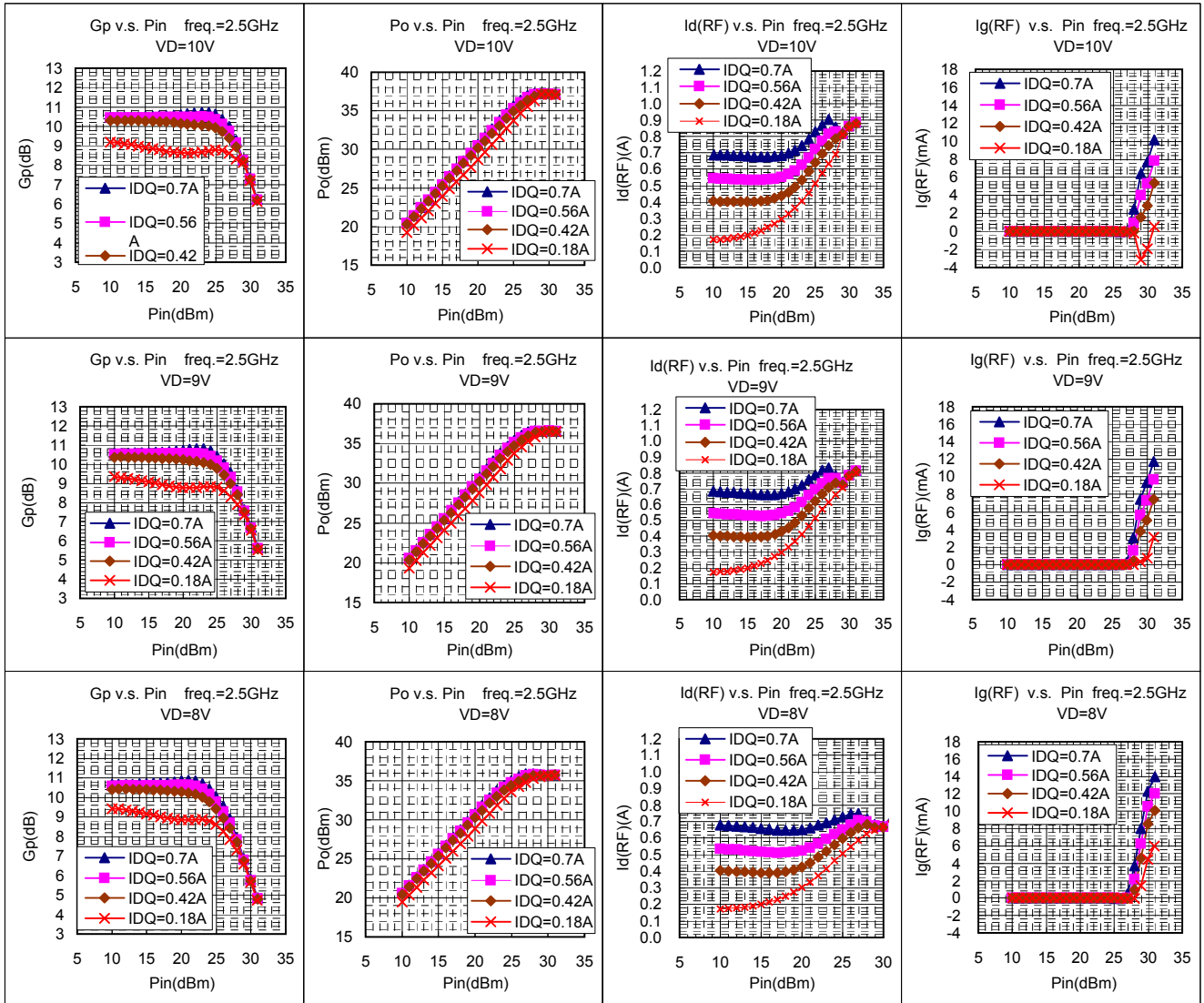
MGF0952P RF TEST DATA(W-CDMA)

ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



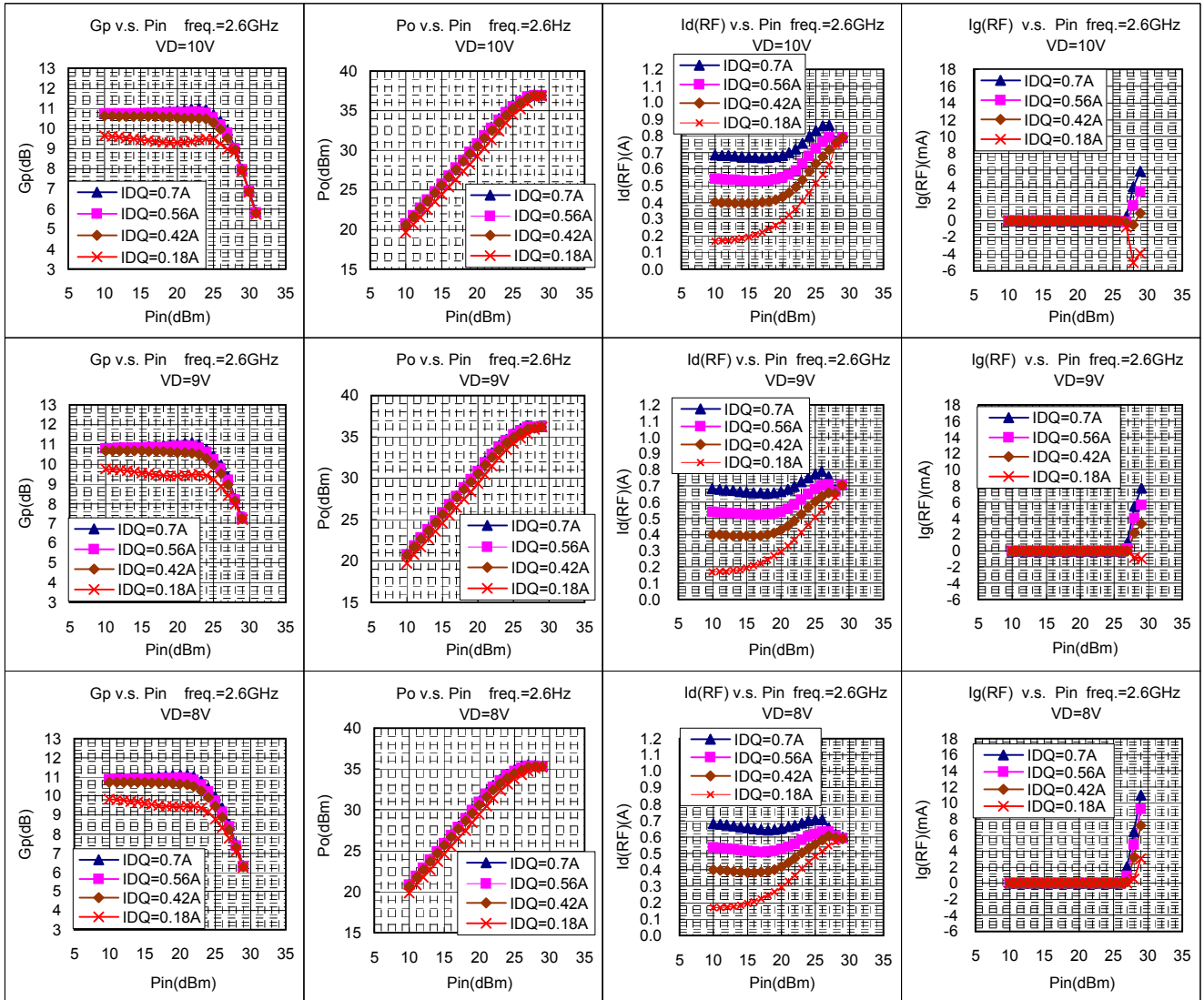
MGF0952P RF TEST DATA(CW)

Gp,Po,Id(RF),I_g(RF) v.s. Pin



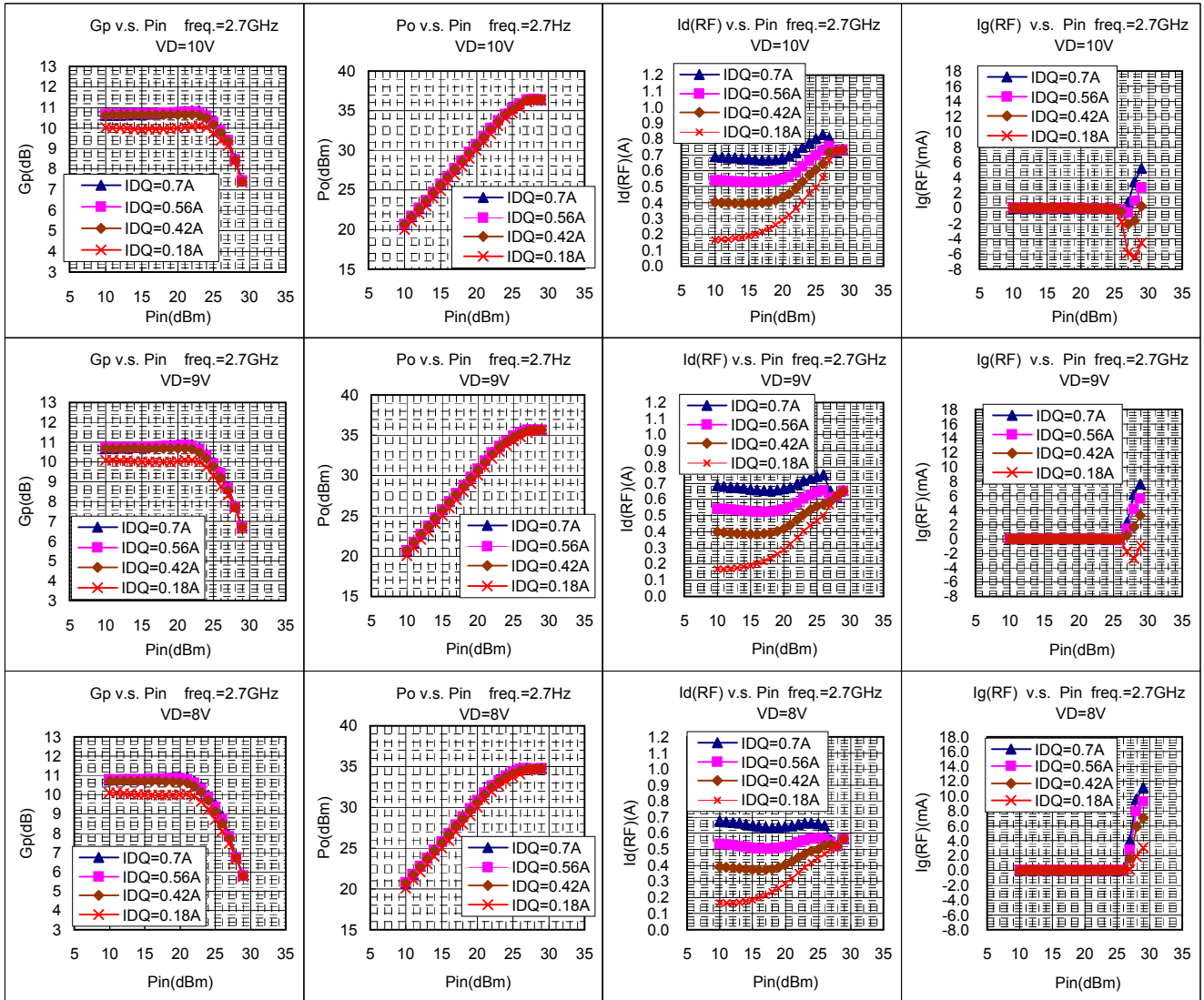
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Gp,Po,Id(RF),Iq(RF) v.s. Pin



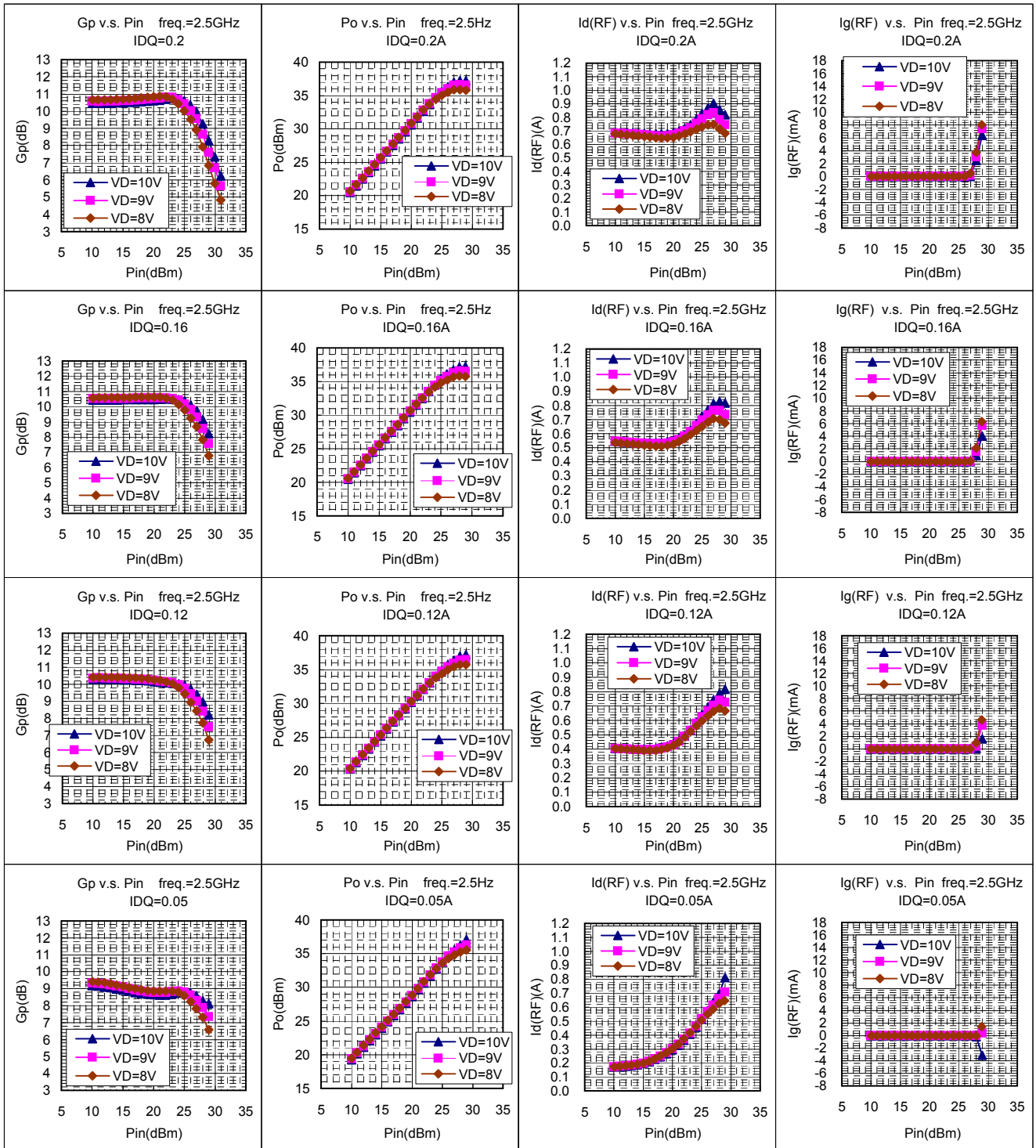
MGF0952P RF TEST DATA(CW)

Gp,Po,Id(RF),I_g(RF) v.s. Pin



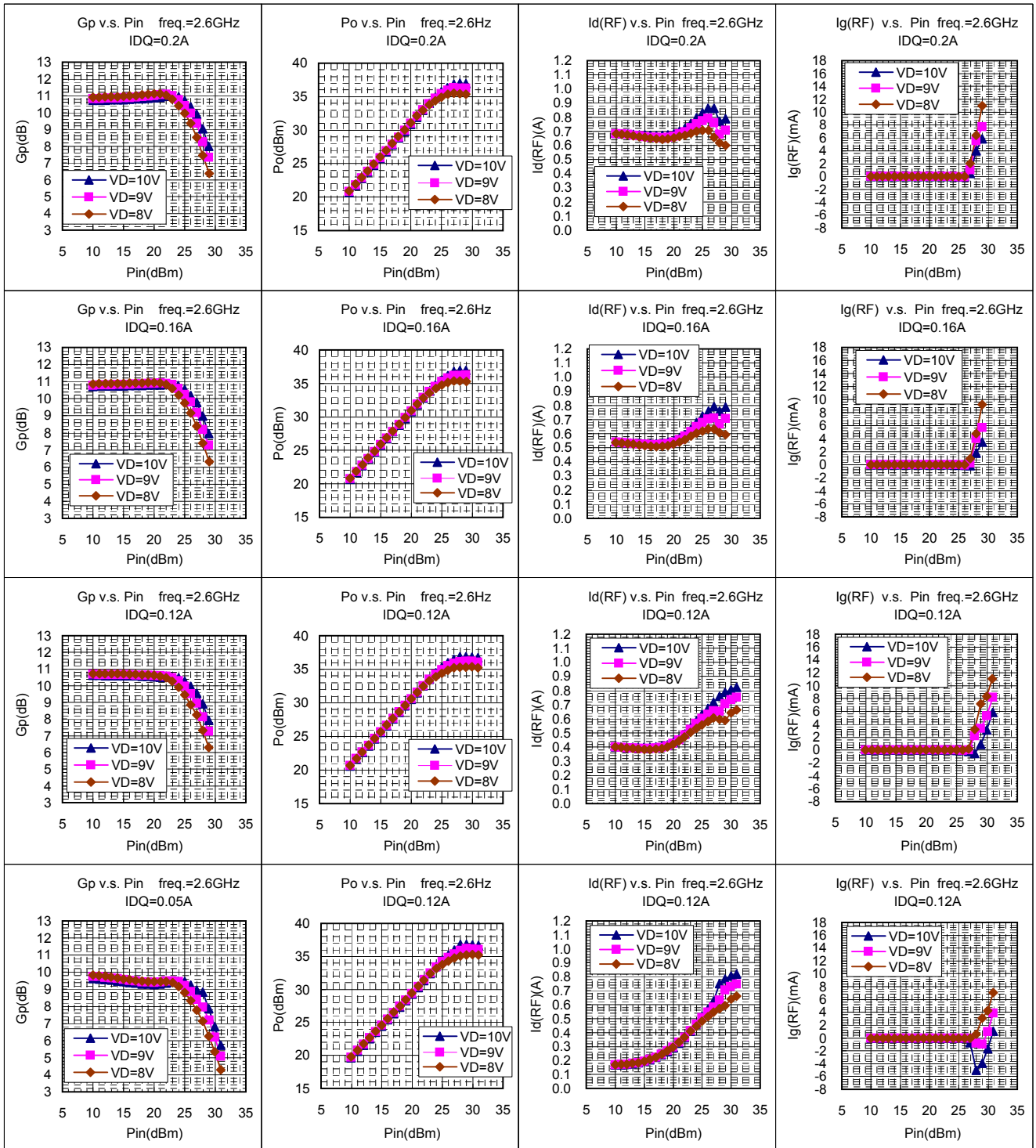
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Gp,Po,Id(RF),Iq(RF) v.s. Pin



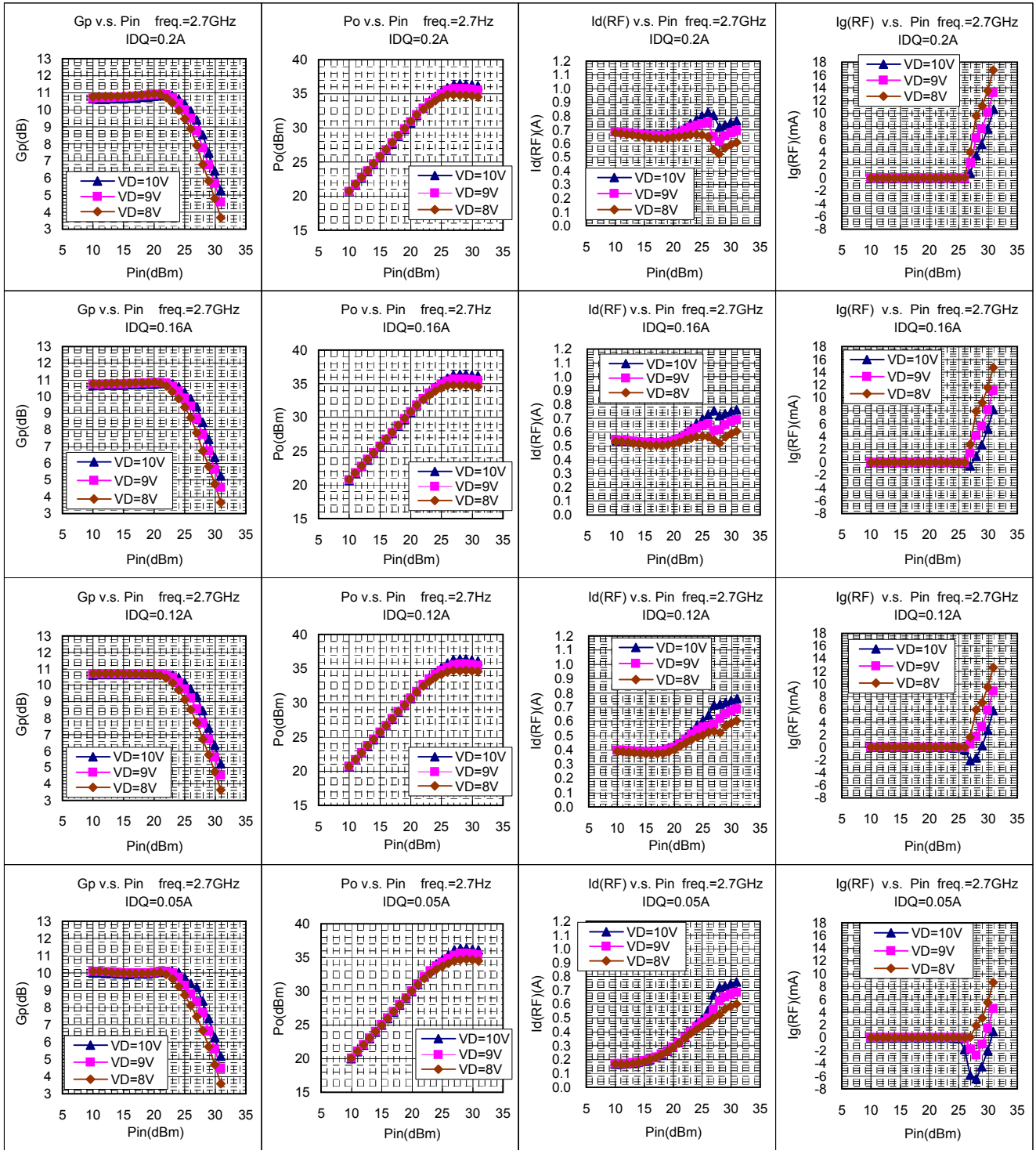
MGF0952P RF TEST DATA(CW)

Gp,Po,Id(RF),Ig(RF) v.s. Pin

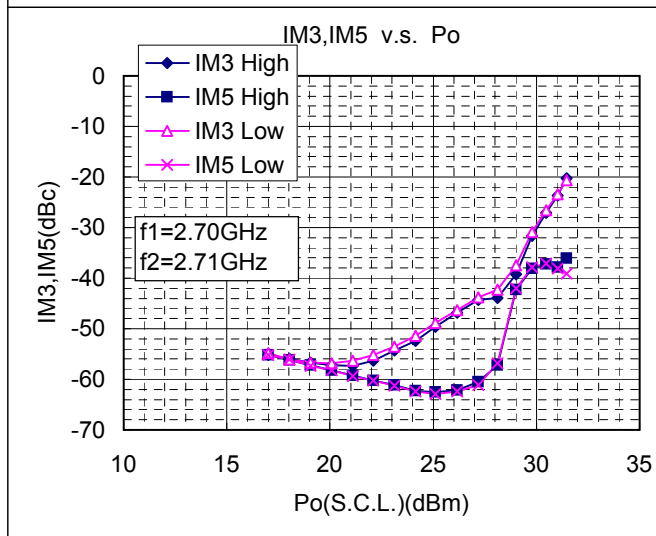
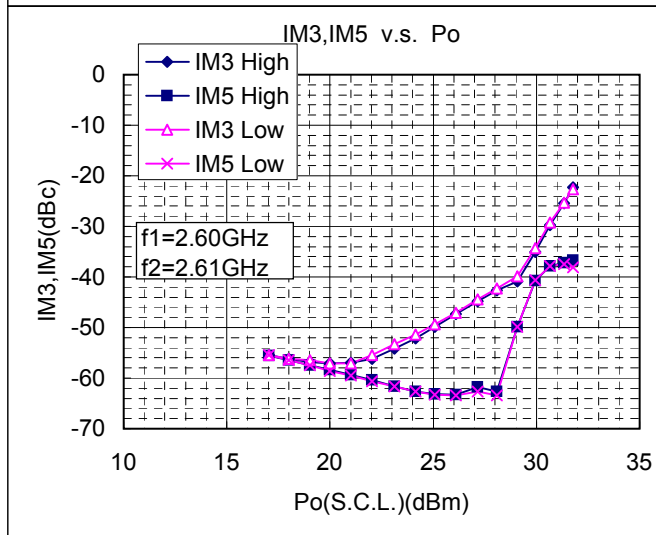
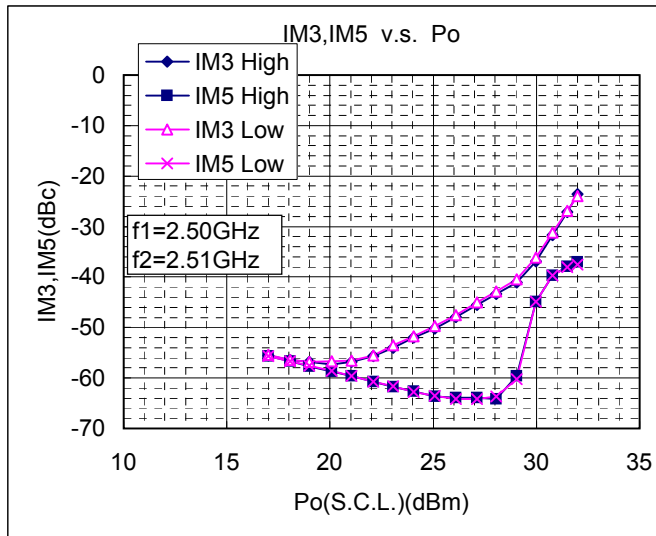


MGF0952P RF TEST DATA(CW)

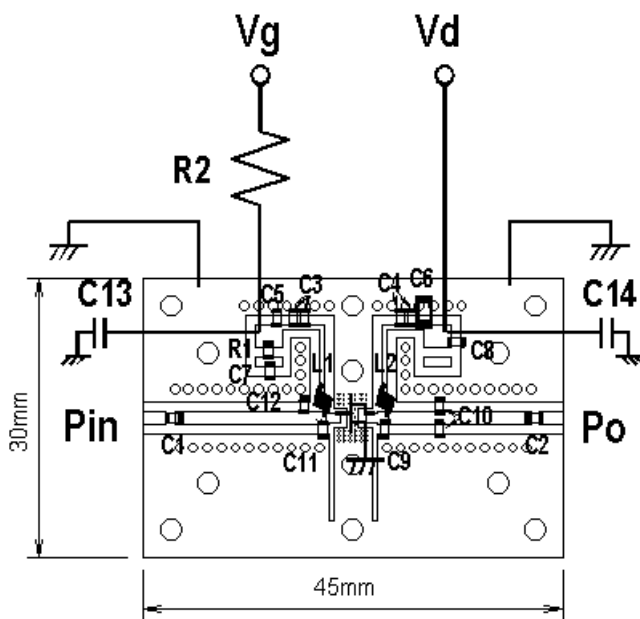
Gp,Po,Id(RF),Iq(RF) v.s. Pin



MGF0952P RF TEST DATA VD=10V, Idq=0.8A
IM3,IM5 v.s. Pin



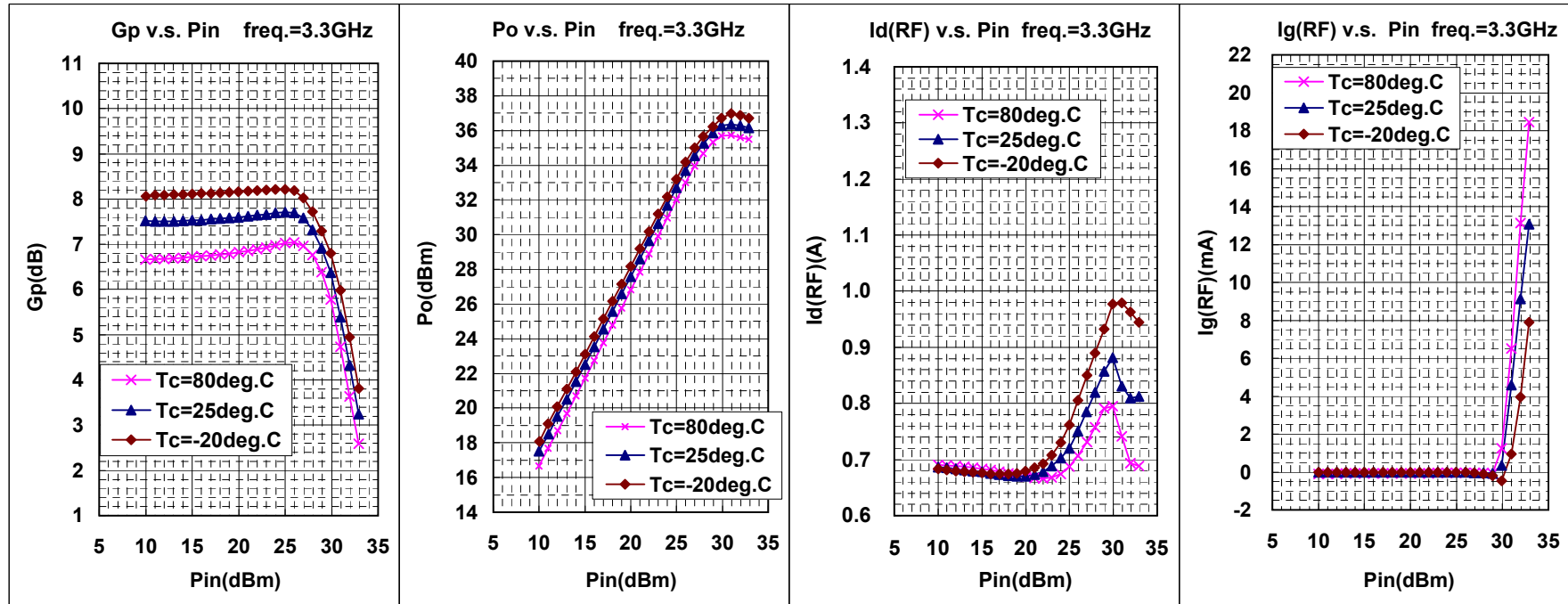
MGF0952P TEST FIXTURE $f=2.6\text{GHz}$



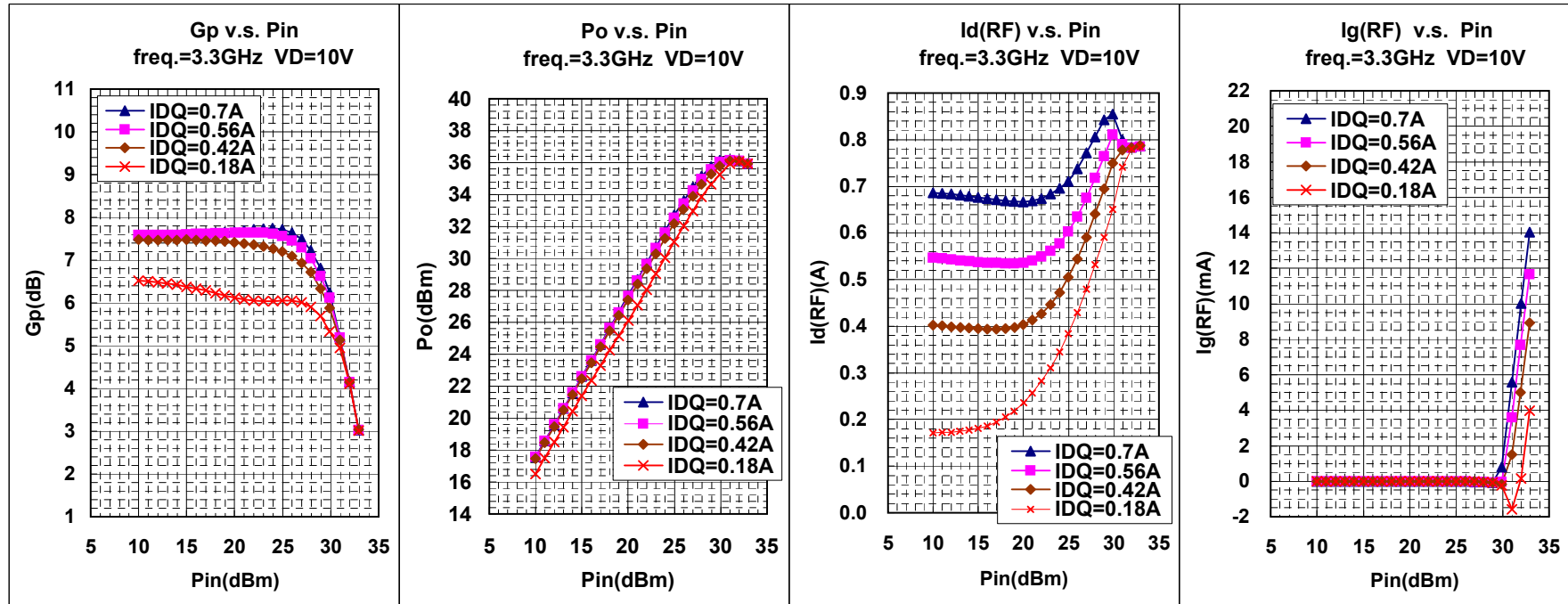
- C1,C2,C3,C4=20pF
- C5,C7,C8=1000pF
- C9,C11=2pF
- C10=1pF
- C13=330uF
- C14=47uF
- C12=0.5pF
- C6=4.7uF
- L1,L2=12nH
- R1=51ohm
- R2=100ohm

Board material:FR4 Thickness=0.8(mm)
Specific dielectric constant=4.4

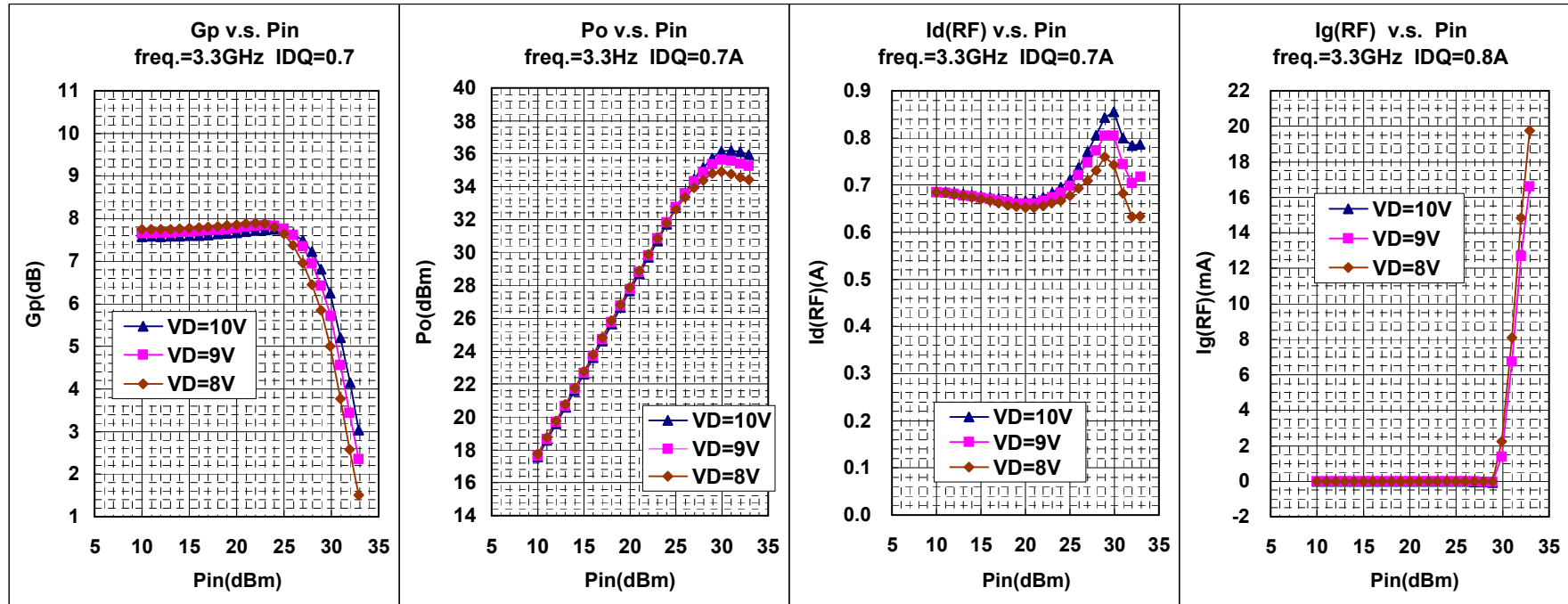
MGF0952P RF TEST DATA(CW) VD=10V, Idq=0.7A
Gp, Po, Id(RF), Ig(RF) v.s. Pin



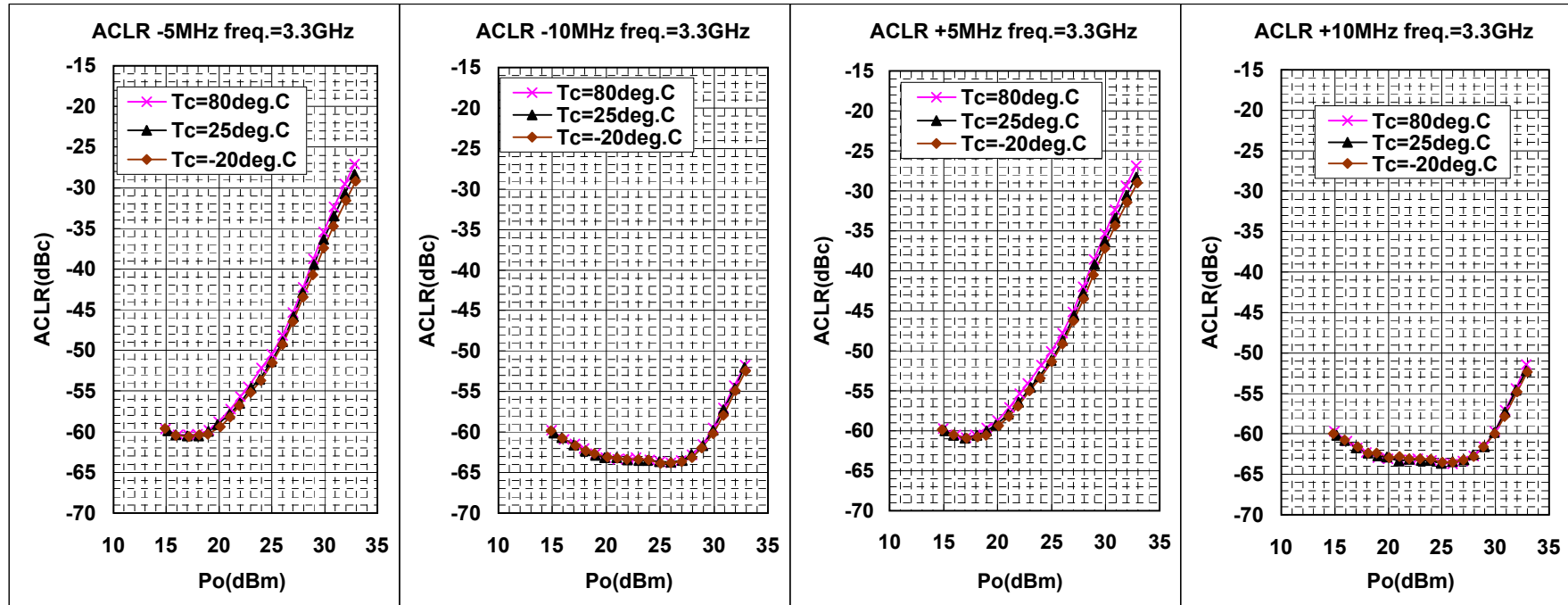
MGF0952P RF TEST DATA(CW)
Gp,Po,Id(RF),I_g(RF) v.s. Pin



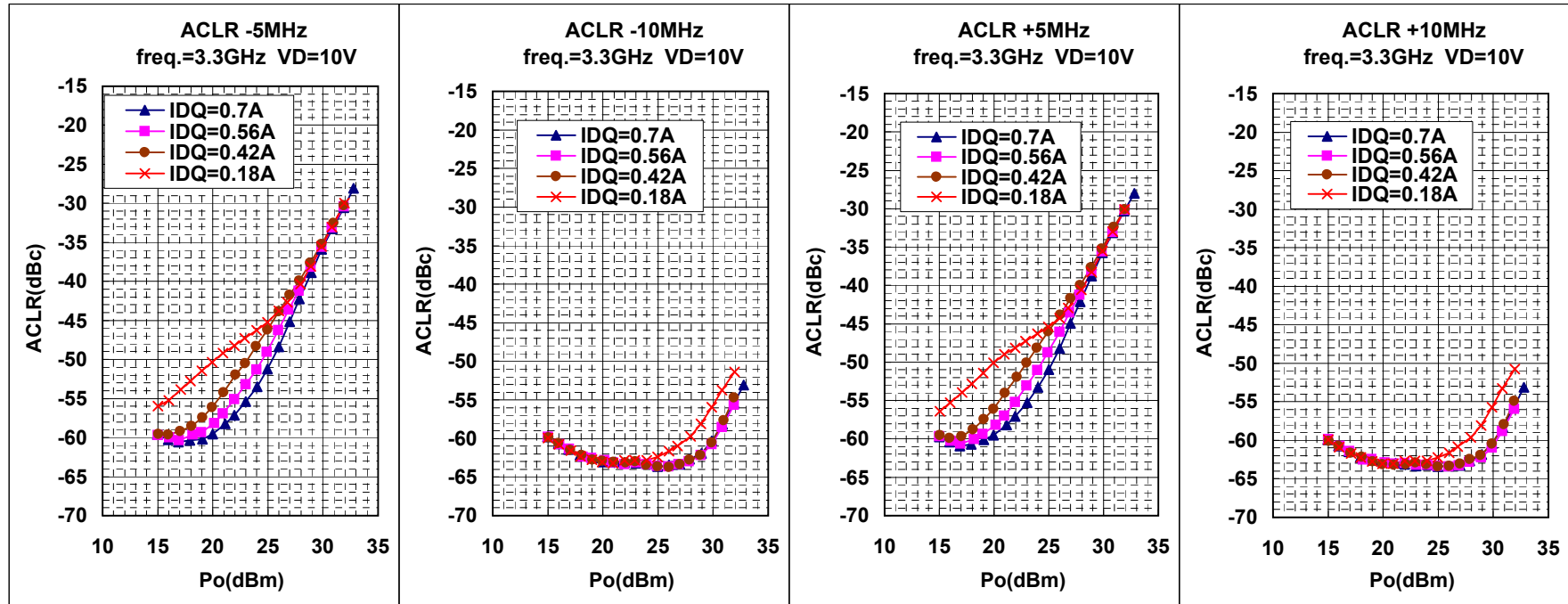
MGF0952P RF TEST DATA(CW)
Gp,Po,Id(RF),I_g(RF) v.s. Pin



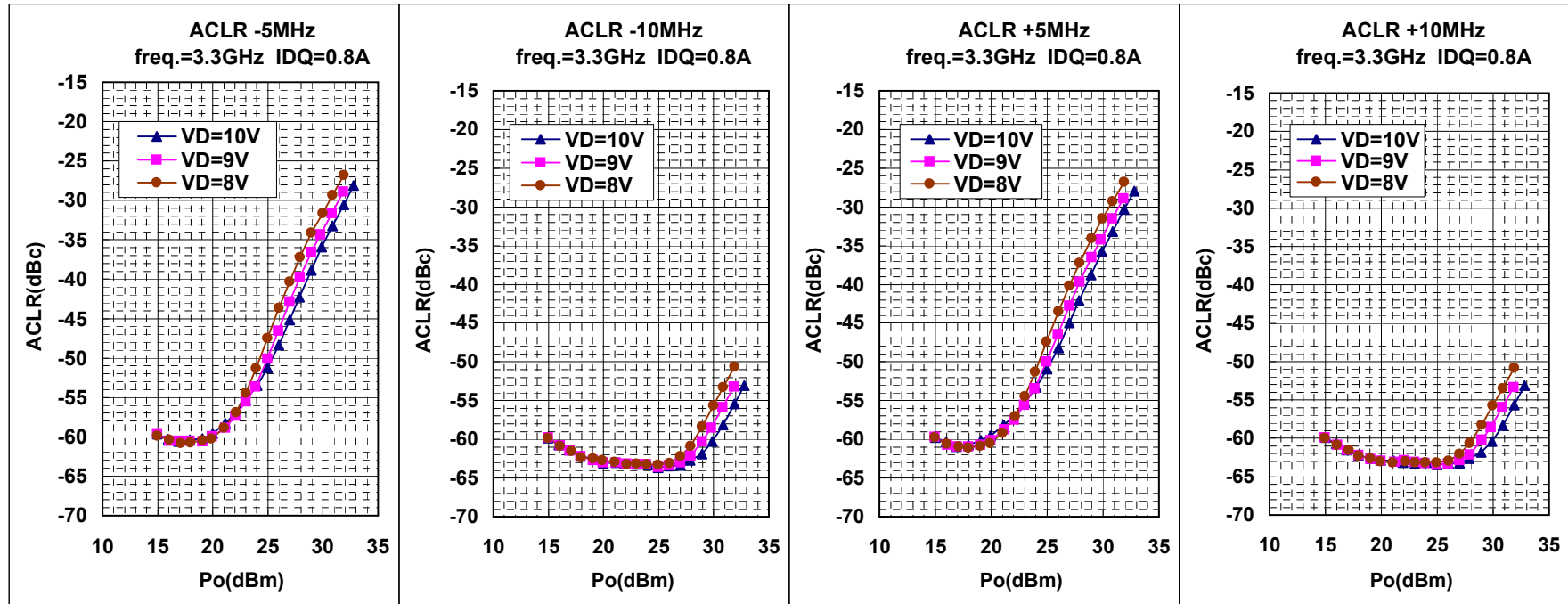
MGF0952P RF TEST DATA(W-CDMA) VD=10V,Idq=0.7A
 ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



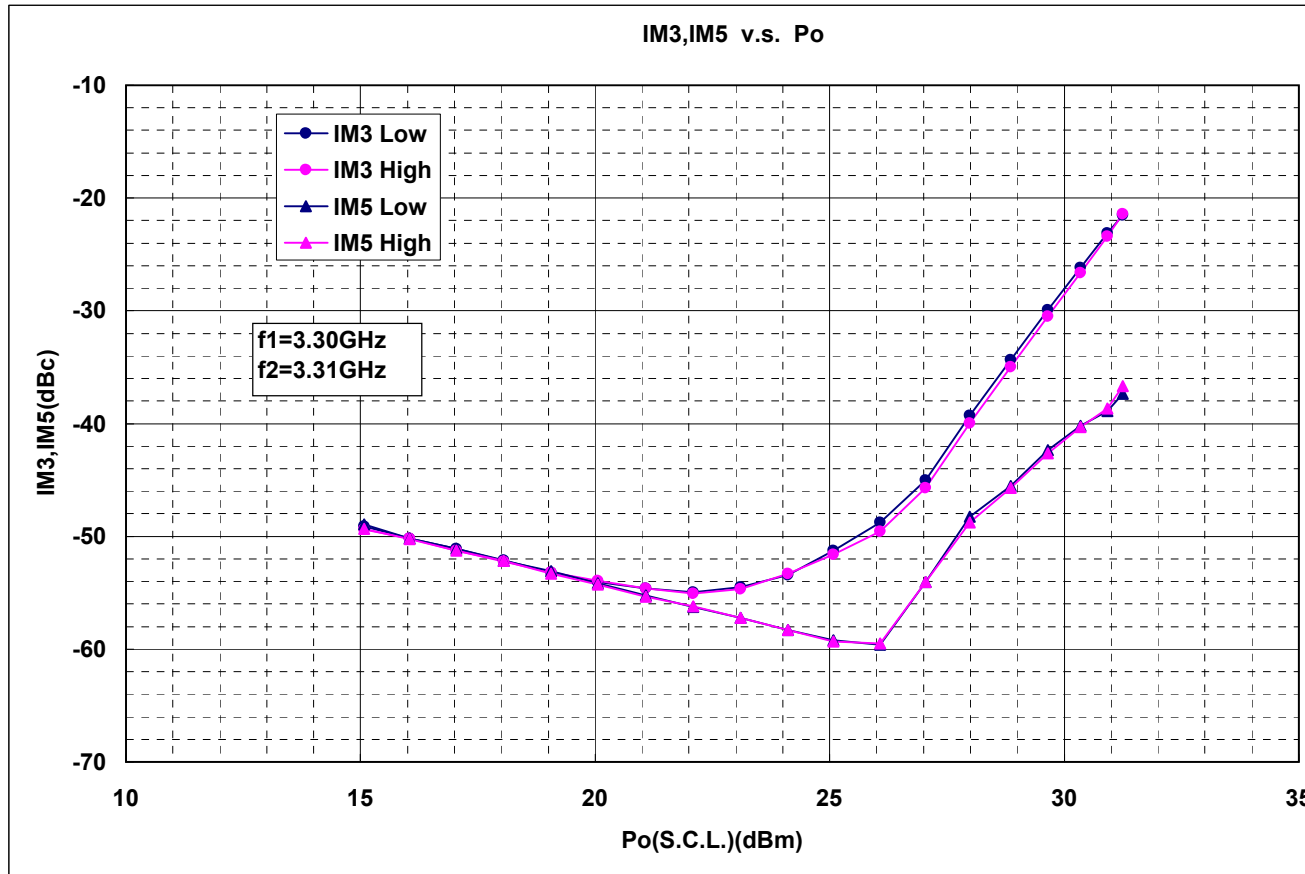
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



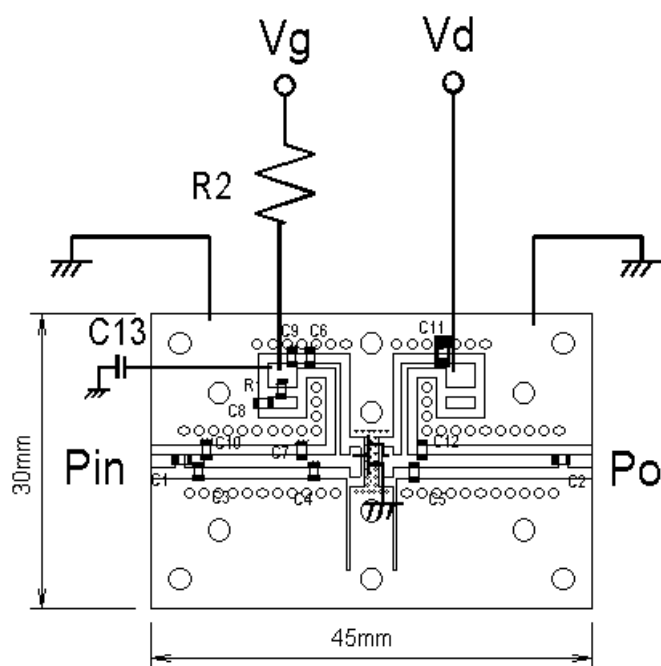
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



MGF0952P RF TEST DATA VD=10V,Idq=0.7A
IM3,IM5 v.s. Pin



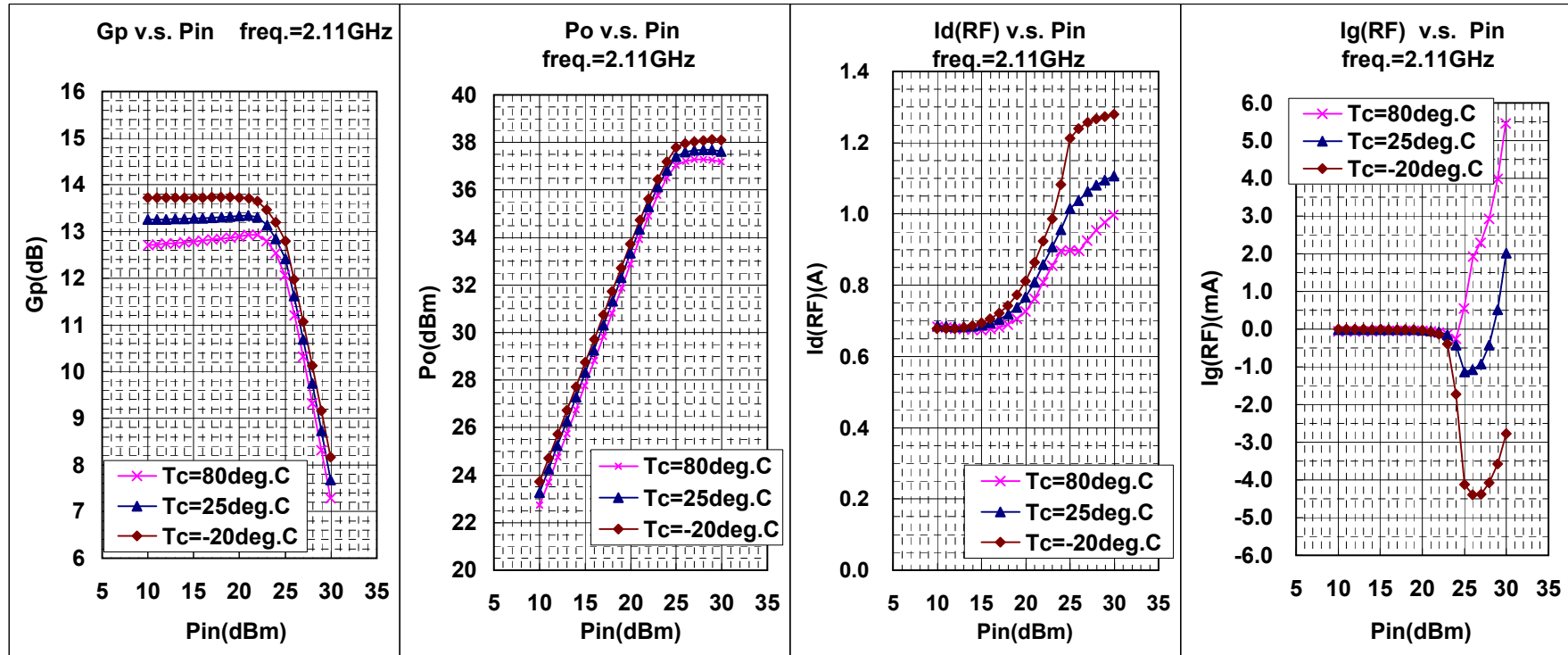
MGF0952P TEST FIXTURE $f=3.3\text{GHz}$



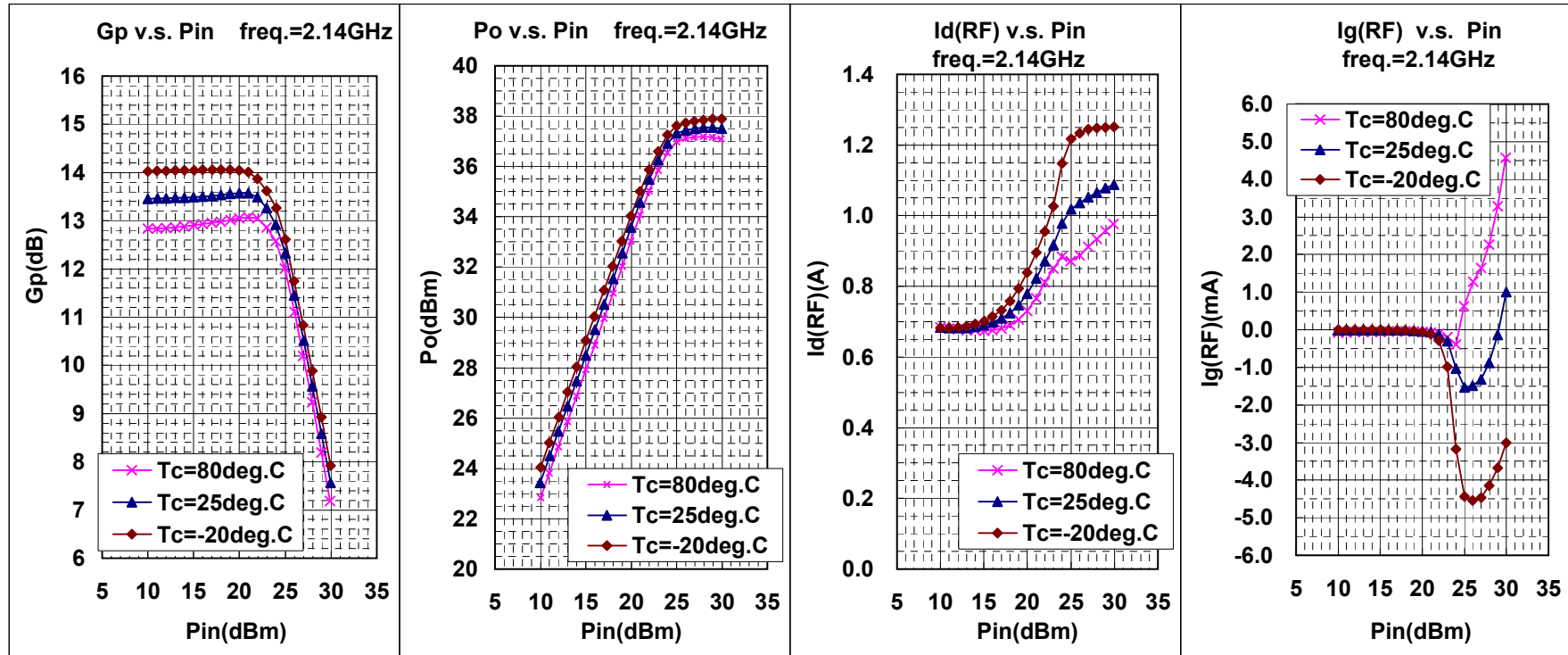
C1,C2=20pF
 C3,C4,C5=1P
 C6=22pF
 C7,C10,C12=0.5pF
 C8,C9=1000pF
 C11=4.7uF
 C13=330uF
 R1=51ohm
 R2=100ohm

Board material:FR4 Thickness=0.8(mm)
 Specific dielectric constant=4.4

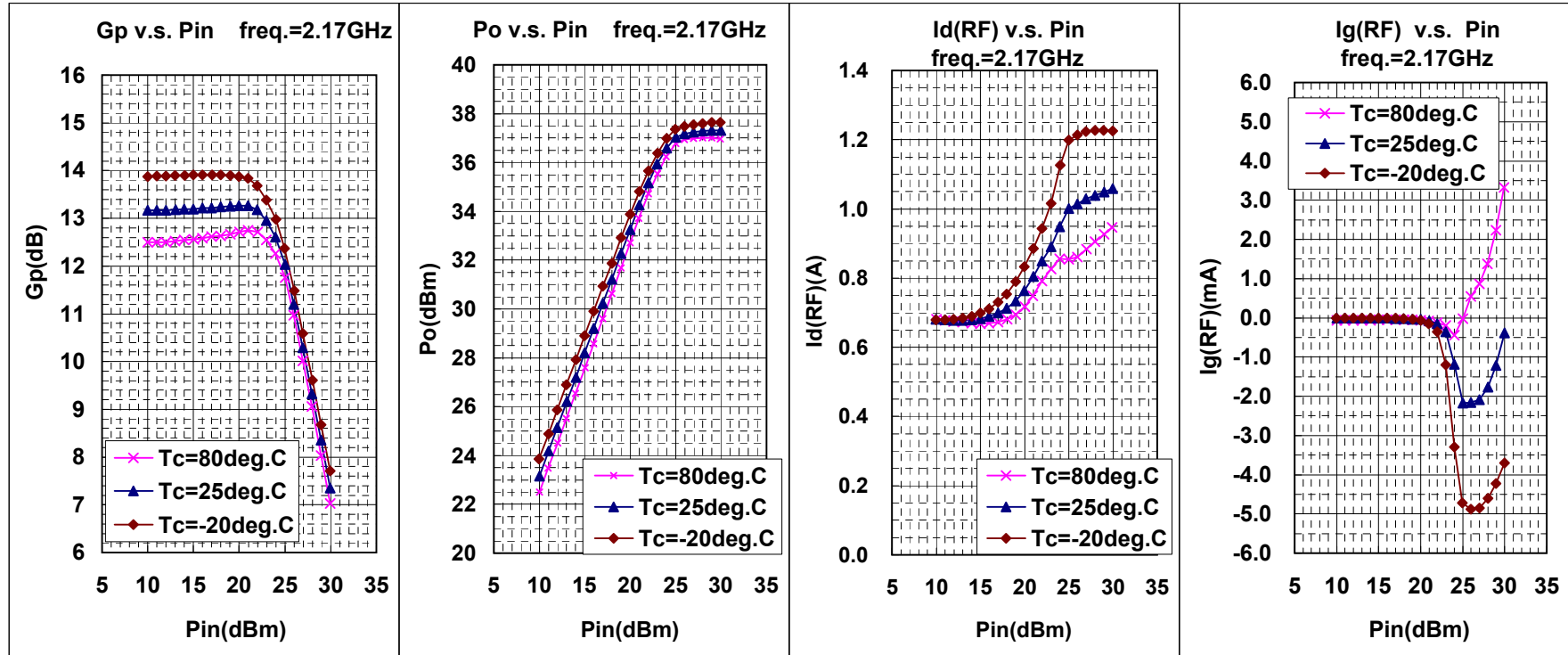
MGF0952P RF TEST DATA(CW) VD=10V, IDQ=0.7A
Gp, Po, Id(RF), Ig(RF) v.s. Pin



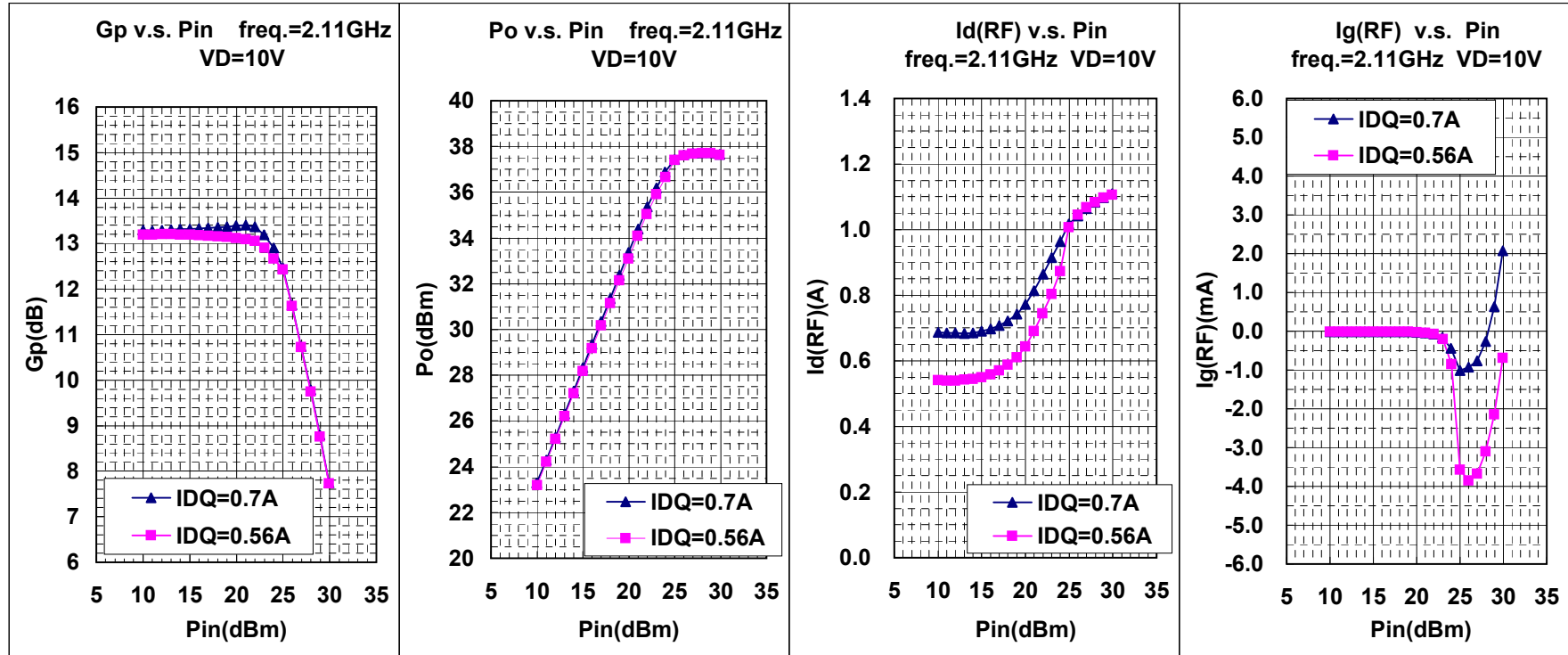
MGF0952P RF TEST DATA(CW) VD=10V, IDQ=0.7A
Gp, Po, Id(RF), Ig(RF) v.s. Pin



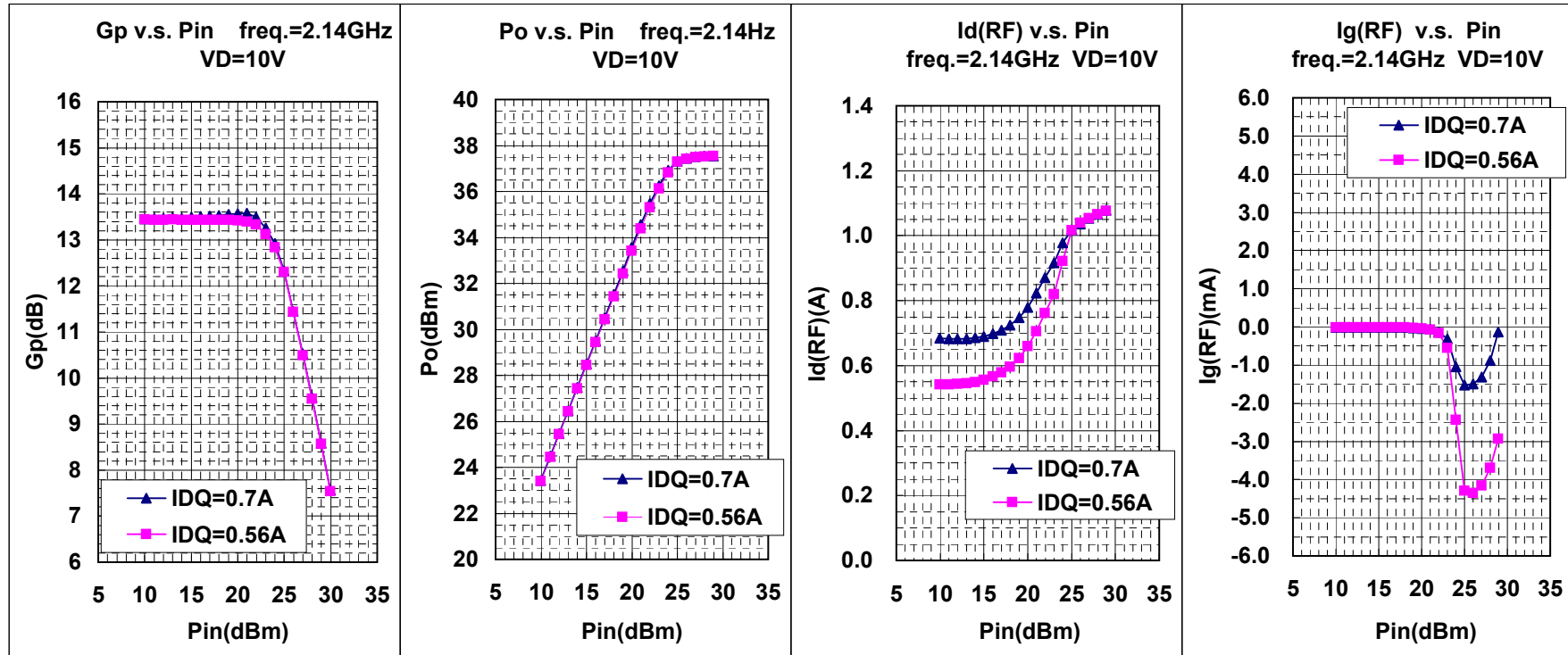
MGF0952P RF TEST DATA(CW) VD=10V, IDQ=0.7A
Gp, Po, Id(RF), Ig(RF) v.s. Pin



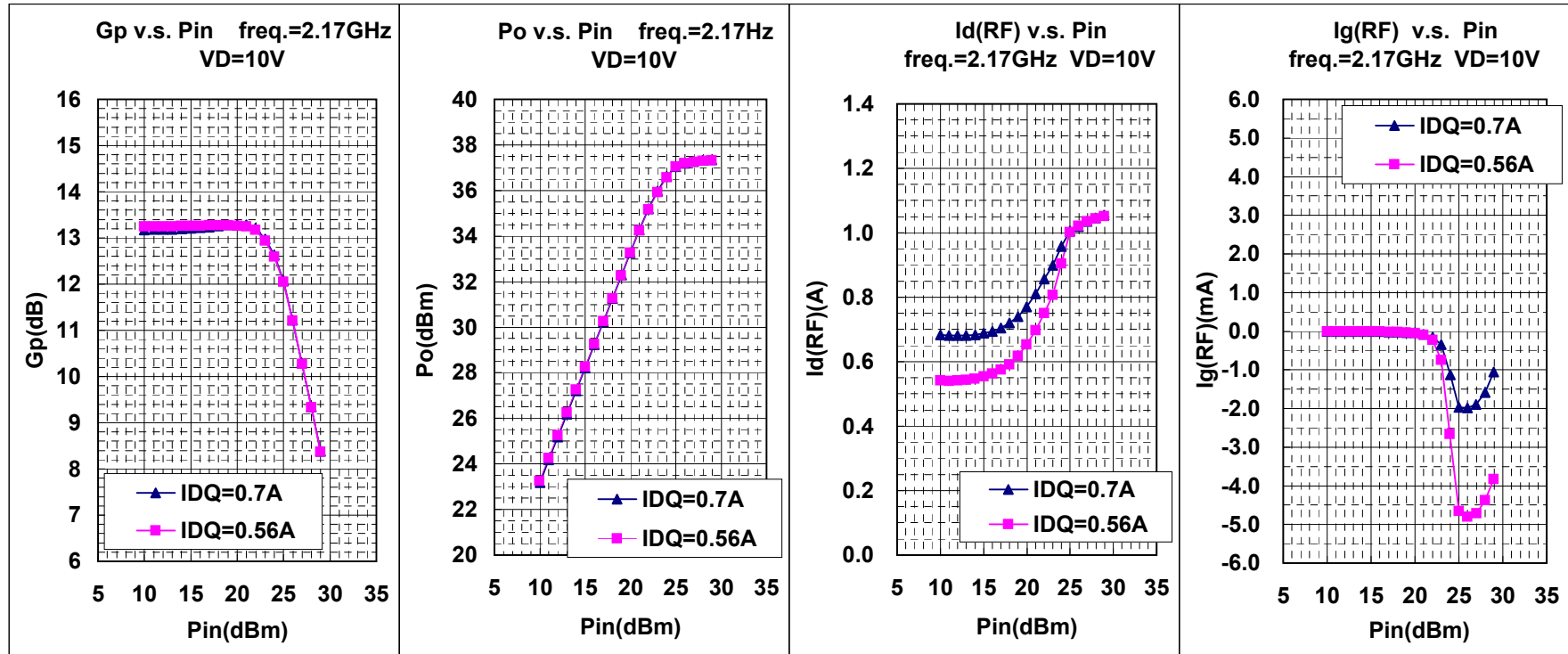
MGF0952P RF TEST DATA(CW)
Gp,Po,Id(RF),I_g(RF) v.s. Pin



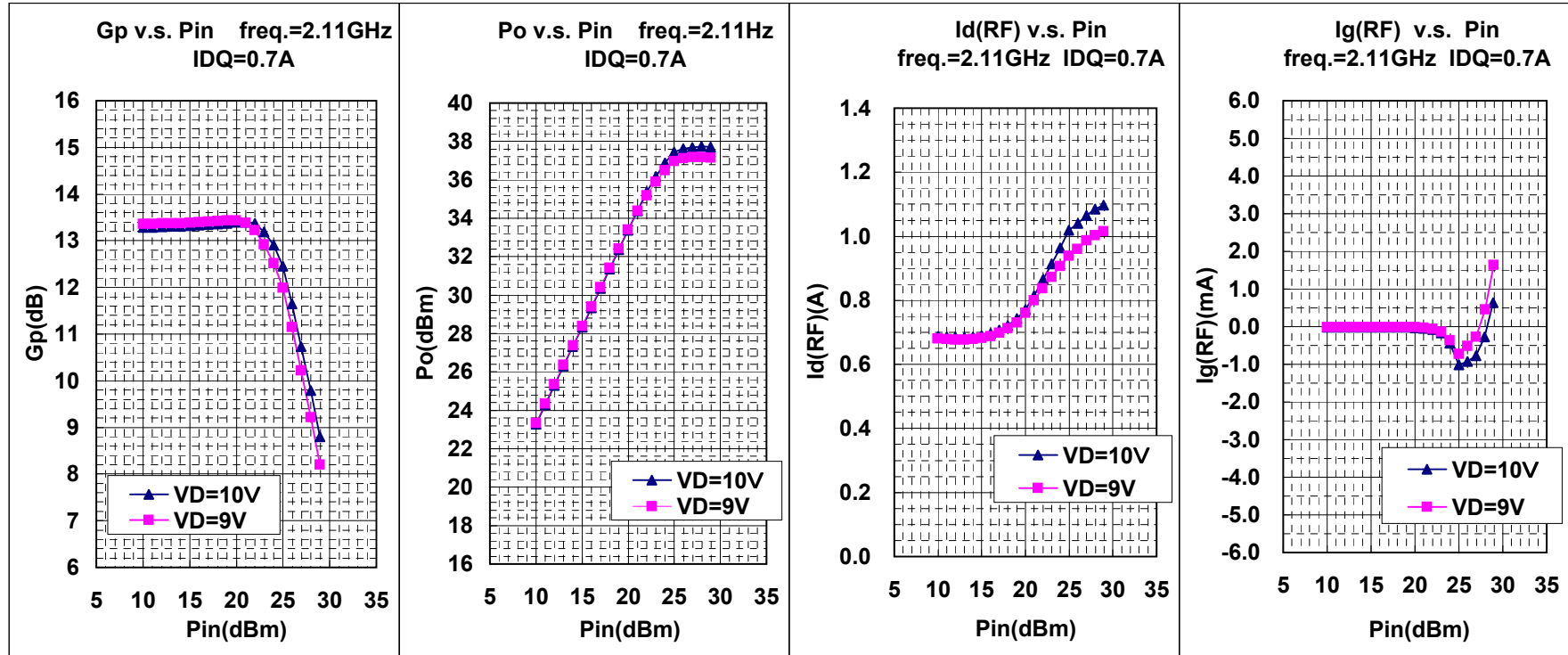
MGF0952P RF TEST DATA(CW)
Gp,Po,Id(RF),Ig(RF) v.s. Pin



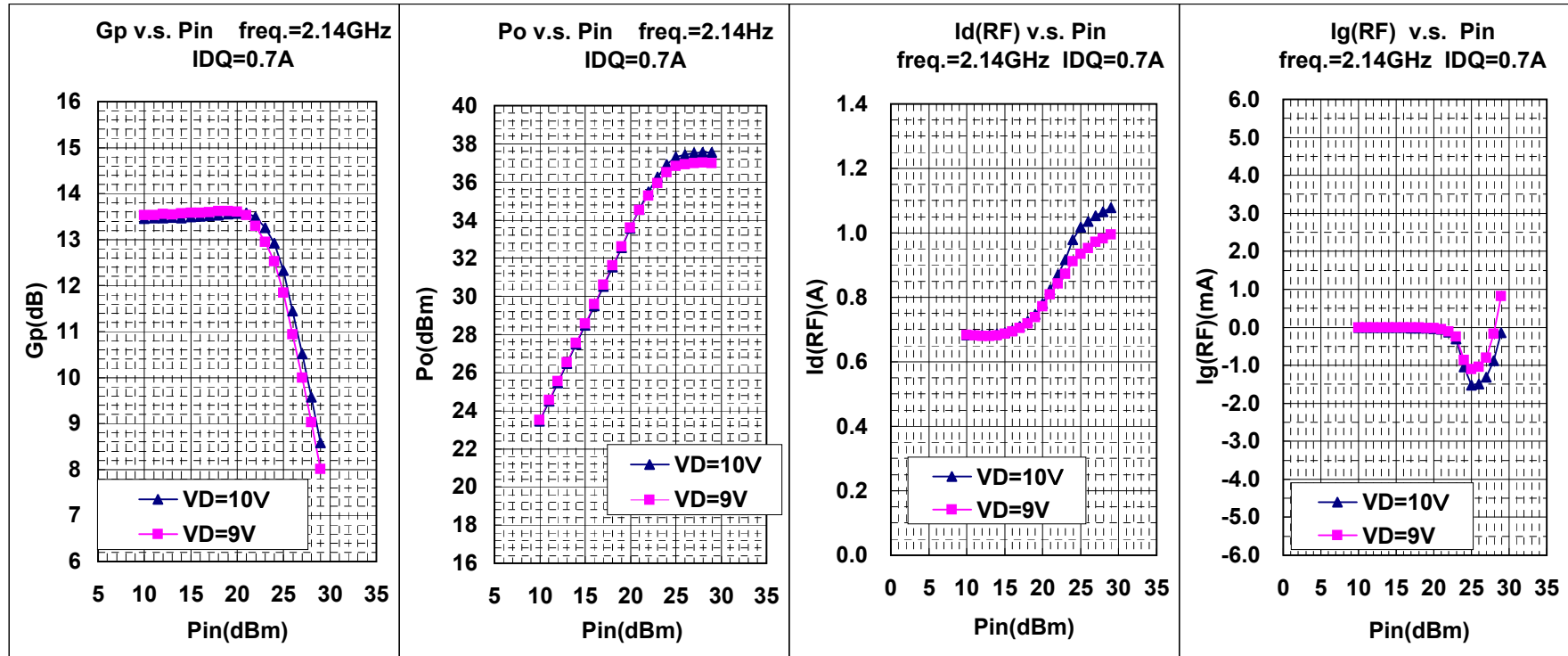
MGF0952P RF TEST DATA(CW)
Gp,Po,Id(RF),Ig(RF) v.s. Pin



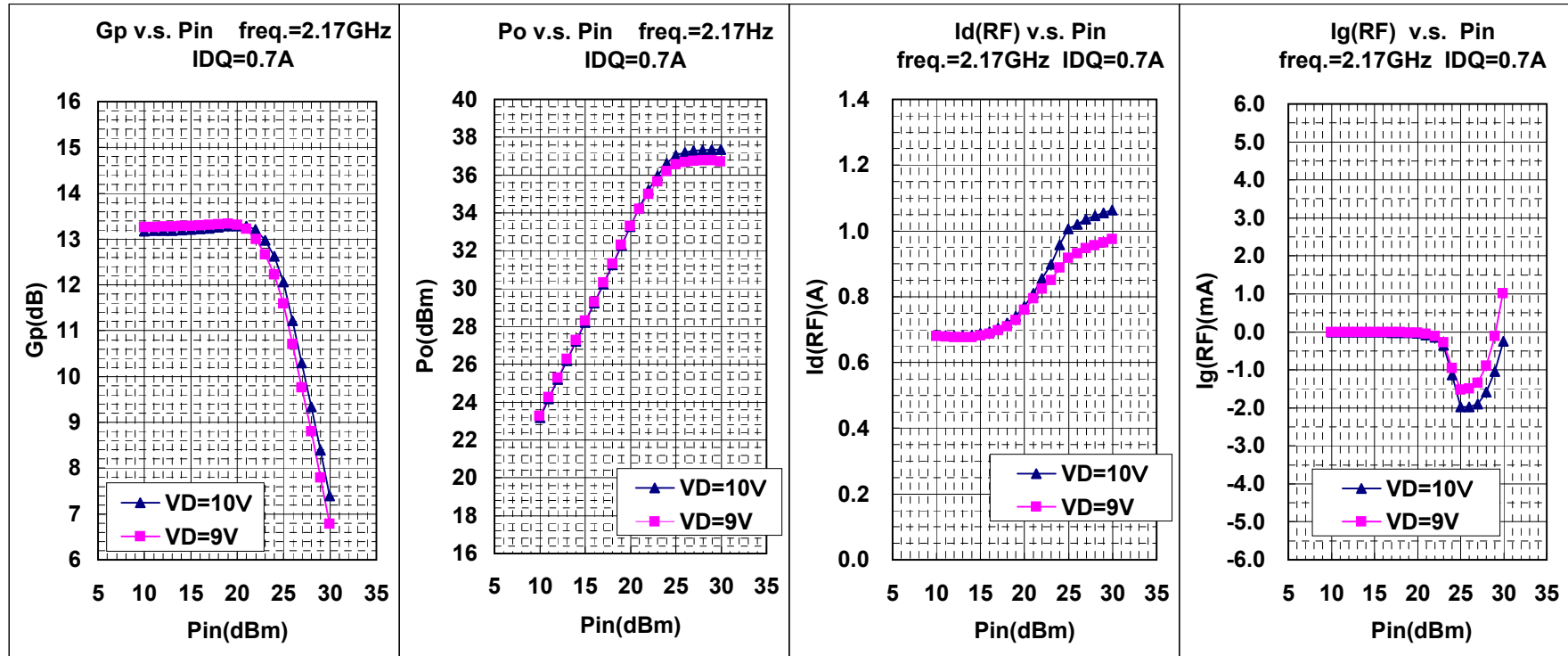
MGF0952P RF TEST DATA(CW)
Gp,Po,Id(RF),I_g(RF) v.s. Pin



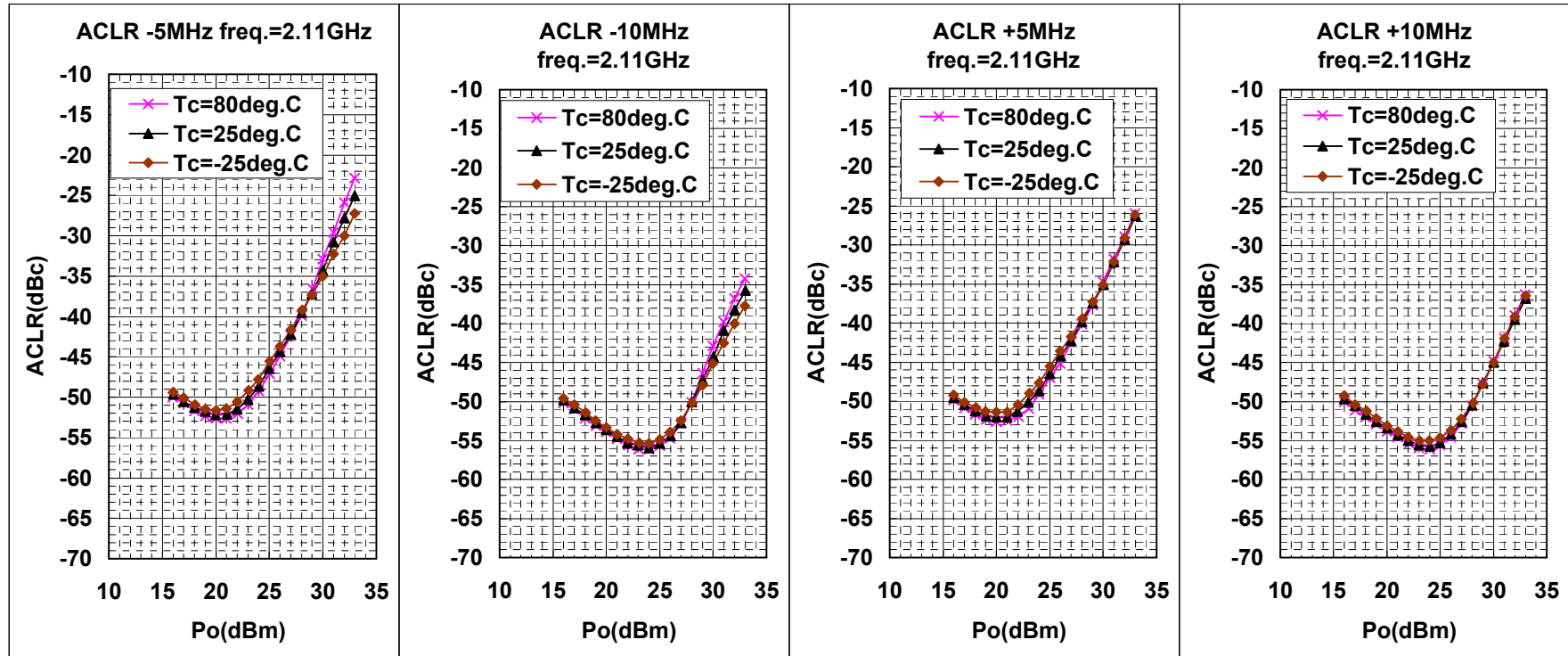
MGF0952P RF TEST DATA(CW)
Gp,Po,Id(RF),Ig(RF) v.s. Pin



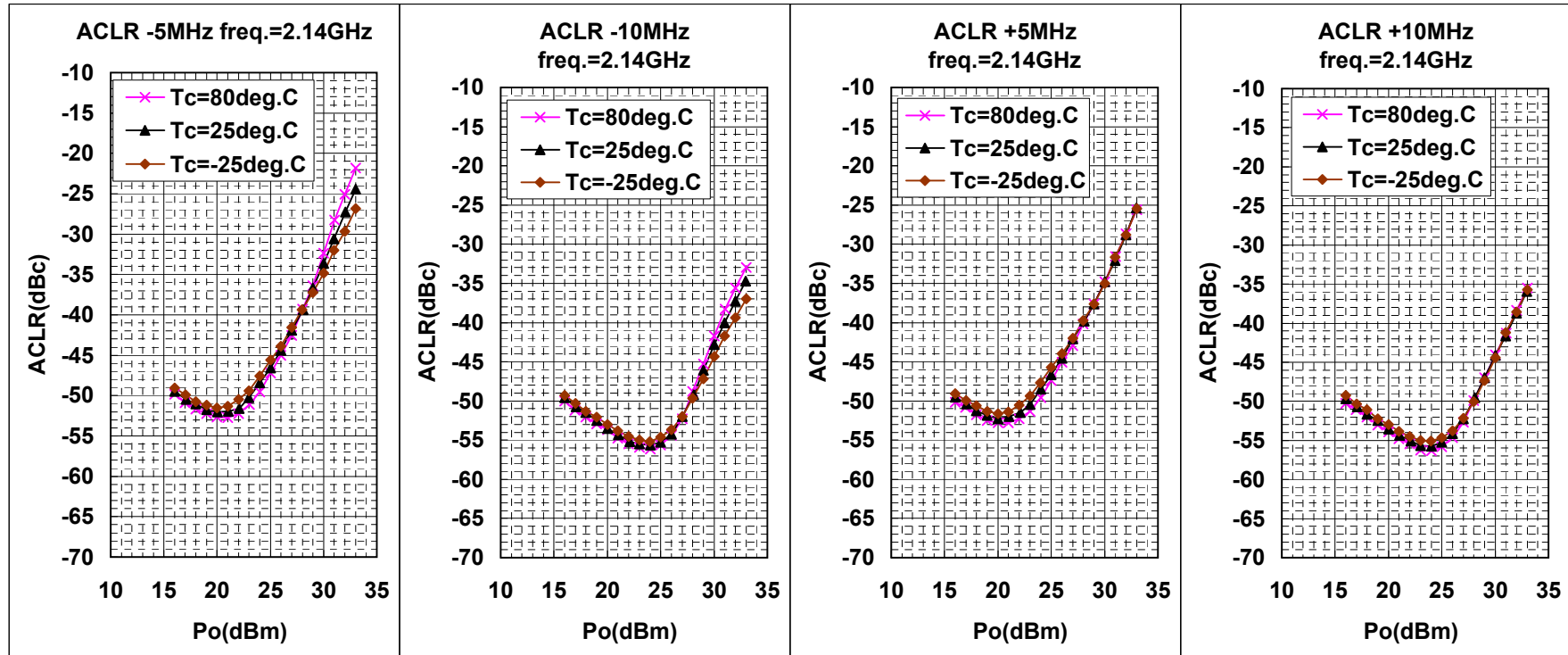
MGF0952P RF TEST DATA(CW)
Gp,Po,Id(RF),Ig(RF) v.s. Pin



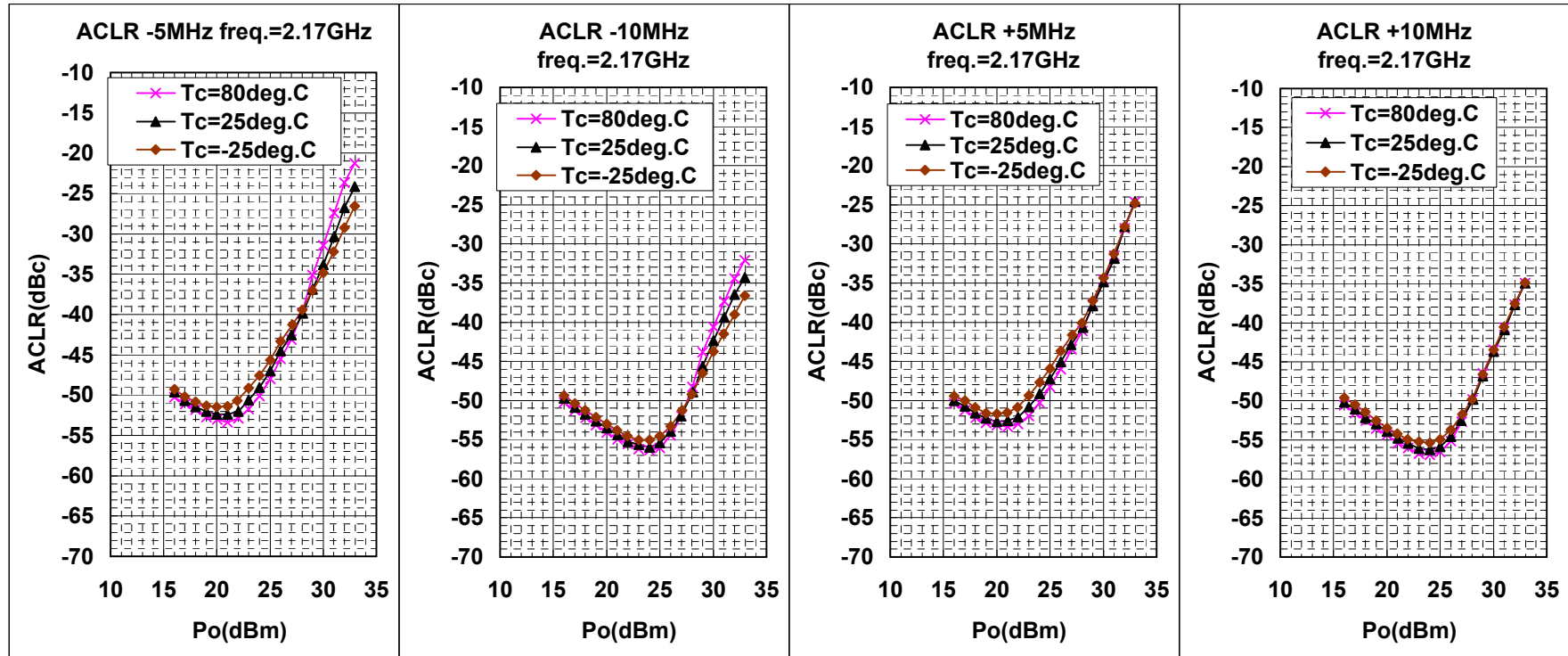
MGF0952P RF TEST DATA(W-CDMA) VD=10V, IDQ=0.7A
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



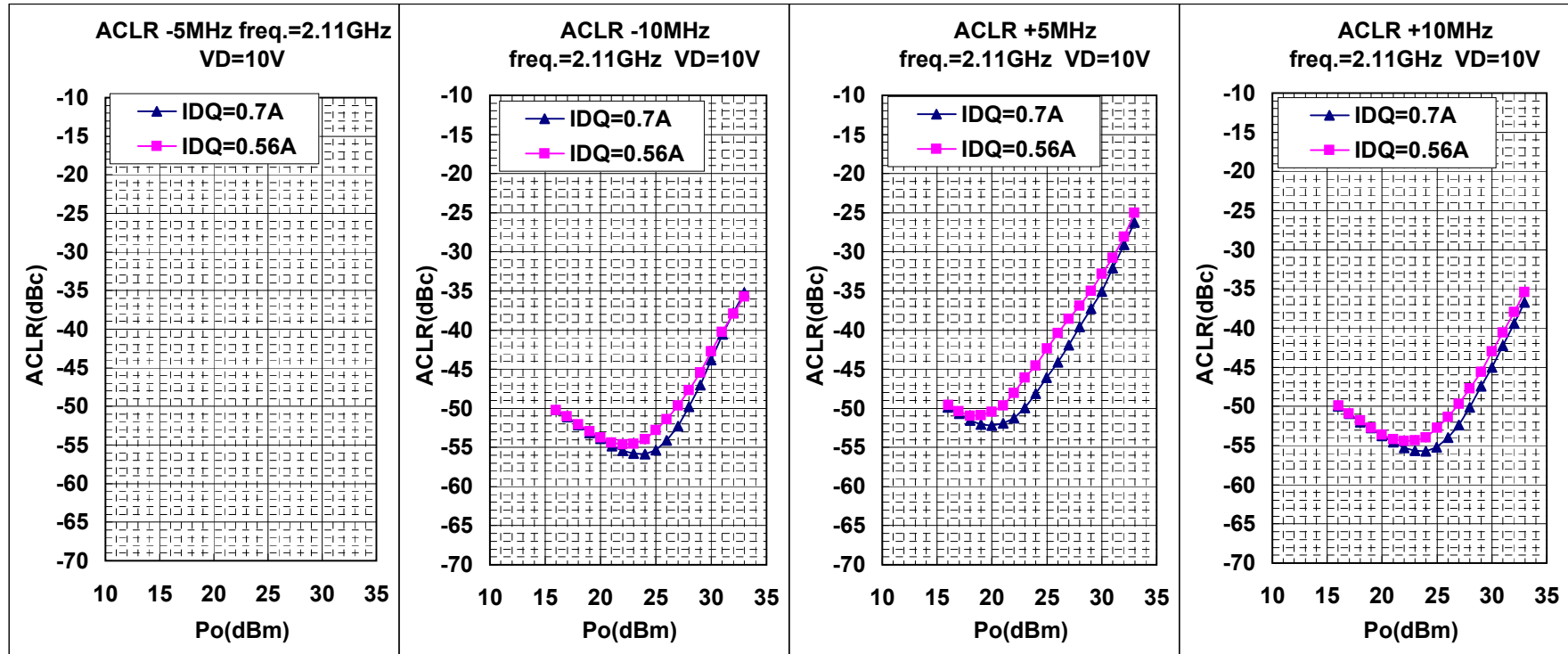
MGF0952P RF TEST DATA(W-CDMA) VD=10V, IDQ=0.7A
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



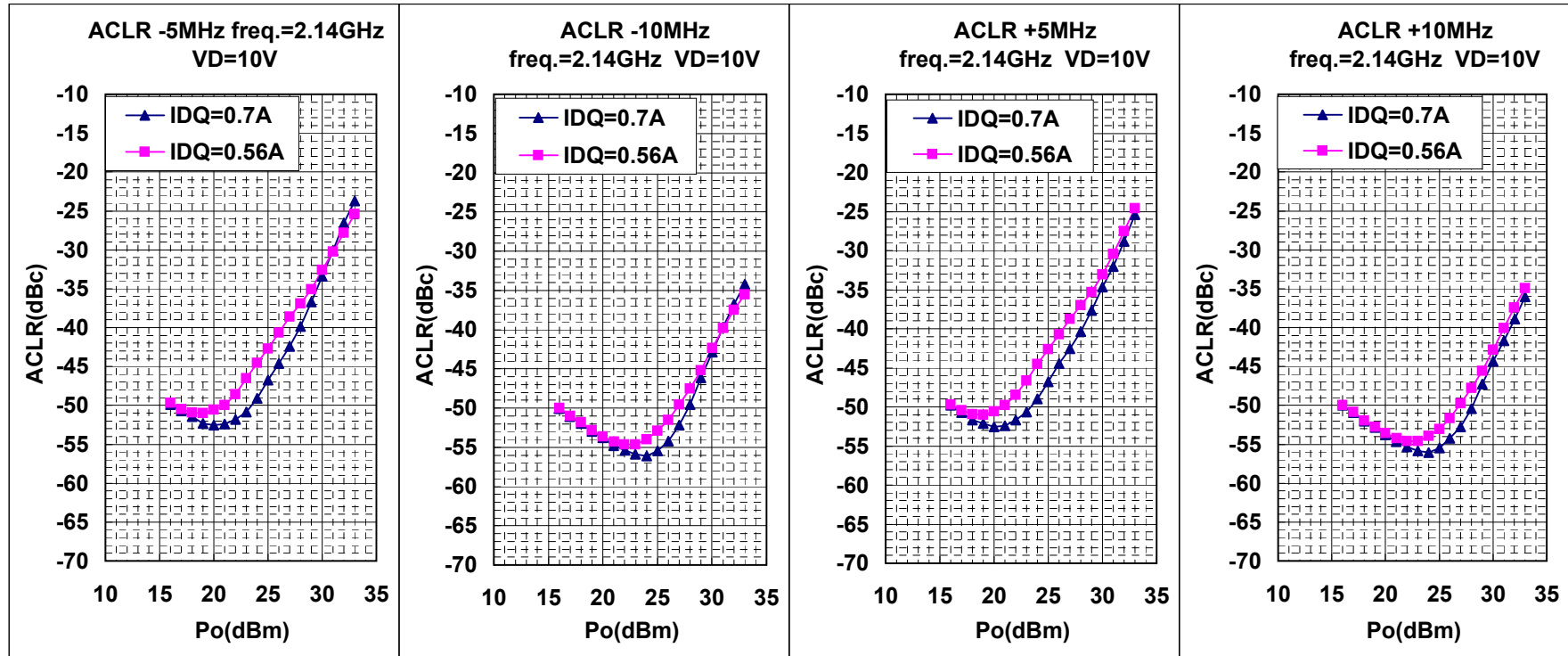
MGF0952P RF TEST DATA(W-CDMA) VD=10V, IDQ=0.7A
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



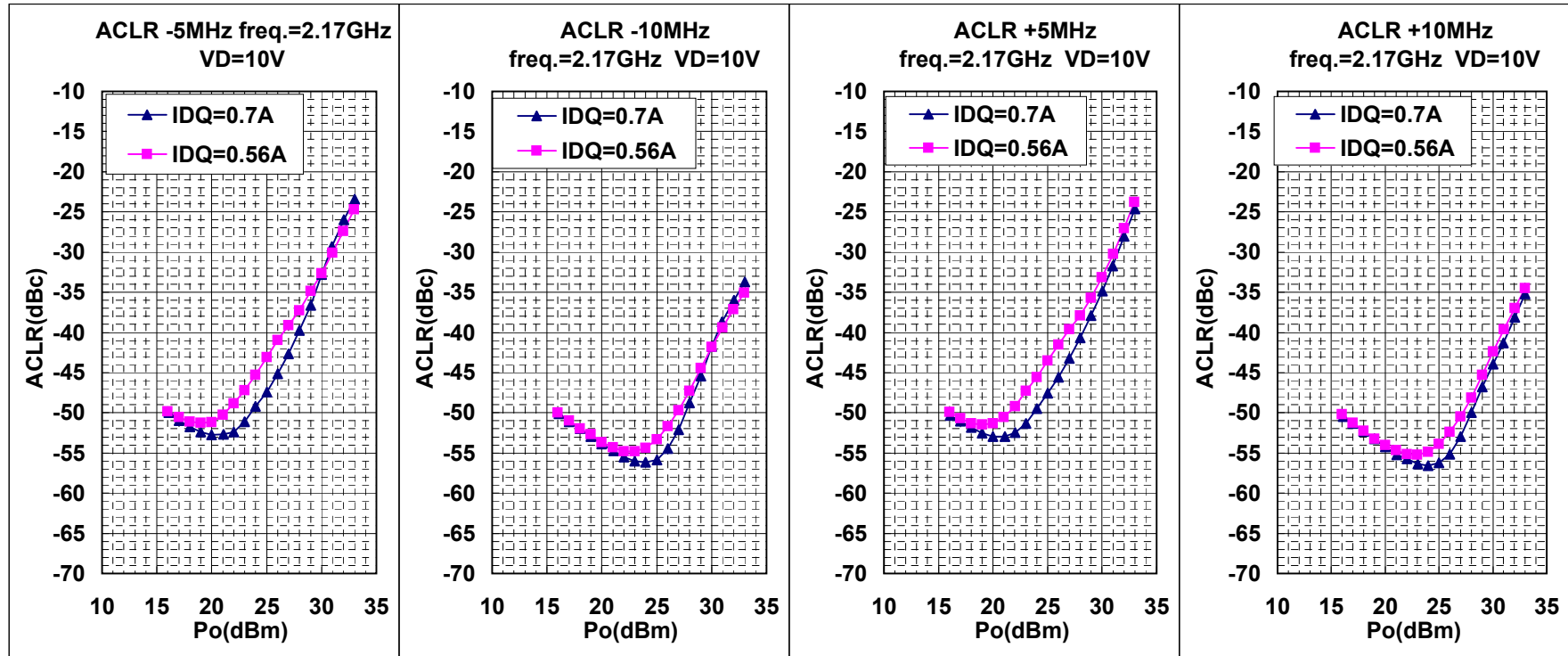
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



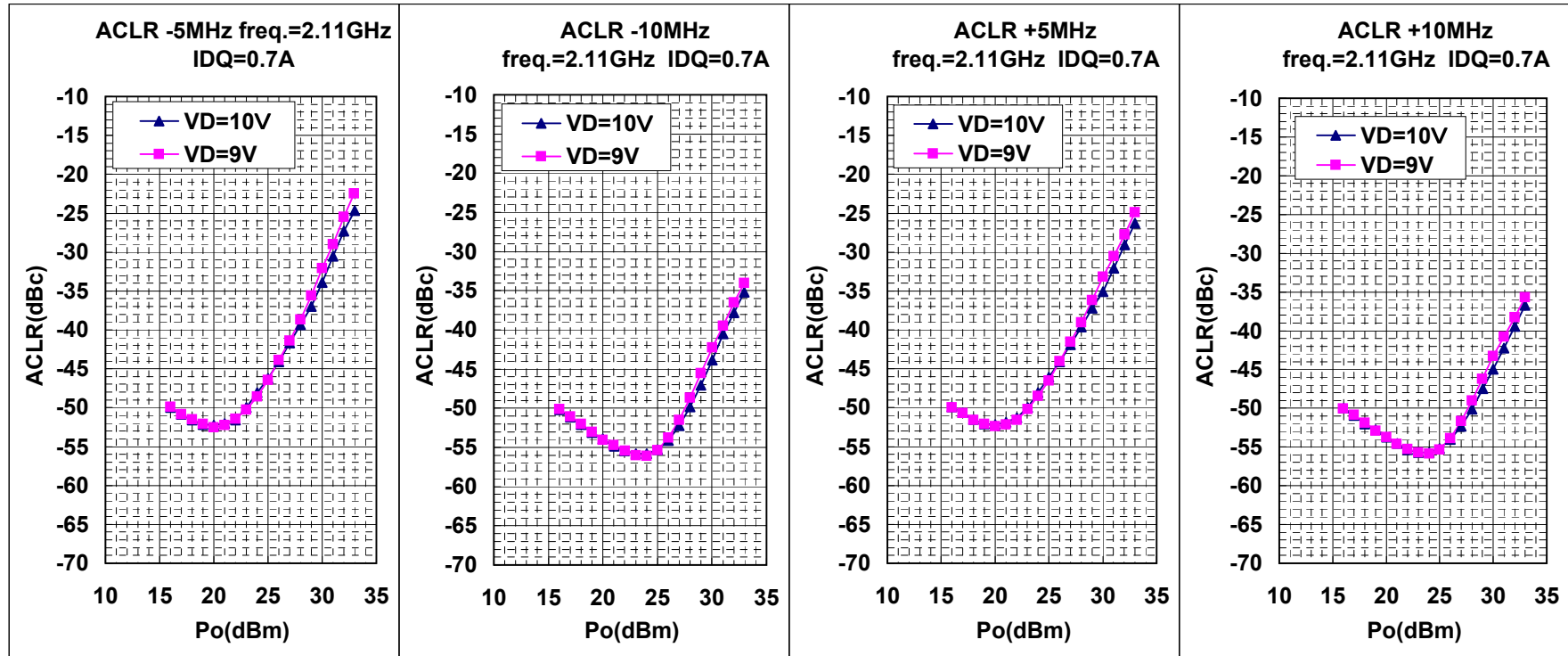
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



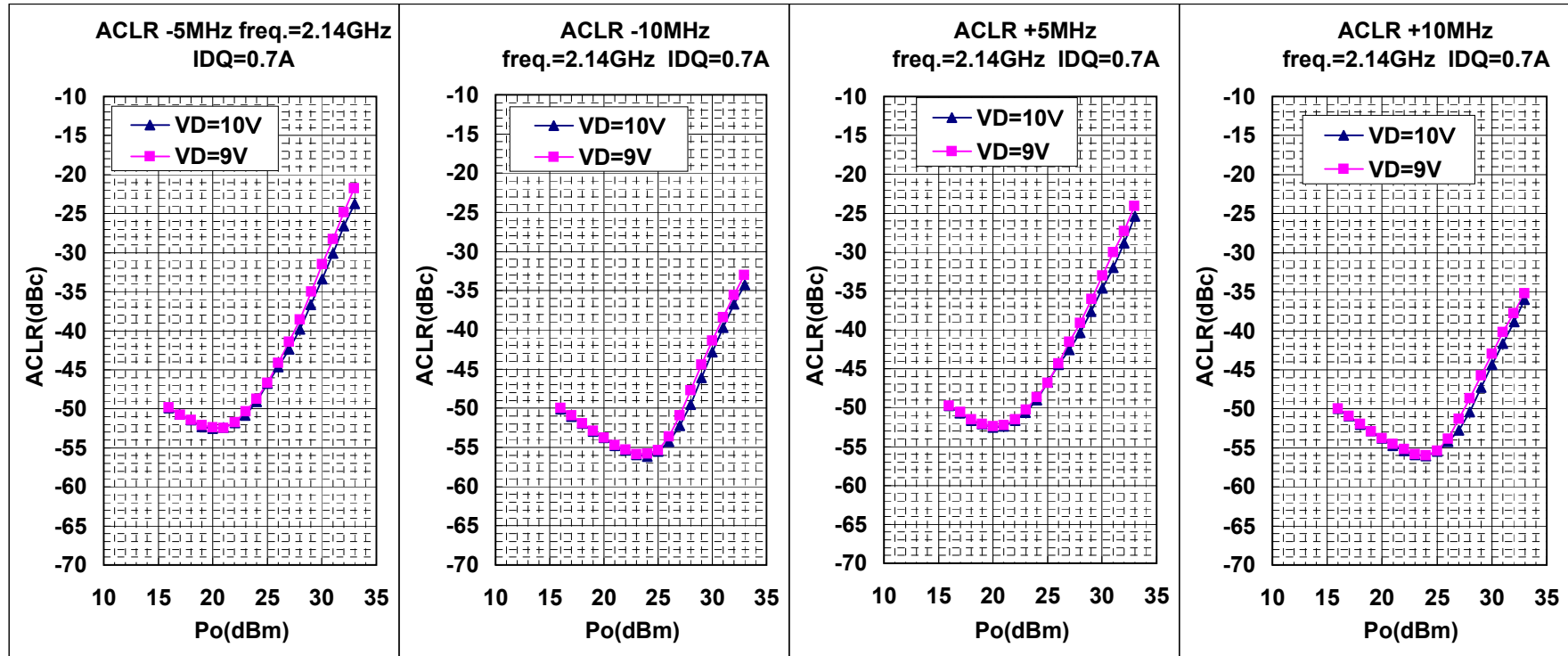
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



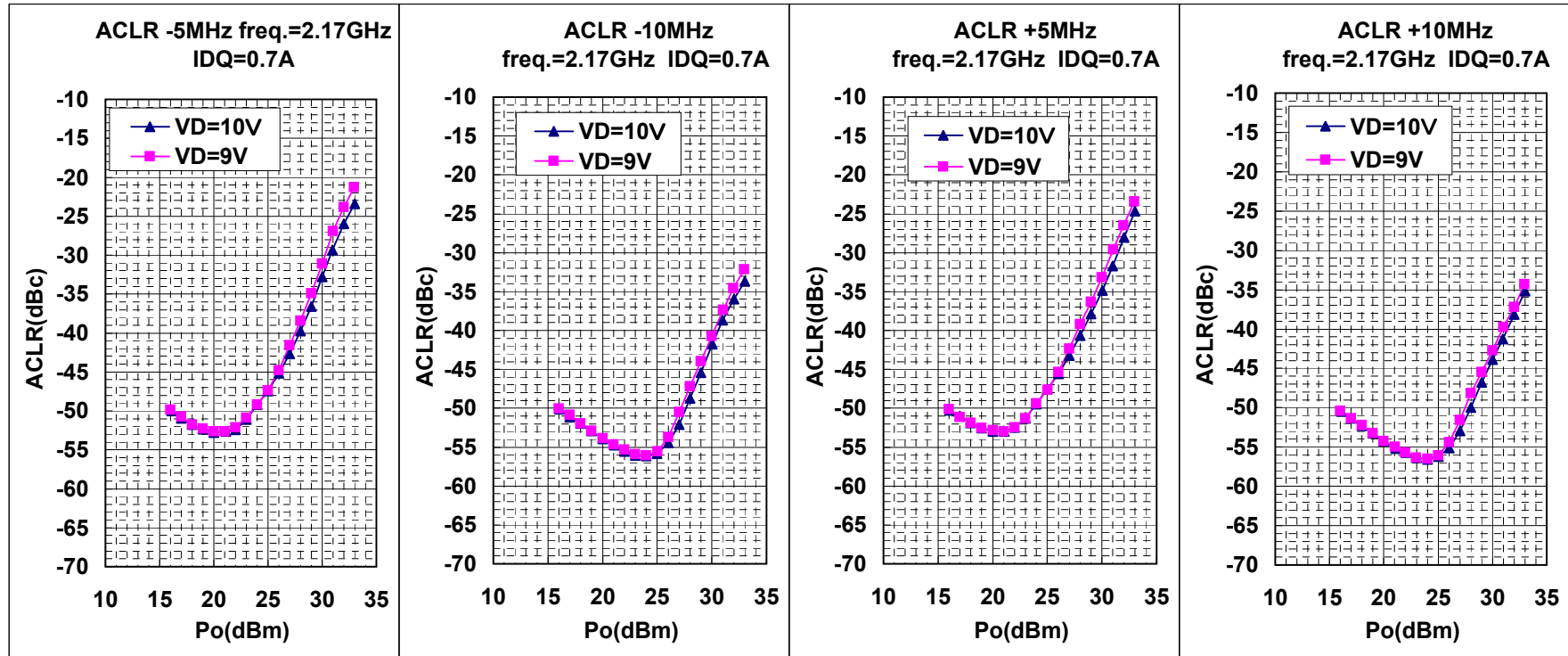
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



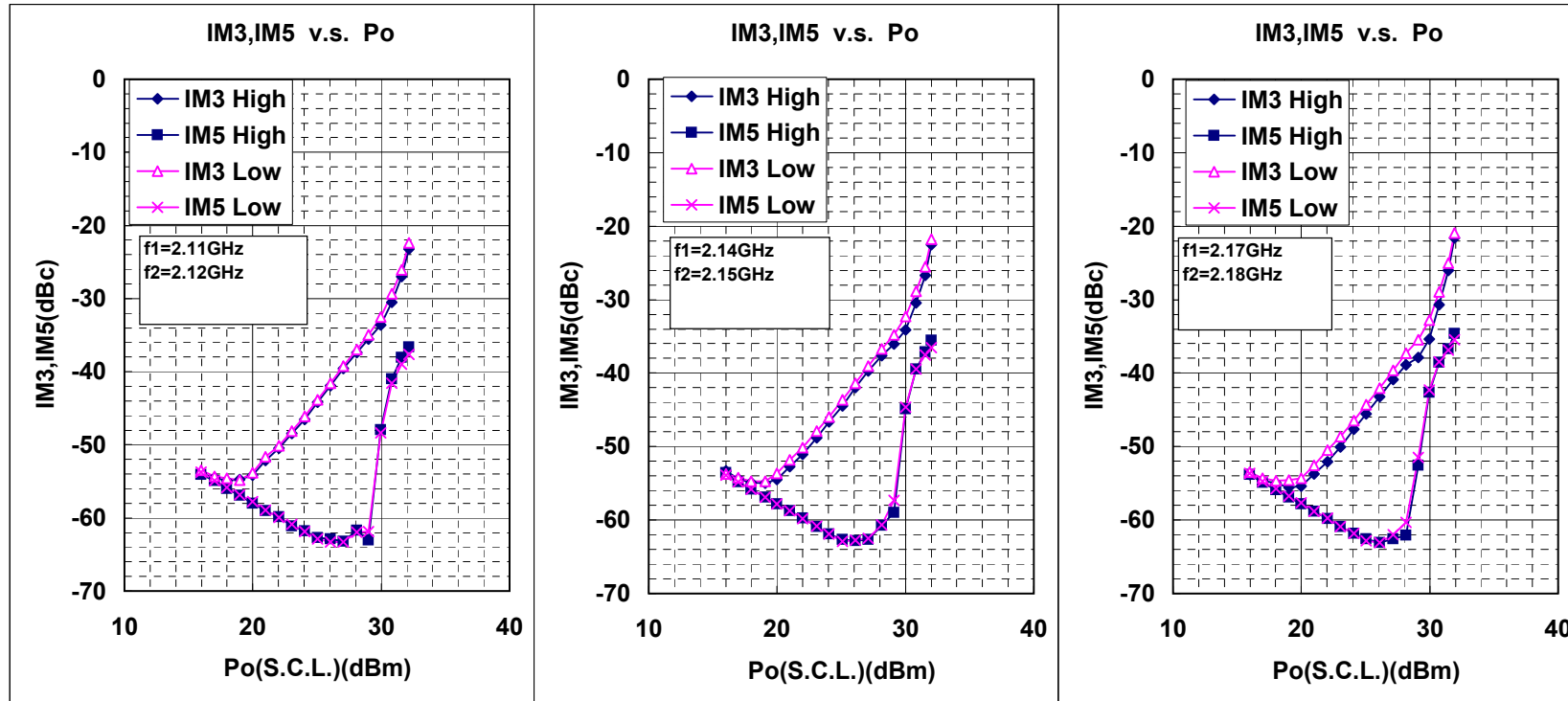
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



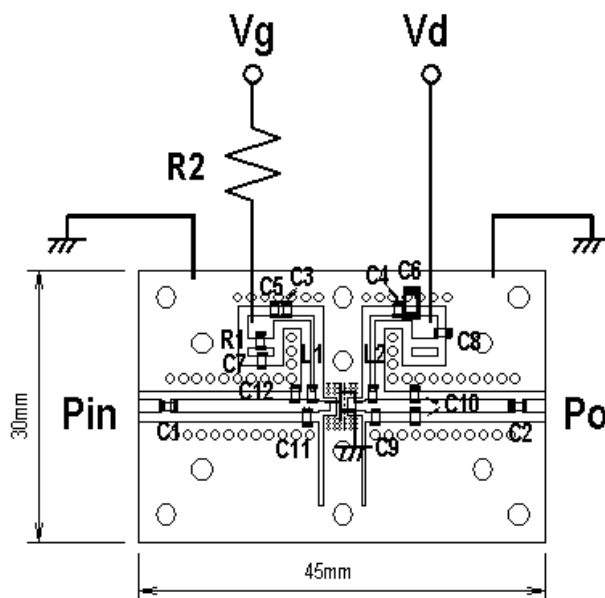
MGF0952P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



MGF0952P RF TEST DATA VD=10V, Idq=0.7A
IM3,IM5 v.s. Pin



MGF0952P TEST FIXTURE $f=2.11-2.17\text{GHz}$



C1,C2,C3,C4=20pF
C5,C7,C8=1000pF
C9=2pF
C11=3pF
C10=1pF
C12=0.5pF
C6=4.7uF
L1,L2=12nH
R1=51ohm
R2=100ohm

Board material:FR4 Thickness=0.8(mm)
Specific dielectric constant=4.4

L & S BAND GaAs FET [Plastic Mold Lead-less PKG]**Requests Regarding Safety Designs**

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