

DESCRIPTION

The MGF0919A GaAs FET with an N-channel schottky Gate, is designed for use UHF band amplifiers.

FEATURES

- High output power
Po=30dBm(TYP.) @f=1.9GHz,Pin=12dBm
- High power gain
Gp=19dB(TYP.) @f=1.9GHz
- High power added efficiency
ηadd=37%(TYP.) @f=1.9GHz,Pin=12dBm
- Hermetic Package

APPLICATION

- For UHF Band power amplifiers

QUALITY

- GG

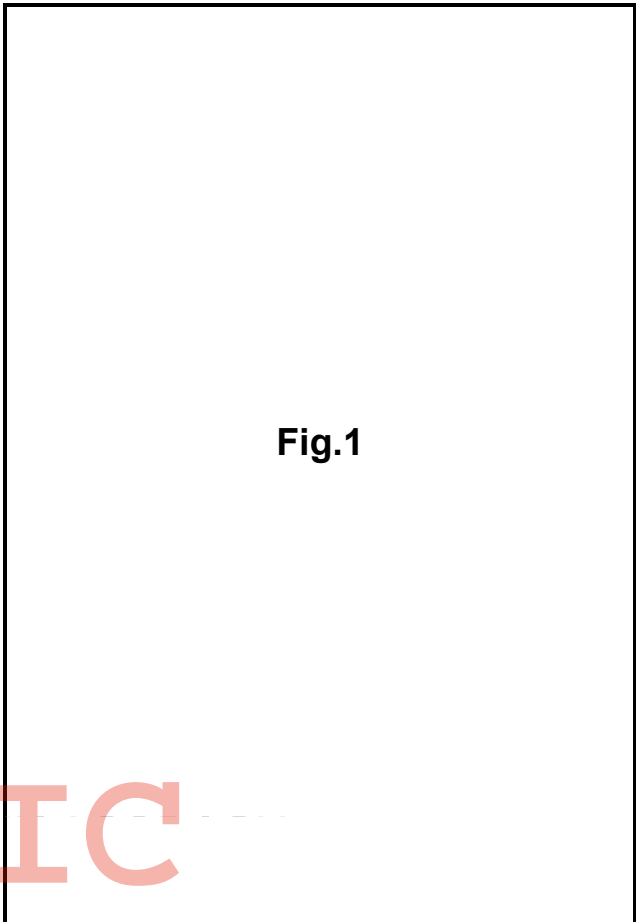
RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=300mA • Rg=500Ω

Delivery -01:Tape & Reel(1K), -03:Trai(50pcs)

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGSO	Gate to sourcebreakdown voltage	-15	V
VGDO	Gate to drain breakdown voltage	-15	V
ID	Drain current	800	mA
IGR	Reverse gate current	-2.4	mA
IGF	Forward gate current	10	mA
PT	Total power dissipation	6	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

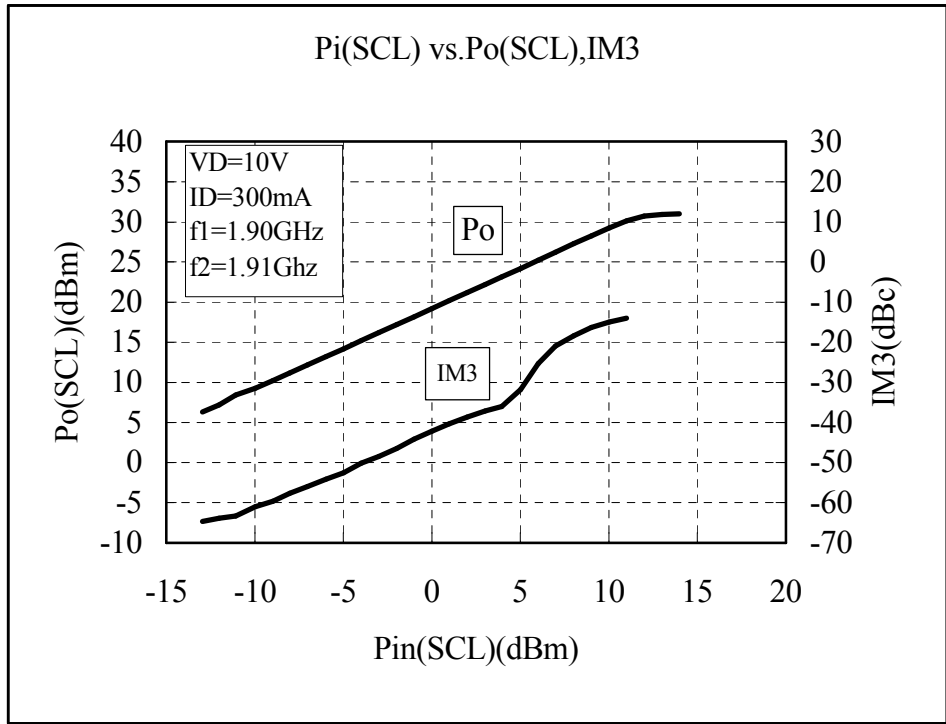
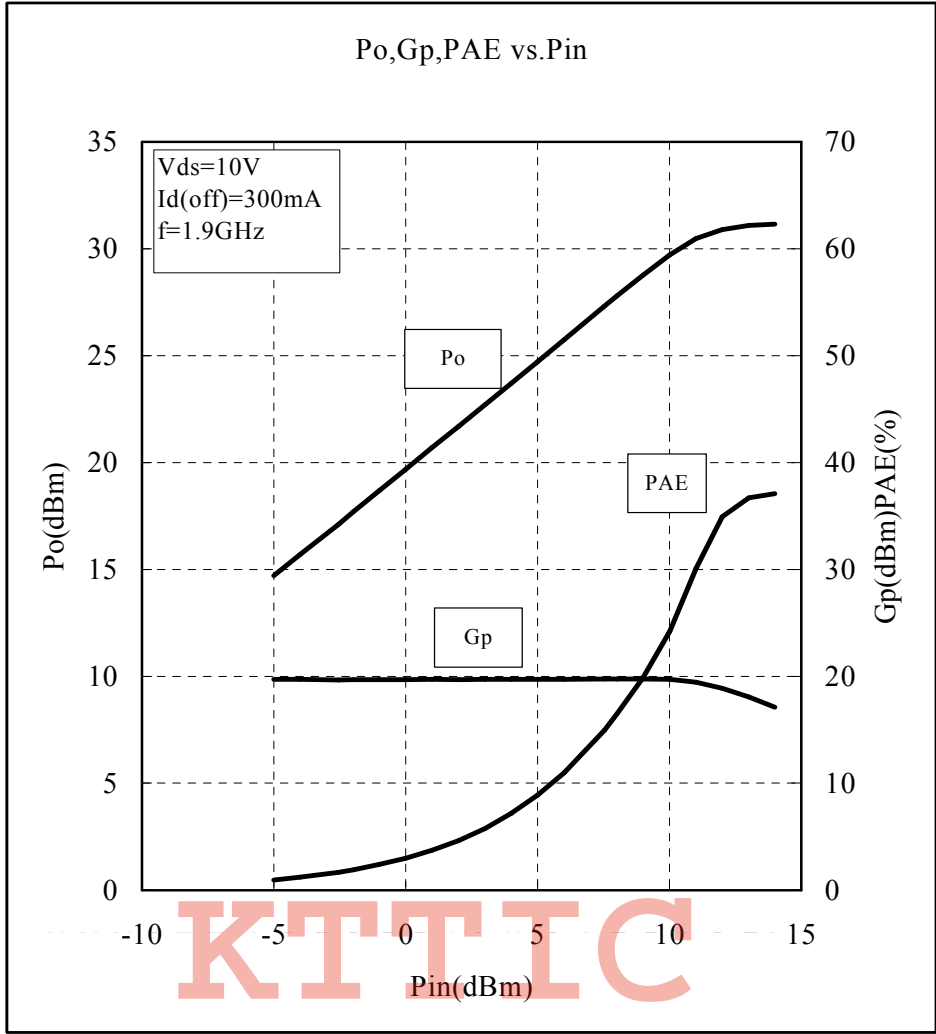


Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	600	800	mA
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=2.0mA	-1.0	-	-5.0	V
gm	Transconductance	VDS=3V,ID=300mA	-	260	-	mS
Po	Output power	VDS=10V,ID=300mA,f=1.9GHz	28	30	-	dBm
ηadd	Power added Efficiency	Pin=12dBm	-	37	-	%
GLP	Linear Power Gain	VDS=10V,ID=300mA,f=1.9GHz	17	19	-	dB
NF	Noise figure		-	1.2	-	dB
Rth(ch-c)	Thermal Resistance *1	ΔVf Method	-	17	25	°C/W

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

MGF0919A TYPICAL CHARACTERISTICS



MGF0919A S PARAMETERS (Ta=25°C,VD=10V,ID=300mA, Reference Plane see Fig.1)

freq. (MHz)	S11		S21		S12		S22		K	MAG/MSG (dB)
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)		
600	0.933	-74.30	7.339	130.03	0.021	47.28	0.269	-137.41	0.25	25.43
1000	0.904	-103.32	5.703	108.92	0.029	31.40	0.341	-141.53	0.29	22.94
1400	0.888	-122.18	4.487	92.96	0.032	19.66	0.405	-144.12	0.35	21.47
1800	0.879	-134.53	3.597	80.59	0.032	10.98	0.460	-145.74	0.44	20.51
2200	0.876	-142.94	2.956	70.65	0.031	4.55	0.507	-146.82	0.55	19.79
2600	0.876	-149.11	2.499	62.27	0.029	-0.27	0.546	-147.71	0.68	19.35
3000	0.876	-154.07	2.175	54.80	0.028	-3.93	0.579	-148.61	0.80	18.90
3400	0.877	-158.32	1.946	47.84	0.027	-6.75	0.605	-149.68	0.90	18.58
3800	0.876	-162.04	1.780	41.10	0.027	-8.96	0.627	-151.00	0.96	18.19
4200	0.873	-165.28	1.655	34.44	0.028	-10.73	0.645	-152.57	0.99	17.72
4600	0.868	-168.13	1.557	27.78	0.029	-12.16	0.660	-154.36	1.03	16.20
5000	0.861	-170.89	1.475	21.10	0.030	-13.32	0.672	-156.31	1.10	14.98
5400	0.853	-174.26	1.405	14.42	0.032	-14.29	0.683	-158.32	1.12	14.31
5800	0.842	-179.57	1.345	7.74	0.034	-15.15	0.693	-160.29	1.16	13.55
6200	0.830	176.81	1.295	1.06	0.036	-15.98	0.701	-162.12	1.21	12.76
6600	0.818	170.87	1.257	-5.66	0.038	-16.89	0.708	-163.74	1.25	12.20
7000	0.803	163.91	1.235	-12.47	0.041	-18.03	0.712	-165.09	1.26	11.74
7400	0.788	157.93	1.229	-19.50	0.044	-19.57	0.713	-166.15	1.27	11.35
7800	0.772	153.18	1.244	-26.89	0.049	-21.70	0.711	-166.96	1.22	11.23
8200	0.753	148.85	1.279	-34.84	0.055	-24.65	0.703	-167.62	1.19	11.02
8600	0.732	143.64	1.334	-43.57	0.062	-28.65	0.690	-168.31	1.17	10.83
9000	0.706	136.22	1.405	-53.33	0.072	-33.94	0.670	-169.31	1.14	10.63
9400	0.667	125.58	1.487	-64.35	0.084	-40.75	0.643	-170.99	1.15	10.14
9800	0.623	111.25	1.574	-76.85	0.099	-49.26	0.608	-173.83	1.15	9.69
10200	0.590	93.44	1.653	-91.04	0.115	-59.62	0.566	-178.45	1.12	9.45
10600	0.584	73.04	1.713	-106.99	0.134	-71.91	0.517	177.11	1.06	9.59
11000	0.619	51.50	1.739	-124.73	0.152	-86.08	0.462	175.48	0.99	10.58
11400	0.696	30.59	1.712	-144.10	0.170	-101.97	0.391	-179.26	0.93	10.03
11800	0.800	12.12	1.612	-164.77	0.185	-119.23	0.384	-163.79	0.87	9.40
12200	0.899	-2.56	1.419	175.59	0.193	-137.32	0.463	-150.25	0.82	8.66

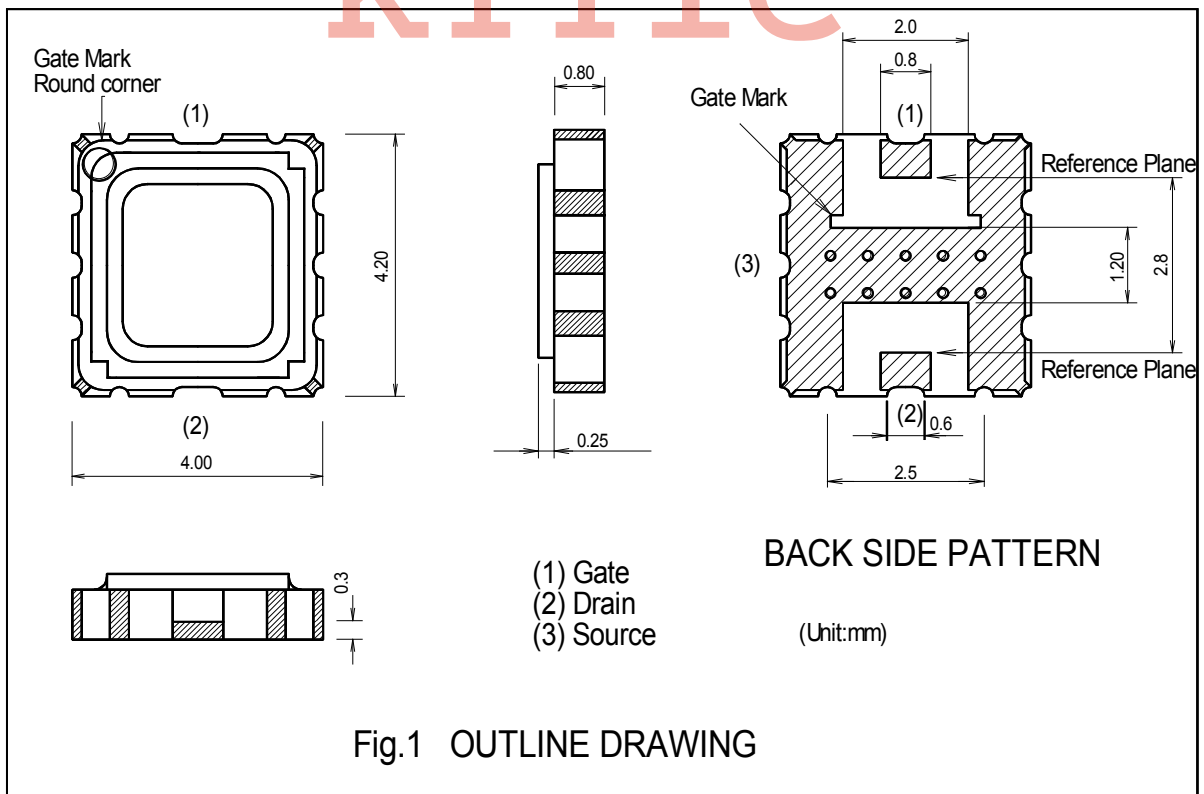
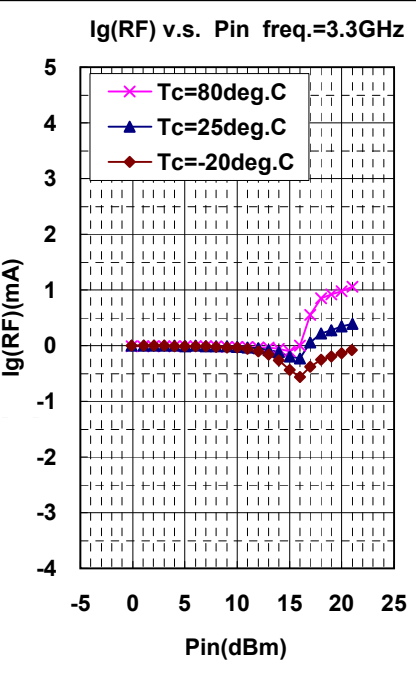
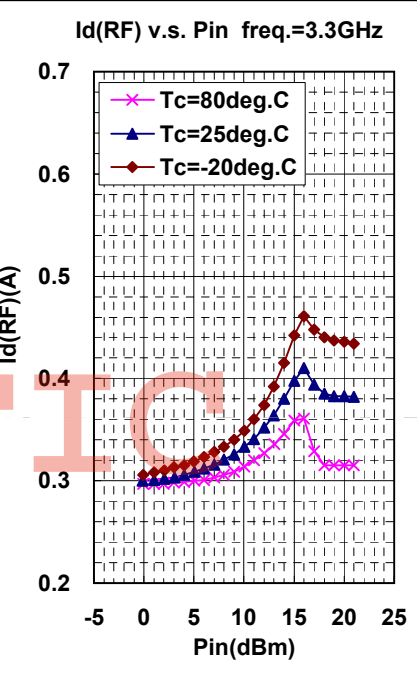
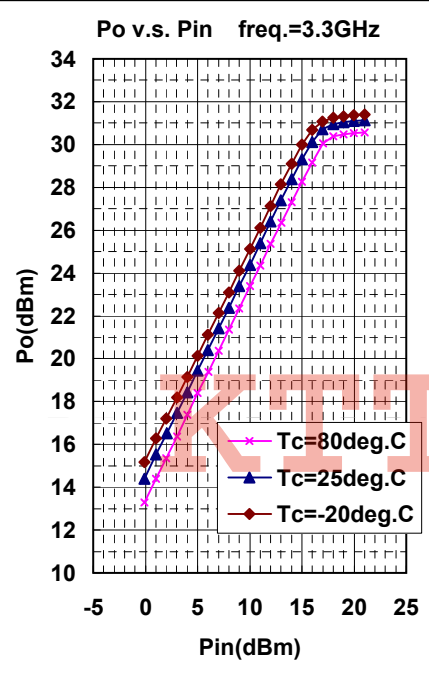
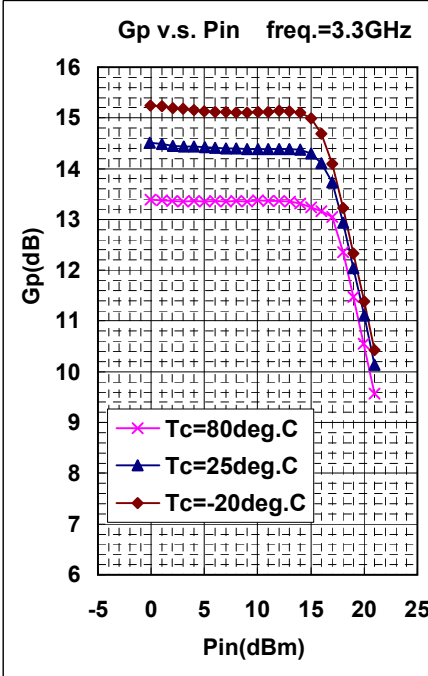
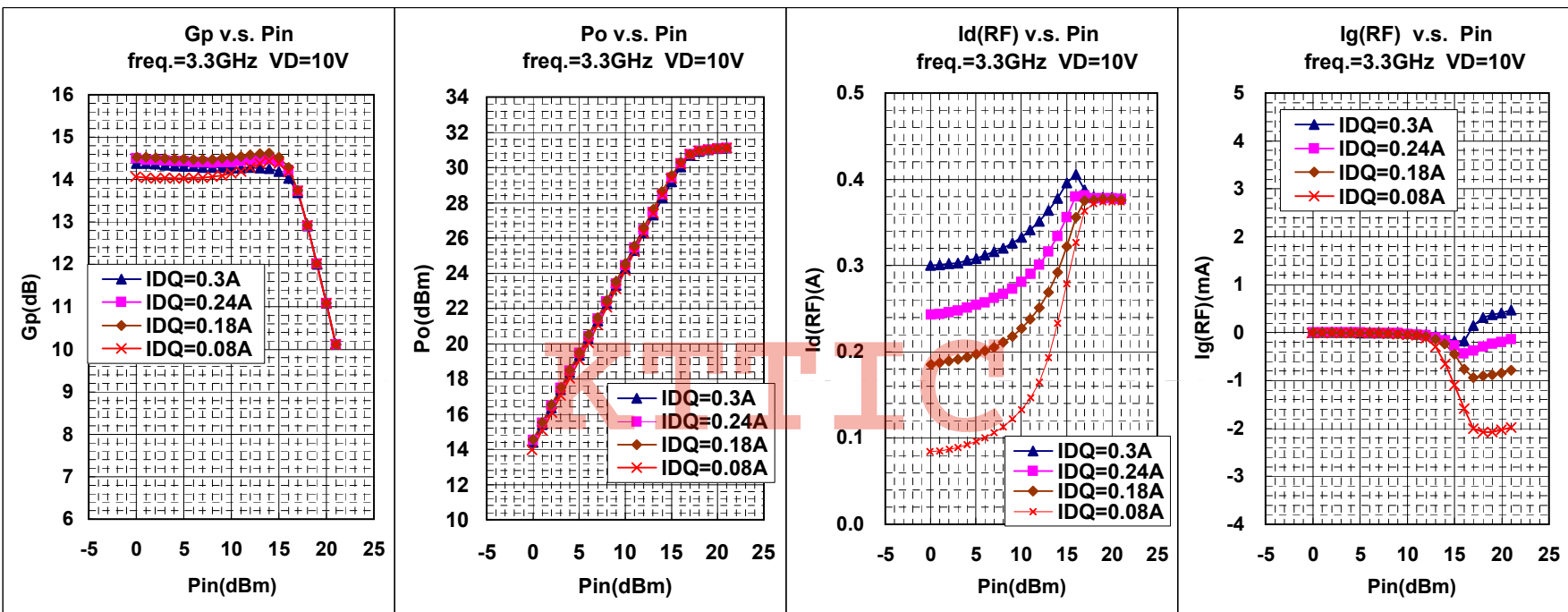


Fig.1 OUTLINE DRAWING

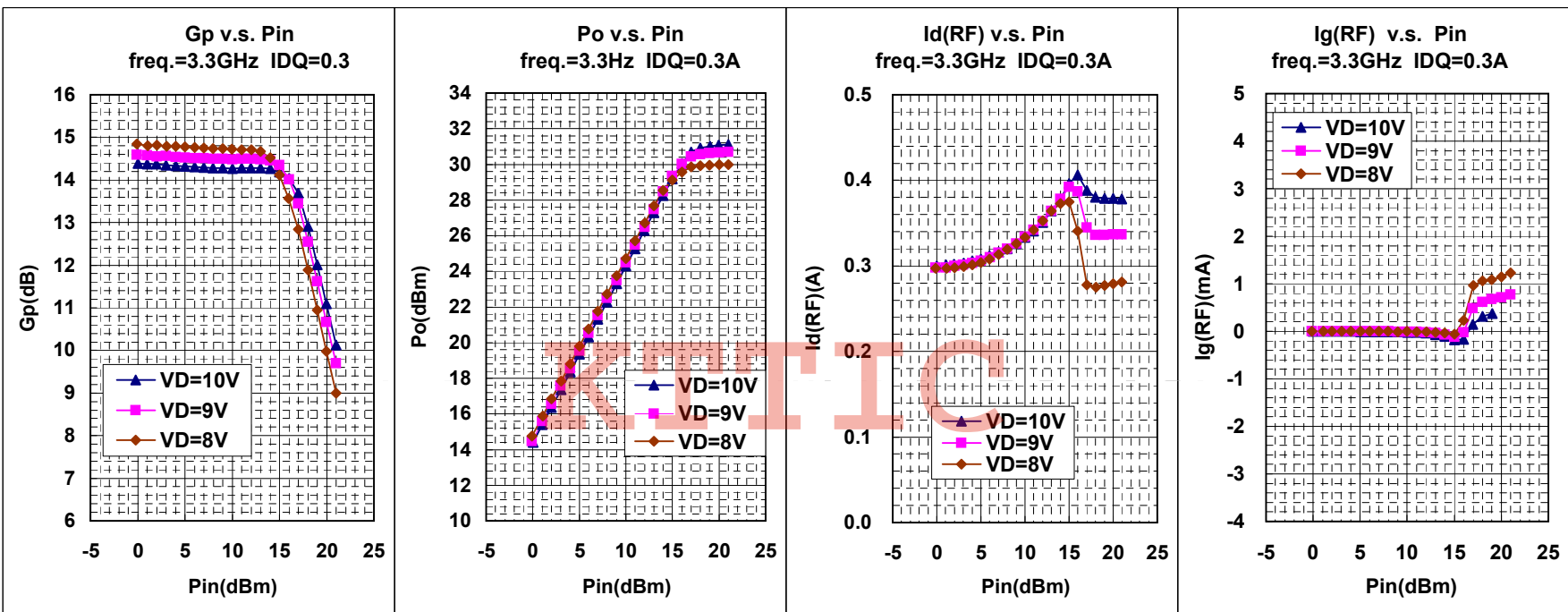
MGF0919A RF TEST DATA(CW) VD=10V, Idq=0.3A
 Gp, Po, Id(RF), Ig(RF) v.s. Pin



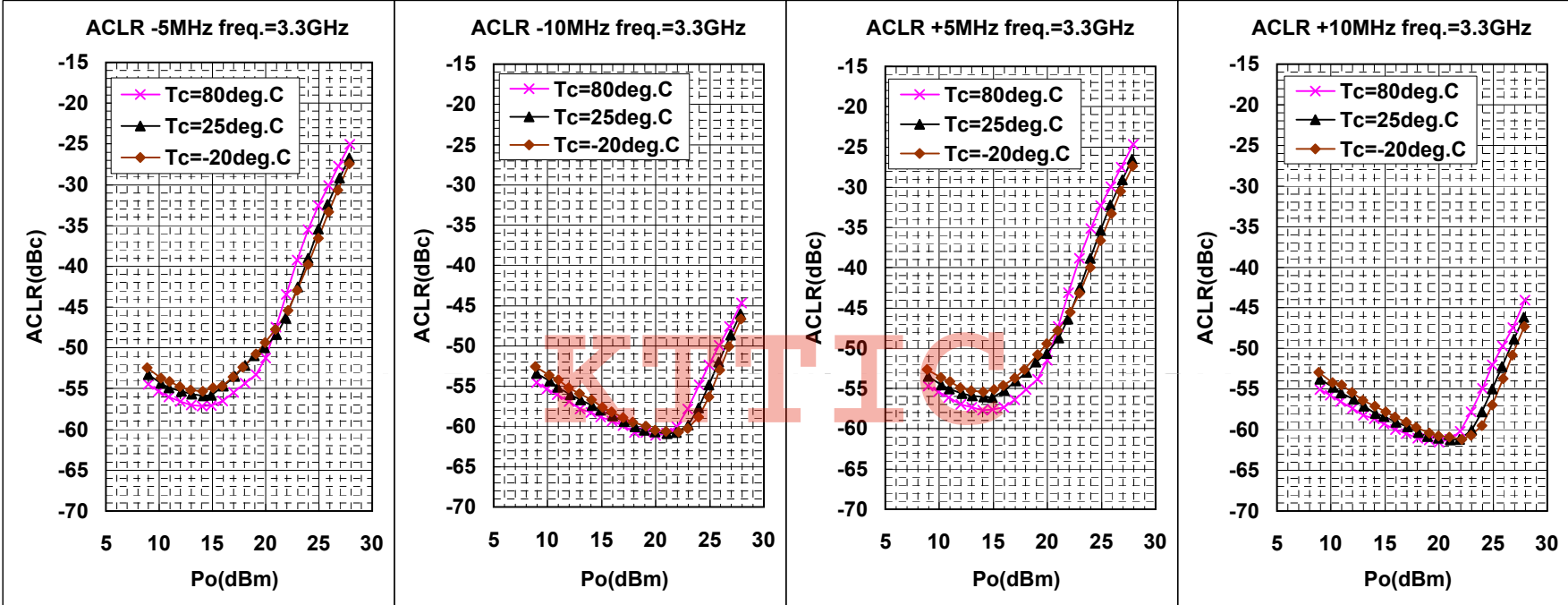
MGF0919A RF TEST DATA(CW)
 Gp,Po,Id(RF),Ig(RF) v.s. Pin



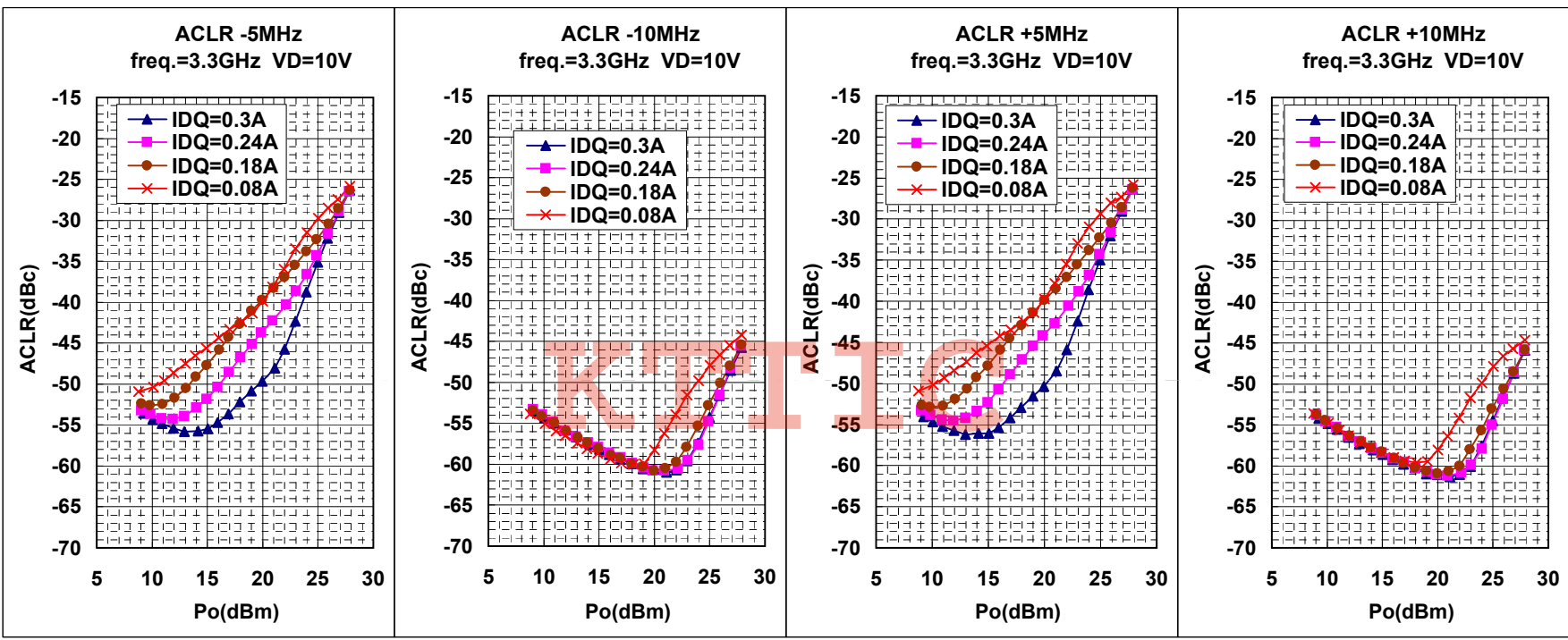
MGF0919A RF TEST DATA(CW)
Gp,Po,Id(RF),Ig(RF) v.s. Pin



MGF0919A RF TEST DATA(W-CDMA) VD=10V,Idq=0.3A
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal

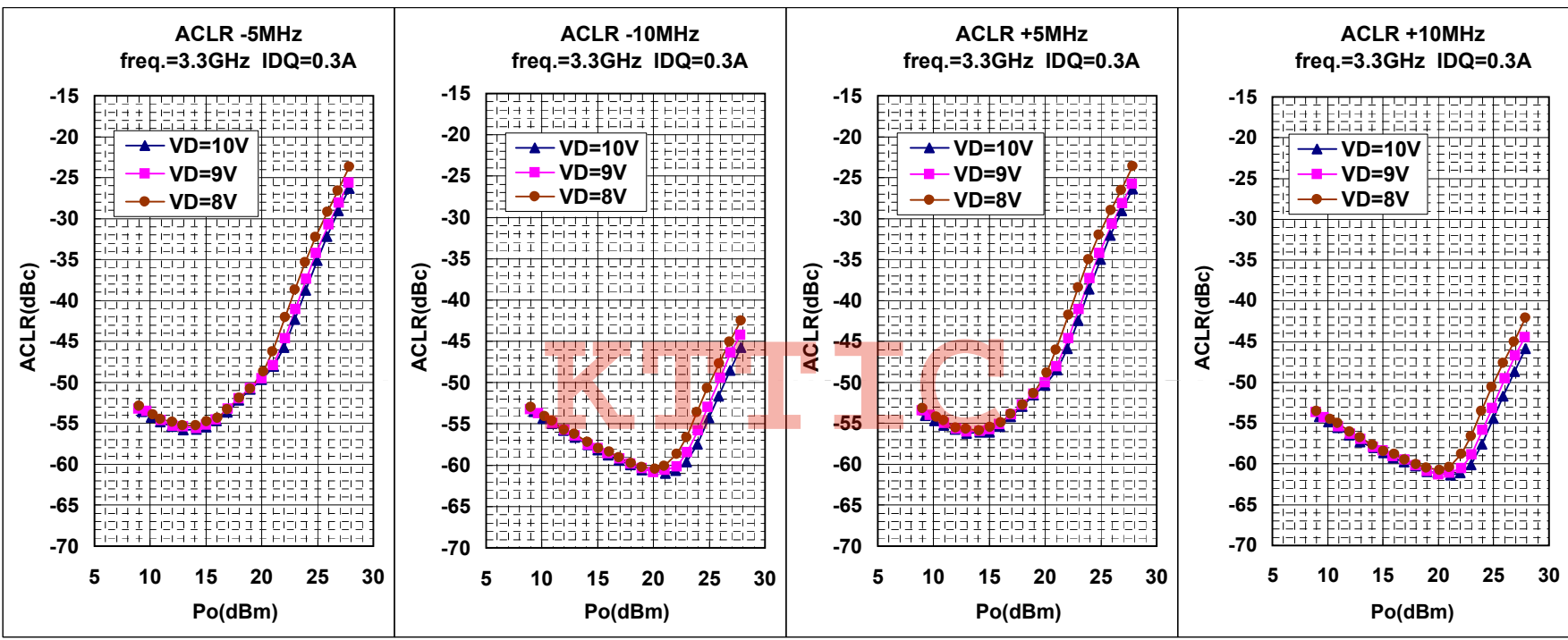


MGF0919A RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal

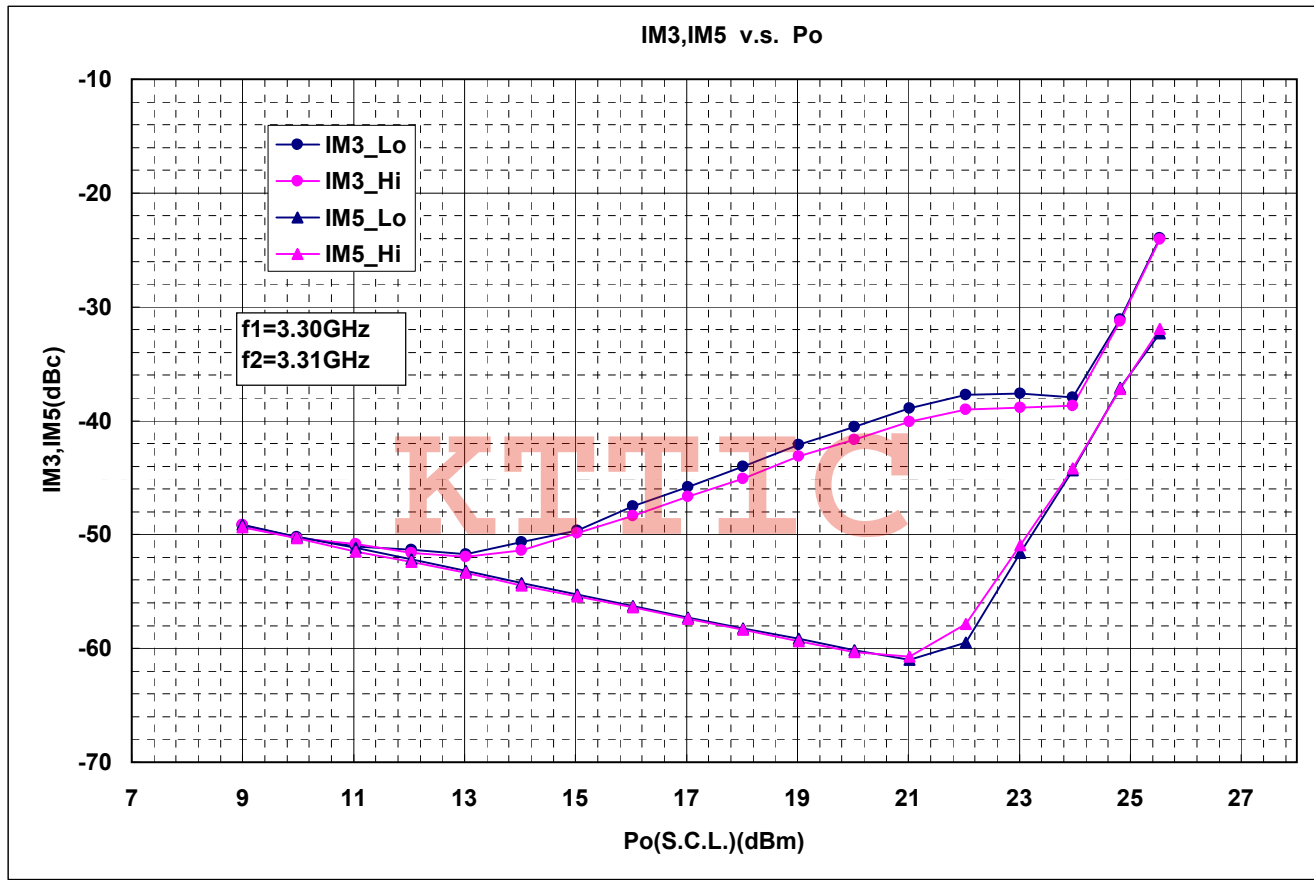


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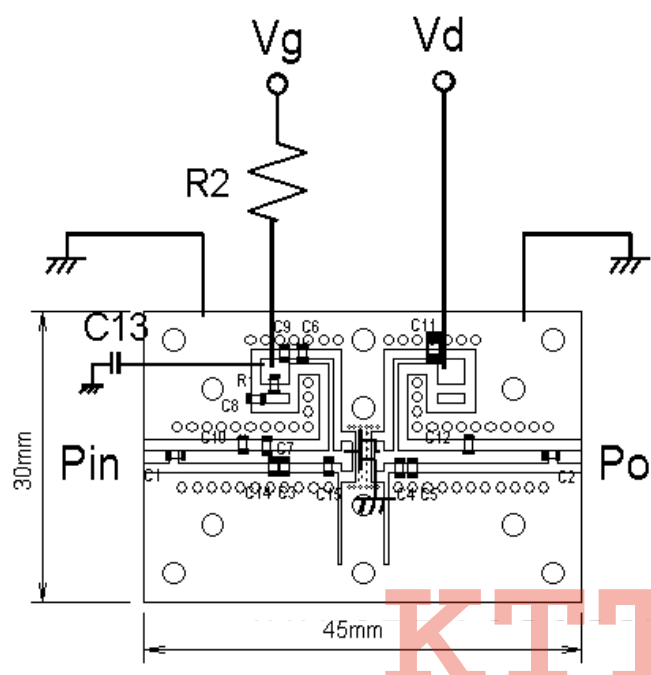
MGF0919A RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



MGF0919A RF TEST DATA VD=10V, Idq=0.3A
IM3,IM5 v.s. Pin

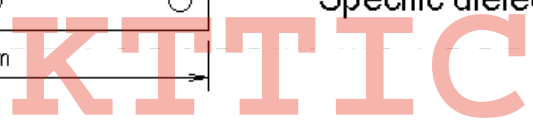


MGF0919A TEST FIXTURE $f=3.3\text{GHz}$



- C1,C2,=20pF
- C3,C4,C5=1P
- C15=2P
- C6=22pF
- C7,C10,C12,C14=0.5pF
- C8,C9=1000pF
- C11=4.7uF
- C13=330uF
- R1=51ohm
- R2=500ohm

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



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