

MITSUBISHI SEMICONDUCTOR <GaAs FET>

FA01384

Specifications are subject to change without notice.

GaAs FET HYBRID IC

DESCRIPTION

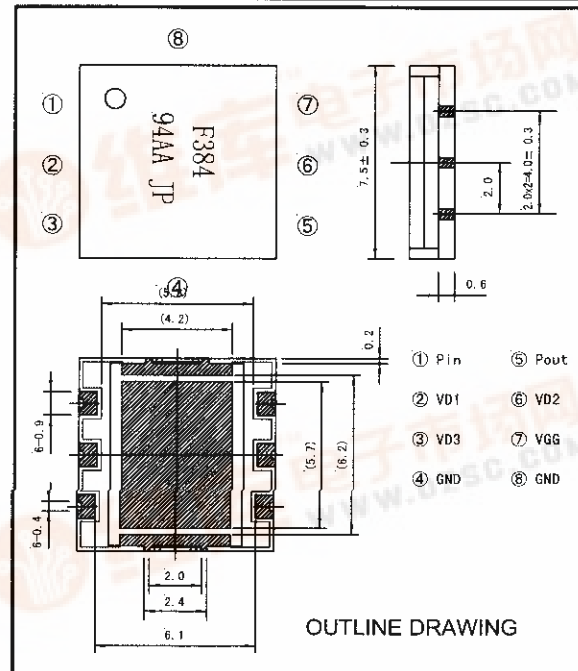
FA01384 is GaAs 3-Stage RF amplifier designed for N-CDMA 1.9GHz band handheld-phone.

FEATURES

Low voltage $V_d=3.2V$
 High power $P_o=28.5dBm$ @1910MHz
 High gain $G_p=26dB$ @ $P_o=28.5dBm$
 High efficiency $I_{dt}=600mA$ @ $P_o=28.5dBm$
 Internal input and output matching
 Small size: $7.5 \times 7.5 \times 1.7mm$ (0.1cc)

APPLICATION

CDMA 1900MHz



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Condition	Ratings	Unit
Vd	Drain voltage		6	V
Pin	Input Power	ZG=ZL=50Ω	10	dBm
Tc(op)	Operating case temp.		-30~+95	°C
Tstg	Storage temp.		-30~+125	°C

Each maximum rating is guaranteed independently.

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Condition	Note2	Limits			Unit
				MIN	TYP	MAX	
f	Frequency	-----		1850	-	1910	MHz
Idq	Idle Drain Current	No-RF input		--	85	--	mA
Pin	Input Power	$P_o=28.5dBm$		--	2.5	--	dBm
Idt	Total Drain Current	$V_{d1}=V_{d2}=V_{d3}=3.2V$, $V_{gg}=-2.5V$		--	600	--	mA
ρ_{in}	Input VSWR	ACPR : offset $\pm 1.25MHz$		--	--	2	--
ACPR	Adjacent channel power ratio	Note1		--	--	-29	dBc
2sp	2nd Harmonics	(CW)		--	--	-30	dBc
3sp	3rd Harmonics			--	--	-30	dBc

Note1: CDMA modulated signal based on IS-95 STD. (1.2288Mbps spreading, OQPSK)

Note2: $Z_G=Z_L=50(\Omega)$

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (1) placement of substitutive, auxiliary circuits, (2) use of non-flammable material or (3) prevention against malfunction or mishap.

□, ■ : $V_d=3.2V$
 △, ▲ : $V_d=3.7V$
 ○, ● : $V_d=4.2V$

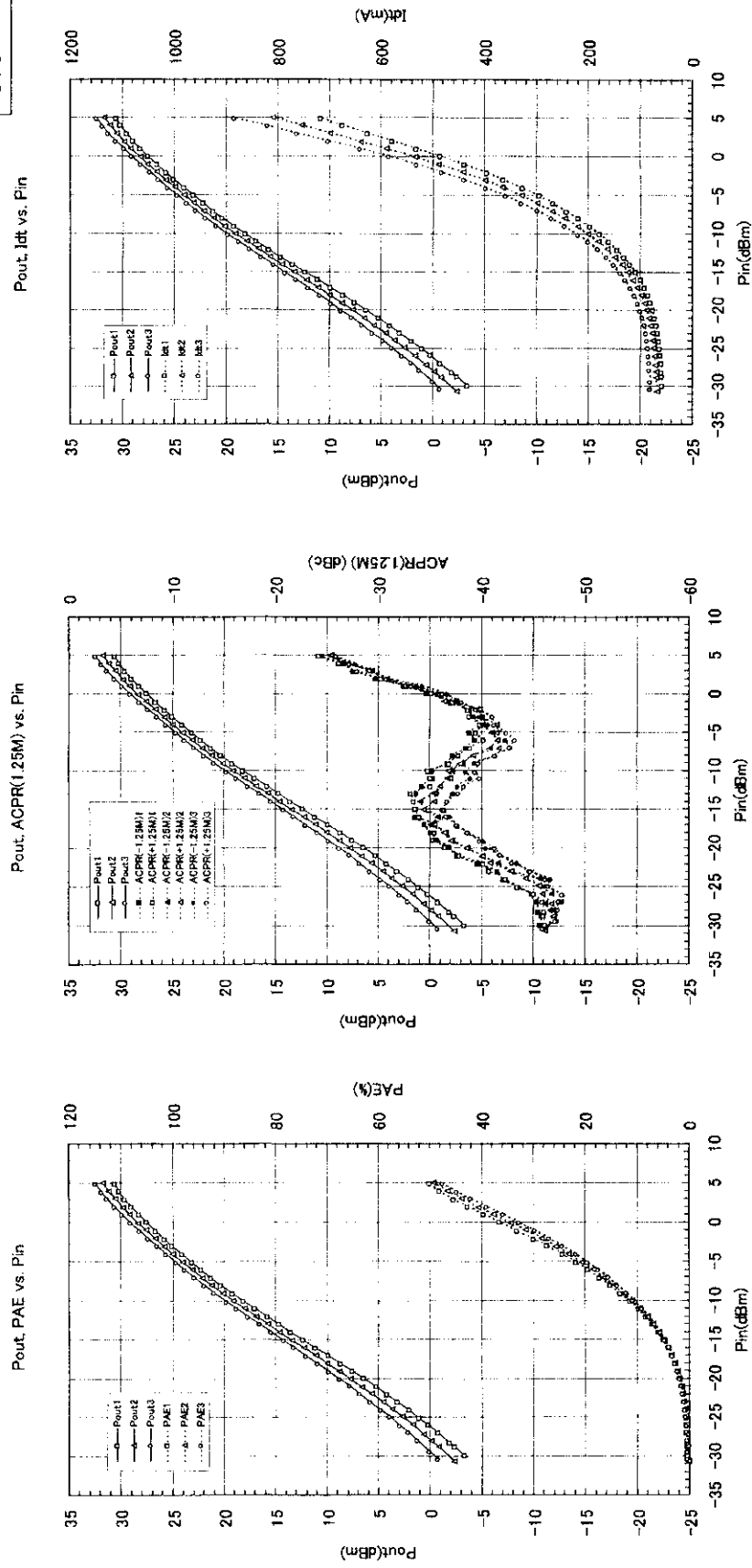


Fig-1. FAO1384: P_{out} , PAE, ACPR(1.25MHz), Idt vs. P_{in} ($T_a=-40^{\circ}C$)

<Test condition>

$V_{d1}=V_{d2}=V_{d3}=3.2, 3.7, 4.2V$, $V_{gg}=-2.5V$, $f=1.88GHz$, $T_a=-40^{\circ}C$,

P_{in} : CDMA modulated signal based on IS-95 STD(1.2288Mbps spreading, OQPSK)

□, ■ : $V_d=3.2V$
 △, ▲ : $V_d=3.7V$
 ○, ● : $V_d=4.2V$

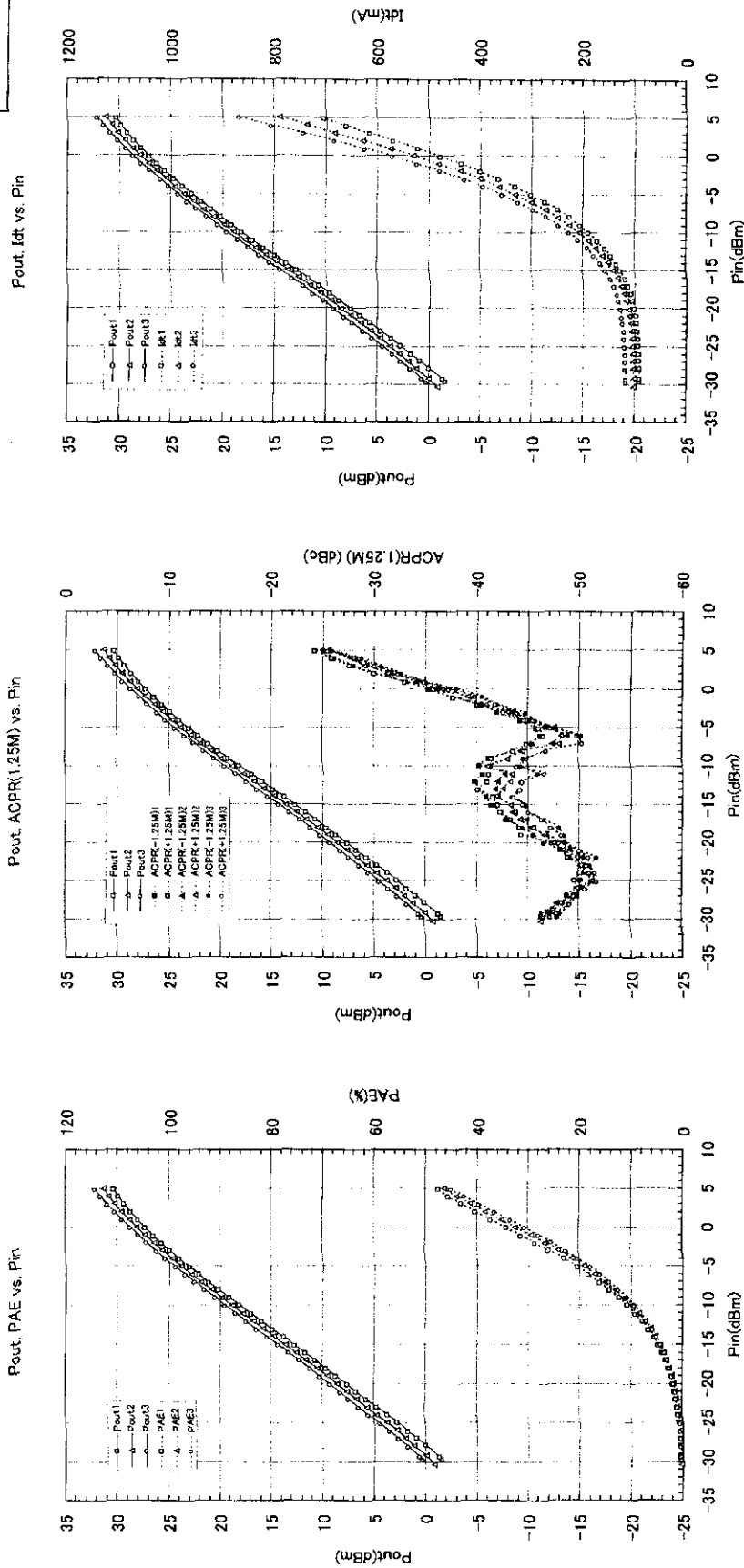


Fig-2. FAO1384: Pout, PAE, ACPR(1.25MHz), Idt vs. Pin ($T_a=+25^{\circ}C$)

<Test condition>

$V_{d1}=V_{d2}=V_{d3}=3.2, 3.7, 4.2V$, $V_{gg}=-2.5V$, $f=1.88GHz$, $T_a=+25^{\circ}C$,

Pin: CDMA modulated signal based on IS-95 STD(1.2288Mbps spreading, OQPSK)

□: $V_d=3.2V$
 △: $V_d=3.7V$
 ○: $V_d=4.2V$

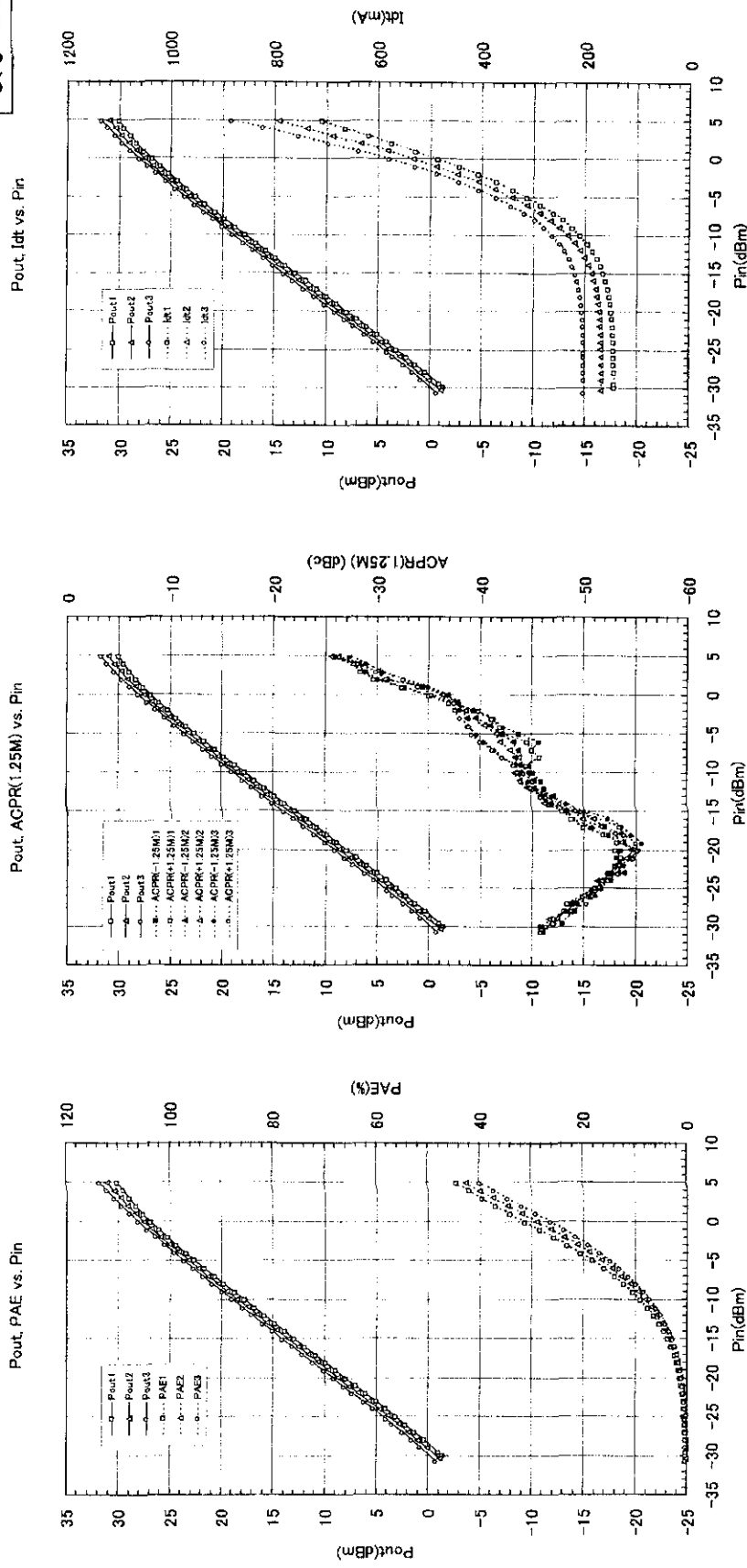


Fig. 3. FAO1384: P_{out} , PAE, ACPR(1.25MHz), Idt vs. P_{in} ($T_a=+100^{\circ}C$)

<Test condition>

$V_{d1}=V_{d2}=V_{d3}=3.2, 3.7, 4.2V$, $V_{gs}=2.5V$, $f=1.88GHz$, $T_a=+100^{\circ}C$.

P_{in} : CDMA modulated signal based on IS-95 STD(1.2288Mbps spreading, OQPSK)

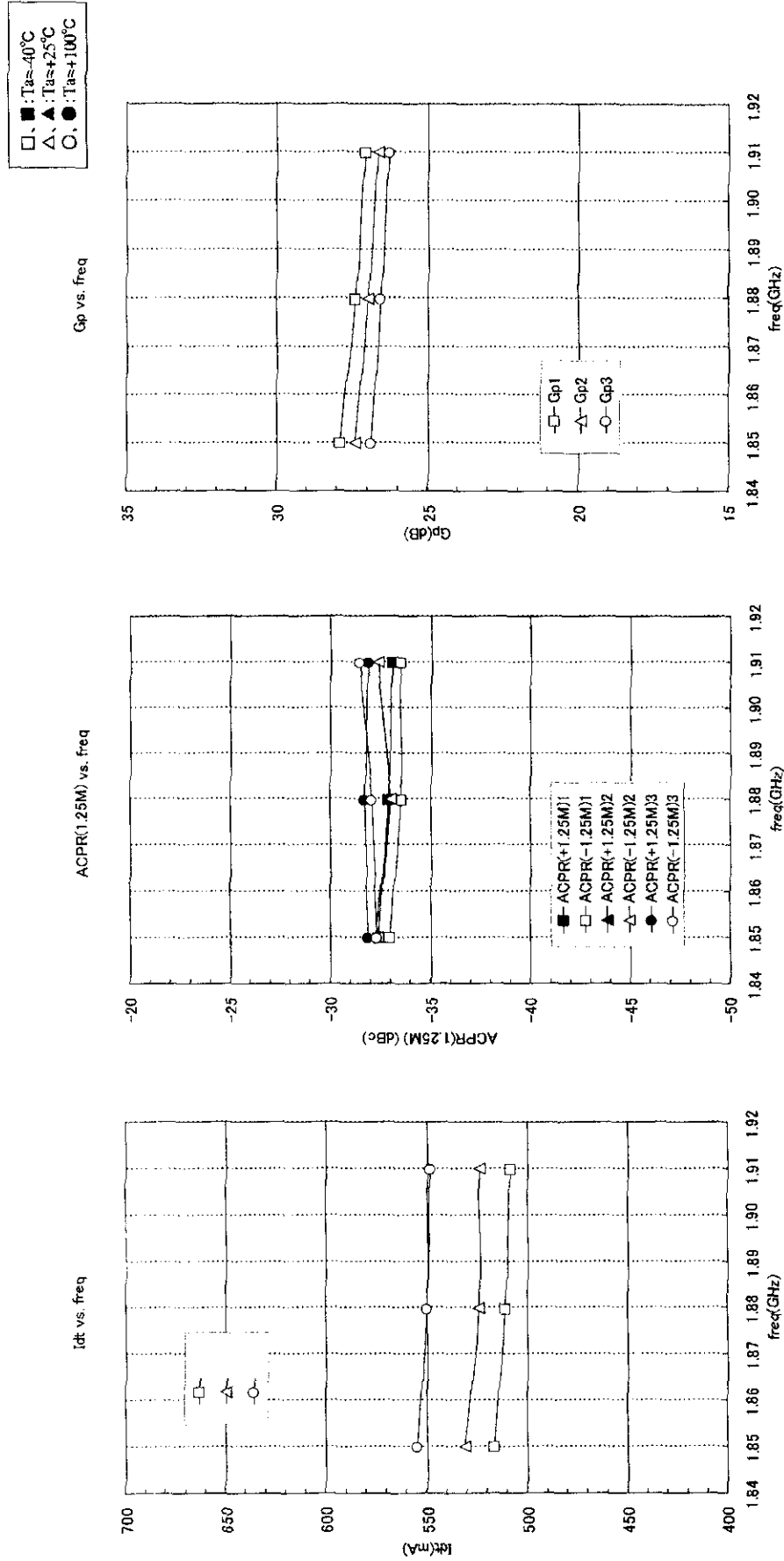


Fig-4. FA01384 :Idt, ACPR(1.25MHz), Gp vs. freq. (Ta=-40, +25, +100°C)

<Test condition>

Vd1=Vd2=Vd3=3.2V, Vgg=-2.5V, Pout=28dBm(Pin=controlled), Ta=-40, +25, +100°C,

Pin: CDMA modulated signal based on IS-95 STD(1.2288Mbps spreading, QPSK)

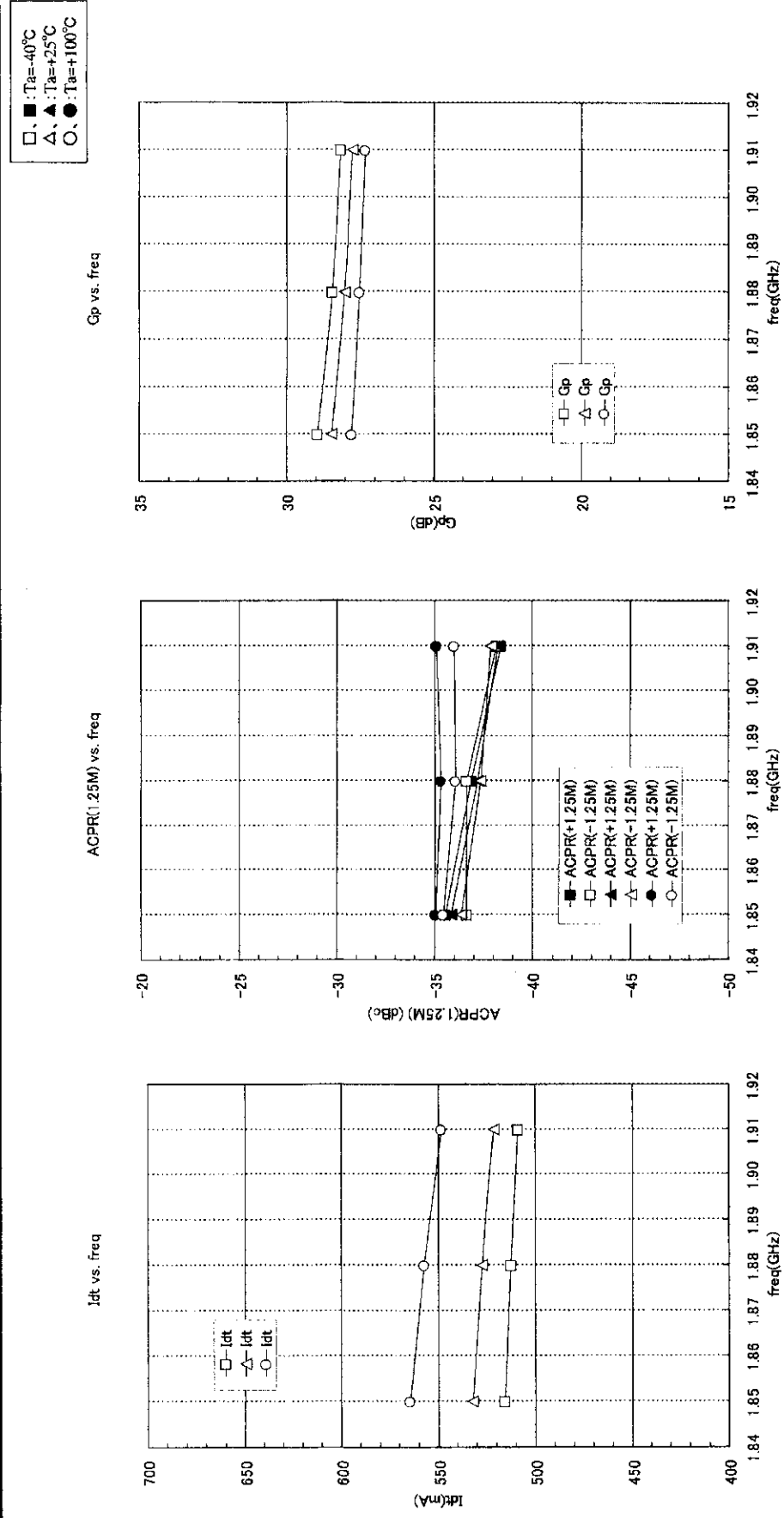


Fig-5. FA01384: Idt, ACPR(1.25MHz), Gp vs. freq. (Ta=-40, +25, +100°C)

<Test condition>
Vd1=Vd2=Vd3=3.7V, Vgg=-2.5V, Pout=28dBm(Pin=controlled), Ta=-40, +25, +100°C,
Pin: CDMA modulated signal based on IS-95 STD(1.2288Mbps spreading, OQPSK)

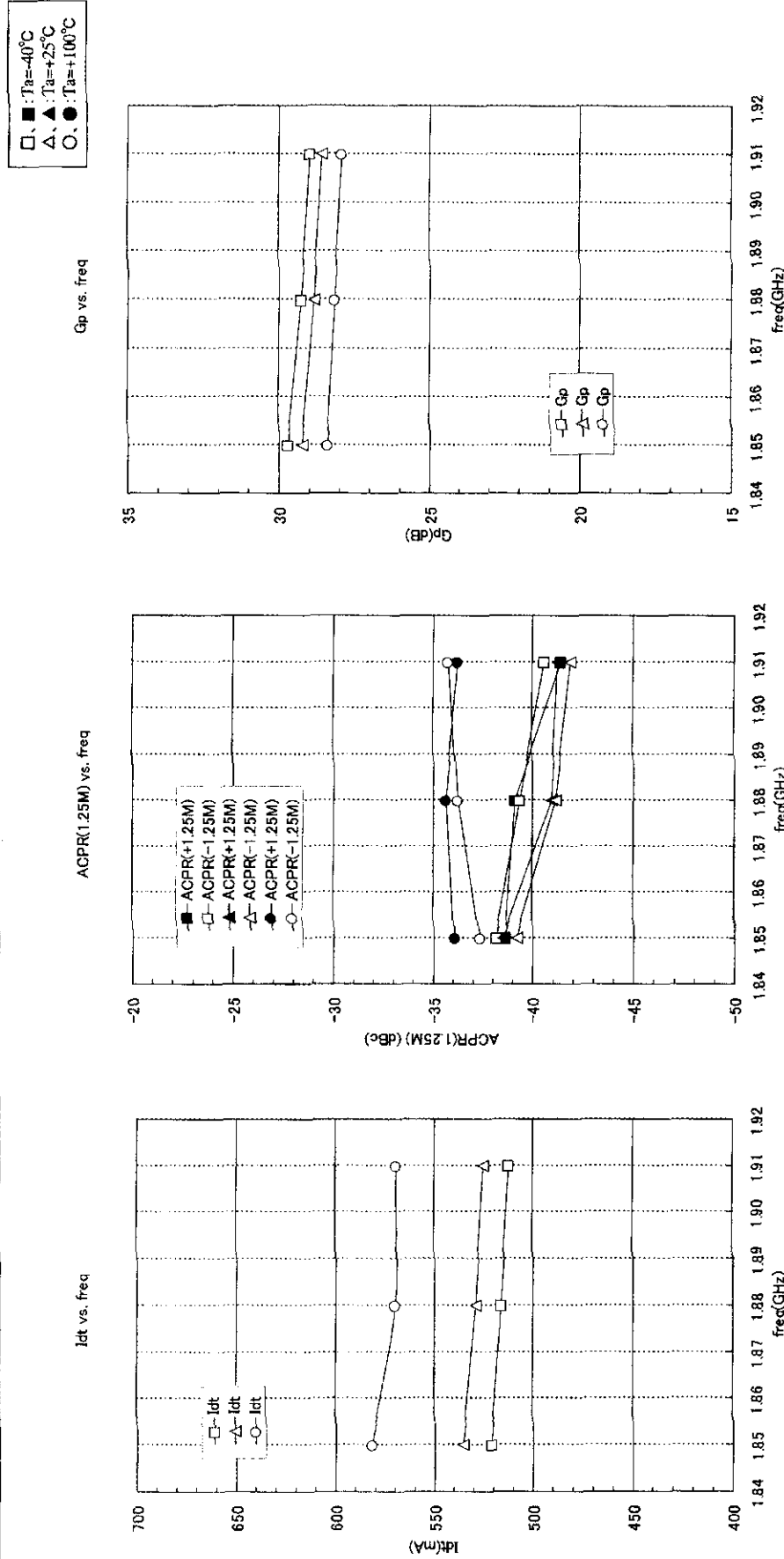


Fig-6. FA01384:Idt, ACPR(1.25MHz), Gp vs. freq. (Ta=-40, +25, +100°C)

<Test condition>

Vd1=Vd2=Vd3=4.2V, Vgg=-2.5V, Pout=28dBm(Pin=controlled), Ta=-40, +25, +100°C,

Pin: CDMA modulated signal based on IS-95 STD(1.2288Mbps spreading, OQPSK)