

Electrical Characteristics for Broadband Operation

T_{amb} = +25°C, V_d = 3.5V, |I_d|=50mA, I_{dm}=50mA

Symbol	Parameter	Min	Typ	Max	Unit
F _{RF}	RF frequency range	12		16	GHz
F _{LO}	LO frequency range	5.25		7.25	GHz
F _{IF}	IF frequency range	0.25		1.5	GHz
G _c	Conversion gain (1)	+13	+15		dB
NF	Noise Figure (1)		2.	2.5	dB
P _{LO}	LO Input power		+10	+13	dBm
Img Sup	Image Suppression		15		dBc
P1dB	Input power at 1dB gain compression		-10		dBm
IP3	Input IP3		2.5		dBm
LO VSWR	Input LO VSWR (1)		2.0:1		
RF VSWR	Input RF VSWR (1)		2.0:1		
I _d	Bias current (2)		100	130	mA

(1) On Wafer measurements

(2) Current source biasing network is recommended.

Optimum performances are obtained for I_{dm}=50mA (I_d consumption of the X2+buffer; V_{gb}≠-0.4V) and |I_d|=50mA (I_d consumption for the I_{na}; V_{ga}≠-0.4V)

Absolute Maximum Ratings

T_{amb.} = 25°C (1)

Symbol	Parameter	Values	Unit
V _d	Maximum drain bias voltage	4.0	V
I _d	Maximum drain bias current	180	mA
V _g	Gate bias voltage	-2.0 to +0.4	V
V _{dg}	Maximum drain to gate voltage (V _d – V _g)	+5	V
P _{in}	Maximum RF peak input power overdrive (2)	-5	dBm
T _{ch}	Maximum channel temperature	175	°C
T _a	Operating temperature range	-40 to +85	°C
T _{stg}	Storage temperature range	-55 to +125	°C

(1) Operation of this device above anyone of these parameters may cause permanent damage.

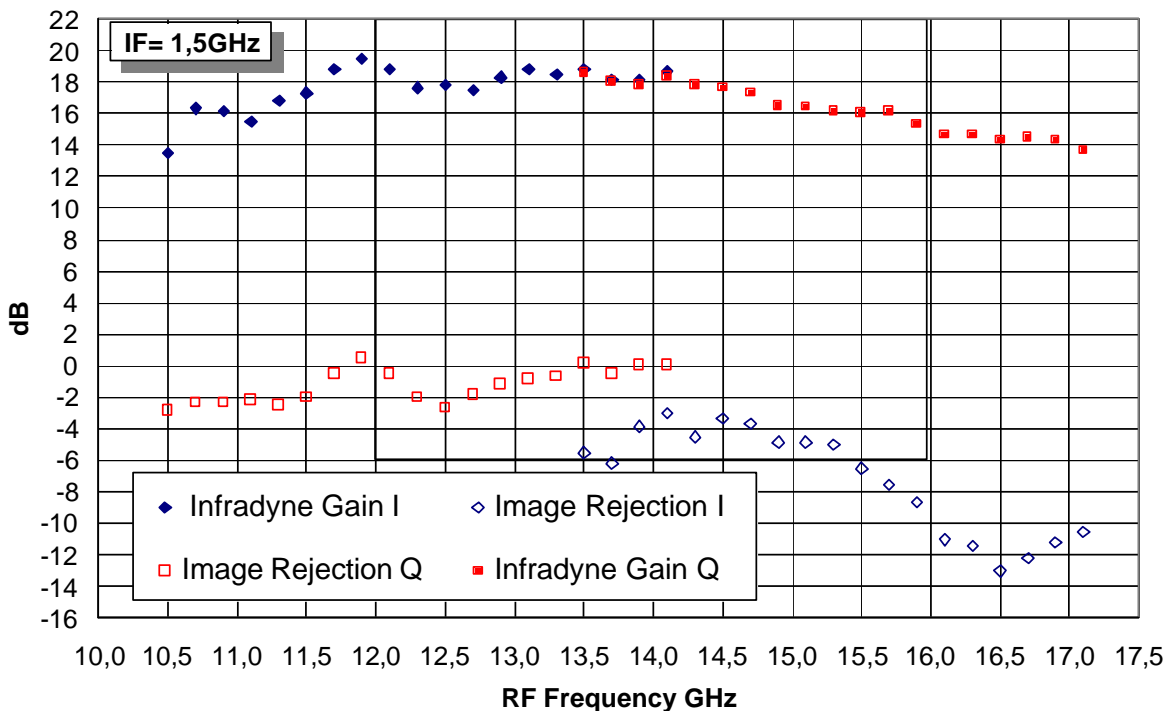
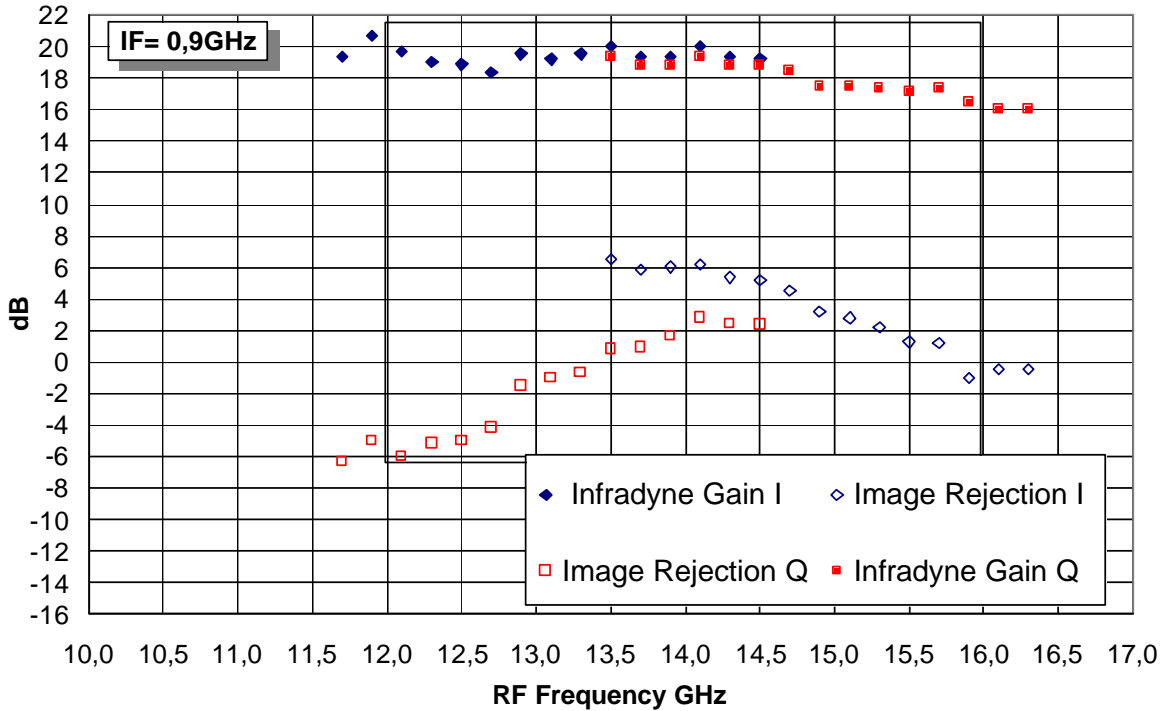
(2) Duration < 1s.

Typical On-wafer Measurements

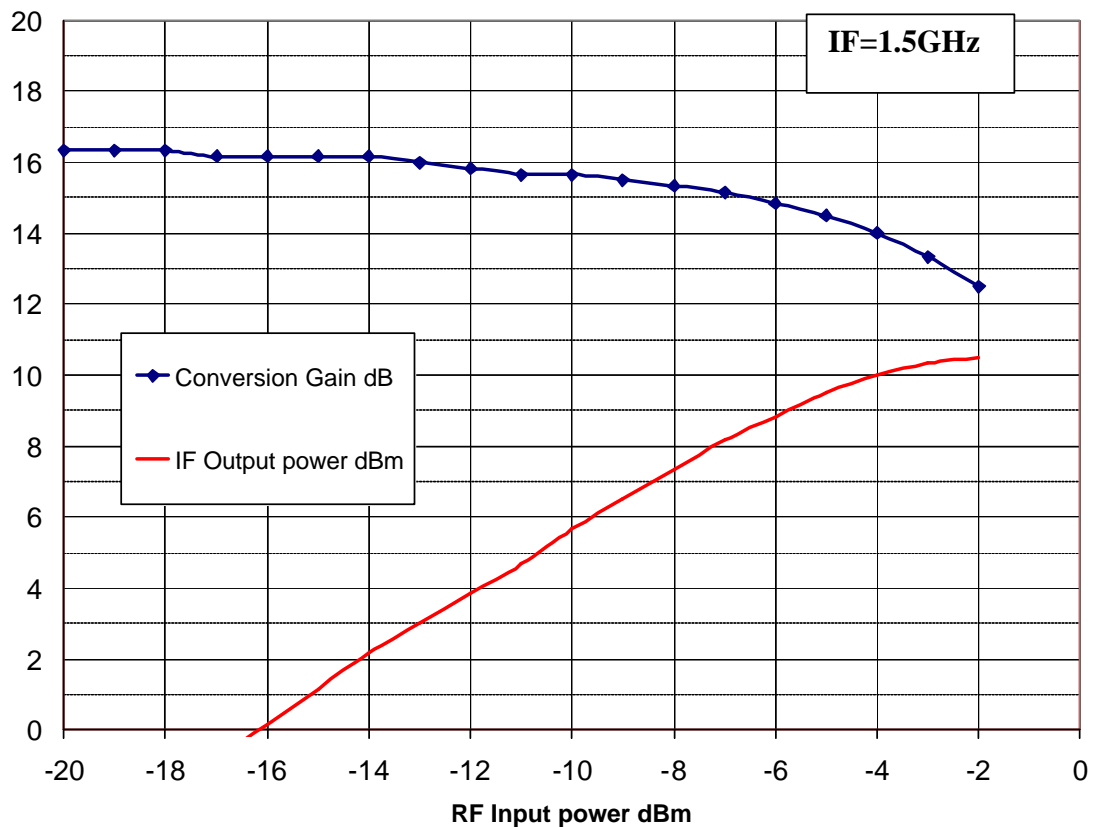
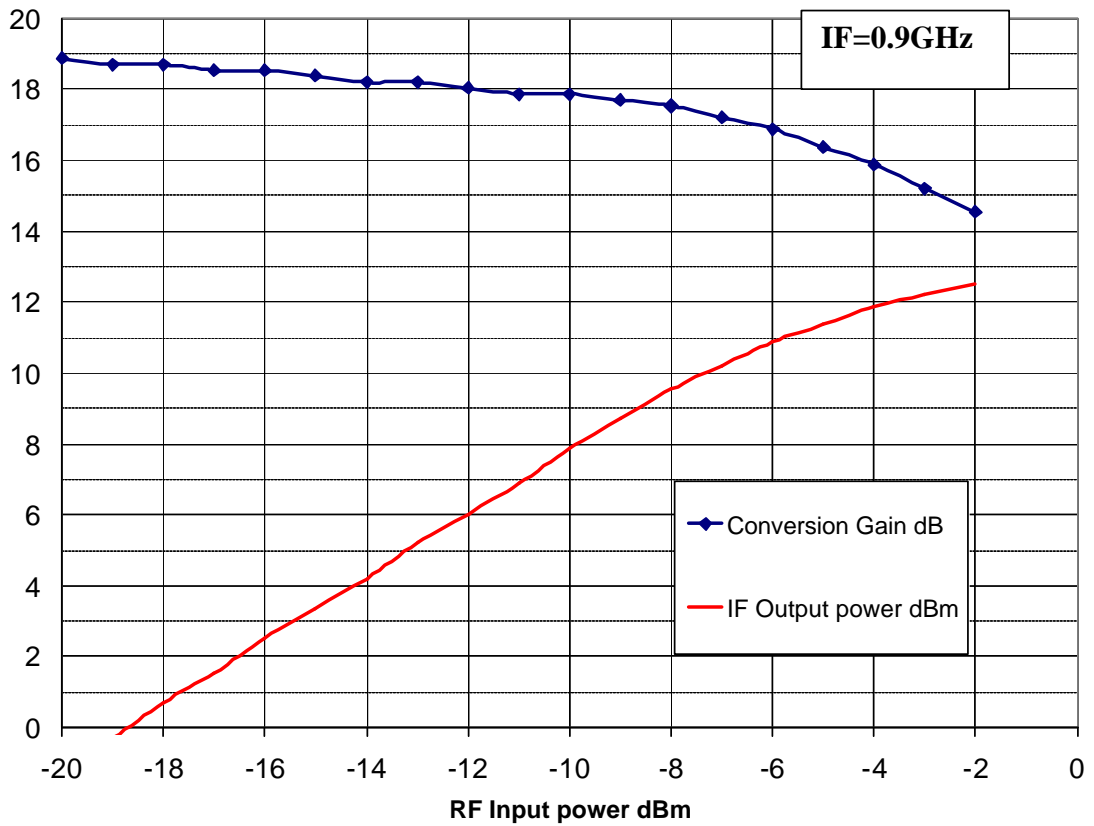
Bias Conditions :

$V_{dm} = V_{dl} = 3.5\text{ V}$, $I_{dl} = I_{dm} = 50\text{mA}$ ($V_{ga} = v_{gb} = -0.4\text{V}$), $V_{gm} = -0.7\text{V}$, $V_{gx} = -0.6\text{V}$

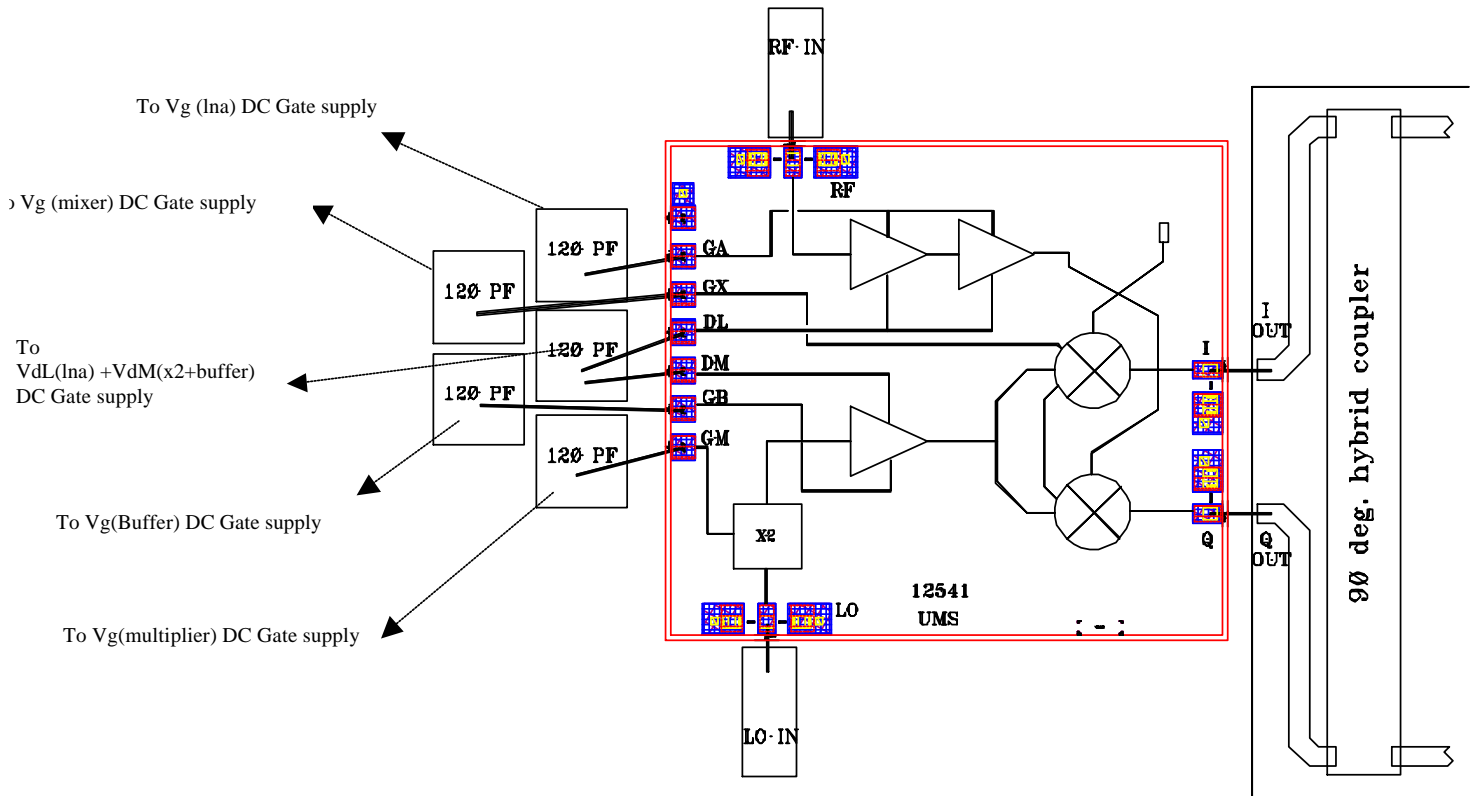
Conversion gain & Image suppression with a 90° IQ combiner



Gain compression versus RF input power



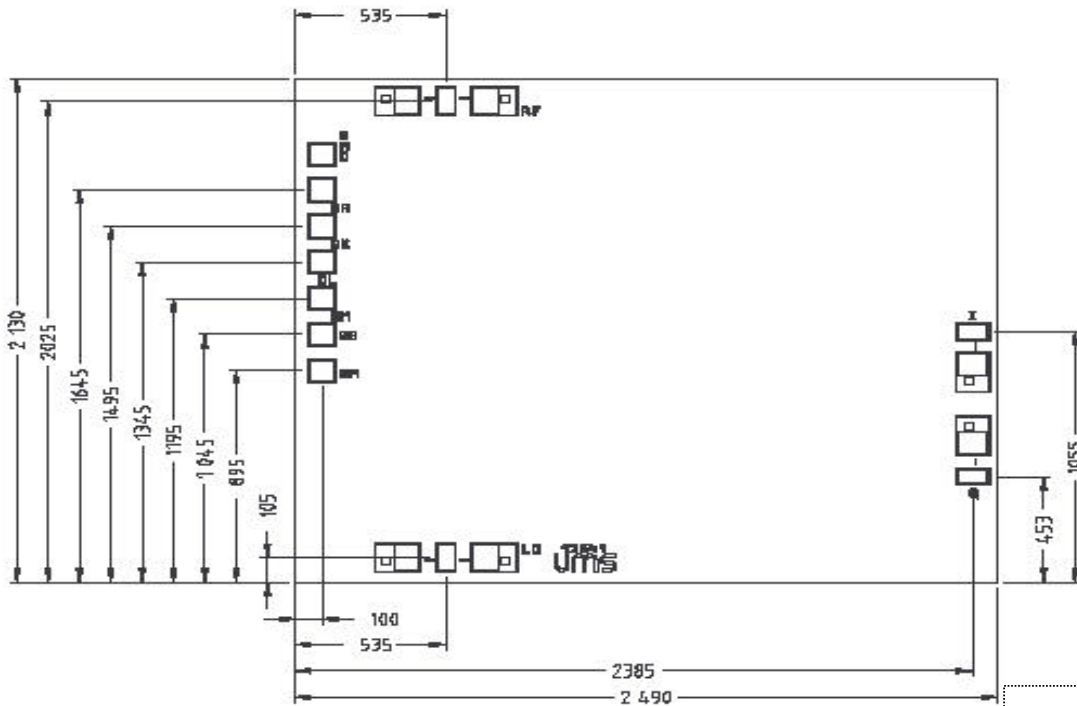
Chip Assembly and Mechanical Data



Note : Supply feed should be capacitively bypassed. 25µm diameter gold wire is recommended

Bonding pad positions

Chip thickness : 100µm



Unit : µm
Tol : +/- 35µm

Ordering Information

Chip form : CHR2391-99F/00

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