

10-40GHz Frequency Multiplier

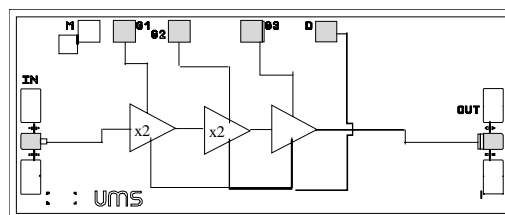
GaAs Monolithic Microwave IC

Description

The CHX2092a is a cascaded by 4 frequency multiplier monolithic circuit.

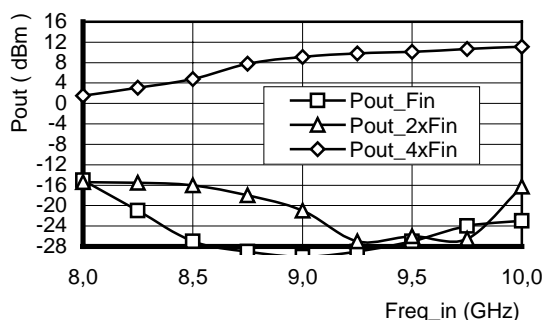
It is designed for a wide range of applications, from military to commercial communication systems. The backside of the chip is both RF and DC grounds. This helps simplify the assembly process.

The circuit is manufactured with a PM-HEMT process, 0.25µm gate length, via holes through the substrate, air bridges and electron beam gate lithography.



Main Features

- Broadband performances : 9-10GHz
- 11dBm output power for +12dBm input power
- DC bias : $V_d=3.5\text{Volt}@I_d=80\text{mA}$
- Chip size : 2.31 x 0.97 x 0.10 mm



Main Characteristics

Tamb. = 25°C

Symbol	Parameter	Min	Typ	Max	Unit
Fin	Input frequency range	9		10	GHz
Fout	Output frequency range	36		40	GHz
Pin	Input power		12		dBm
Pout	Output power for +12dBm input power	9	11		dBm

ESD Protection : Electrostatic discharge sensitive device. Observe handling precautions !

Electrical Characteristics

Tamb = +25°C, Vdd = 3.5V

Symbol	Parameter	Min	Typ	Max	Unit
Fin	Input frequency range	9		10	GHz
Fout	Output frequency range	36		40	GHz
Pin	Input power		12		dBm
Pout	Output power for +12dBm input power	9	11		dBm
Is/Fo	Fin level at the output (9 < Fin < 10GHz)	-12	-15		dBm
VSWRin	Input VSWR			2:1	
VSWRout	Output VSWR			2:1	
Id	Bias current		80	100	mA

Absolute Maximum Ratings

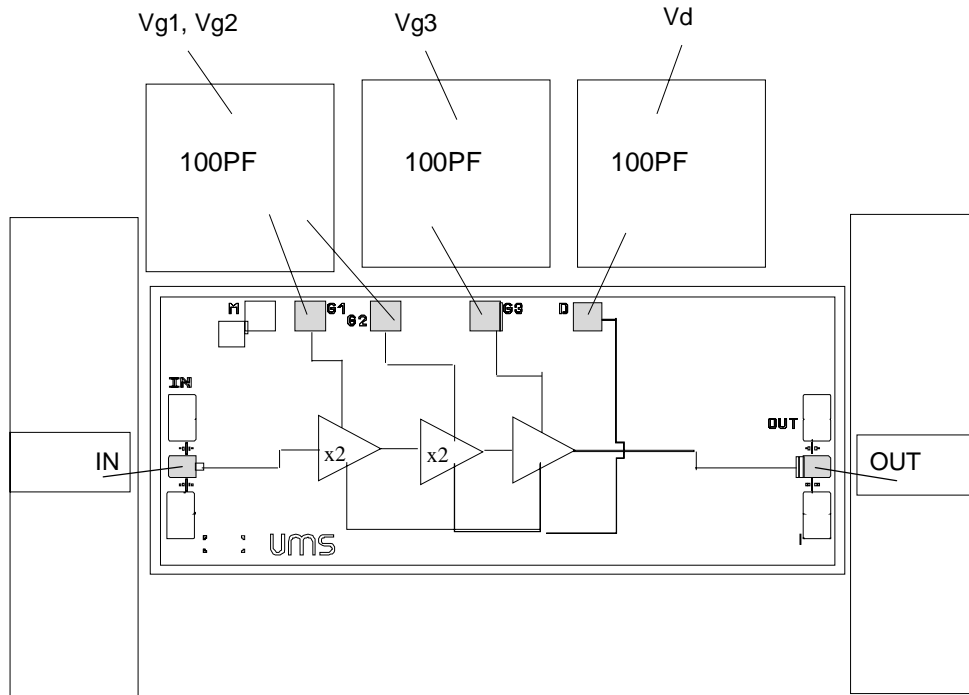
Tamb = +25°C

Symbol	Parameter	Values	Unit
Vd	Drain bias voltage	5	V
Id	Drain bias current	140	mA
Vg	Gate bias voltage	-2 to +0.4	V
Ta	Operating temperature range	-40 to +85	°C
Tstg	Storage temperature range	-55 to +155	°C

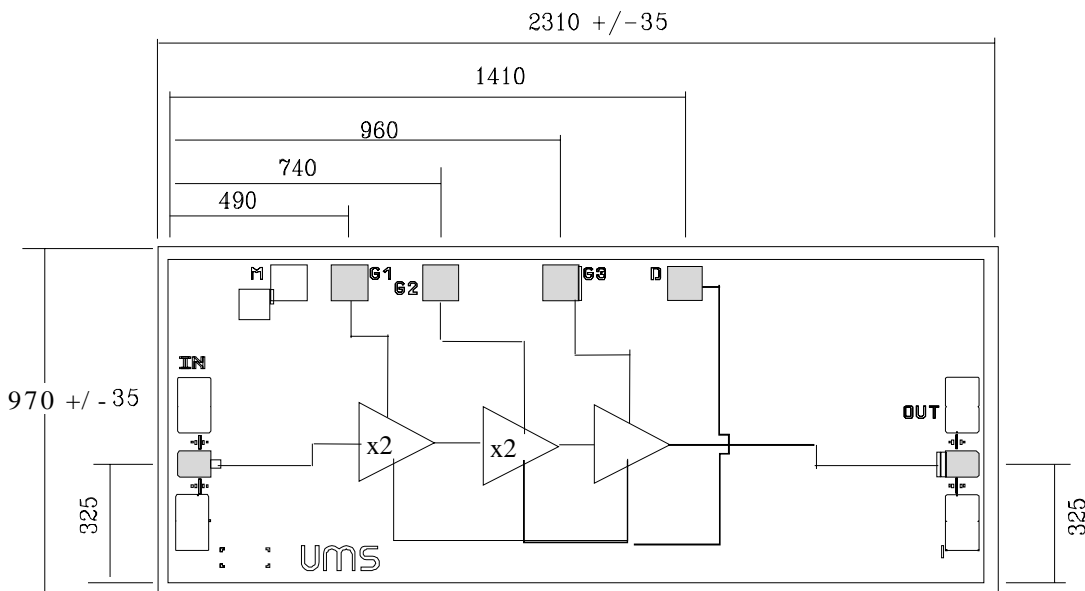
(1) Operation of device above any one of these parameters may cause permanent damage.

Chip Assembly and Mechanical data

Vd=3.5V Vg1=Vg2=-0.8V Vg3=-0.2V Vd=3.5v



Note : Supply feed should be capacitively bypassed. 25µm diameter gold wire is to be preferred.
Pad Size : 100 x 100µm



Bonding pad positions.
(Chip thickness : 100µm. All dimensions are in micrometers)

Ordering Information

Chip form : CHX2092a-99F/00

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