

10-30GHz Frequency Multiplier

GaAs Monolithic Microwave IC

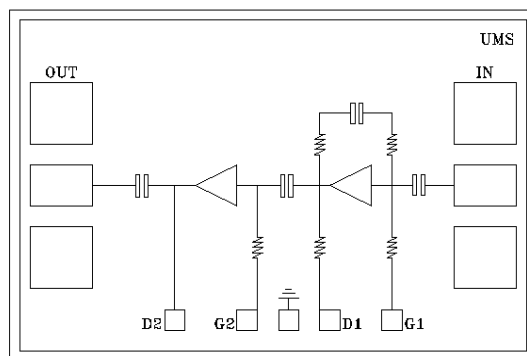
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Description

The CHX2093a is a cascaded by 3 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, 0.25 μ m gate length, via holes through the substrate, air bridges and electron beam gate lithography.



Main Features

Frequency performance : 9-10GHz
2.5dB conversion loss @ Pin=5dBm
DC bias : Vd=3.5V @ Id=80mA
Chip size : 1.94 x 1.17 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	27		30	GHz
Pin	Input power	5	7	9	dBm
Lc	Conversion loss @ Pin=5dBm	0.5	2.5	4	dB
	Pin=9dBm	3.5	5.5	7	dB

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

Ref. : DSCHX20939137

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Specifications subject to change without notice

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Electrical Characteristics

T_{amb} = +25°C, V_d = 3.5V, I_d = 80mA

Symbol	Parameter	Min	Typ	Max	Unit
F _{in}	Input frequency range	9		10	GHz
F _{out}	Output frequency range	27		30	GHz
P _{in}	Input power	5	7	9	dBm
L _c	Conversion loss @ P _{in} =5dBm	0.5	2.5	4	dB
	P _{in} =9dBm	3.5	5.5	7	dB
	First harmonic suppression	10			dBc
	Second harmonic suppression	10			dBc
VSWR _{in}	Input VSWR			2:1	
V _d	Drain Voltage		3.5	3.8	V
I _d	Drain current		80	100	mA
V _g	Gate voltage	-0.4	-0.2	0	V

Absolute Maximum Ratings (1)

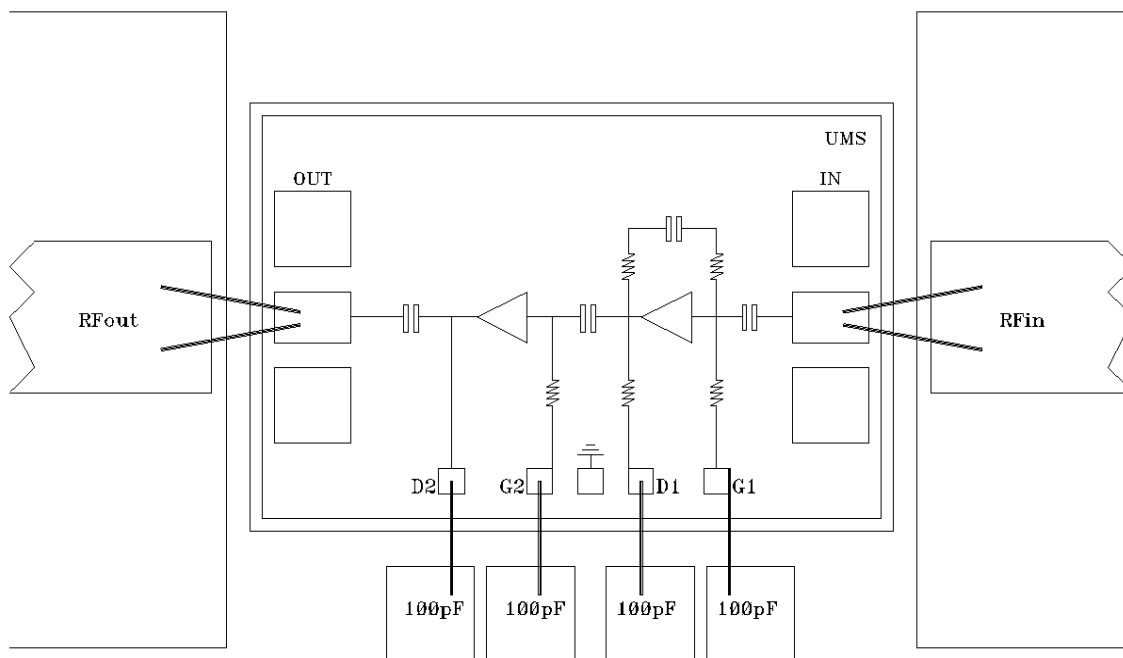
T_{amb} = +25°C

Symbol	Parameter	Values	Unit
V _d	Drain bias voltage	4	V
V _g	Gate bias voltage	-2	V
P _{in}	Maximum peak input power overdrive (2)	+15	dBm
T _{op}	Operating temperature range	-40 to +85	°C
T _{stg}	Storage temperature range	-55 to +125	°C

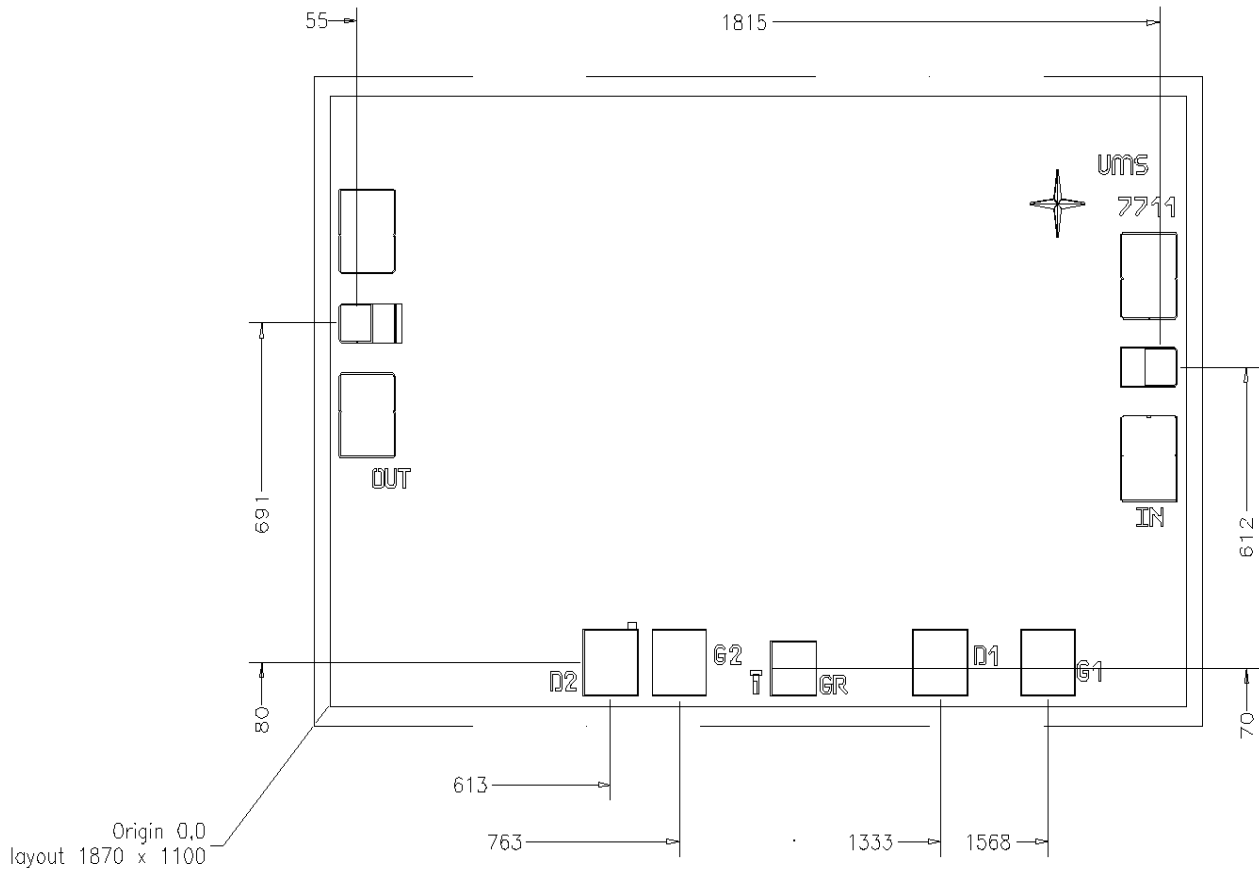
(1) Operation of this device above any one of these parameters may cause permanent damage.

(2) Duration < 1s.

Chip Assembly and Mechanical Data



Note : Supply feed should be capacitively bypassed. 25 μ m diameter gold wire is to be preferred.



Bonding pad positions.

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

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