

20-40GHz Frequency Multiplier

GaAs Monolithic Microwave IC

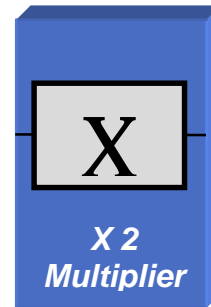
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Description

This is a times 2 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 performance : 17-20 GHz
- 11dBm output power for 0dBm input power
- DC power consumption, 70mA @ 4.25V (with RF)
- Chip size : 1.63 x 0.95 x 0.10 mm

Main Characteristics

Tamb. = 25°C

Symbol	Parameter	Min	Typ	Max	Unit
Fin	Input frequency range	17		20	GHz
Fout	Output frequency range	34		40	GHz
Pin	Input power		0		dBm
Pout	Output power for +0dBm input power		11		dBm

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

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Electrical Characteristics

Tamb = +25°C, Vd = 4.25V Id = 70mA under RF Pin=0dBm

Symbol	Parameter	Min	Typ	Max	Unit
Fin	Input frequency range	17		20	GHz
Fout	Output frequency range	34		40	GHz
Pin	Input power		0		dBm
Pout	Output power for +0 dBm input power		11		dBm
Is/Fo	Fin level at the output (17 < Fin < 20GHz), for 0dBm input power		-15		dBm
VSWRin	Input VSWR		2.5:1		
VSWRout	Output VSWR		2.5:1		
Id	Bias current (with RF)		70		mA

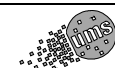
A wire bond of typically 0.1 to 0.15 nH will improve the input and output matching.

Absolute Maximum Ratings

Tamb = +25°C

Symbol	Parameter	Values	Unit
Vd	Drain bias voltage	4.5	V
Id	Drain bias current	100	mA
Ta	Operating temperature range	-40 to +85	°C
Tstg	Storage temperature range	-55 to +125	°C

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



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Ordering Information

Chip form : CHX2191-99F/00

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