

FutureAccess™ Type-C 28 GHz Frequency Converter IC



Overview

Fujikura's 28 GHz Frequency Converter IC has upconverter and downconverter functions with supporting dual polarization (pol.).

This IC integrates quadrupler with LO signal input of 7.1-8.8 GHz, mixers with IF signal input/output of 4.3-5.5 GHz and with RF signal input/output of 24.25-29.50 GHz. There are 2 RF ports for each polarization, which is convenient to connect to multiple Beamformer ICs.

The quadrupler is designed to minimize harmonic spurious. Optional high-Q Band Pass Filter (BPF) based on LCP (Liquid crystal polymer) can be used to suppress image spectrum and LO leakage, keeping unwanted emissions under -30 dBc.

External View

Front view of IC



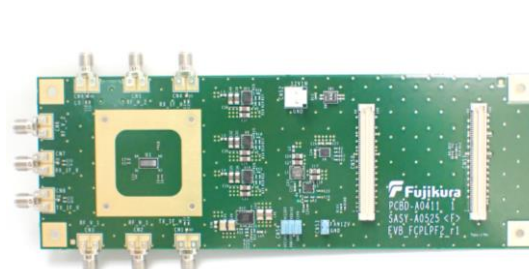
Size: 7.0 mm x 3.3 mm

Back view of IC



136 pin BGA (0.4 mm pitch)

Evaluation Board for IC

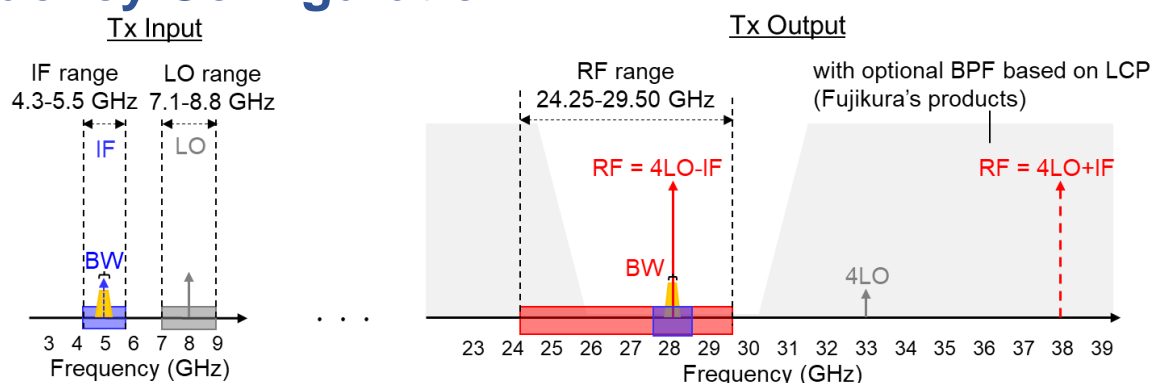


Size: 90 mm x 210 mm

Features

- 5G NR band fully supported: 24.25-29.5 GHz
- Support dual polarization and 2 RF ports for each polarization
- LO frequency: 7.1-8.8 GHz with integrated quadrupler
- IF frequency: 4.3-5.5 GHz (4.9 ± 0.6 GHz)
- LO leakage < -30 dBc and < -70 dBc with optional BPF
- Sideband < -40 dBc with optional BPF

Frequency Configuration



MW96-11-25-0008(1)



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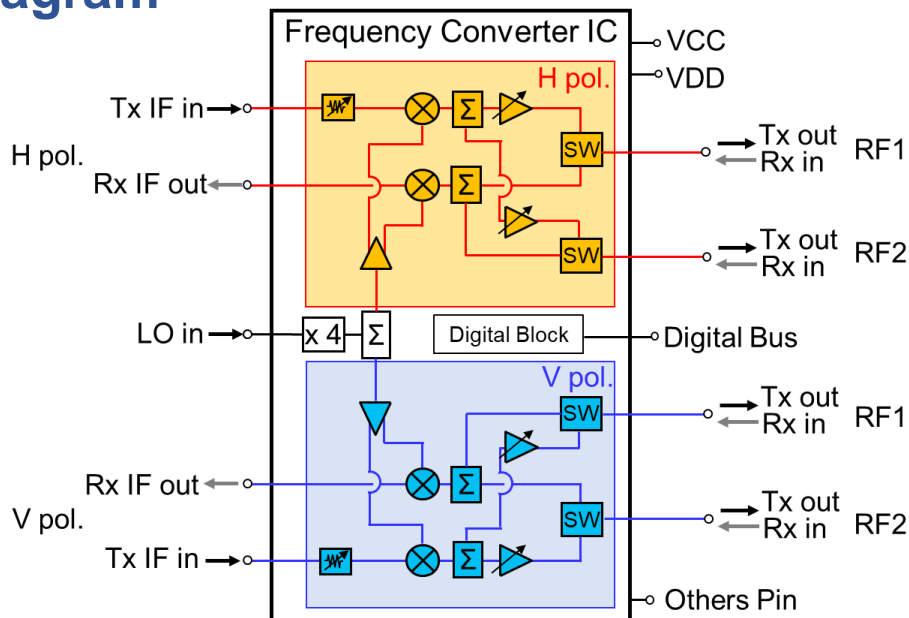
■ Specification

Parameter		Typical values
Frequency (GHz)	RF	24.25 to 29.50 (n257, n258, n261)
	IF	4.3 to 5.5
	LO	7.1 to 8.8
Impedance (Ω)		50
Input LO power range (dBm)		-5 to +5
Number of channels		2 (1 horizontal and 1 vertical channels)
TX/RX switching time (μ s)		≤ 1
Operating temperature ($^{\circ}$ C)	at junction temperature	-40 to +125
Supply voltage (V)	Analog	1.5, 2.7
	Digital	1.2, 1.8
Package size (mm)		7.0 x 3.3

■ Part Number

Part number	Description
FCPLP-F2N	24.25 to 29.50 GHz (n257, n258, n261) supported

■ Block Diagram



■ Applications

- 5G NR Mobile Base Station
- Local 5G / Private 5G
- Fixed Wireless Access / Wireless Backhaul
- Repeater

Note:

- The values on the table shown above are preliminary, not guaranteed.
- Please refer to the PRODUCT WARRANTY (MW96-11-22-0044) for more detail.
- All contents in this brief are subject to change without any notice.

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