# RENESAS

### Description

The F6921 is an ultra-low power consumption, dual-channel, low noise amplifier (LNA) RFIC designed for application in Ku-Band SATCOM planar phased array antennas. The exceptional combination of low power consumption, low noise, high gain, and compact size, maximizes the antenna array G/T while minimizing overall system power dissipation. An externally supplied reference bias current is used to trade LNA power consumption against P1dB and gain, completely shut off (idle) the amplifier during operation or for gain compensation versus temperature.

The LNA is supplied in a compact 23-pin, 0.5mm pitch BGA package with  $50\Omega$  matched single-ended RF inputs and outputs for ease of integration onto phased array antenna panels.

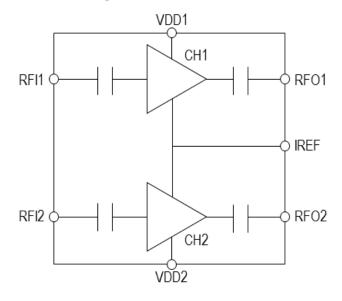
## **Typical Applications**

- Phased array antennas
- Ku-band SATCOM terminals
- Aerospace and maritime
- Instrumentation

### Features

- 10.7 12.75GHz operation
- Two independent gain/phase-matched channels
- 19dB typical gain
- -5dBm typical output P1dB
- 15mW power consumption
- Supply voltage: 0.95 1.05 V
- 2.7 × 2.7 × 0.9 mm, 23-pin FC-BGA package
- -40°C to 85°C ambient operating temperature range

### **Block Diagram**



## **Ordering Information**

Orderable Part Number	Package	MSL Rating	Carrier Type	Temperature
F6921AVRI	2.7 × 2.7 × 0.9 mm 23-BGA	3	Tray	-40°C to +85°C
F6921AVRI8	2.7 × 2.7 × 0.9 mm 23-BGA	3	Reel	-40°C to +85°C
F6921EVB	F6921 Evaluation Board			

<sup>© 2020</sup> Renesas Electronics Corporation

#### IMPORTANT NOTICE AND DISCLAIMER

RENESAS ELECTRONICS CORPORATION AND ITS SUBSIDIARIES ("RENESAS") PROVIDES TECHNICAL SPECIFICATIONS AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for developers skilled in the art designing with Renesas products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. Renesas grants you permission to use these resources only for development of an application that uses Renesas products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Renesas intellectual property or to any third party intellectual property. Renesas disclaims responsibility for, and you will fully indemnify Renesas and its representatives against, any claims, damages, costs, losses, or liabilities arising out of your use of these resources. Renesas' products are provided only subject to Renesas' Terms and Conditions of Sale or other applicable terms agreed to in writing. No use o any Renesas resources expands or otherwise alters any applicable warranties or warranty disclaimers for these products.

(Disclaimer Rev.1.0 Mar 2020)

#### **Corporate Headquarters**

TOYOSU FORESIA, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan www.renesas.com

#### **Trademarks**

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners. **Contact Information** 

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit: <u>www.renesas.com/contact/</u>