

# RF AMPLIFIERS WITH ZERO-DISTORTION™ TECHNOLOGY



Renesas’s RF amplifier portfolio offers a variety of gain, noise figure and linearity features, in either differential or single-ended input impedances. The products feature innovative Zero-Distortion™ technology, enabling high output IP3 with very low current consumption – setting them apart from simple gain block amplifiers.

In addition, the RF amplifiers feature built-in broadband baluns to support wideband applications with differential inputs and outputs. The products are designed for high-reliability operation, using a SiGe amplifier die together with an integrated passive device (IPD) die and proven, high-volume QFN packaging.

## Features

- Silicon-based for improved  $\Theta$ JC and Class 2 ESD
- Flat gain across wide bandwidths
- Zero-Distortion™ technology
- Consistent performance over operating conditions
- Narrow gain variation over voltage and temperature

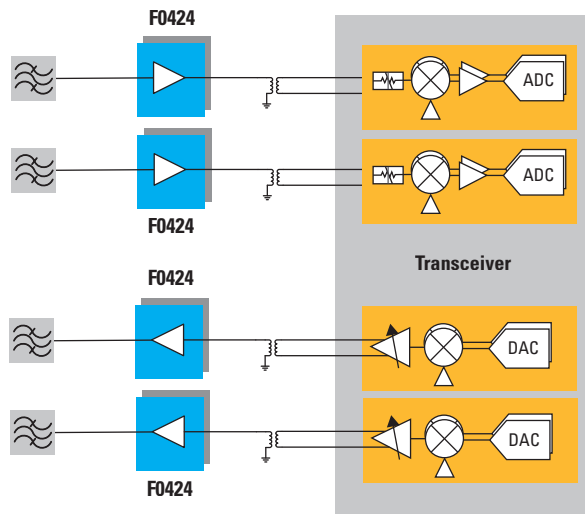
## Silicon advantages

Renesas RF Amplifiers utilize advanced RF silicon semiconductor technology offering advantages over other technologies such as GaAs

- Manufacturing robustness with:
  - Higher electrostatic discharge (ESD) immunity
  - MSL1 moisture sensitivity-level performance
- Excellent RF performance over temperature with low current drain
- Higher reliability
- Higher levels of integration with simpler packaging assemblies that lower total cost

## Applications

- Wireless base stations
- Repeaters and DAS
- Point-to-point infrastructure
- Public Safety infrastructure
- Military communication
- Industrial equipment

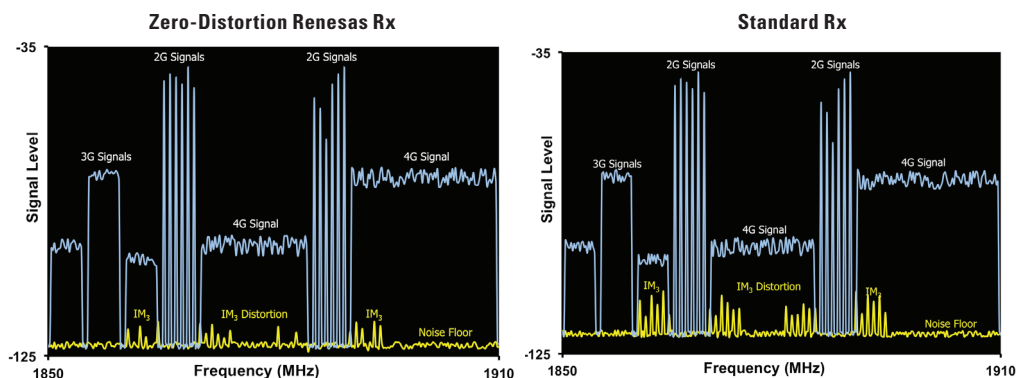


## ZERO-DISTORTION™



### Renesas RF Mixers and IF Variable Gain Amplifiers

Renesas devices improve SNR by reducing the noise floor and IM3 intermodulation distortion.



### Driver Amplifiers

Part Number	Frequency (GHz)	Gain (dB)	NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Voltage (V)	Current (mA)	Package (mm)
F0424	0.6 – 5.0	17	2.3	21	40	3.3 / 5	70	2 x 2, 8-Pin
F1420	0.7 – 1.1	17.4	4.5	23.2	42	5	105	4 x 4, 24-Pin
F1421	1.7 – 2.2	20.3	5.5	23	40	5	138	4 x 4, 24-Pin
F1471	0.4 – 4.2	17	4.3	28.5	39	5	130	3 x 3, 16-Pin
F1475	3.3 – 4.2	21	5	30	–	5	120	3 x 3, 16-Pin
F1478	1.8 – 5	30.3	1.6	23.6	35.7	5	140	3 x 3, 16-Pin
F1490	1.8 – 5	39.5 / 35.5 <sup>1</sup>	2.5	24	38	5	75	3 x 3, 16-Pin
F1491	3.3 – 5.0	39.5 / 35.5 <sup>1</sup>	2.5	24	34	5	75	3 x 3, 16-Pin
F1495	3.3 – 4.2	40	5	30	–	5	120	3 x 3, 16-Pin

### Interface Amplifiers

Part Number	Frequency (GHz)	Input	Output	Gain (dB)	NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Voltage (V)	Current (mA)	Package (mm)
F1129LB	1.4 – 3.2	50Ω SE	100Ω DIFF	20	1.6	20.5	36	3.3 / 5	61	2 x 2, 12-Pin
F1129MB	3 – 4.2	50Ω SE	100Ω DIFF	19	1.8	18	32	3.3 / 5	60	2 x 2, 12-Pin
F1129HB	4 – 6	50Ω SE	100Ω DIFF	18	2.3	18	32	3.3 / 5	70	2 x 2, 12-Pin
F1423	0.6 – 3.0	50Ω DIFF	50Ω SE	13.1	5.1	21.5	41.8	5	120	4 x 4, 24-Pin
F1429LB	1.4 – 3.2	100Ω DIFF	50Ω SE	21.5	1.9	22	40	3.3 / 5	64	2 x 2, 12-Pin
F1429MB	3.0 – 4.2	100Ω DIFF	50Ω SE	21	1.8	21	40	3.3 / 5	73	2 x 2, 12-Pin
F1429HB	4 – 6	100Ω DIFF	50Ω SE	18	2	20	36	3.3 / 5	70	2 x 2, 12-Pin

To request samples, download documentation or learn more visit: [renesas.com/rfamps](https://www.renesas.com/rfamps)



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