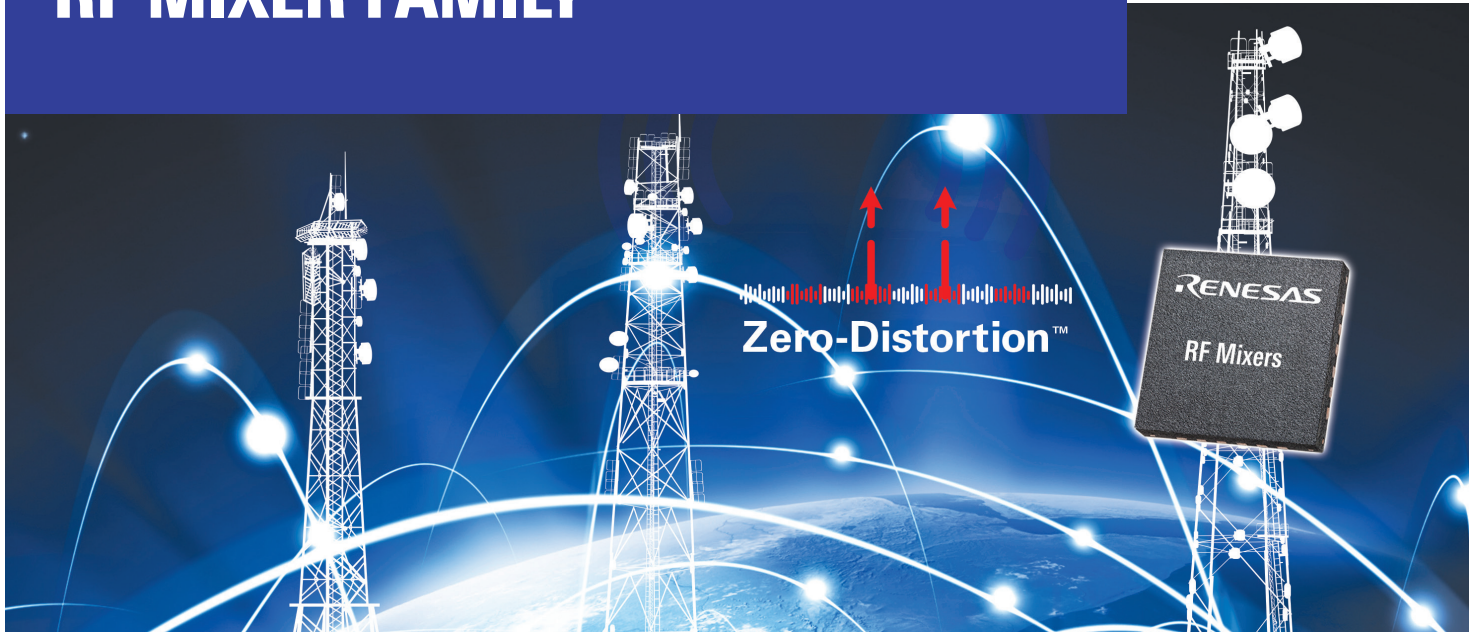


# RF MIXER FAMILY



Renesas mixers have excellent out-of-band spur performance which eases pre-filtering requirements. RF and LO baluns are internal allowing for simple 50 ohm interfaces. The IF ports are configured as differential 200 ohms to drive pre-ADC filters with low even-order distortion.

In-band 2x2 and 3x3 spurs cannot be filtered so the mixer must provide all of the rejection for the system. Renesas's family of mixers provide very high rejection (> 70 dB) to these critical spurs.

Robust power down modes in Renesas mixers can be fully turned on and off in < 200 nsec, and are ideal for modern TDD systems. The LO port impedance is practically unchanged in the off state minimizing the potential for synthesizer pulling.

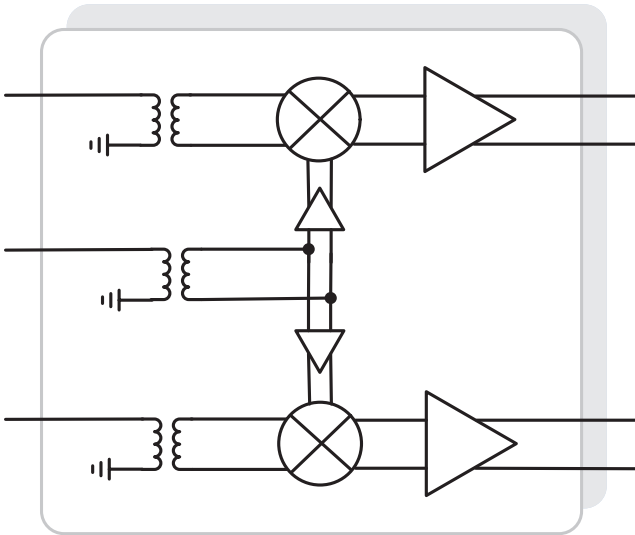
In addition to multiple modes of operation, all Renesas mixers include external resistor options to further down-scale power consumption vs. linearity. Application notes that describe how to reduce the current even further and still maintain > 32 dBm OIP3 are available at [idt.com/RF](http://idt.com/RF).

## Advantages

- Gain = 9 dB, P1dB up to +13 dBm
- NF < 10 dB
- IIP3 up to +35 dBm, OIP3 up to +44 dBm
- 5V supply
- Power consumption as low as 850 mW dual, 500 mW single
- 50Ω SE RF & LO  $Z_{IN}$
- 200Ω balanced IF  $Z_{OUT}$
- Silicon-based semiconductor technology
- Wide IF bandwidths from 50 to 500 MHz
- VersaMixer™ family offers maximum performance and flexibility at minimum power consumption
- Renesas's FlatNoise™ technology achieves low noise figure at any gain setting


RF MIXER FAMILY

Part Number	Description	RF Freq. (GHz)	LO Freq. (GHz)	IF Freq. (GHz)	Gain (dB)	IP1dB (dBm)	OIP3 (dBm)	Voltage (V)	Current (mA)	Package (mm)
F1100	RF to IF Dual	0.698 – 0.915	0.848 – 1.365	0.15 – 0.45	9	13.1	41	5	350	6 x 6, 36–Pin
F1102	RF to IF Dual	0.4 – 1	0.5 – 1.15	0.05 – 0.3	9.2	12.5	43	5	330	6 x 6, 36–Pin
F1130	RF to IF Dual	0.4 – 1.1	0.5 – 1.13	0.03 – 0.40	9.0	9.0	43	5	360	7 x 7, 48–Pin
F1150	RF to IF Dual	1.7 – 2.2	1.8 – 2.65	0.05 – 0.45	8.5	13	40	5	335	6 x 6, 36–Pin
F1152	RF to IF Dual	1.4 – 2.2	1.35 – 2.1	0.05 – 0.35	8.5	13.2	43	5	327	6 x 6, 36–Pin
F1162	RF to IF Dual	2.3 – 2.7	1.8 – 2.9	0.05 – 0.5	8.9	13	43	5	330	6 x 6, 36–Pin
F1178	RF to IF Dual	3.4 – 3.8	2.9 – 3.62	0.05 – 0.5	9	11	37.5	5	297	6 x 6, 36–Pin
F1180	RF to IF Dual	1.4 – 2.7	1.35 – 2.90	0.03 – 0.55	8.2	9	38	5	365	7 x 7, 48–Pin
F1192B	Dual Wideband Gain–Settable	0.4 – 3.8	0.4 – 3.6	0.05 – 0.6	11.1	7	35	3.3	240	4 x 4, 24–Pin
F1701	RF to IF Single	0.6 – 1.06	0.63 – 1.26	0.07 – 0.3	11.8	10.2	43	5	184	5 x 5, 20–Pin
F1751	RF to IF Single	1.4 – 2.5	1.4 – 2.5	0.05 – 0.5	11.8	9.7	43	5	190	5 x 5, 20–Pin
F1763	RF to IF Single	2 – 2.9	1.8 – 3	0.05 – 0.5	11.7	10.2	42	5	200	5 x 5, 20–Pin
F1792	Single Wideband Gain–Settable	0.4 – 3.8	0.4 – 3.6	0.05 – 0.6	11.1	7	35	3.3	134	4 x 4, 24–Pin



Renesas RF Mixer block diagram

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



Renesas Electronics America Inc. | [renesas.com](https://www.renesas.com)

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