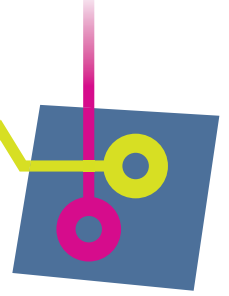
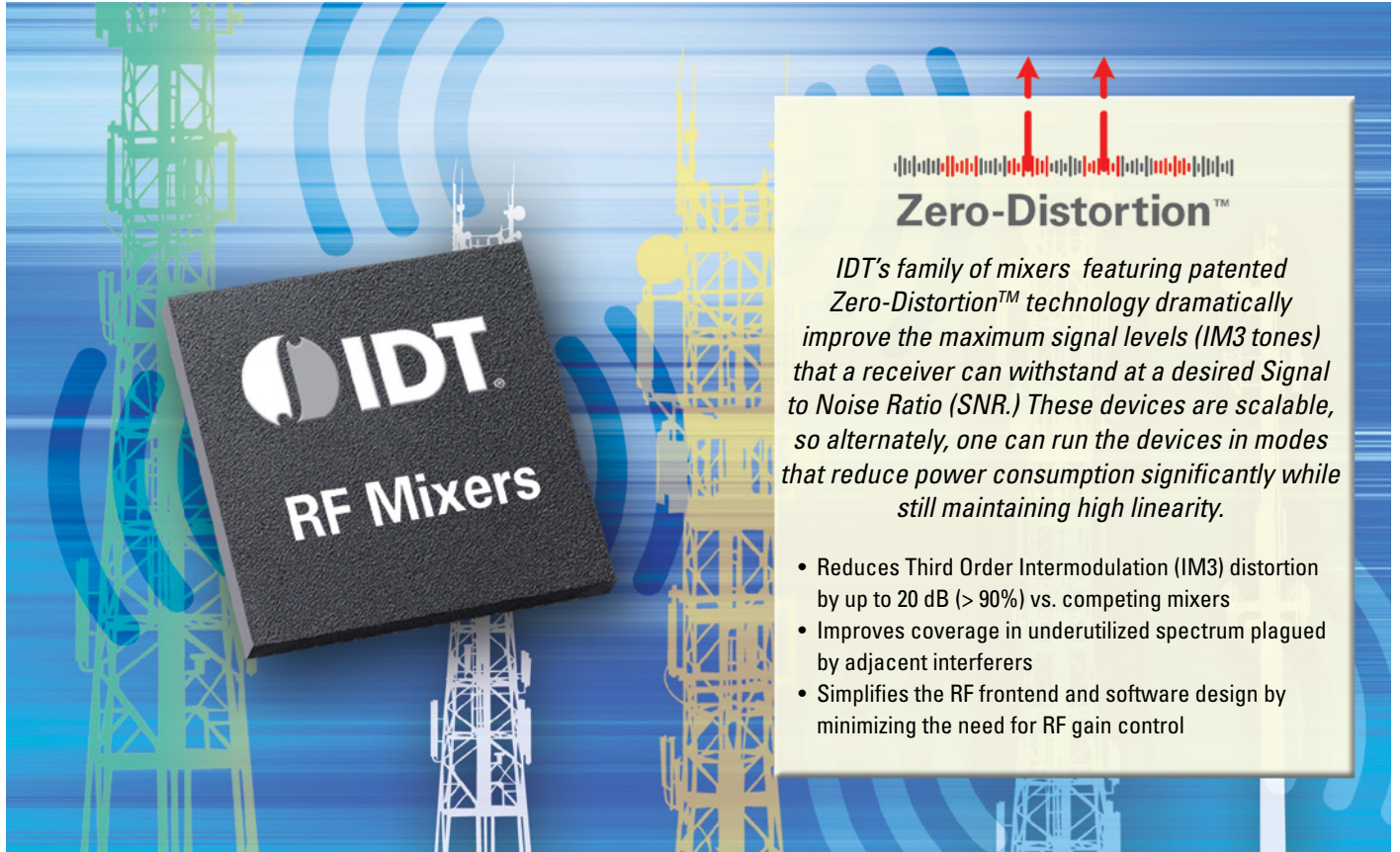
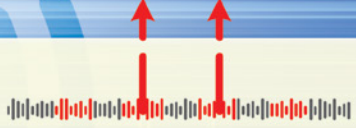


RF Mixers


Zero-Distortion™

IDT's family of mixers featuring patented Zero-Distortion™ technology dramatically improve the maximum signal levels (IM3 tones) that a receiver can withstand at a desired Signal to Noise Ratio (SNR.) These devices are scalable, so alternately, one can run the devices in modes that reduce power consumption significantly while still maintaining high linearity.

- Reduces Third Order Intermodulation (IM3) distortion by up to 20 dB (> 90%) vs. competing mixers
- Improves coverage in underutilized spectrum plagued by adjacent interferers
- Simplifies the RF frontend and software design by minimizing the need for RF gain control

FAMILY FEATURES AND BENEFITS:

- Gain = 9dB, P1dB up to +13dBm
- NF < 10dB
- IIP3 up to +35dBm, OIP3 up to +44dBm
- 5V supply
- As low as 850mW dual, 500mW single power consumption
- 50Ω SE RF & LO Z_{IN}
- 200Ω balanced IF Z_{OUT}
- Silicon-based semiconductor technology
- Wide IF bandwidths from 50 to 500 MHz

IDT 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.

2 x 2 AND 3 x 3 SPURS: These in-band spurs cannot be filtered so the mixer must provide all of the rejection for the system. IDT's family of mixers provide very high rejection (> 70dB) to these critical spurs.

ROBUST POWER DOWN MODES: IDT's mixers can be fully turned on and off in < 200nsec, which is ideal for modern TDD systems. Furthermore, the LO port impedance is practically unchanged in the off state which minimizes the potential for synthesizer pulling.

SCALABILITY: In addition to multiple modes of operation, all IDT mixers include external resistor options for further down-scaling the power consumption vs. linearity. Application notes that describe how to reduce the current further and still maintain > 32dBm OIP3 are available at idt.com/go/RF.



RF Mixers

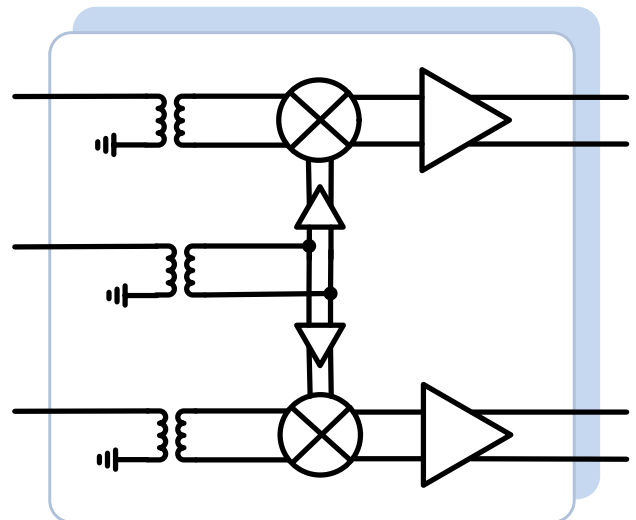
Device	Configuration	OIP3 (dBm)	Frequency (MHz)	Package
F1150	Dual	40	1700 to 2200	6 x 6 mm 36-TQFN
F1152	Dual	42	1400 to 2200	6 x 6 mm 36-TQFN
F1162	Dual	43	2300 to 2700	6 x 6 mm 36-TQFN
F1100	Dual	40	700 to 1000	6 x 6 mm 36-TQFN
F1102	Dual	42	400 to 1000	6 x 6 mm 36-TQFN
F1701	Single	42	700 to 1000	5 x 5 mm 20-TQFN
F1763	Single	43	2300 to 2700	5 x 5 mm 20-TQFN
F1751	Single	41	1700 to 2200	5 x 5 mm 20-TQFN
F1178	Dual	40	3300 to 3800	6 x 6 mm 36-TQFN

Silicon-based Semiconductor Technology

IDT's Mixers utilize silicon-based semiconductor technology, offering advantages over other technologies such as GaAs.

Silicon Advantages

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



To learn more about IDT's RF products, patented technologies, or request samples, visit: idt.com/go/rf