

# RF Products Family

## PRODUCT CATEGORIES

- Digital step attenuators (DSA)
- Variable voltage attenuators (VVA)
- RF switches
- Single-/dual-channel broadband mixers
- Single/dual variable gain amplifiers (VGA)
- Amplifiers
- Broadband modulators
- Demodulators with integrated DSA, RF switch and LO switch

## FEATURES

- Highly differentiated RF products
- Unique technical innovations
  - Deliver superior RF performance
- Silicon semiconductor technology enables
  - Robust reliability and manufacturability
  - Lower total solution cost
- RF Solutions
  - Enable greener networks with lower power consumption
  - Scalable across a wide array of platforms
  - Improve data throughput

## APPLICATIONS

### Wireless Infrastructure

- Base transceiver station
- Distributed antenna system and repeaters
- Microwave (RF/IF)

### Test and Measurement

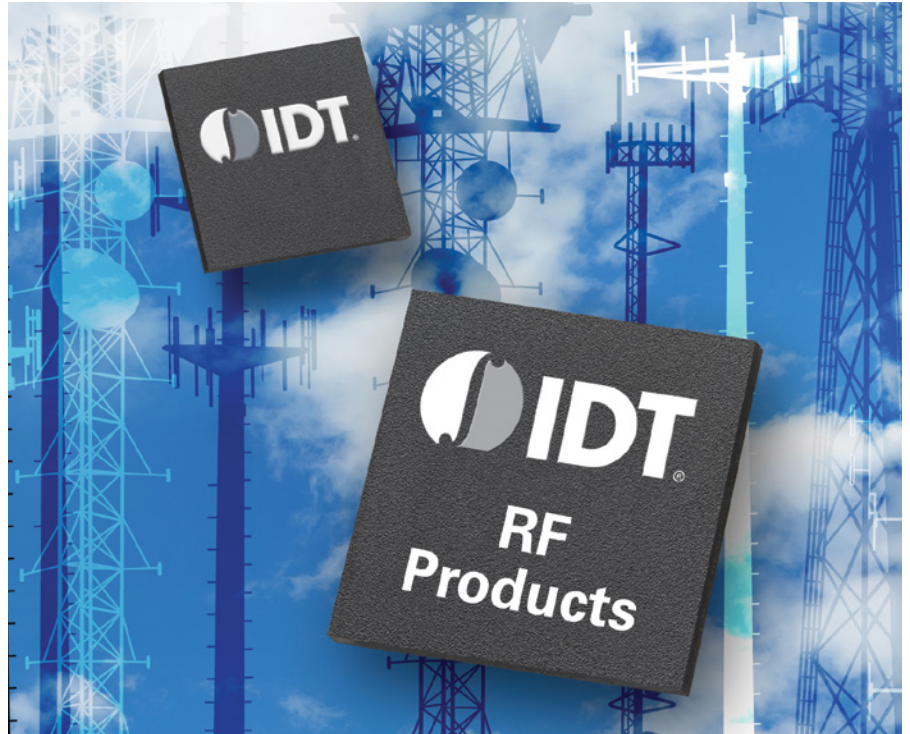
- Smart phone communications tester
- Signal generator and spectrum analyzer
- Automated Test Equipment (ATE)

### Industrial

- Military/tactical communication systems
- Radar
- Automotive

### Broadband CATV

- Headend (CMTS), edge QAM
- Distribution nodes
- E/GPON, FTTH optical networks
- Fiber repeaters
- Cable modem, set-top box, DVR/PVR
- DOCSIS 3.1
- Satellite receivers and modems



IDT's RF products are best-in-class in dealing with unwanted interference from an increasingly crowded radio spectrum. Today's higher data rates drive the need for better radio signal-to-noise ratios, which translates to the need for IDT's higher linearity RF components. IDT's unique patented RF solutions enable green networks with minimal power consumption, and will serve as a company growth driver for years to come.

All IDT RF devices are silicon based and offer distinct advantages over those based on gallium arsenide (GaAs). Silicon enables higher levels of integration, without sacrificing RF performance, to achieve lower solution costs. Silicon improves manufacturing robustness with better moisture sensitivity and protection from electrostatic discharge offering a more rugged and reliable technology than GaAs devices, which require external matching and can suffer from delayed secondary avalanching.

IDT's silicon-based solutions address the evolving needs of a wide range of applications: cellular 4G base stations, communications systems, microwave (RF/IF), CATV, test and measurement and industrial. IDT's products deliver exceptional RF performance by combining IDT's technology and unique technical innovations in compact packages.

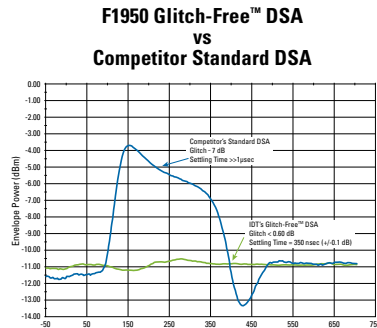
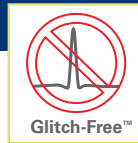


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## GLITCH-FREE™

### IDT RF Digital Step Attenuators and RF Variable Gain Amplifiers

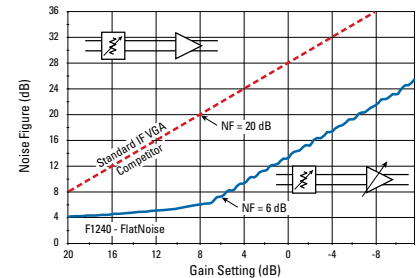
IDT devices virtually eliminate transient overshoot that can occur during MSB attenuation state transitions of standard DSAs. Thus, amplifier damage and loss of information at the ADC are avoided.



## FLATNOISE™



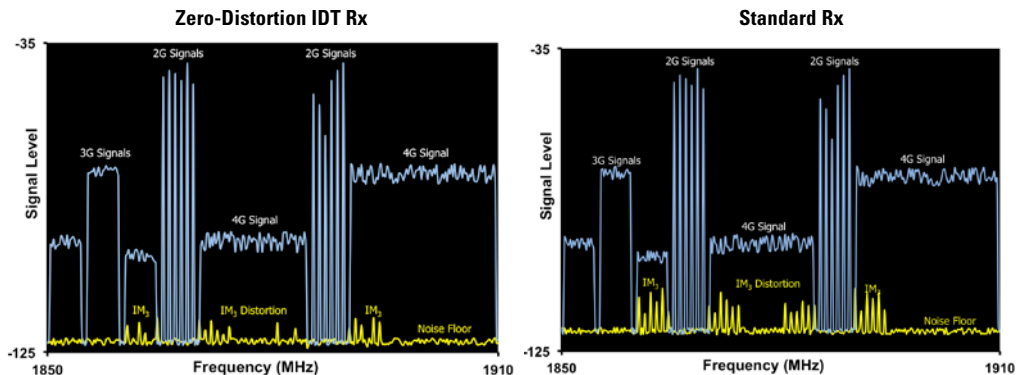
Noise Figure is kept virtually flat in the critical region while gain is reduced. Greatly eases design constraints for Radio Engineers by enhancing SNR.



## ZERO-DISTORTION™

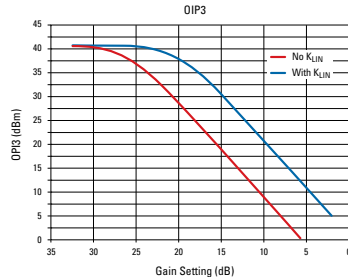
### IDT RF Mixers and IF Variable Gain Amplifiers

IDT devices improve SNR by reducing the noise floor and IM3 intermodulation distortion, as shown below in yellow. This is key for crowded spectrum environments, as it enhances Quality of Service and frees up under-utilized spectrum.



## K<sub>LIN</sub> CONSTANT LINEARITY

K<sub>LIN</sub> maintains constant high linearity as gain is adjusted. As the gain is reduced, the linearity (OIP3) remains constant in the critical region (see graph). This prevents intermodulation distortion from degrading as the gain is reduced.



## K<sub>|z|</sub> CONSTANT IMPEDANCE

K<sub>|z|</sub> maintains a near constant impedance when switching between RF ports preserving a higher RF port return loss. Standard switches without K<sub>|z|</sub> create a large Voltage Standing Wave Ratio, VSWR, transient when switching RF paths because the impedance of the switch is not well controlled during the switching event. By controlling the impedance during the switching process VSWR transients are minimized, improving switch reliability, reducing voltage stresses on downstream components and improving overall system performance.



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