

MATRICs™ transceiver

Microwave Array Technology for
Reconfigurable Integrated Circuits



Advanced reconfigurable radio frequency transceiver

The Microwave Array Technology for Reconfigurable Integrated Circuits, or MATRICs™ transceiver, is an integrated chip that addresses the future requirements of communications, electronic warfare, and signal intelligence systems. This highly adaptable chip enables engineers to develop customized radio systems in the field, without the need for modified, application-specific chips that are expensive and time consuming to develop.

A fourth generation, wideband multichannel transceiver, MATRICs transmits and receives multiple channels simultaneously. It covers a broad range of radio waveforms so that different types of system architectures can be designed around it, including systems that that need wide spectrum awareness and adaptability to dynamic signal environments. Reduced size, weight and power make MATRICs ideal for applications where light weight and low power are at a premium.

Delivering revolutionary adaptability

Max frequency (Microwave block)	40 GHz
Max frequency (RF/BB block)	10 GHz
Instantaneous BWs	10 MHz - 4 GHz
Total gain (Microwave block)	0-15 dB
Total gain (RF/BB block)	0-50 dB
Noise figure (Microwave block)	7 dB
Noise figure (Microwave block)	9 dB
Noise figure (RF/BB block)	7-10 dB
In-band IIP3 (Microwave block)	0 dBm
In-band IIP3 (RF/BB block)	5-10 dBm
Out-of-band IIP3 (RF/BB block)	10-25 dBm
Out-of-band IIP2 (RF/BB block)	50 dBm
Phase noise (1 kHz offset)	-101 dBc/Hz
Phase noise (100 kHz offset)	-105 dBc/Hz
Phase noise (40 MHz offset)	-146 dBc/Hz
CFG settling time	2-5µs
Frequency resolution	1 kHz
On-chip memory states	16
Radiation tolerance	60 MeV-cm ² /mg

Key features and benefits

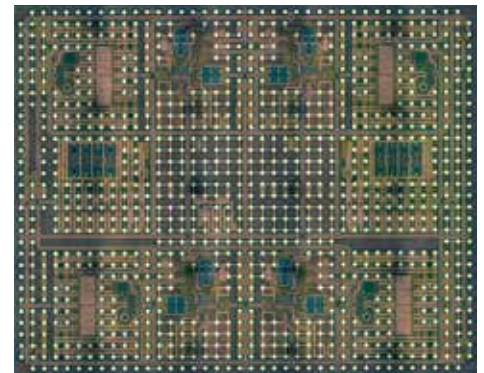
Size, weight, power, and cost advantages open up advanced transition opportunities

Multifunctional radio frequency enables warfighters to switch between RF functional payloads without landing their platforms

Mixed-signal technology supports simultaneous transmission and receiving

Flexible software, coupled with built-in self-test and calibration with adjustable gain, allows quick, in-field reconfigurations

Unique field-programmable reconfigurability creates new applications in the multi-function transceiver space



Approximate size

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