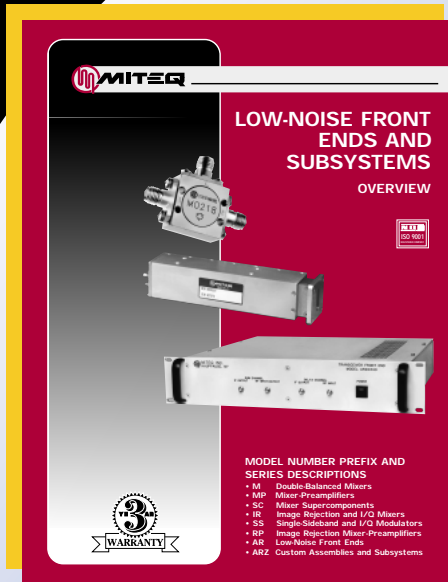


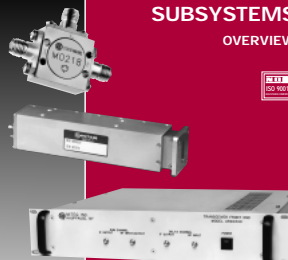
LOW-NOISE FRONT ENDS & SUBSYSTEMS



MITEQ

LOW-NOISE FRONT ENDS AND SUBSYSTEMS

OVERVIEW



MODEL NUMBER PREFIX AND SERIES DESCRIPTIONS

- M Double-Balanced Mixers
- MP Mixer-Preamplifiers
- SC Mixer Subcomponents
- IR Image Rejection and I/Q Mixers
- SS Single-Sideband and I/Q Modulators
- RP Image Rejection Mixer-Preamplifiers
- AR Low-Noise Front Ends
- ARZ Custom Assemblies and Subsystems

WARRANTY

[Double-Balanced Mixers](#)[Mixer-Preamplifiers](#)[Image Rejection & I/Q Mixers](#)[Single Sideband & I/Q Modulators](#)[Image Rejection Mixer-Preamplifiers](#)[Low-Noise Front Ends](#)[Multifunction Assemblies](#)[Custom Assemblies](#)[Technical Note](#)

DOUBLE-BALANCED MIXERS

M SERIES

- Operation to 40 GHz
- Octave and multioctave designs
- Low conversion loss
- Customized performance available

MODEL NUMBER	RF/LO FREQUENCY RANGE (GHz, Min.)	IF FREQUENCY RANGE (GHz)	CONVERSION LOSS* (dB)		PORT-TO-PORT ISOLATION (dB, Typ.)		
			(Typ.)	(Max.)	LO/RF	LO/IF	RF/IF
OCTAVE BANDWIDTH							
M0102	1 – 2	DC – 0.5	6.5	7.5	20	20	15
M0204	2 – 4	DC – 1	5.5	6.5	25	20	20
M0408	4 – 8	DC – 2	5.5	6.5	20	20	20
M0812	8 – 12.5	DC – 3	5.5	6.5	25	20	20
M1218	12 – 18.5	DC – 3	6.5	7.5	20	20	15
M1826	18 – 26	DC – 8	8	9	15	15	15
M2640**	26 – 40	DC – 8	6.5	9	15	15	15
MULTIOCTAVE BANDWIDTH							
M0104	1 – 4	DC – 0.5	5.5	7	30	15	20
M0208	2 – 8	DC – 1	6.5	7.5	20	20	15
M0310	3 – 10	DC – 1.5	6	7	20	15	15
M0415	4 – 15	DC – 2	7	8	20	15	15
M0218	2 – 18	DC – 0.5	7.5	8.5	20	20	15
M0719	7 – 19	DC – 3	6.5	7.5	20	20	15
M0220	2 – 20	DC – 0.5	8	9	20	20	15
LOW 1/f NOISE							
M0614F	6 – 14	DC – 3	7	8	20	20	20

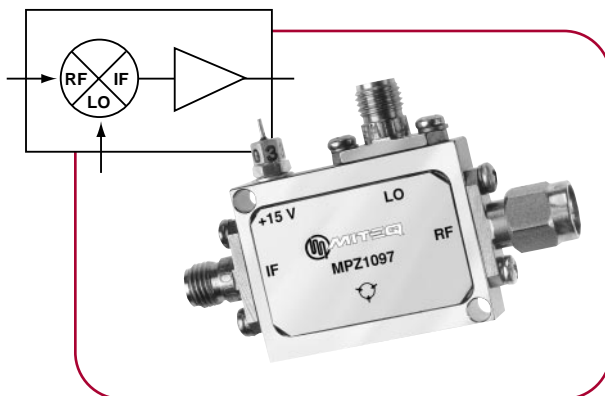
* Parameters measured at 100 MHz IF frequency and at +10 dBm nominal LO level.
** M2640 is a single-balanced design.



MIXER-PREAMPLIFIERS AND SUPERCOMPONENTS

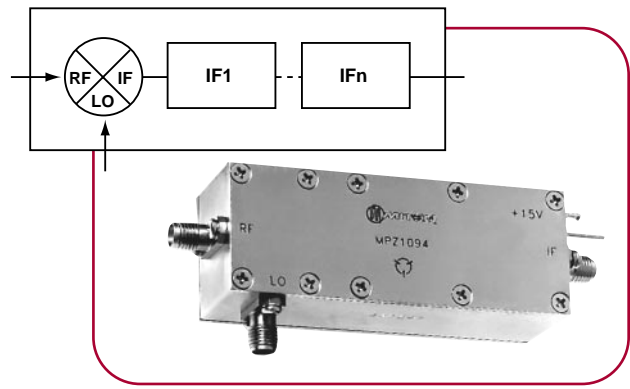
MP SERIES

- Operation to 20 GHz
- Highly integrated packaging
- IF filter options



SC SERIES

- Operation to 20 GHz
- User-selected functions from “off-the-shelf” IF building blocks, including: mixers, amplifiers, filters, attenuators, detectors, etc.



For additional information and technical support, please contact Bill Roehrich at
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Low-Noise Front Ends and Subsystems Web Page: www.miteq.com/d32

IMAGE REJECTION AND I/Q MIXERS

IR AND IQ SERIES

- RF/LO frequencies to 20 GHz in moderate to octave bands
- IF frequencies to 2000 MHz in octave to multioctave bands
- Selectable sideband units available

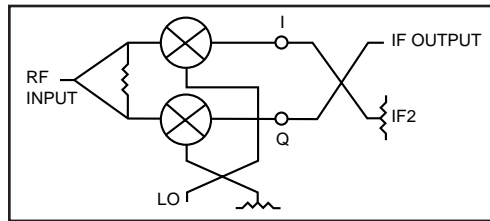
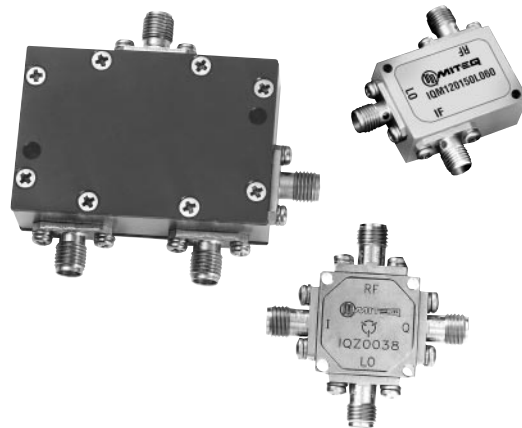


IMAGE REJECTION MIXERS (IR SERIES)

- Image rejection
20 dB typical
18 dB minimum
- Optimized performance available

I/Q MIXERS (IQ SERIES)

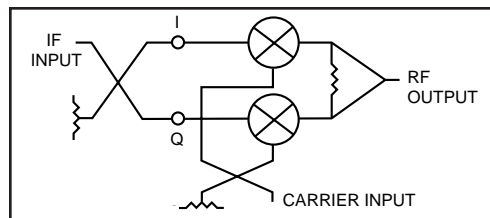
- Phase and amplitude balance as low as $\pm 2^\circ$ and ± 0.25 dB
- DC offsets from 15 mV
- Low $1/f$ noise available



SINGLE-SIDEBAND AND I/Q MODULATORS

SS & IQ SERIES

- RF/LO frequencies to 20 GHz in moderate to octave bands
- IF frequencies to 2000 MHz in octave to multioctave bands
- Integrated IF and RF amplifiers available
- Selectable sideband units available

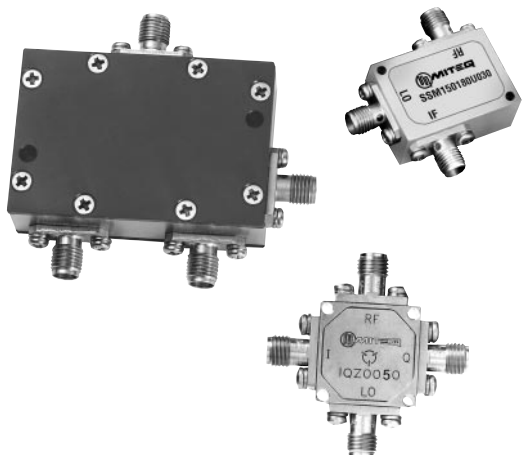


SINGLE-SIDEBAND MIXERS (SS SERIES)

- Sideband suppression to 25 dB
- Carrier suppression to 40 dB
- Optimized performance available

I/Q MODULATORS (IQ SERIES)

- Phase and amplitude balance as low as $\pm 2^\circ$ and ± 0.25 dB
- Carrier suppression to 40 dB

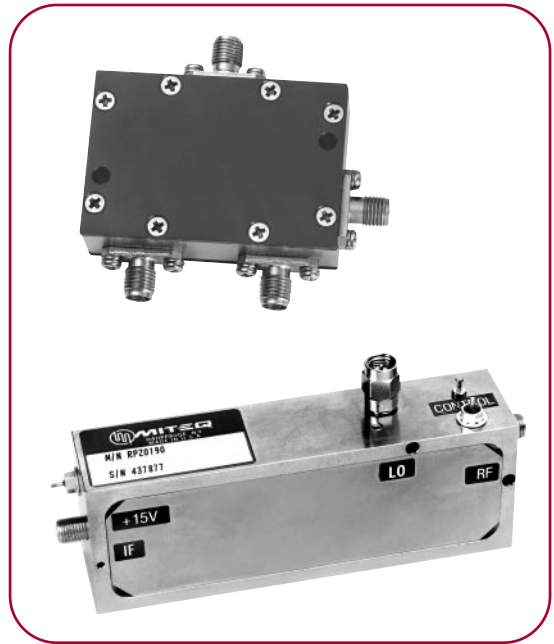
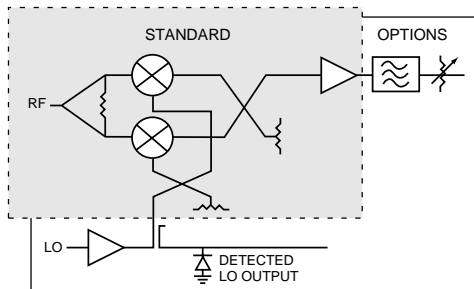


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IMAGE REJECTION MIXER-PREAMPLIFIERS

RP SERIES

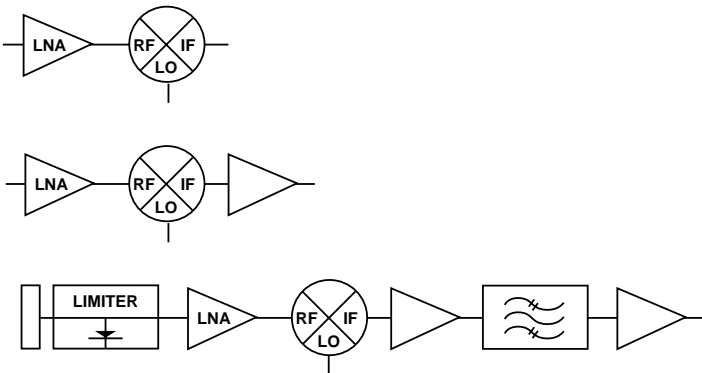
- Image rejection mixers with IF amplifiers
- Off-the-shelf designs available to 20 GHz
- Available options
 - LO and IF amplifiers
 - Integrated IF filters
 - High dynamic range designs
 - LO and IF detectors
 - IF attenuators and switches
 - Selectable sideband designs



LOW-NOISE FRONT ENDS

AR SERIES

- Image rejection mixers with RF low-noise amplifiers
- Off-the-shelf designs available to 20 GHz
- Optimized designs for radar and communication applications
- Ultra-low noise figures
- Input limiter protection available
- Various IF functions available
- Waveguide input available (WR series)

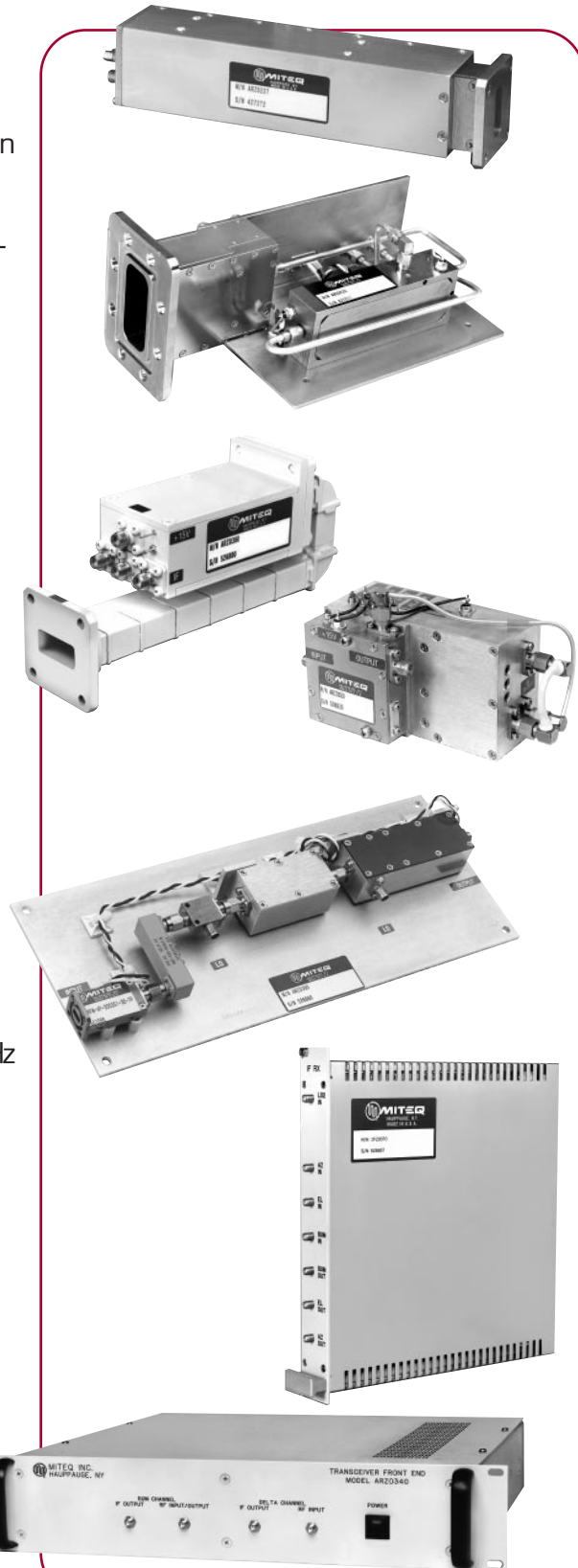


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MULTIFUNCTION ASSEMBLIES AND SUBSYSTEMS

ARZ SERIES

- Upconverter/downconverter/transceiver subsystems to 40 GHz
- Ultra-low noise figures available based upon MITEQ LNA designs
- Wide variety of in-house technology to support customer-driven designs, including:
 - Amplifiers
 - Mixers
 - Frequency sources
 - Switches
 - Filters
 - Attenuators
 - IF signal processing
 - Detectors
 - Couplers/dividers
 - Digital I/O
- Frequency source options include:
 - Synthesizers (PLL based)
 - Multiplied to 40 GHz
 - Single loop, 10 μ s tuning
 - Broadband YIG based
 - VCOs (free running and phase locked)
 - Cavity, CRO or L-C resonator designs
 - Fundamental to 4 GHz
 - Multiplied to 40 GHz
 - Up to octave band (L-C design)
 - DROs
 - Free-running bipolar designs to 12 GHz
 - Fundamental FET designs to 25 GHz
- Optional packaging and interface
 - Coaxial inputs/outputs
 - Waveguide inputs/outputs
 - Plate-mounted components
 - Custom hermetic integrated housings
 - High isolation, channelized assemblies
 - Rack-mounted designs
 - VME and alternative card formats
 - Weatherproof enclosures
- Internal power supply options
 - DC supplies to 28 volts
- 110/220, 50-60 Hz AC supplies



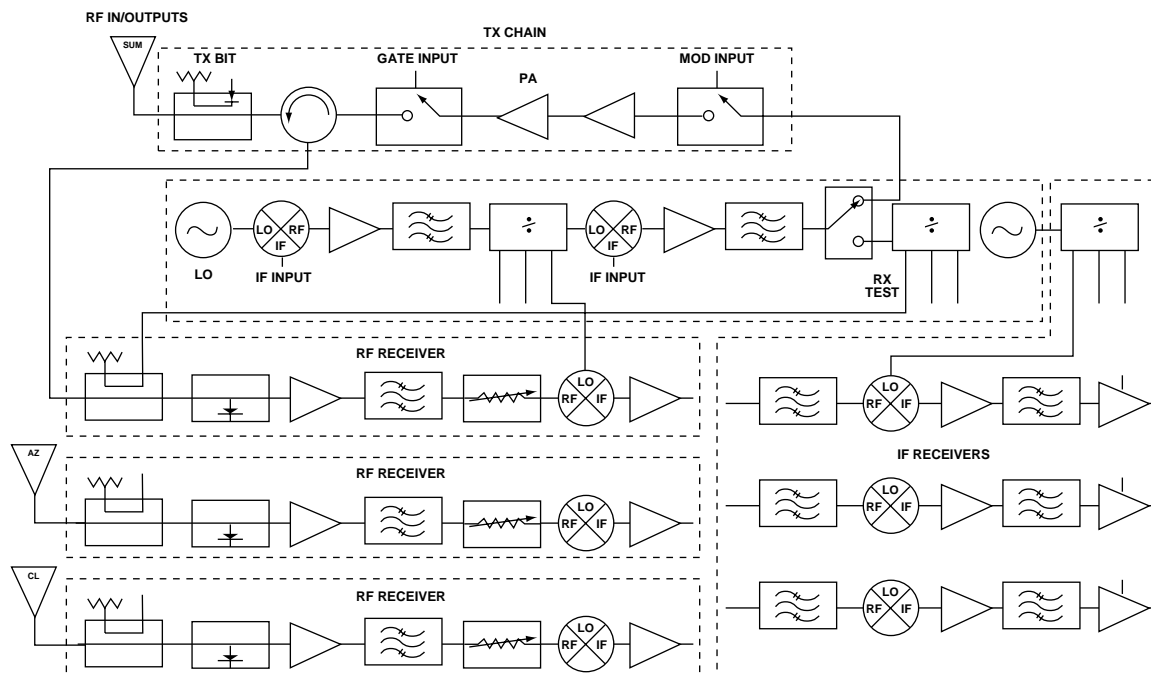
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LOW-NOISE FRONT ENDS AND SUBSYSTEMS OVERVIEW

CUSTOM ASSEMBLY ENGINEERING/MANUFACTURING

ARZ SERIES

- Built-to-print manufacturing
- RF/microwave design/prototype consulting services
- Based upon MITEQ's extensive inventory of RF and microwave designs



ARZ0350 - THREE-CHANNEL RADAR TRANSCIVER FRONT END

Operating at X-band, the ARZ0350 provides three phase and amplitude tracked channels for monopulse tracking with solid-state transmit power amplifiers, receiver protection and less than 3 dB noise figure. The overall assembly is supplied in a 19" rack using a Eurocard format. Modules include built-in-test functions to fault isolate to the individual card assemblies supporting field replacement and maintenance.

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