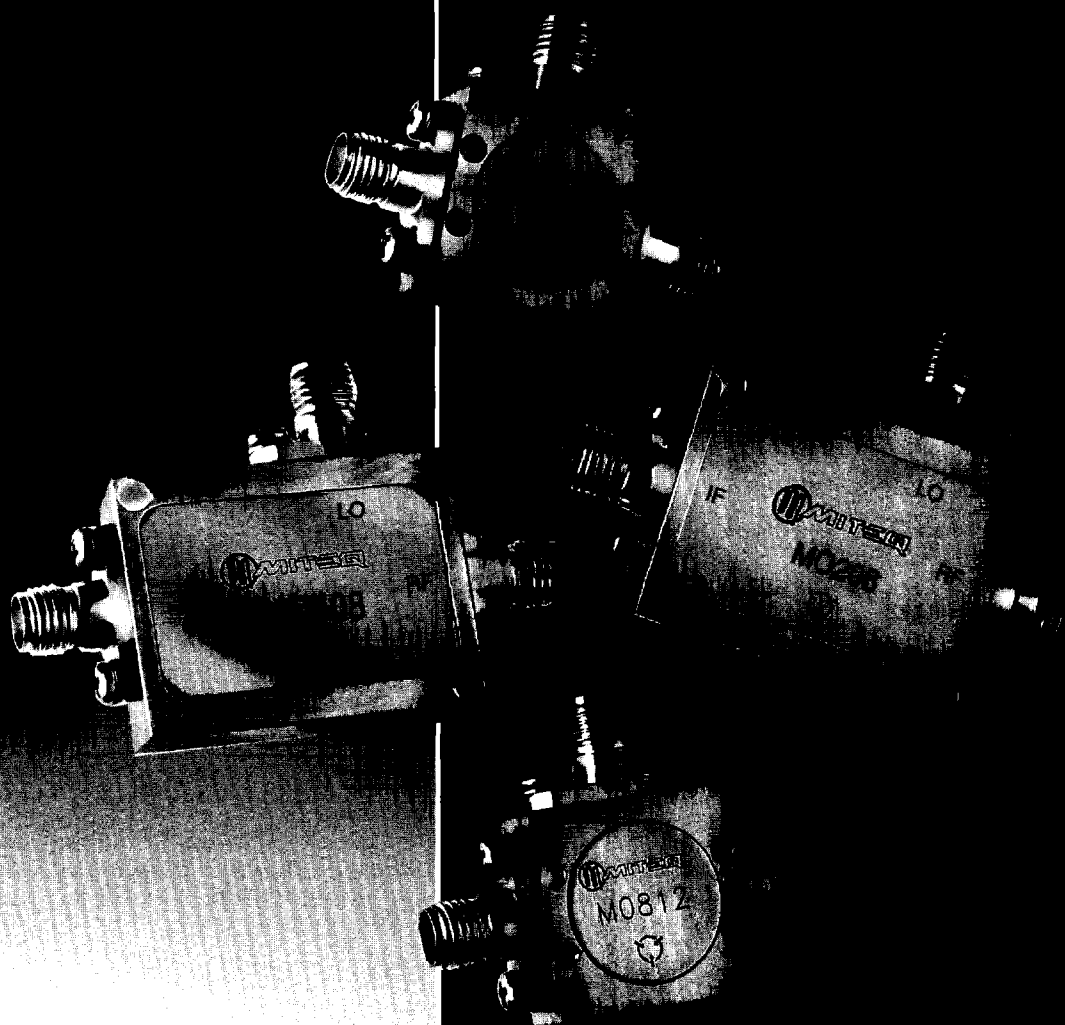




DOUBLE-BALANCED MIXERS

M SERIES

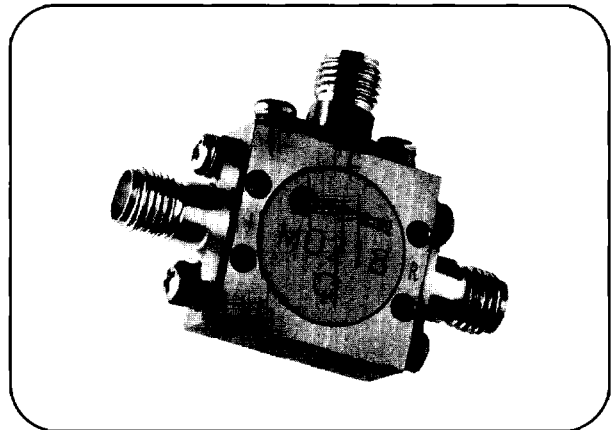


LOW-NOISE FRONT ENDS
AND SUBSYSTEMS

M SERIES MIXERS

FEATURES

- Low Conversion Loss
- Octave Band Operation
- Designs up to 40 GHz



MITEQ's M Series double-balanced mixers utilize a unique wire-line balun to facilitate a low-loss 180° transformer, covering octave and multioctave bands up to 26 GHz. This balun is used on the RF and LO ports to drive a Schottky diode quad and provide low conversion loss mixing with good LO-to-RF isolation. These mixers are easily optimized for lower conversion loss over customer-specified bands.

STANDARD MIXER REFERENCE CHART

MODEL NUMBER ¹	RF/LO FREQUENCY RANGE (GHz, Min.)	IF FREQUENCY RANGE (GHz)	CONVERSION LOSS ² (dB)		PORT-TO-PORT ISOLATION (dB, Typ.)			RETURN LOSS (dB, Typ.)			OUTLINE NUMBER	
			(Typ.)	(Max.)	LO/RF	LO/IF	RF/IF	RF	LO	IF	STANDARD	OPTIONAL
OCTAVE BANDWIDTH												
M0102	1-2	DC-0.5	6.5	7.5	20	20	15	4	6	5	1	-
M0204	2-4	DC-1	5.5	6.5	25	20	20	6	10	6	1	-
M0408	4-8	DC-2	5.5	6.5	20	20	20	6	10	6	1	-
M0812	8-12.5	DC-3	5.5	6.5	25	20	20	6	10	6	2	3,4,5
M1218	12-18.5	DC-3	6.5	7.5	20	20	15	6	6	6	2	3,4,5
M1826	18-26	DC-8	8	9	15	15	15	5	6	6	3	3
M2640 ³	26-40	DC-8	6.5	9	15	15	15	5	6	6	7	-
MULTIOCTAVE BANDWIDTH												
MRF	0.5-1.5	0.01-0.5	7.5	8.5	20	20	20	-	-	-	6	-
M0104	1-4	DC-0.5	5.5	7	30	15	20	5	5	6	1	-
M0208	2-8	DC-1	6.5	7.5	20	20	15	4	6	6	1	-
M0310	3-10	DC-1.5	6	7	20	15	15	6	8	6	1	-
M0415	4-15	DC-2	7	8	20	15	15	6	6	6	2	3,4,5
M0218	2-18	DC-0.5	7.5	8.5	20	20	15	4	4	6	2	3,4,5
M0719	7-19	DC-3	6.5	7.5	20	20	15	6	6	6	2	3,4,5
M0220	2-20	DC-0.5	8	9	20	20	15	4	4	6	2	3,4,5
LOW 1/f NOISE												
M0614F ⁴	6-14	DC-3	7	8	20	20	20	6	5	6	2	3,4,5

Notes:

1. A two-character suffix must be added to the model number when ordering optional outlines or LO drive levels. However, it is not necessary to include the LO level drive code and outline number when ordering a standard unit without options.

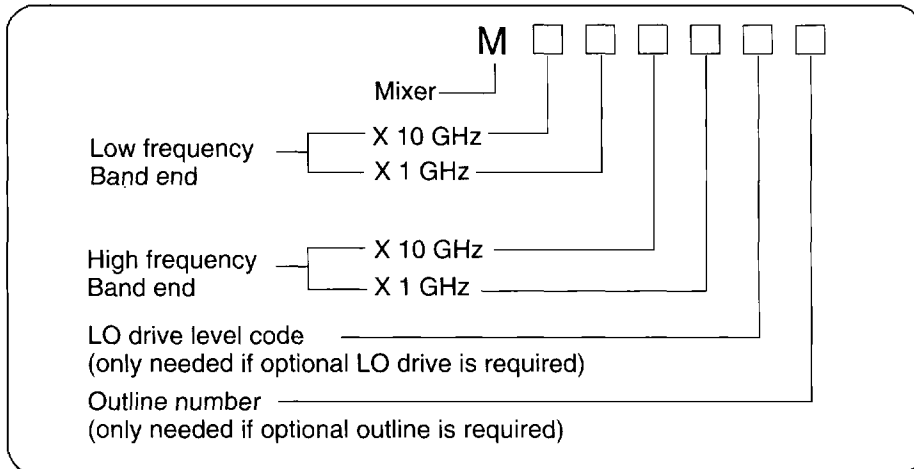
LO Levels	Suffix	LO Range (dBm)	Output 1 dB C.P. (dBm, Typ.)	Third-Order Intercept (dBm, Typ.)
			Output	Input
Standard	M	+8 to +13	-1	6 12
Optional	J	+5 to +10	-6	1 7
	H	+12 to +17	2	9 15
	V	+17 to +23	7	14 20
	U	+20 to +26	11	18 24

2. Parameters measured at 100 MHz IF frequency and at +10 dBm nominal LO level.
3. Available LO option: J only.
4. Typical corner frequency of 100 kHz. Lower noise available.

ORDERING INFORMATION

To specify a mixer, please choose from the standard mixer reference chart. If you require an optional outline or LO drive level, please specify the option in the suffix of the model number (refer to the standard model number format) then complete and return the enclosed fax-back form.

NUMBER FORMAT



CUSTOM DESIGN CAPABILITIES

MITEQ specializes in custom design mixers optimized to meet the customer's needs. For price, delivery and technical information, please complete and return the enclosed fax-back form or contact one of our engineers.

• Optimized frequency ranges offer improved:

Conversion loss
LO - RF isolation
VSWR
Dynamic range

• Integrated functions available:

IF amplifiers
Filters
Attenuators
Switches
Phase shifters
Couplers/coupler detectors
Analog and digital I/O

**For additional information and technical support,
please contact Bill Roehrich at**

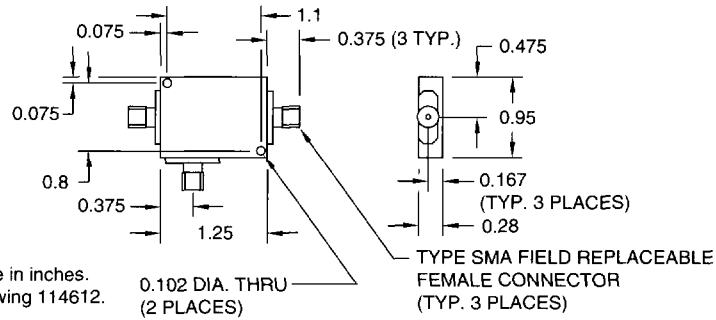
Tel.: (516) 439-9273 • Fax: (516) 436-7430

E-Mail: broehrich@miteq.com

Low-Noise Front Ends and Subsystems Web Page: www.miteq.com/d32

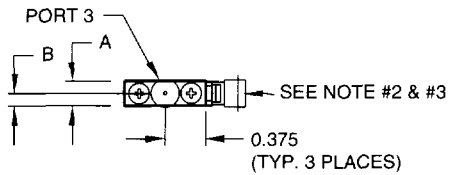
OUTLINE DRAWINGS

OUTLINE 1

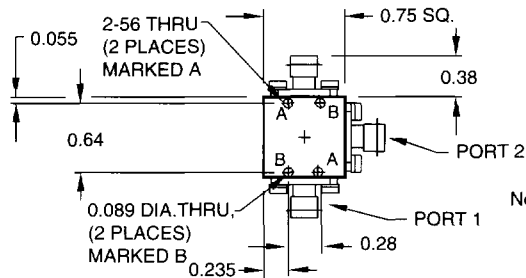


Notes: 1. Dimensions are in inches.
2. Reference drawing 114612.

OUTLINES 2, 3, 4 AND 5

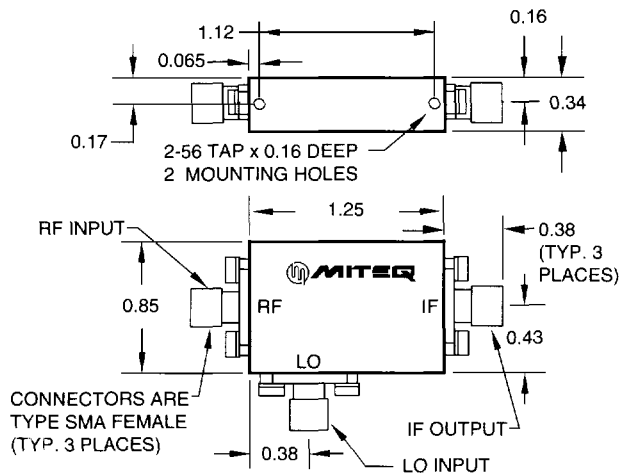


OUTLINE NUMBER	DIM A	DIM B	PORT 1 FUNCTION	PORT 2 FUNCTION	PORT 3 FUNCTION
-2	0.337	0.186	RF	LO	IF
-3	0.226	0.113	RF	LO	IF
-4	0.226	0.113	LO	IF	RF
-5	0.337	0.186	LO	IF	RF



Notes: 1. Dimensions are in inches.
2. Type SMA field replaceable female connector.
3. 0.015 DIA. pin typ. (3 places) on housing.
4. Reference drawing 128535.

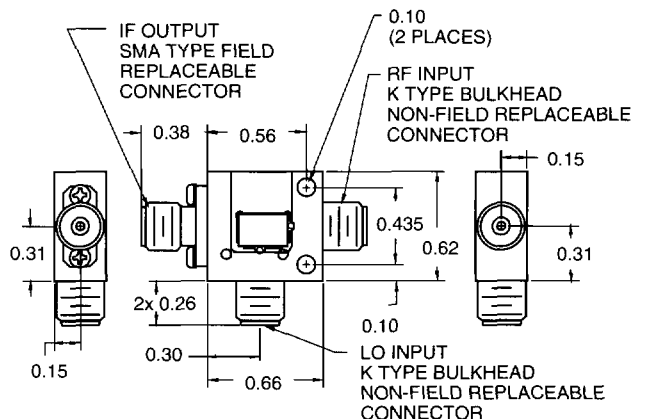
OUTLINE 6



CONNECTORS ARE TYPE SMA FEMALE (TYP. 3 PLACES)

Notes: 1. Dimensions are in inches.
2. Reference drawing 128773

OUTLINE 7



Notes: 1. Dimensions are in inches.
2. Reference drawing 131486.

MIXER FAX-BACK PAGE



**LOW-NOISE FRONT ENDS
AND SUBSYSTEMS**

TEL.: (516) 439-9273
 FAX: (516) 436-7430
 E-MAIL: broehrich@miteq.com

DATE _____

COMPANY _____

ADDRESS _____

CONTACT _____

TEL. _____

FAX _____

Please provide me with price, delivery and technical information for the following mixers:

STANDARD MODELS

SPECIFICATION PARAMETERS	REQUIREMENT 1	REQUIREMENT 2	REQUIREMENT 3
Model number (refer to ordering information)	M _____	M _____	M _____
Quantity			
Date needed			

CUSTOM MODELS

SPECIFICATION PARAMETERS	REQUIREMENT 1	REQUIREMENT 2	REQUIREMENT 3
RF frequency range (GHz)	to	to	to
LO frequency range (GHz)	to	to	to
IF frequency range (GHz)	to	to	to
Upconversion or downconversion (U or D)			
Conversion loss (dB, max.)			
LO power range (dBm)	to	to	to
Quantity			
Date needed			

Special requirements:

PLEASE SEND ADDITIONAL INFORMATION ON THE FOLLOWING MITEQ PRODUCTS:

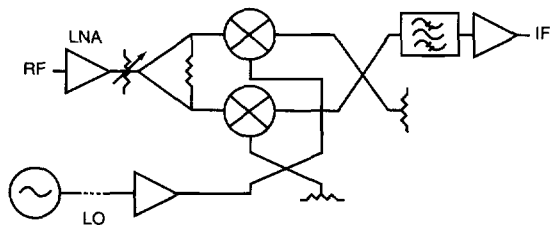
- Double-balanced mixer-preamplifiers
- Image rejection mixers
- Mixers with RF amplifiers
- Image rejection mixer-preamplifiers
- Supercomponents
- Integrated assemblies



ADDITIONAL PRODUCTS AVAILABLE FROM THE LOW-NOISE FRONT ENDS AND SUBSYSTEMS DEPARTMENT

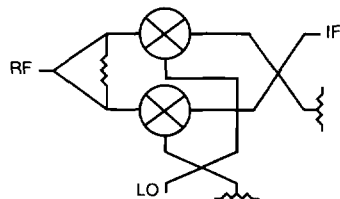
ARZ SERIES FRONT ENDS AND INTEGRATED SUBSYSTEMS

- Operating Frequencies up to 40 GHz
- Many RF and IF Signal Processing Function Options (see below)
- Ultra-Low Noise Figure
- Integrated Low Phase Noise Sources
- Upconverter, Downconverter and Transceiver Configurations
- Waveguide Interface Options
- Digital I/O Options
 - IEEE 488
 - RS422
- Power Supply Options
 - DC Bias
 - 120/240 VAC
- Package Options Include
 - Channelized Housings
 - Highly Integrated Housings
 - Cascaded Components on an Aluminum Plate
 - 19" Rack Enclosures
 - VME and Eurocard Formats
 - Weather-Resistant Enclosures
 - Hermetic Packaging



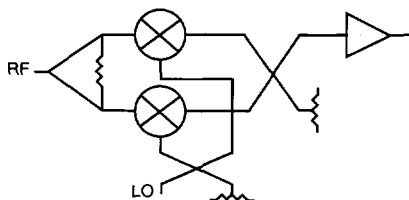
IR SERIES IMAGE REJECTION MIXERS

- Moderate and Octave RF/LO Frequencies from 0.8 to 19 GHz
- Moderate to Multioctave IF Frequencies Available
- Optimized Assemblies Available
- Single-Sideband Modulators Available (SSZ Series)



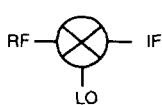
RP SERIES IMAGE REJECTION MIXER-PREAMPLIFIERS

- Moderate and Octave RF/LO Frequencies from 0.8 to 19 GHz
- Moderate to Multioctave IF Frequencies Available
- Optimized Assemblies Available
- Choose from Extensive Selection of IF Amplifiers
- IF Signal Processing Functions Available (see below)
- Upconverter and Downconverter Applications



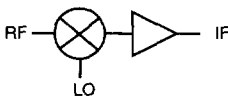
M SERIES DOUBLE-BALANCED MIXERS

- Octave and Multioctave RF/LO Frequencies up to 40 GHz
- Low Conversion Loss
- Optimized Assemblies Available (MDZ Series)



MP SERIES DOUBLE-BALANCED MIXER-PREAMPLIFIERS

- Octave and Multioctave RF/LO Frequencies up to 26 GHz
- Moderate and Octave RF/LO Frequencies from 0.8 to 19 GHz
- Moderate to Multioctave IF Frequencies Available
- Optimized Assemblies Available
- Choose from Extensive Selection of IF Amplifiers
- IF Signal Processing Functions Available (see below)



OPTIONAL RF AND IF SIGNAL PROCESSING OPTIONS FOR ARZ, RPZ AND MPZ SERIES

- Wide Selection of RF and IF Amplifiers
- Filters
- Attenuators
- Switches
- Phase Shifters
- Couplers/Coupler Detectors
- Analog and Digital I/O

