

**Field Replaceable 2.92mm Double Balanced Mixer
 From 24 GHz to 38 GHz With an IF Range From DC to
 8 GHz And LO Power of +13 dBm**

FMMX1001 is a double balanced mixer module that operates across an RF and LO frequency range from 24 GHz to 38 GHz with a wide IF frequency range of DC to 8 GHz. The design utilizes GaAs MESFET MMIC technology and requires no external components or matching circuitry. Excellent LO to RF and LO to IF Isolation levels that range from 35 to 40 dB are the result of using optimized balun structures. The LO drive level is +13 dBm with typical conversion loss of 9 dB and an input IP3 level up to +20 dBm.

The drop-in package is hermetically sealed with field replaceable 2.92mm connectors for the RF and LO ports, and an SMA connector for the IF port. Operating temperature range is -55°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle, and the design exhibits a robust 1000V ESD, Class IC rating.

This double balanced Mixer module is part of Fairview Microwave's expanding line of Mixers. These Mixers are high performance modules that offer excellent performance. The family of mixers has a variety of mixer types including Double Balanced Mixers, I/Q Double Balanced Mixer Modules, and others that cover up to Millimeter-Wave Frequencies.

Electrical Specifications TA = +25° C, IF= 1 GHz, LO = +13 dBm

Description	Min	Typ	Max	Units
RF Frequency Range	24		38	GHz
LO Frequency Range	24		38	GHz
IF Frequency Range	DC		8	GHz
Impedance		50		Ohms
Conversion Loss		9	12	dB
Noise Figure		9	12	dB
LO to RF Isolation	27	35		dB
LO to IF Isolation	26	40		dB
RF to IF Isolation	20	30		dB
Input at P1dB	+11			dBm
Input at IP2		+55		dBm
Input at IP3		+20		dBm
RF Input Power			+27	dBm
LO Input Power	+11	+13	+27	dBm
IF Input Power			+13	dBm

Electrical Specification Notes:

All measurements performed as downconverter unless otherwise noted.

Conversion loss measured as IRM.

Mechanical Specifications

Size

Length 0.89 in [22.61 mm]
 Width 0.68 in [17.27 mm]



Features:

- Double Balanced Mixer Module
- RF/LO Frequency 24 to 38 GHz
- Wide IF Bandwidth DC to 8 GHz
- GaAs MESFET MMIC Technology
- No external components or matching circuitry
- LO Drive level +13 dBm
- Low Conversion loss 9 dB
- High LO/RF Isolation 35 dB
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable Connectors
- -55°C to +85°C Operating Temperature

Applications:

- Electronic Warfare
- Point-to-Point Radios
- Point-to-Multipoint Radios
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Sensors
- Telecom Infrastructure
- Military End-Use

Fairview Microwave
 1130 Junction Dr. #100
 Allen, TX 75013
 Tel: 1-800-715-4396 / (972) 649-6678
 Fax: (972) 649-6689
www.fairviewmicrowave.com
sales@fairviewmicrowave.com

Height 0.36 in [9.14 mm]
 Weight 0.0795 lbs [36.06 g]

Configuration

Design Double Balanced
 Connector Option Field Replaceable
 RF Connector 2.92mm Female
 LO Connector 2.92mm Female
 IF Connector SMA Female

Environmental Specifications

Temperature

Operating Range -55 to +85 deg C
 Storage Range -65 to +150 deg C

Temperature Cycle MIL-STD-883, Method 101C, Cond B
 Hermetic Seal Gross Leak MIL-STD-883 Method 1014C1/Fine Leak MIL-STD-883, Method 1014A2, 5 x 10⁻⁸ atm cc

ESD Sensitive ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

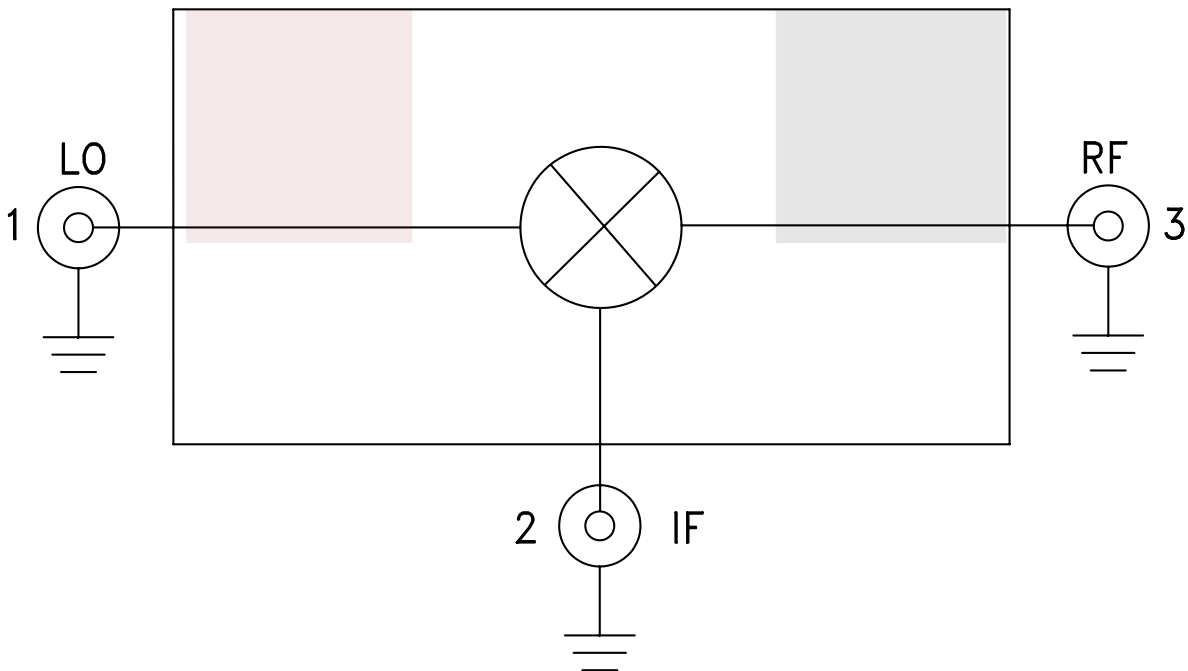


Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

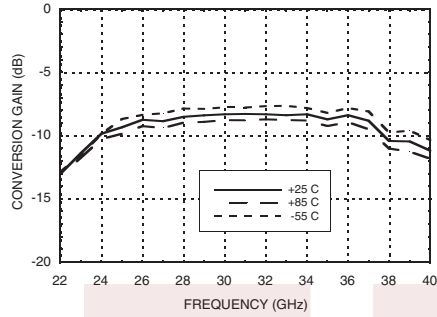
Notes:

Functional Block Diagram

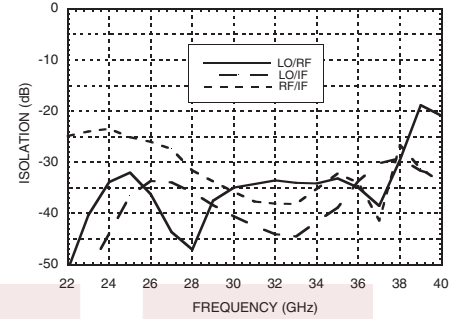


Typical Performance Data

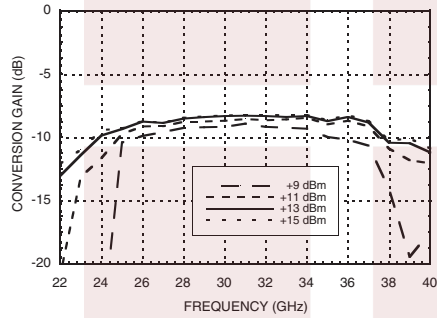
Conversion Gain vs. Temperature



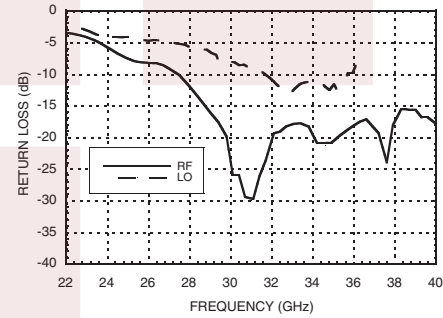
Isolation



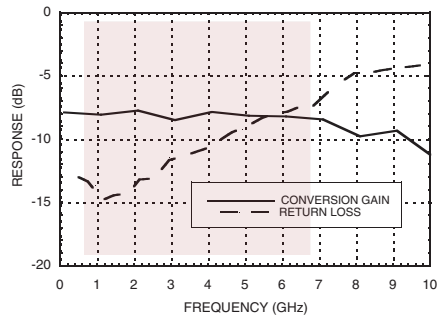
Conversion Gain vs. LO Drive



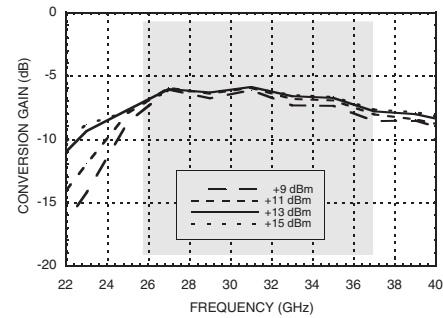
Return Loss



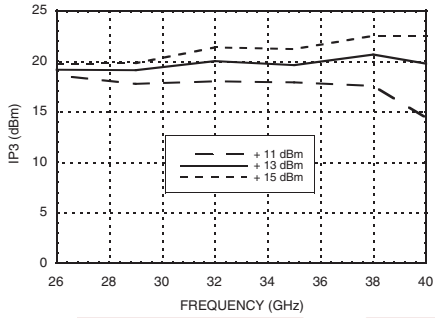
IF Bandwidth



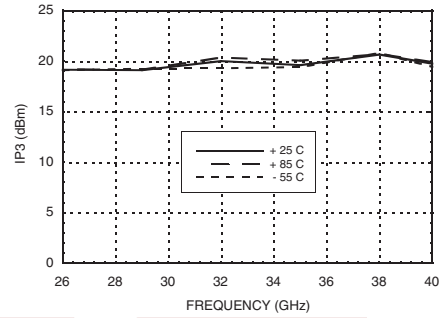
Upconverter Performance
Conversion Gain vs. LO Drive



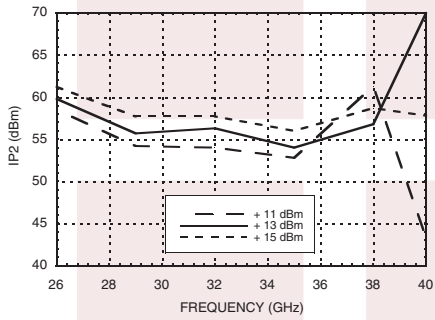
Input IP3 vs. LO Drive *



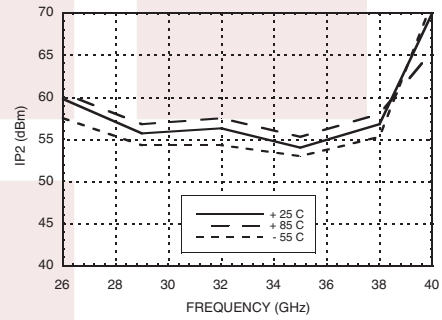
Input IP3 vs. Temperature*



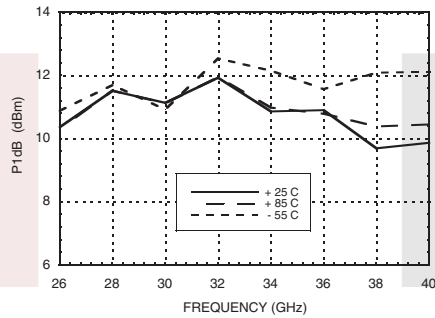
Input IP2 vs. LO Drive *



Input IP2 vs. Temperature *



Input P1dB vs. Temperature



MxN Spurious Outputs

mRF	nLO				
	0	1	2	3	4
0	xx	10	xx	xx	xx
1	23	0	45	xx	xx
2	xx	72	58	72	xx
3	xx	xx	103	68	90
4	xx	xx	xx	103	104

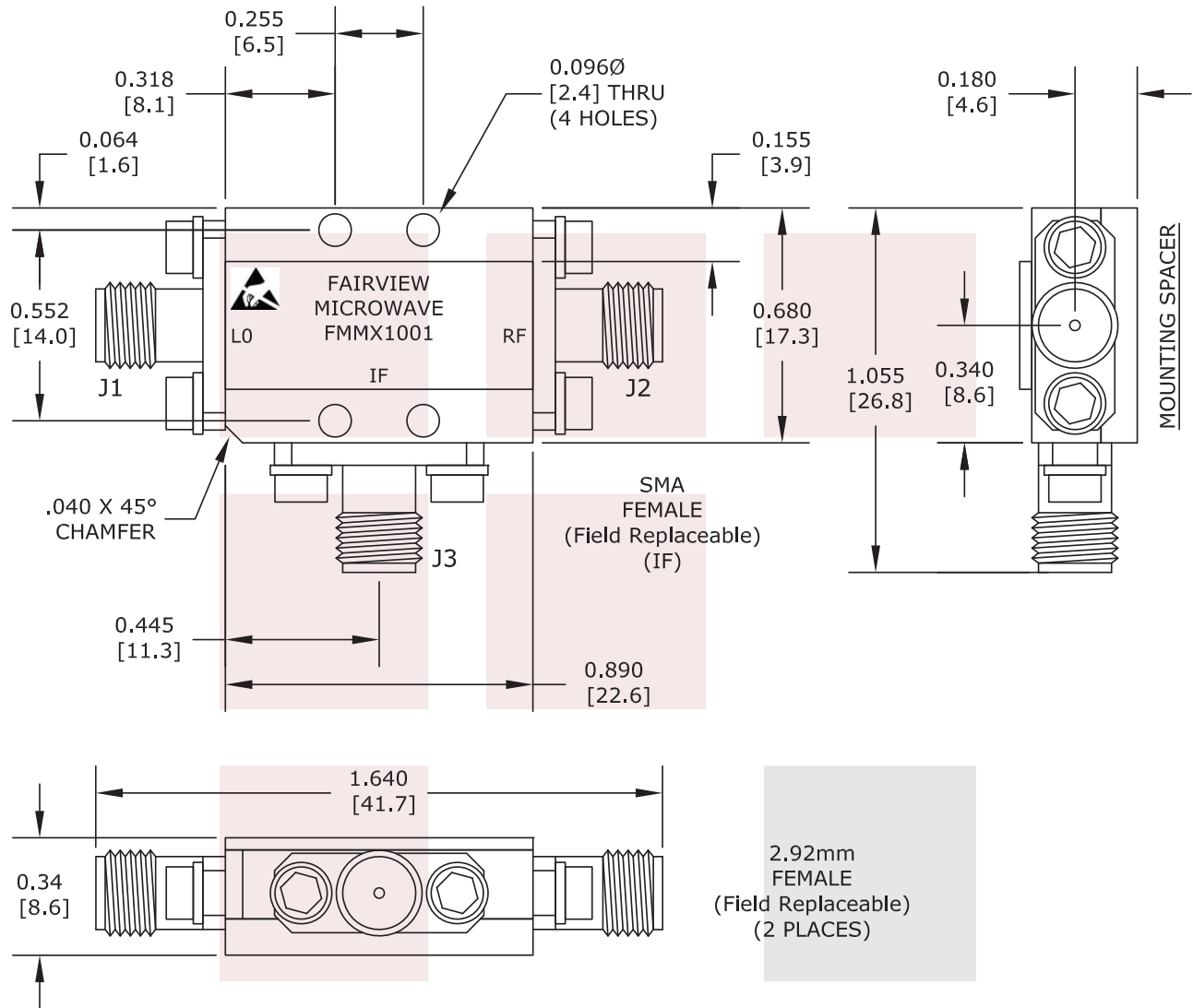
RF = 28 GHz @ -10 dBm
 LO = 27 GHz @ +13 dBm
 All values in dBc below the IF output power level.

Field Replaceable 2.92mm Double Balanced Mixer From 24 GHz to 38 GHz With an IF Range From DC to 8 GHz And LO Power of +13 dBm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [Field Replaceable 2.92mm Double Balanced Mixer From 24 GHz to 38 GHz With an IF Range From DC to 8 GHz And LO Power of +13 dBm FMMX1001](#)

URL: <https://www.fairviewmicrowave.com/field-replaceable-2.92mm-mixer-13-dbm-fmmx1001-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.



FAIRVIEW MICROWAVE INC. ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].			
TITLE Field Replaceable 2.92mm Double Balanced Mixer From 24 GHz to 38 GHz With an IF Range From DC to 8 GHz And LO Power of +13 dBm		DWG NO FMMX1001		CAGE CODE 3FKR5	
CAD FILE	051916	SHEET	SCALE	N/A	SIZE A 2233