

Field Replaceable 2.92mm Mixer From 11 GHz to 20 GHz With an IF Range From DC to 6 GHz And LO Power of +13 dBm

FMMX1004 is a double balanced mixer module that operates across an RF and LO frequency range from 11 GHz to 20 GHz with a wide IF frequency range of DC to 6 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 40 to 44 dB are the result of using optimized balun structures. The LO drive level is +13 dBm with typical conversion loss of 7 dB and an input IP3 level up to +17 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 I/Q 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= 100 MHz, LO = +13 dBm

Description	Min	Typ	Max	Units
RF Frequency Range	11		20	GHz
LO Frequency Range	11		20	GHz
IF Frequency Range	DC		6	GHz
Impedance		50		Ohms
RF Input Power			+25	dBm
LO Input Power		+13	+25	dBm
IF Input Power			+25	dBm



Applications:

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

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Performance by Frequency

Description	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range, RF & LO		12 - 16		11 - 20			GHz
Frequency Range, IF		DC - 6		DC - 6			GHz
Conversion Loss		7	9		8	11	dB
Noise Figure		6		7.5			dB
LO to RF Isolation	38	44		32	43		dB
LO to IF Isolation	36	40		36	41		dB
RF to IF Isolation	19	28		19	29		dB
IP3 (Input)		17		18			dBm
IP2 (Input)		44		41			dBm
1 dB Gain Compression (Input)		10		11			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]
 Height 0.36 in [9.14 mm]
 Weight 0.079 lbs [35.83 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 (visit www.FairviewMicrowave.com for current document)

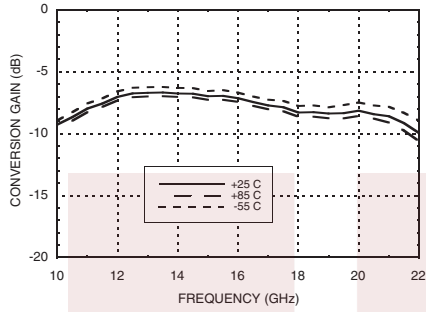
RoHS Compliant Yes

Plotted and Other Data

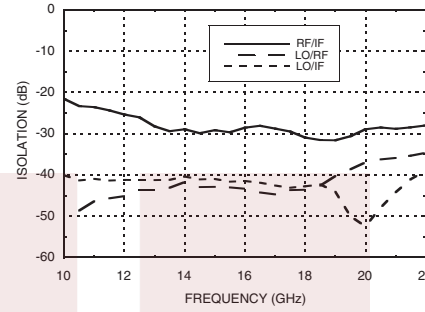
Notes:

Typical Performance Data

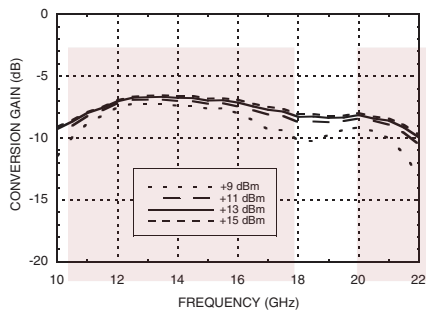
Conversion Gain vs. Temperature @ LO = +13 dBm



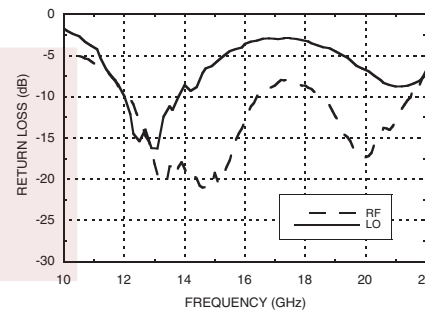
Isolation @ LO = +13 dBm



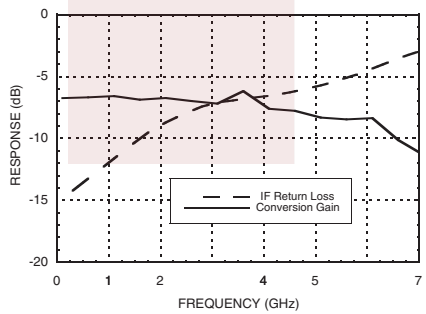
Conversion Gain vs. LO Drive



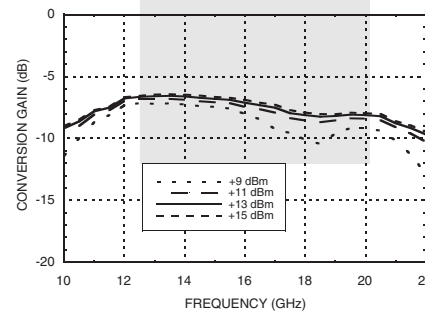
Return Loss @ LO = +13 dBm



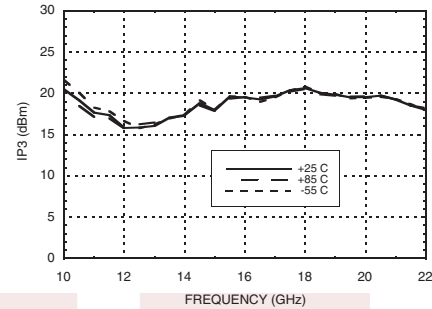
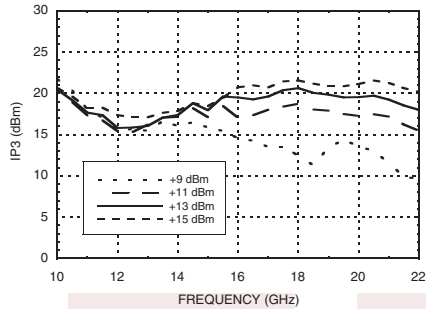
IF Bandwidth @ LO = +13 dBm



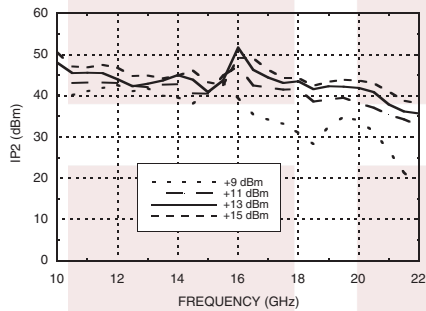
Upconverter Performance Conversion Gain vs. LO Drive



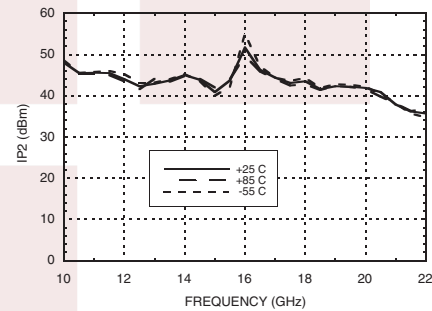
Input IP3 vs. Temperature @ LO = +13 dBm*



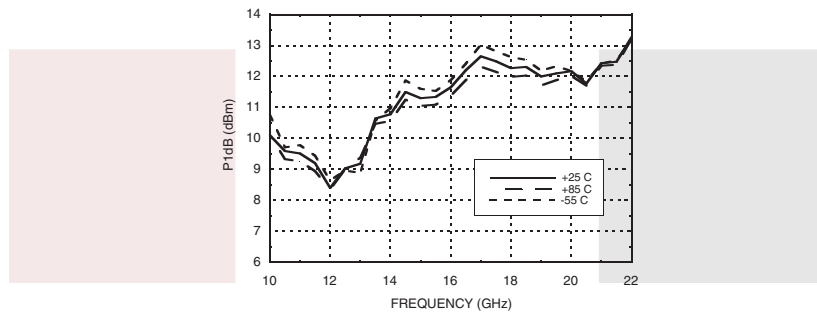
Input IP2 vs. LO Drive *



Input IP2 vs. Temperature @ LO = +13 dBm*



Input P1dB vs. Temperature @ LO = +13 dBm

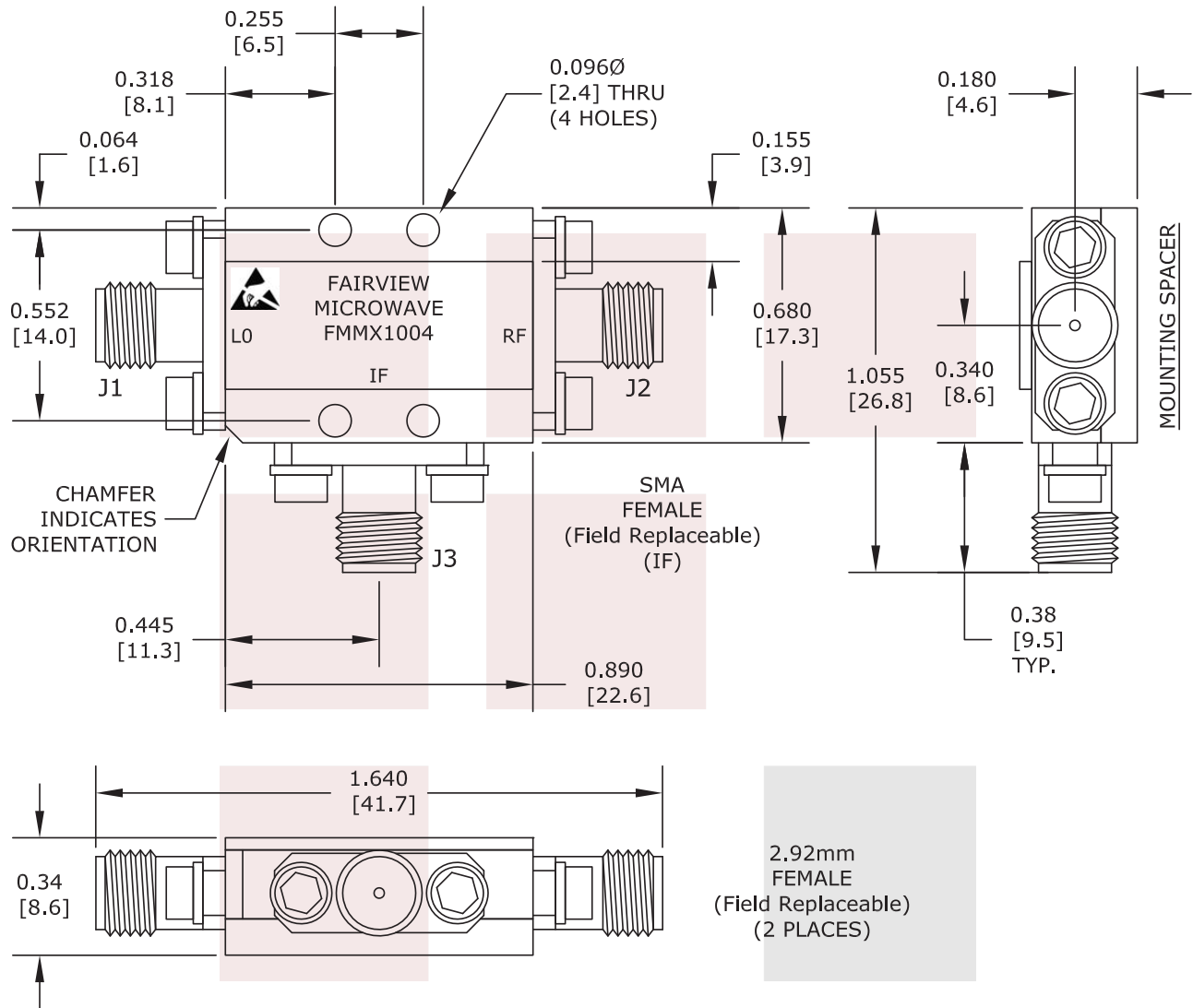


Field Replaceable 2.92mm Mixer From 11 GHz to 20 GHz With an IF Range From DC to 6 GHz And LO Power of +13 dBm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [Field Replaceable 2.92mm Mixer From 11 GHz to 20 GHz With an IF Range From DC to 6 GHz And LO Power of +13 dBm FMMX1004](https://www.fairviewmicrowave.com/field-replaceable-2.92mm-mixer-13-dbm-fmmx1004-p.aspx)

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TITLE Field Replaceable 2.92mm Mixer From 11 GHz to 20 GHz With an IF Range From DC to 6 GHz And LO Power of +13 dBm		DWG NO FMMX1004		CAGE CODE 3FKR5	
CAD FILE	042716	SHEET	SCALE	N/A	SIZE A 2233