

Field Replaceable SMA Mixer From 7 GHz to 14 GHz With an IF Range From DC to 5 GHz And LO Power of +13 dBm

The FMFX1003 is a double balanced mixer module that operates across an RF and LO frequency range from 7 GHz to 14 GHz with a wide IF frequency range of DC to 5 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 48 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 +20 dBm. The drop-in package is hermetically sealed with field replaceable SMA 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.



Features:

- Double Balanced Mixer Module
- RF/LO Frequency 7 to 14 GHz
- Wide IF Bandwidth DC to 5 GHz
- GaAs MESFET MMIC Technology
- No external components or matching circuitry
- LO Drive level +13 dBm
- Low Conversion loss 7 dB
- High LO/RF Isolation 45 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

Electrical Specifications TA = +25° C, IF= 100 MHz, LO = +13 dBm

Description	Min	Typ	Max	Units
RF Frequency Range	7		14	GHz
LO Frequency Range	7		14	GHz
IF Frequency Range	DC		5	GHz
Impedance		50		Ohms
RF Input Power			+25	dBm
LO Input Power		+13	+25	dBm
IF Input Power			+25	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]

Configuration

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

Environmental Specifications

Temperature

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

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Temperature Cycle
 Hermetic Seal

ESD Sensitive

MIL-STD-883, Method 101C, Cond B

Gross Leak MIL-STD-883 Method 1014C1/Fine Leak MIL-STD-883, Method 1014A2, 5 x 10⁻⁸ atm cc

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

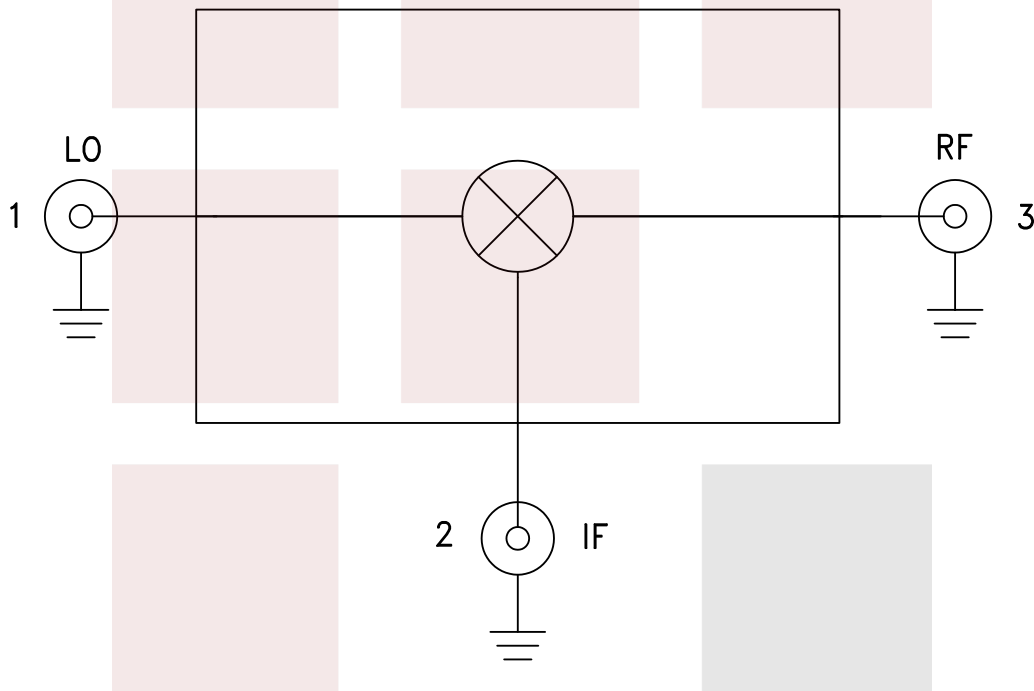


Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

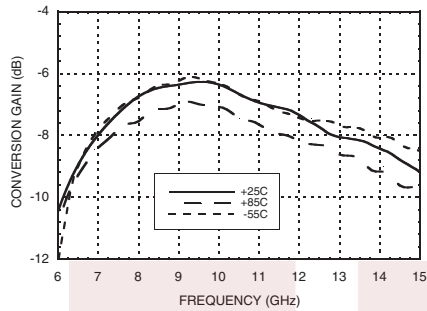
Notes:

Functional Block Diagram

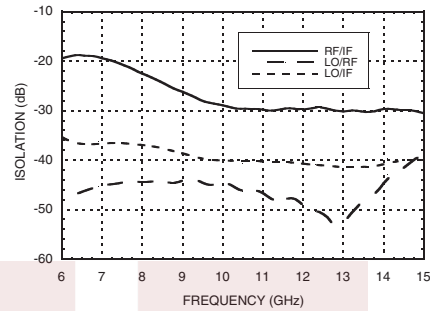


Typical Performance Data

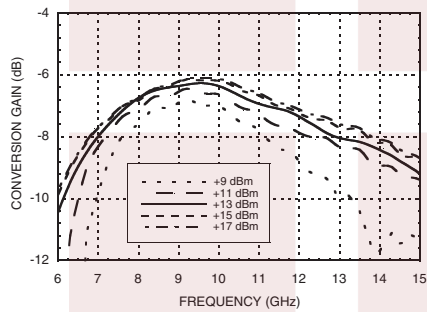
Conversion Gain vs. Temperature
@ LO = +13 dBm



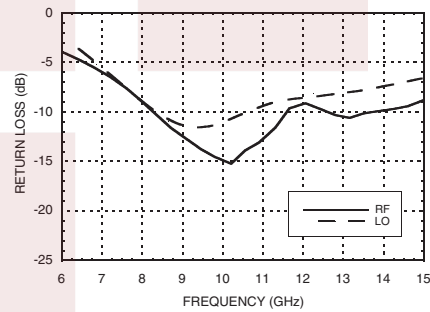
Isolation @ LO = +13 dBm



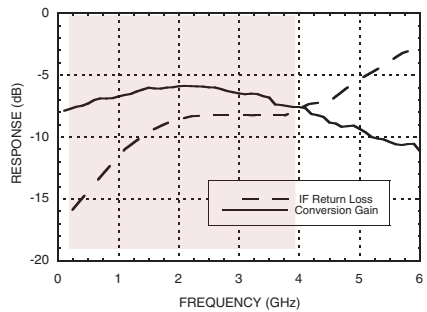
Conversion Gain vs. LO Drive



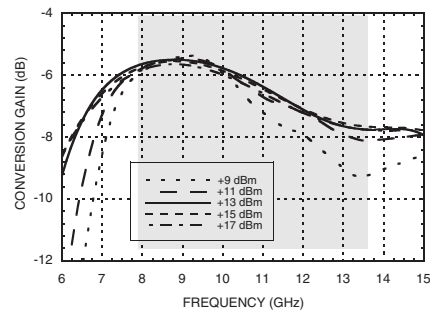
Return Loss @ LO = +13 dBm



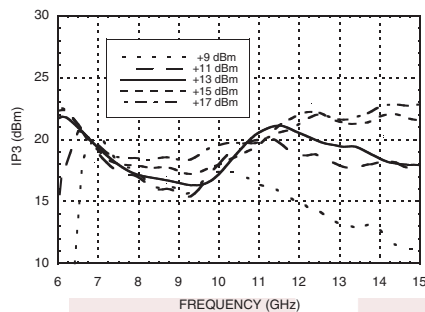
IF Bandwidth @ LO = +13 dBm



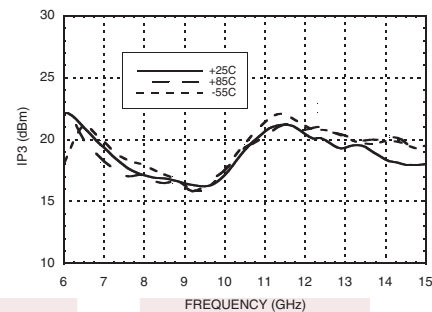
Upconverter Performance
Conversion Gain vs. LO Drive



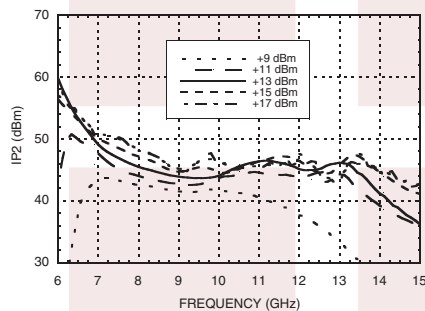
Input IP3 vs. LO Drive *



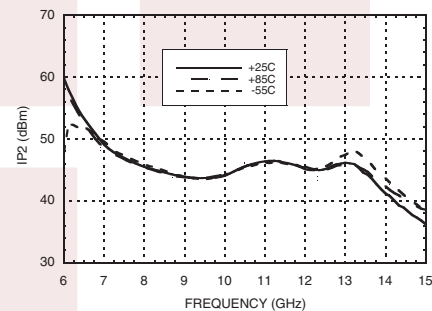
**Input IP3 vs. Temperature
@ LO = +13 dBm ***



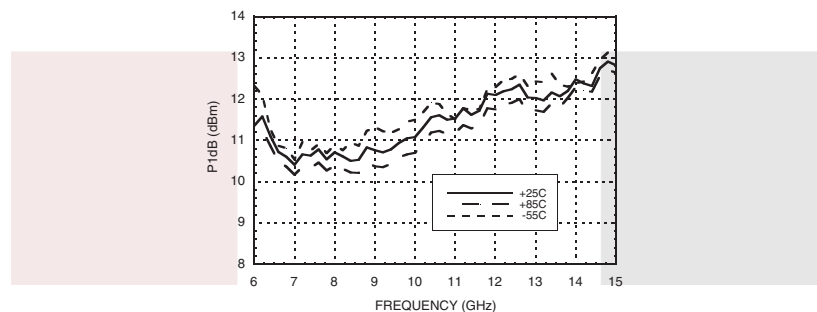
Input IP2 vs. LO Drive *



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



**Input P1dB vs. Temperature
@ LO = +13 dBm**

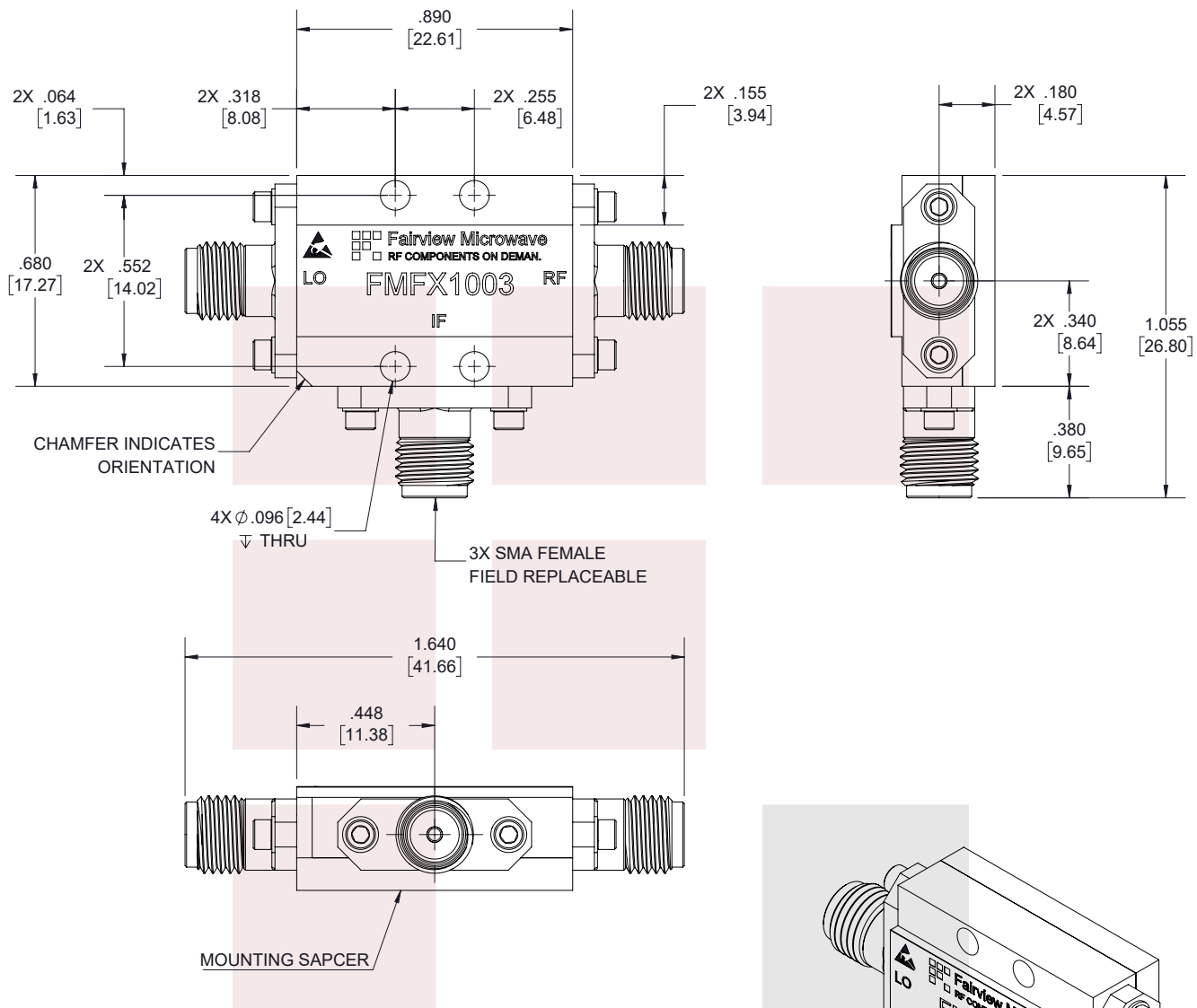


Field Replaceable SMA Mixer From 7 GHz to 14 GHz With an IF Range From DC to 5 GHz And LO Power of +13 dBm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [Field Replaceable SMA Mixer From 7 GHz to 14 GHz With an IF Range From DC to 5 GHz And LO Power of +13 dBm FMFX1003](https://www.fairviewmicrowave.com/field-replaceable-sma-mixer-13-dbm-fmfx1003-p.aspx)

URL: <https://www.fairviewmicrowave.com/field-replaceable-sma-mixer-13-dbm-fmfx1003-p.aspx>

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STANDARD TOLERANCES

.X	± 0.2
.XX	± 0.01
.XXX	± 0.005

*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES

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 SMA Mixer From 7 GHz to 14 GHz With an IF Range From DC to 5 GHz And LO Power of +13 dBm	DWG NO FMFX1003		CAGE CODE 3FKR5			
	CAD FILE 05/25/18	SHEET 1 OF 2	SCALE N/A	SIZE A	7361	