

Field Replaceable 2.92mm Mixer From 16 GHz to 32 GHz With an IF Range From DC to 8 GHz And LO Power of +13 dBm

FMMX1000 is a double balanced mixer module that operates across an RF and LO frequency range from 16 GHz to 32 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 8 dB and an input IP3 level up to +19 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 | 16 | | 32 | GHz |
| LO Frequency Range | 16 | | 32 | GHz |
| IF Frequency Range | DC | | 8 | GHz |
| Impedance | | 50 | | Ohms |
| RF Input Power | | | +27 | dBm |
| LO Input Power | | +13 | +13 | dBm |
| IF Input Power | | | +13 | dBm |



Features:

- Double Balanced Mixer Module
- RF/LO Frequency 16 to 32 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 8 dB
- High LO/RF Isolation 40 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

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Performance by Frequency

| Description | Min. | Typ. | Max. | Min. | Typ. | Max. | Units |
|-------------------------------|------|---------|------|---------|------|------|-------|
| Frequency Range, RF & LO | | 16 - 26 | | 26 - 32 | | | GHz |
| Frequency Range, IF | | DC - 8 | | DC - 8 | | | GHz |
| Conversion Loss | | 8 | 12 | | 8 | 12 | dB |
| Noise Figure | | 8 | 12 | | 8 | 12 | dB |
| LO to RF Isolation | 30 | 40 | | 25 | 35 | | dB |
| LO to IF Isolation | 30 | 40 | | 30 | 40 | | dB |
| RF to IF Isolation | 17 | 25 | | 20 | 28 | | dB |
| IP3 (Input) | | 19 | | | 19 | | dBm |
| IP2 (Input) | | 50 | | | 50 | | dBm |
| 1 dB Gain Compression (Input) | | 12 | | | 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]
 Height 0.36 in [9.14 mm]

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.



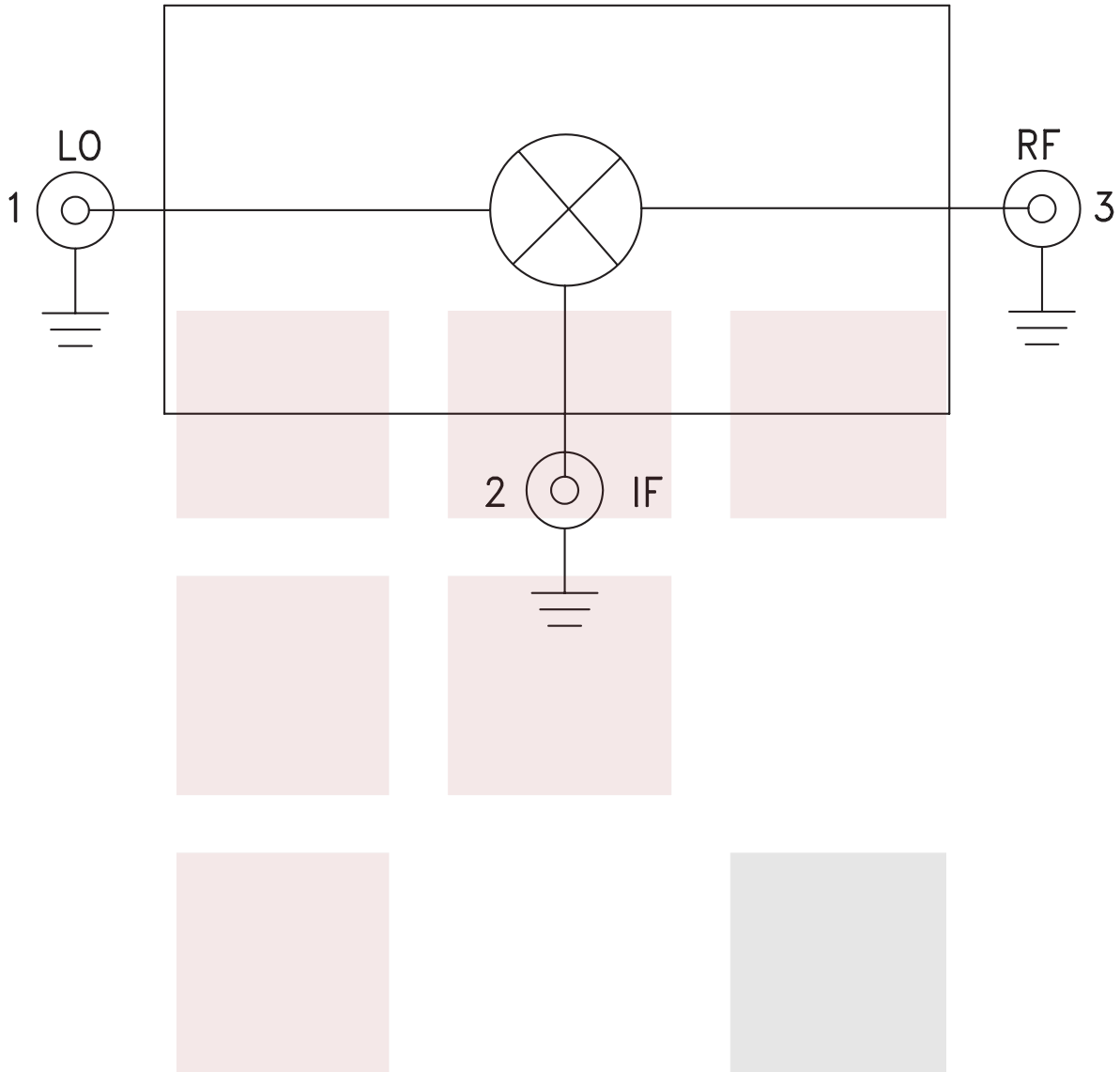
Compliance Certifications (visit www.FairviewMicrowave.com for current document)

RoHS Compliant Yes

Plotted and Other Data

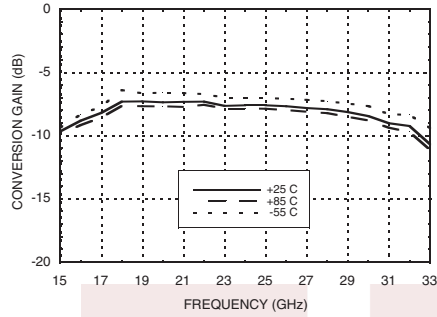
Notes:

Functional Block Diagram

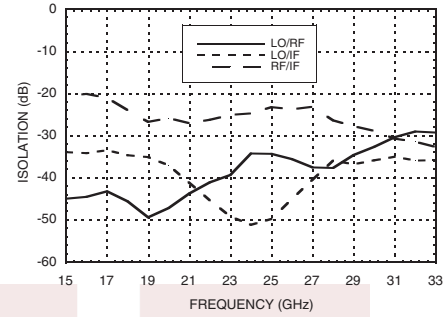


Typical Performance Data

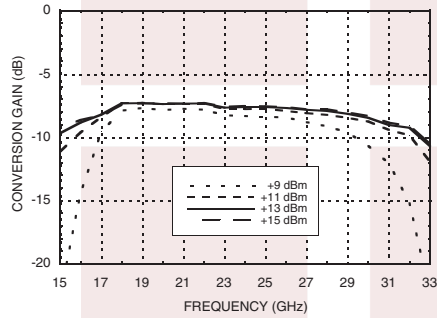
Conversion Gain vs. Temperature



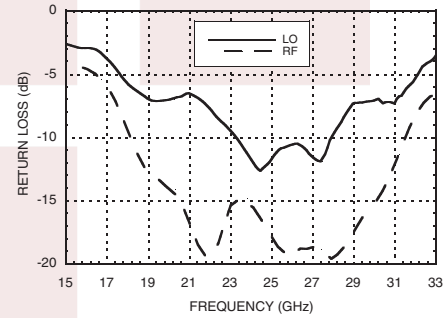
Isolation



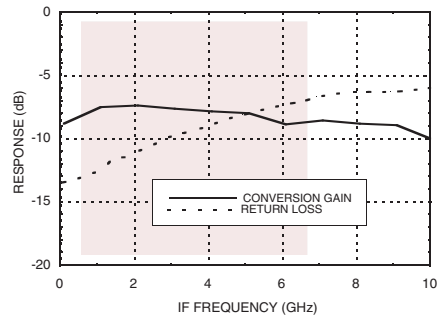
Conversion Gain vs. LO Drive



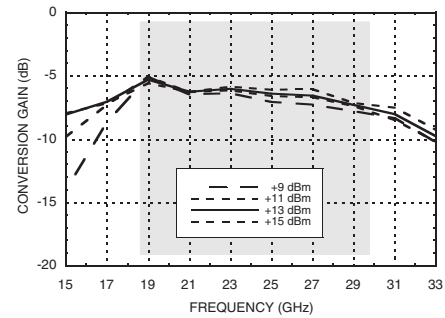
Return Loss



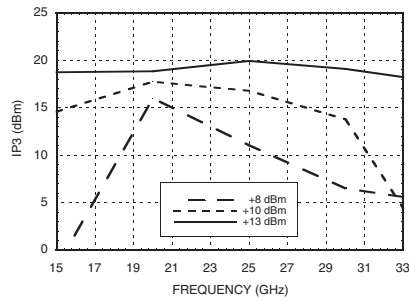
IF Bandwidth



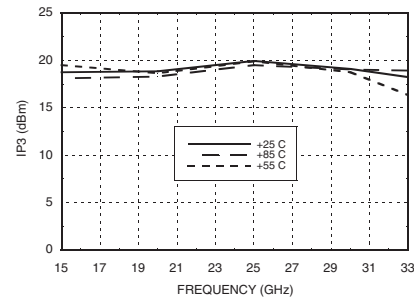
Upconverter Performance
Conversion Gain vs. LO Drive



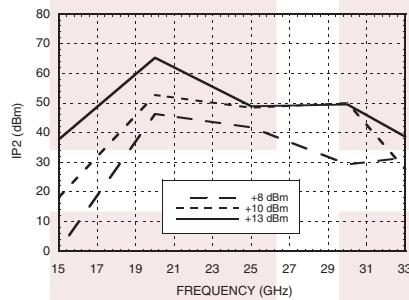
Input IP3 vs. LO Drive *



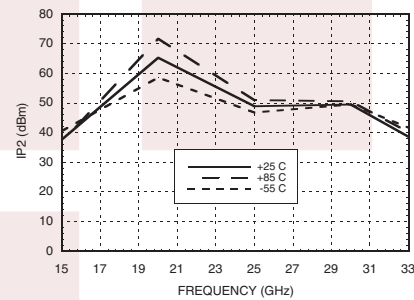
Input IP3 vs. Temperature *



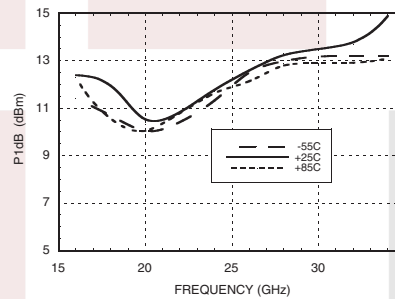
Input IP2 vs. LO Drive *



Input IP2 vs. Temperature *



Input P1dB vs. Temperature



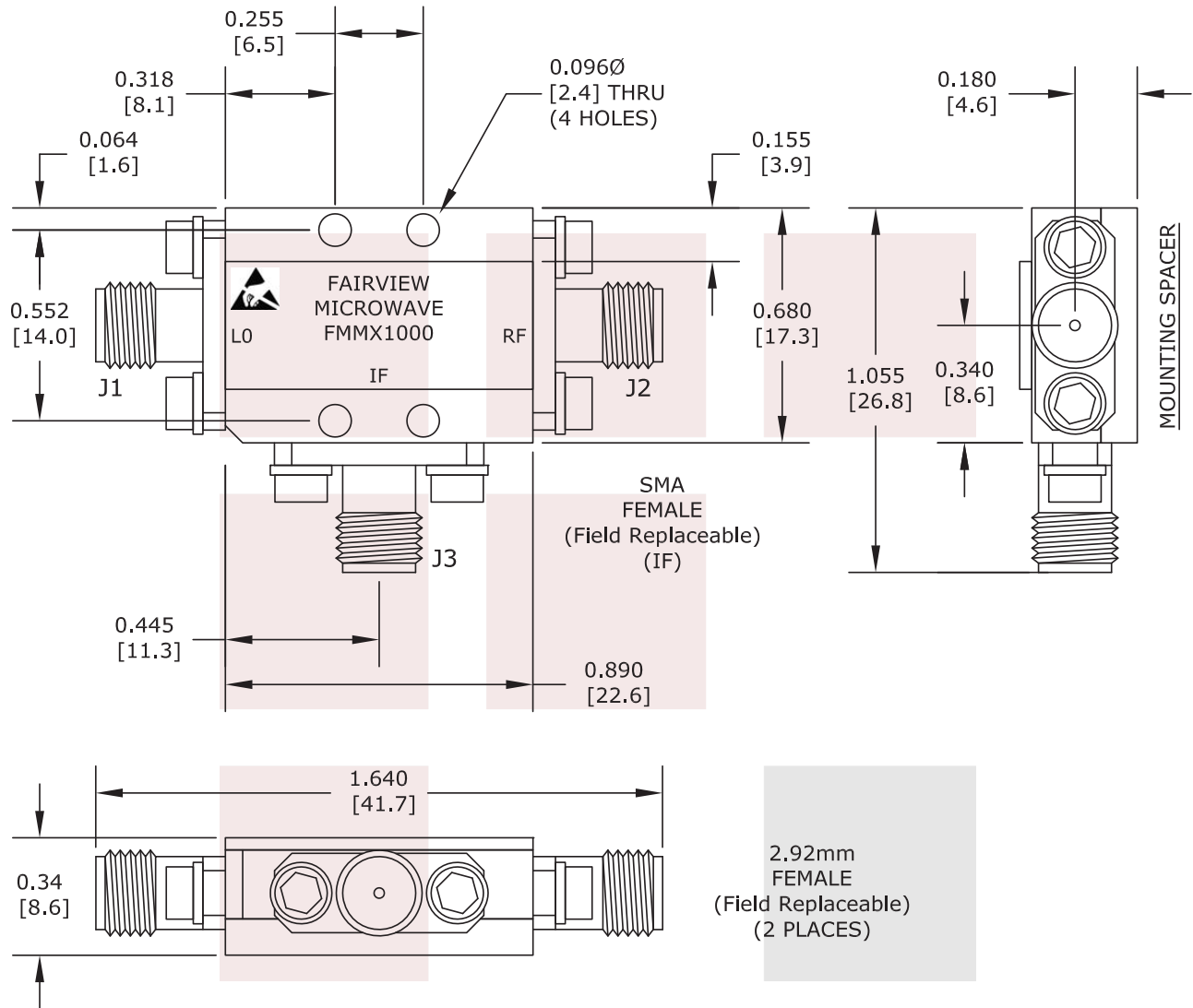
* Conversion gain data taken with external IF hybrid

Field Replaceable 2.92mm Mixer From 16 GHz to 32 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 Mixer From 16 GHz to 32 GHz With an IF Range From DC to 8 GHz And LO Power of +13 dBm FMMX1000](https://www.fairviewmicrowave.com/field-replaceable-2.92mm-mixer-13-dbm-fmmx1000-p.aspx)

URL: <https://www.fairviewmicrowave.com/field-replaceable-2.92mm-mixer-13-dbm-fmmx1000-p.aspx>

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| TITLE Field Replaceable 2.92mm Mixer From 16 GHz to 32 GHz With an IF Range From DC to 8 GHz And LO Power of +13 dBm | | DWG NO FMMX1000 | | CAGE CODE 3FKR5 | |
| CAD FILE | 051916 | SHEET | SCALE | N/A | SIZE A 2233 |