

## DUAL BALANCED MIXER, DC-14GHz

MODEL: LF-DBM-1044-14-LS

### FEATURES :

- RF/LO Coverage: 10-44GHz
- IF Operation: DC-14GHz
- High LO to RF isolation

### ELECTRICAL SPECIFICATIONS:

PARAMETER	MIN	Typ	Max	Units
RF Frequency	10		44	GHz
LO Frequency	10		44	GHz
IF Frequency	DC		14	GHz
Input P1dB		5		dBm
IF Input Power		-10		dBm
RF to IF Isolation		35		dB
RF to LO Isolation		45		dB
LO to IF Isolation		45		dB
Conversion Loss@IF=100MHz		10		dB
LO Input Power	7	10	15	dBm

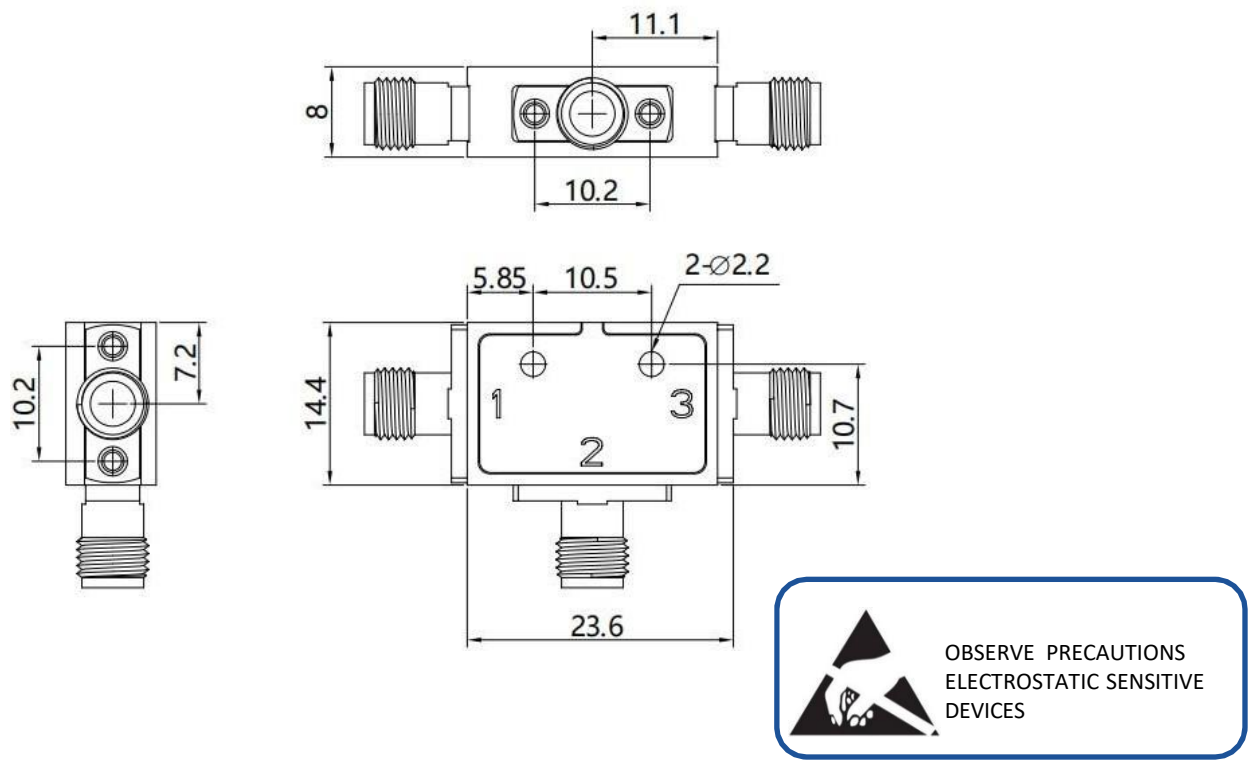
### MECHANICAL SPECIFICATIONS:

Parameter	Value	Units
Connector 1	2.4mm Female	
Connector 3	2.4mm Female	
Connector 2	SMA Female	
Size	22.2*14.4*8	mm

### ABSOLUT MAXIMUM RATINGS:

Parameter	Value
LO Input Power	+15 dBm
ESD sensitivity (HBm)	Class 0, passed 150V

**OUTLINE DRAWING:** Unit: mm



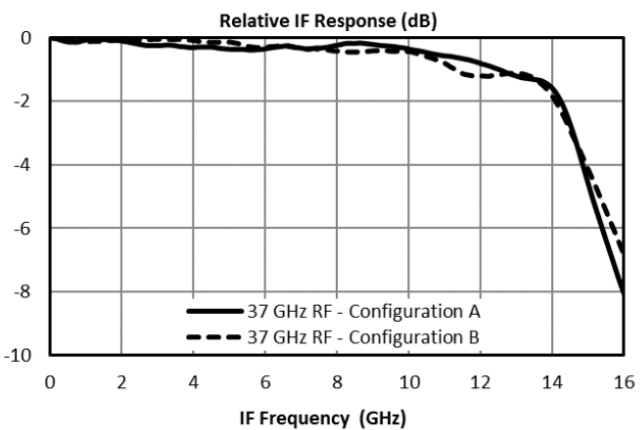
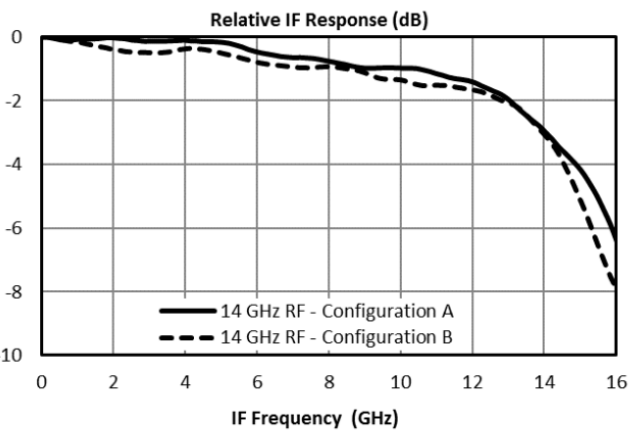
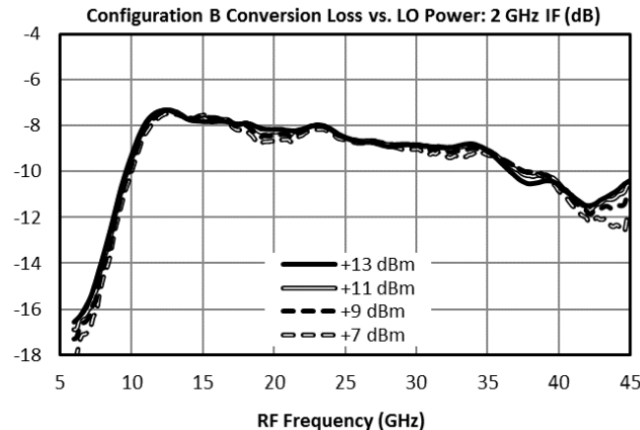
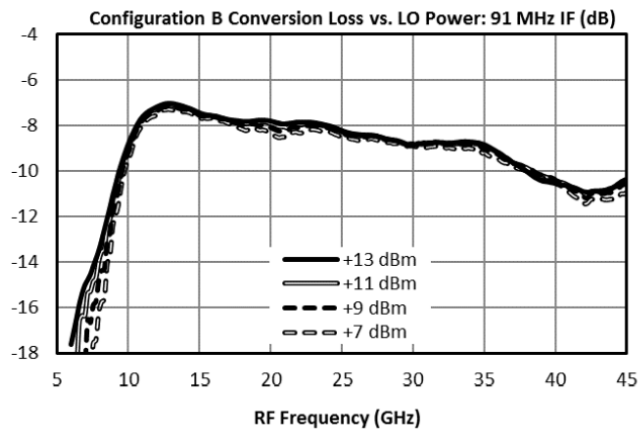
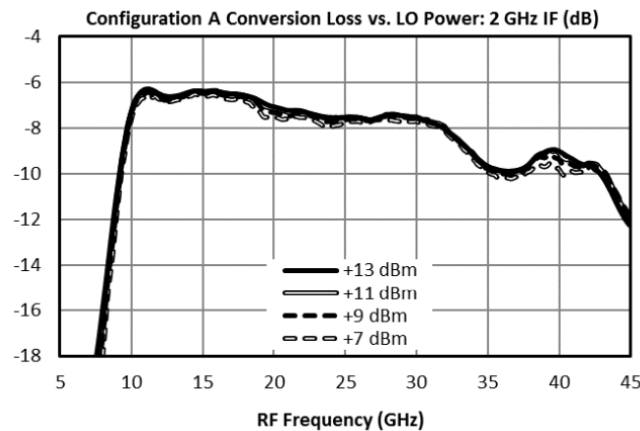
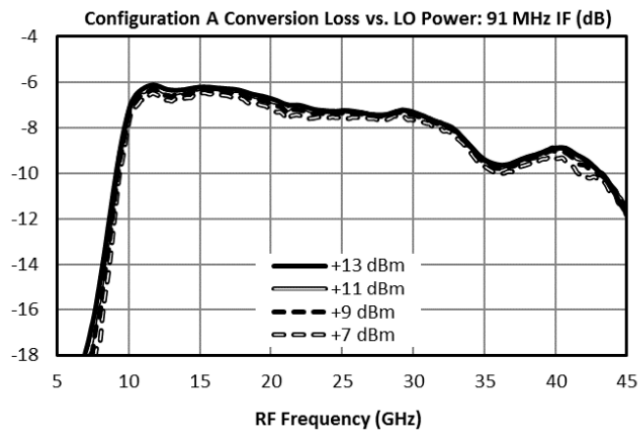
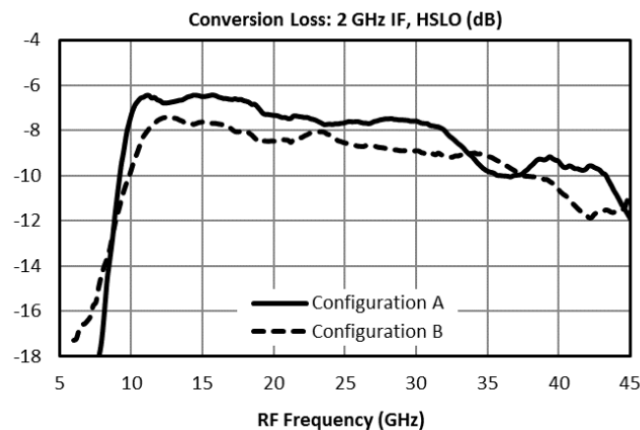
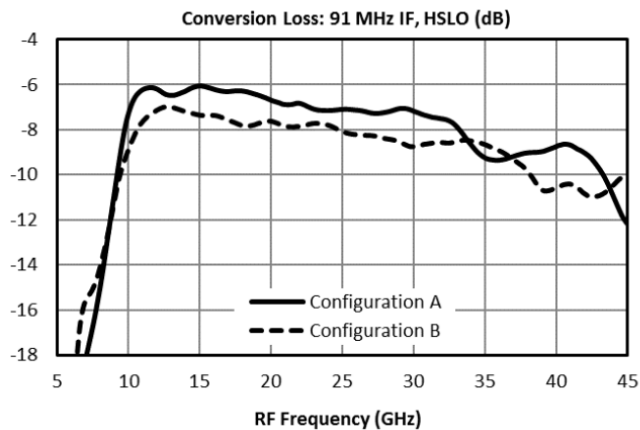
**PORT FUNCTIONS:**

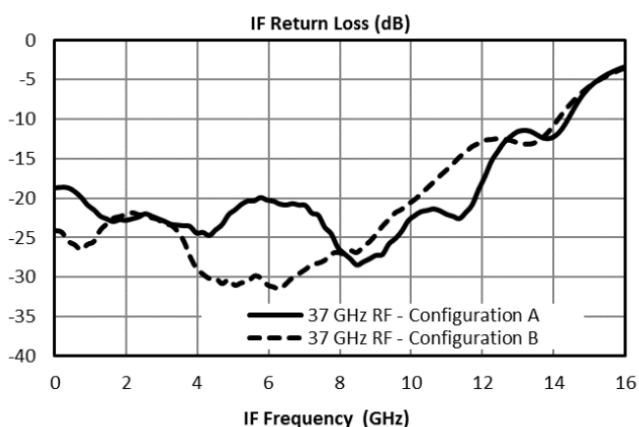
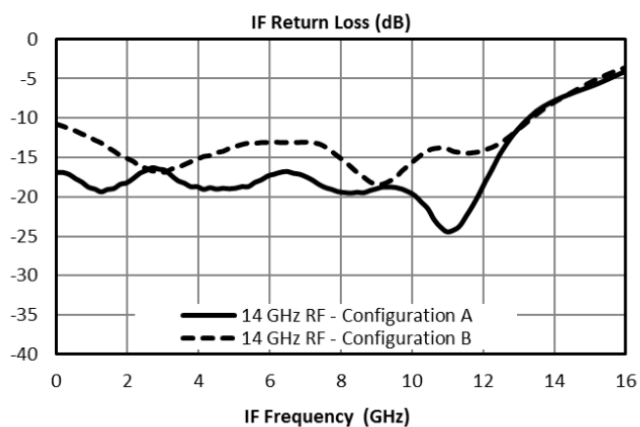
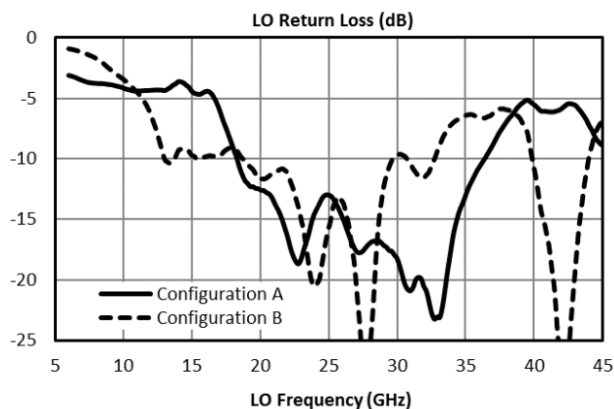
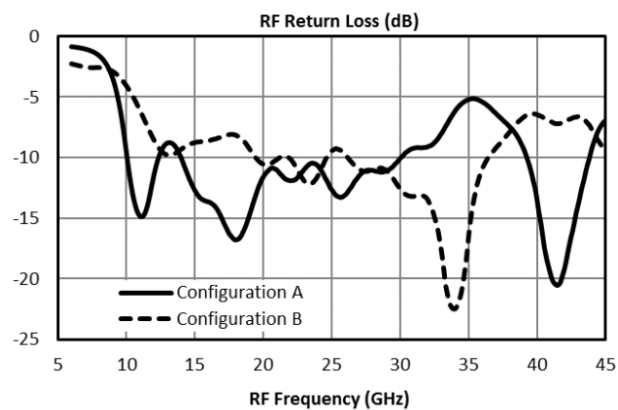
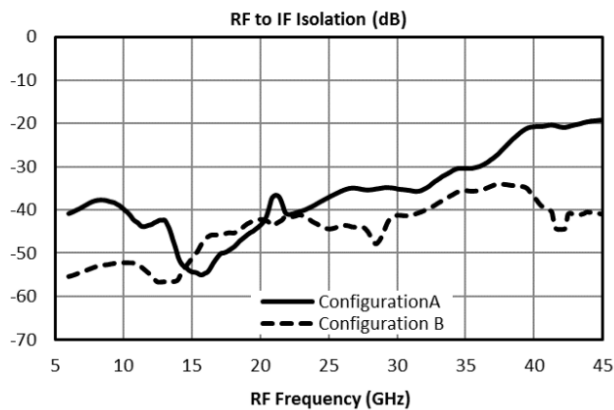
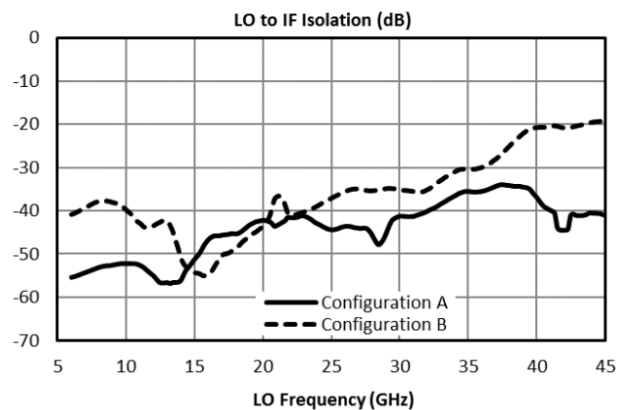
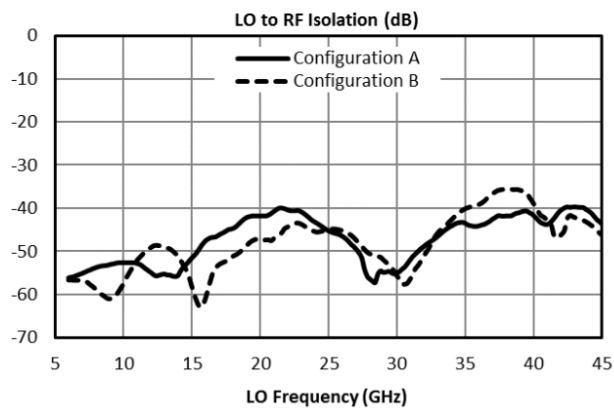
APPLICATION 1		APPLICATION 2	
PORT	Function	PORT	Function
port1	LO	port1	RF
port2	IF	port2	IF
port3	RF	port3	LO

**ENVIRONMENTAL CONDITIONS:**

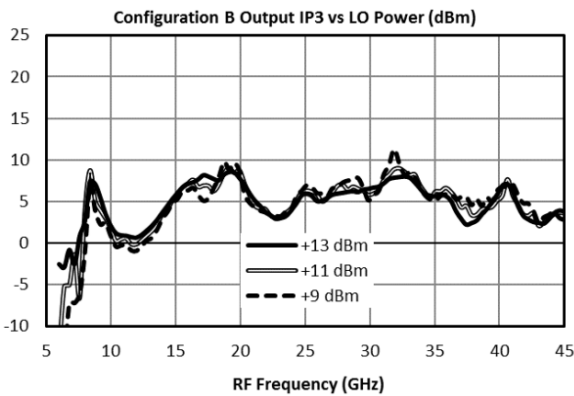
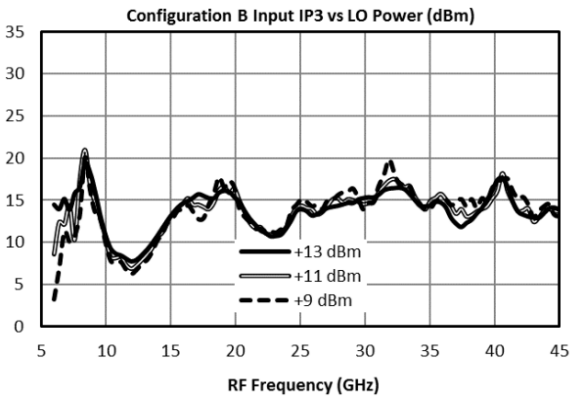
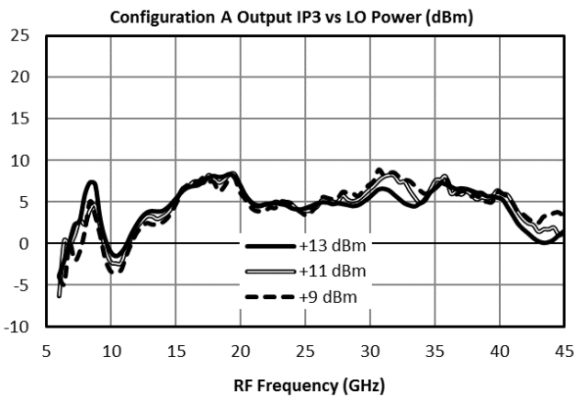
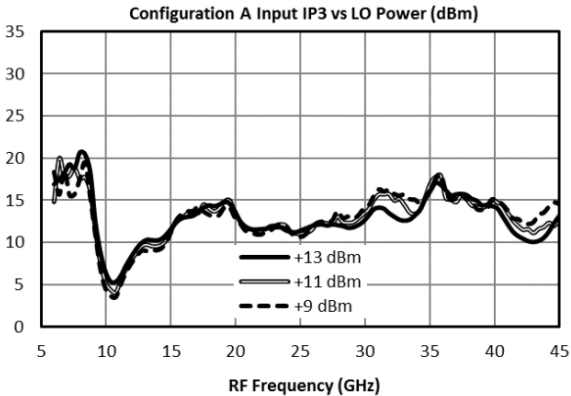
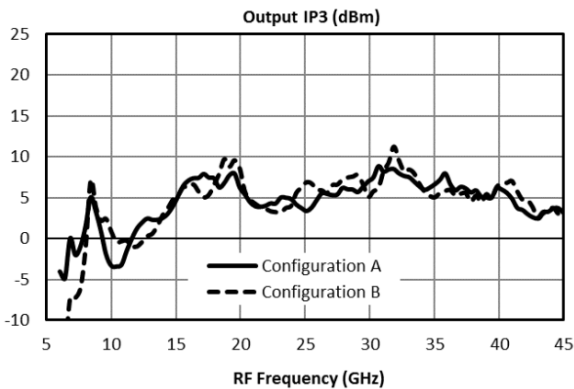
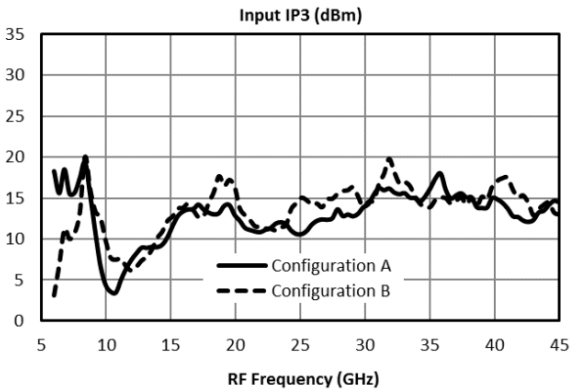
Parameter	Min	Typ	Max	Units
Operating Temperature	0		+50	°C
Non-operating Temperature	-45		+85	°C
Relative humidity		95		%
Altitude	50,000			feet
Shock / Vibration (MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
Shock (non-operating)	20G for 11msc half sin wave,3 axis both directions			

Typical Performance Plots:

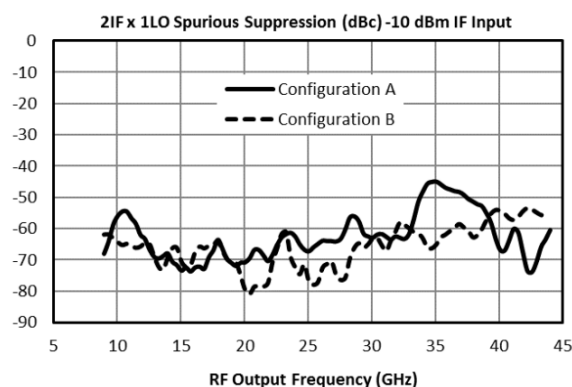
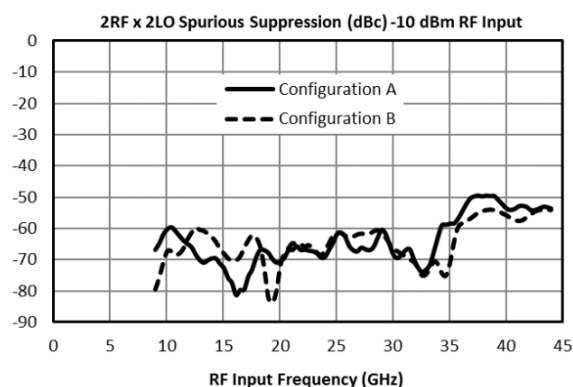
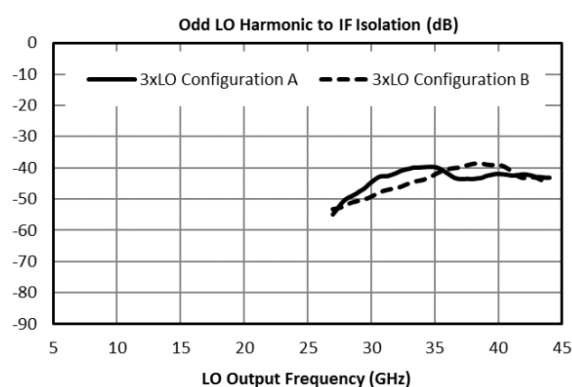
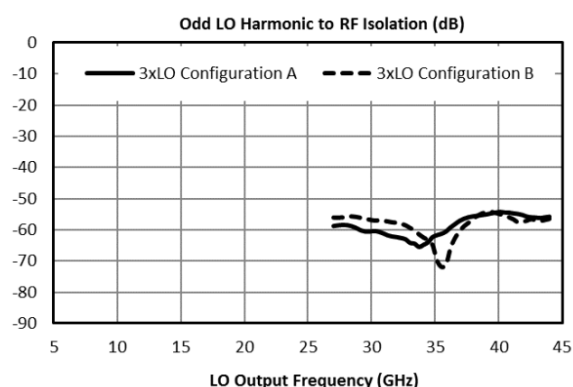
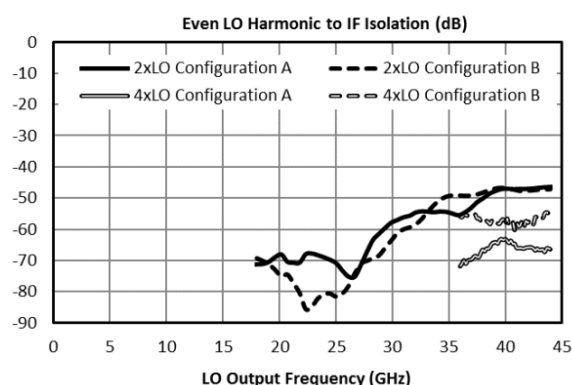
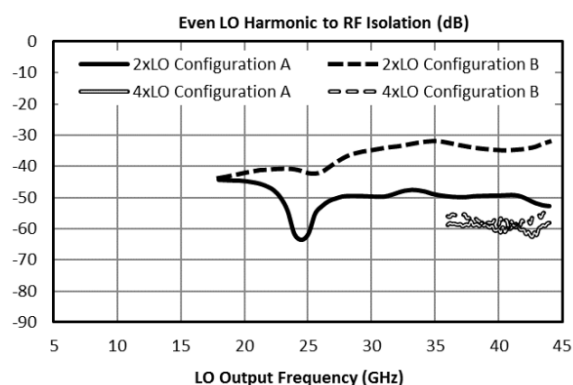




Typical Performance Plots: IP3



## Typical Performance Plots: LO Harmonic Isolation



## Mounting and Bonding Recommendations

LAUFTEX MMICs should be attached directly to a ground plane with conductive epoxy. The ground plane electrical impedance should be as low as practically possible. This will prevent resonances and permit the best possible electrical performance. Datasheet performance is only guaranteed in an environment with a low electrical impedance ground.

**Mounting** - To epoxy the chip, apply a minimum amount of conductive epoxy to the mounting surface so that a thin epoxy fillet is observed around the perimeter of the chip. Cure epoxy according to manufacturer instructions.

**Wire Bonding** - Ball or wedge bond with 0.025 mm (1 mil) diameter pure gold wire. Thermosonic wirebonding with a nominal stage temperature of 150 °C and a ball bonding force of 40 to 50 grams or wedge bonding force of 18 to 22 grams is recommended. Use the minimum level of ultrasonic energy to achieve reliable wirebonds. Wirebonds should be started on the chip and terminated on the package or substrate. All bonds should be as short as possible <0.31 mm (12 mils).

**Circuit Considerations** – 50  $\Omega$  transmission lines should be used for all high frequency connections in and out of the chip. Wirebonds should be kept as short as possible, with multiple wirebonds recommended for higher frequency connections to reduce parasitic inductance. In circumstances where the chip more than .001” thinner than the substrate, a heat spreading spacer tab is optional to further reduce bondwire length and parasitic inductance.

### **Handling Precautions**

**General Handling** Chips should be handled with care using tweezers or a vacuum collet. Users should take precautions to protect chips from direct human contact that can deposit contaminants, like perspiration and skin oils on any of the chip's surfaces.

**Static Sensitivity GaAs** MMIC devices are sensitive to ESD and should be handled, assembled, tested, and transported only in static protected environments.

**Cleaning and Storage:** Do not attempt to clean the chip with a liquid cleaning system or expose the bare chips to liquid. Once the ESD sensitive bags the chips are stored in are opened, chips should be stored in a dry nitrogen atmosphere.

### **Contacts Russia**

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