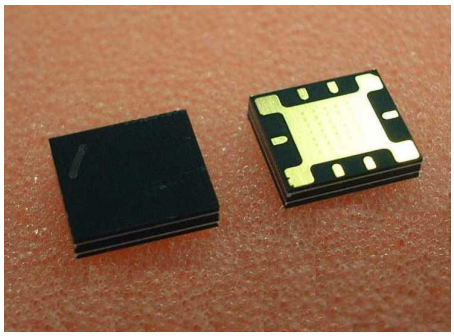
ES/FMM5117YE

K,Ka-Band Down-Converter MMIC



FEATURES

- High Conversion Gain, Gc = -11 dB (Typ.)
- High Linearity
- Broad RF Frequency Band ; 20 - 30 GHz
- SMT Laminate Package (YE Package)
- Impedance Matched Zin/Zout = 50Ω

DESCRIPTION

The FMM5117YE is a double, single balanced diode mixer down-converter MMIC. The device consists of a low noise mixer, LO amplifier, and LO frequency doubler. This downconverter is uniquely suited for point-to-point radios, point-to-multi point radios, and satellite communications.
Eudyna's stringent Quality Assurance Program assures the highest reliability and consistent performance.

ABSOLUTE MAXIMUM RATING

Item	Symbol	Rating	Unit
DC Supply Voltage	V_{DD}	8	V
RF Input Power	P_{inRF}	20	dBm
Lo Input Power	P_{inLO}	10	dBm
Storage Temperature	T_{stg}	-55 to +125	°C

RECOMMENDED OPERATING CONDITIONS

Item	Symbol	Recommend	Unit
DC Supply Voltage	V_{DD}	<=5	V
Input Local power level	P_{inLO}	0 to +5	dBm
Operating Case Temperature	T_C	-40 to +85	°C

ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

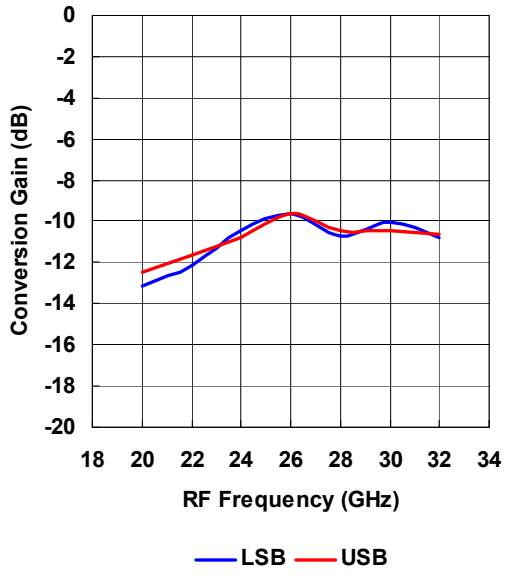
Item	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
RF Frequency Range	f_{RF}		20	-	30	GHz
LO Frequency Range	f_{LO}		9.5	-	16.5	GHz
IF Frequency Range	f_{IF}		0.1	-	3	GHz
Conversion Gain	G_C	V_{DD}=+5V P_{LO}=+3dBm P_{RF}=0dBm	-19	-11	-	dB
Conversion Gain Flatness (fixed fIF,swept fLO) (fIF=1.0GHz)	dG		-	5	-	dB
Conversion Gain Flatness (fixed f_{LO},swept f_{IF}) (f_{LO}=13.5GHz)	dG		-	2	-	dB
Return Loss (RF/LO)	RL_{RF}, RL_{LO}		-	-12	-	dB
Return Loss (IF)	RL_{IF}		-	-4	-	dB
3rd Order Input Intercept Point	I_{IP3}		-	22	-	dBm
Current Consumption @DC	$I_{DD(DC)}$		-	120	170	mA
Current Consumption @RF	$I_{DD(RF)}$		-	160	220	mA

ESD	Class 0	~ 250V

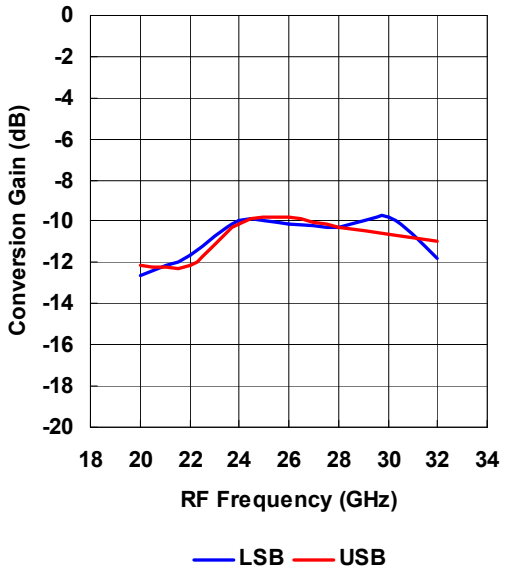
Note : Based on JEDEC JESD22-A114-C

Case Style	YE

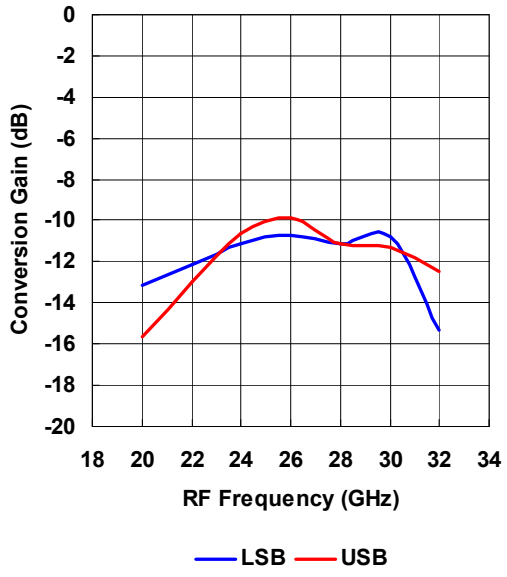
Conversion Gain vs. Frequency
@ f_{IF}=1GHz, V_{DD}=5V, $P_{in(RF)}$=0dBm, $P_{in(Lo)}$=+3dBm



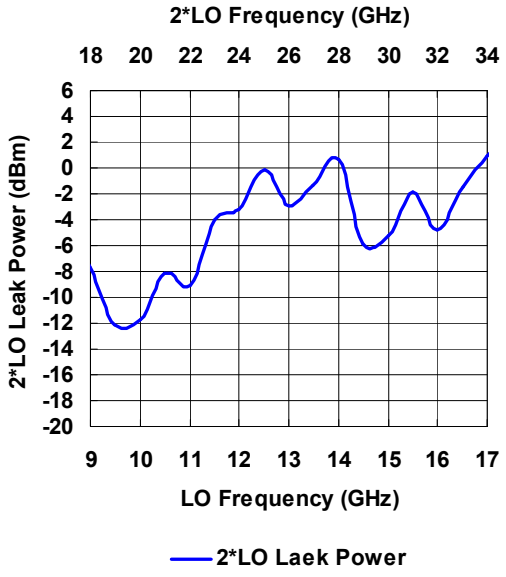
Conversion Gain vs. Frequency
@ f_{IF}=2GHz, V_{DD}=5V, $P_{in(RF)}$=0dBm, $P_{in(Lo)}$=+3dBm



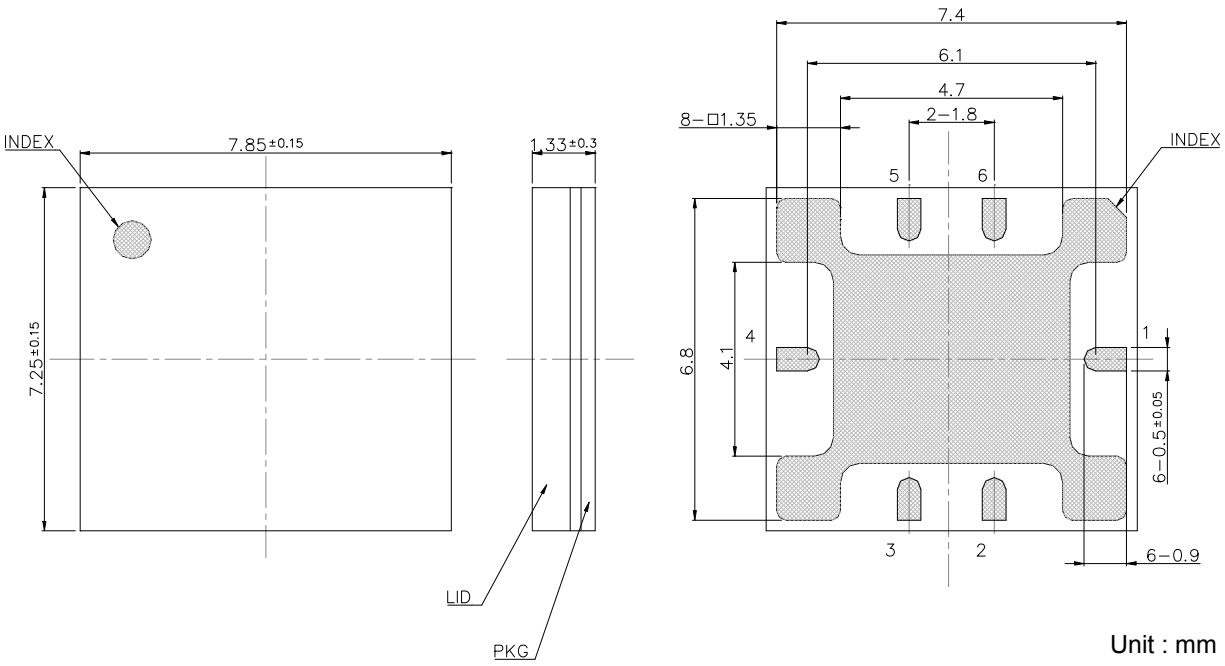
Conversion Gain vs. Frequency
@ f_{IF}=3GHz, V_{DD}=5V, $P_{in(RF)}$=0dBm, $P_{in(Lo)}$=+3dBm



2xLo Leak Power vs. Frequency
@V_{DD}=5V, $P_{in(Lo)}$=+3dBm



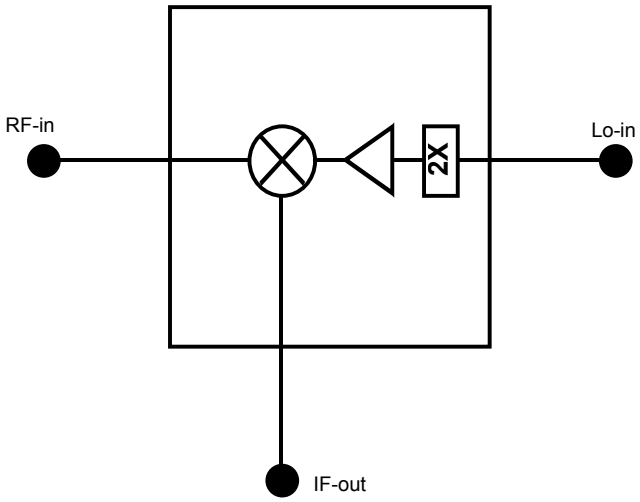
■ Package Outline

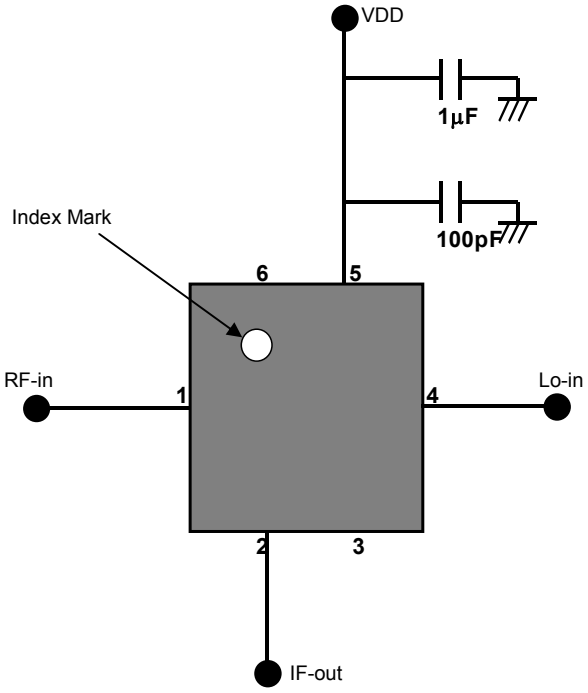


Unit : mm

Pin Assignment
1 : RF-input
2 : IF-Output
3 : N.C.
4 : Lo-Input
5 : VDD
6 : N.C.

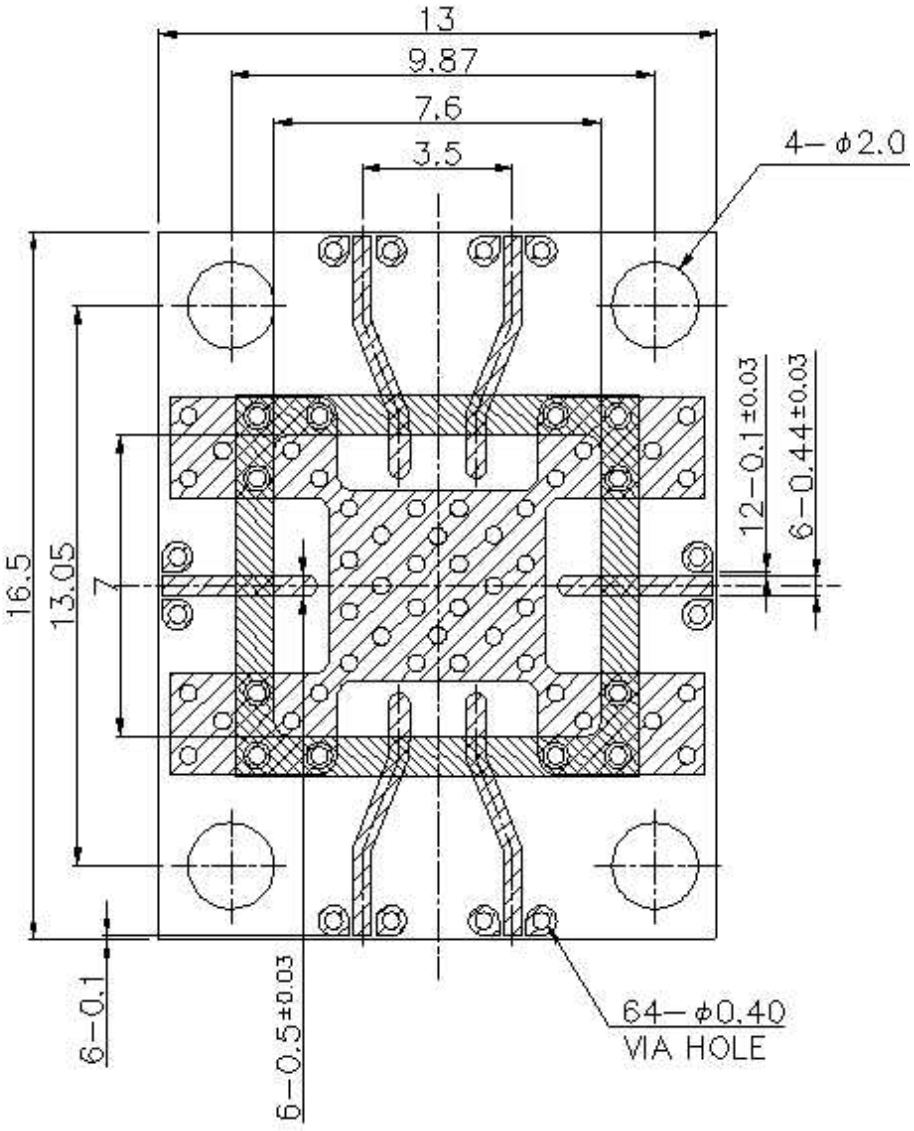
■ Block Diagram and External Component





Note) : The capacitors are recommended on the bias supply line, close to the package, in order to prevent video oscillations which could damage the module.

■ **Recommended Foot Pattern Layout**



Notes :

1.LAMINATE : Rogers Corporation RO4003, Thickness t=0.2mm, Cu Foil 18 μm

2. ▨ : Finish to copper foil ; Ni 0.1 μm min./Au 0.1±0.08 μm (Both side)

3. ▨ : Resist

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- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.

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