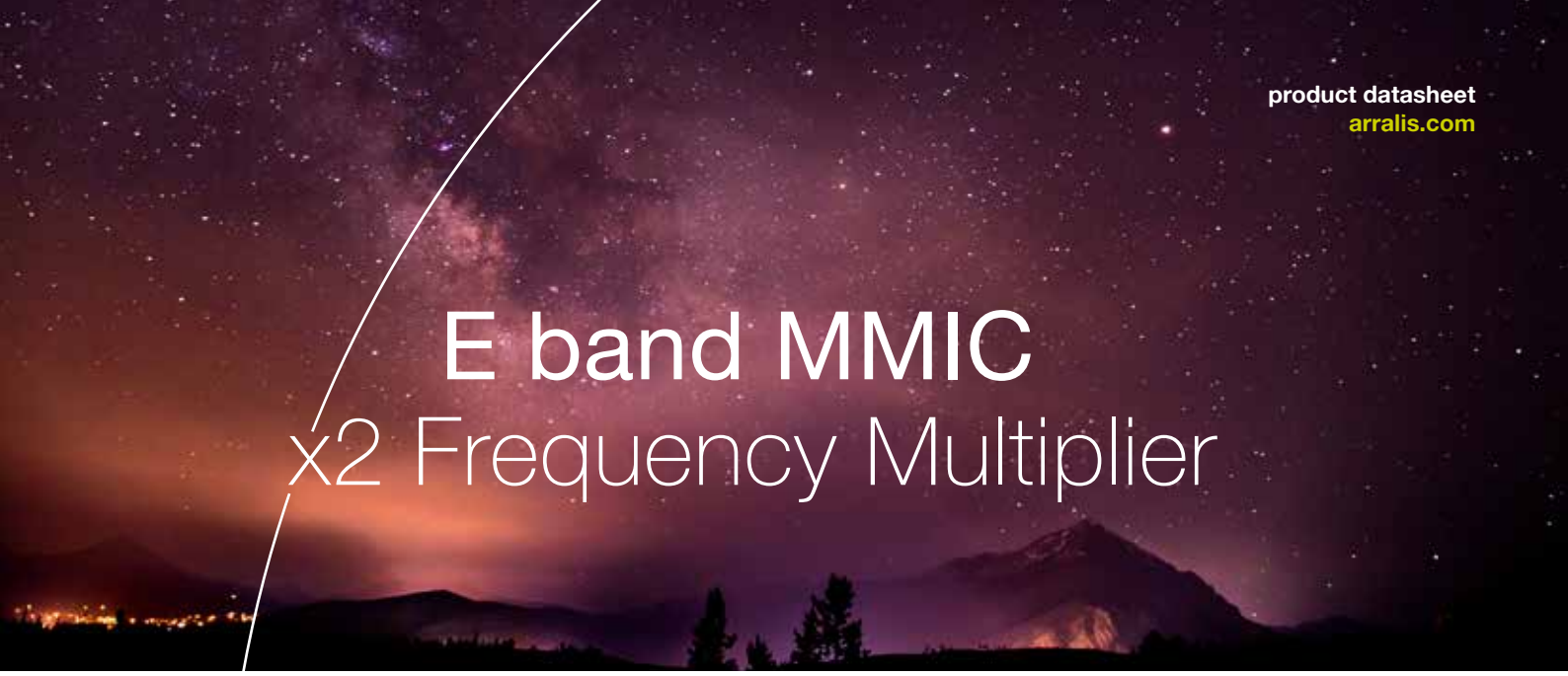


E band MMIC
x2 Frequency Multiplier

E-x2M-6085 Previously named CO-E1340315

GaAs MMIC x2 Frequency Multiplier 60-85GHz

Overview

E-x2M-6085 is a wideband passive Schottky diode frequency multiplier MMIC that transforms frequencies from the 30GHz to 42.5GHz band into the 60GHz to 85GHz frequency band, with <±1.5dB conversion loss variation in this region), this MMIC provides 4dBm output power with an input drive level of 18dBm.

With all bond pads and the backside of the MMIC are gold plated, the MMIC is compatible with precision die attach methods, as well as thermo-compression and thermosonic wire bonding, making it ideal for MCM and hybrid microcircuit applications. All data shown is measured with the chip in a 50 Ohm environment and contacted using RF probes.

Features

- 30 – 42.5GHz input.
- 60 – 85GHz output.
- 14dB conversion loss.
- 4dBm output power.

Applications

- Millimeter-wave imaging.
- High resolution radar.
- Sensing.
- P2P communications; short haul / high capacity / low interference links.
- Medical.
- Automotive radar.

Specification Overview

Parameter	Min.	Typ.	Max.	Units
Input Frequency	30		42.5	GHz
Output Frequency	60		85	GHz
Conversion Loss	16	14	10	dB
Gain Flatness		±1.5		dB
Input Power	10	16	18	dBm

Notes
All tests are carried out at 25°C.

Absolute Maximum Ratings

Parameter	Rating
RF Input Power	22dBm
Storage Temperature	−65°C to +150°C
Channel Temperature	+150°C
Operating Temperature	−40°C to +85°C

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features proprietary protection circuitry, damage may occur on devices subjected to ESD. Proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

Measured Performance Data

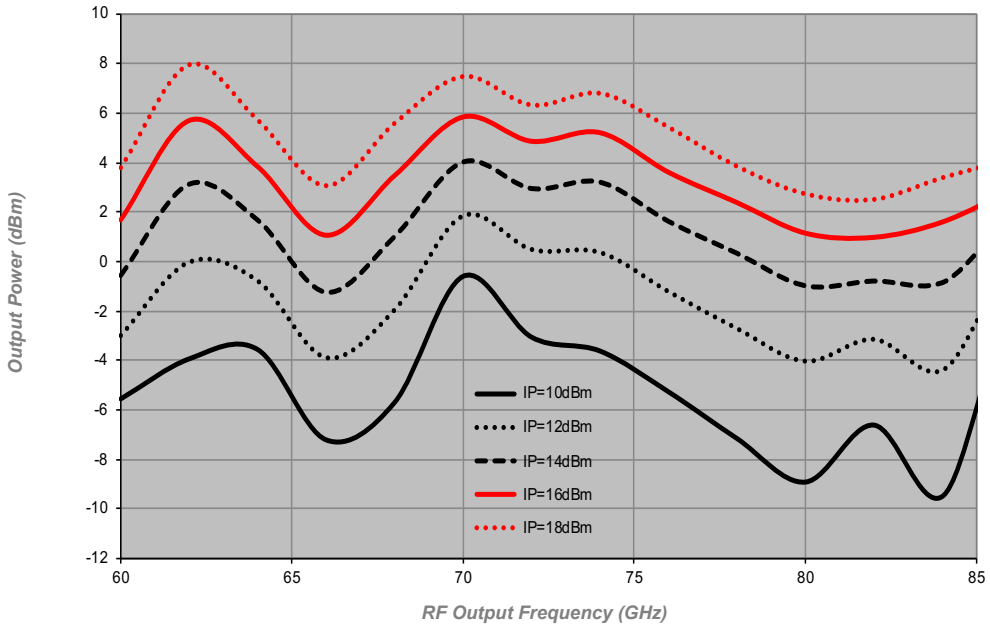


Figure 1
Output Power

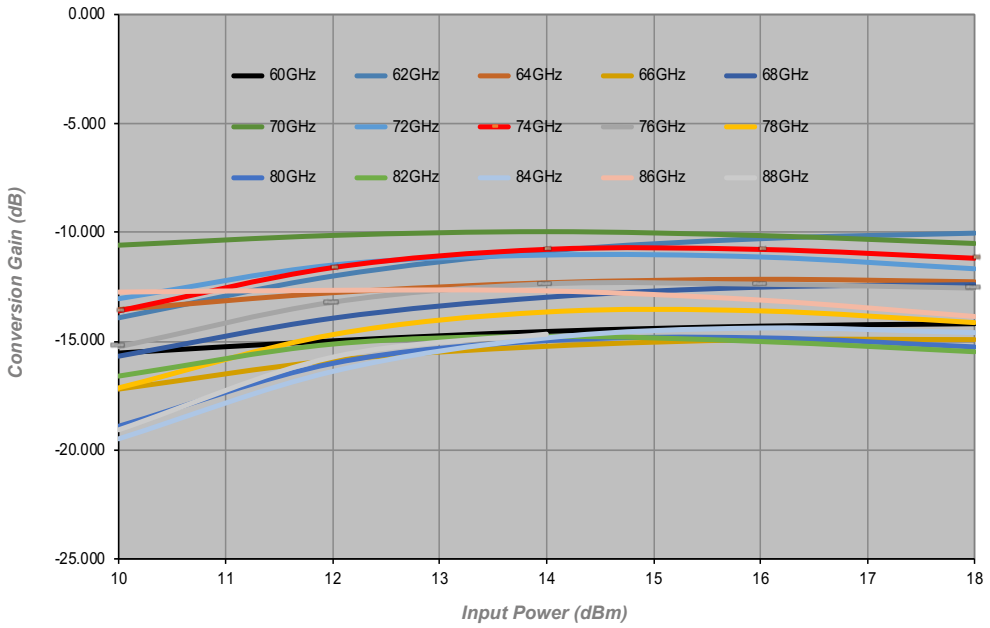
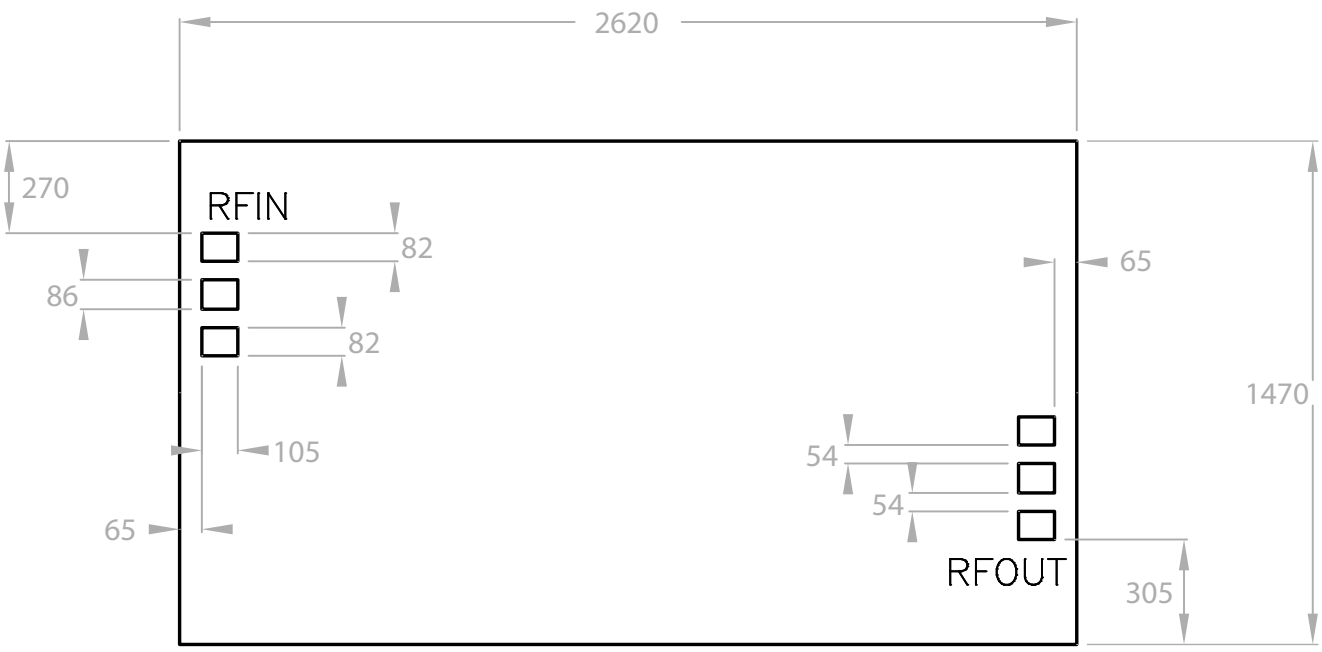


Figure 2
Conversion Gain

Outline Drawing

Die Packing Information
All die are delivered using gel-paks unless otherwise requested.

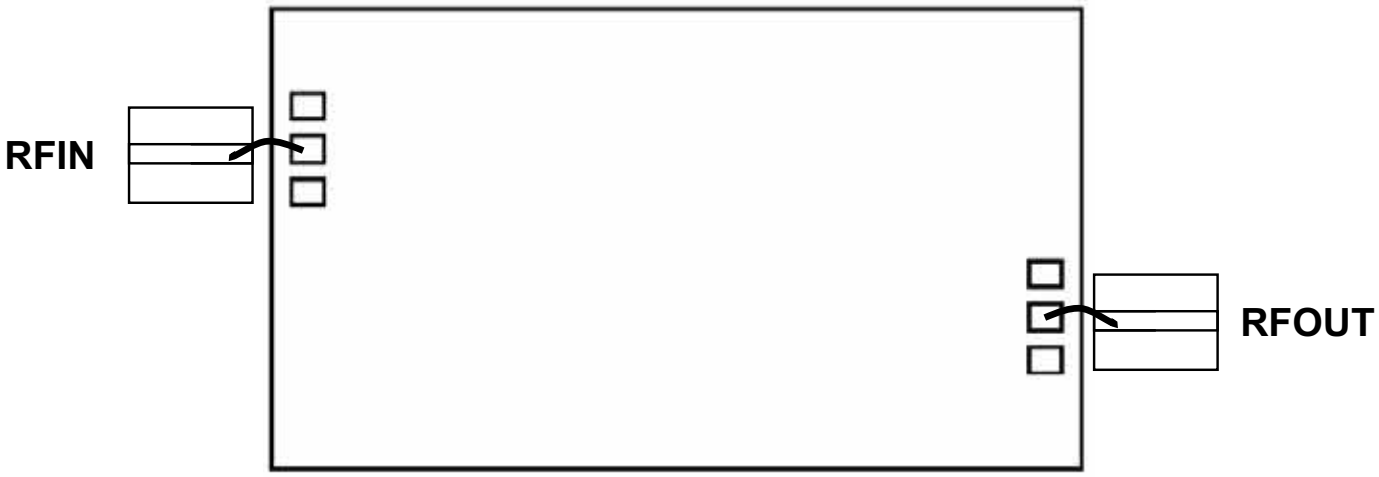


Notes

1. All dimensions are in um.
2. RF bond pads are 86 x 105um.
3. All pads have gold metalisation.
4. Gold backside metalisation.
5. Backside metal is ground.
6. Die thickness is 100um.

Pad Descriptions

Name	Description
RFIN	Input RF pad. This pad is ac coupled.
RFOUT	Output RF pad. This pad is ac coupled.
BOTTOM	The die backside must be connected to RF/DC ground.



General Notes on Assembly

Die should be mounted on conductive material such as gold-plated metal to provide a good ground and suitable heat sink, if necessary.

1. Attaching the die using Au/Sn preforms is preferable. The Eutectic melt for Au/Sn occurs at approximately 280°C so the die (plus mount and preform) is initially heated up to 180°C and then it is heated for approximately 10 seconds to 280°C using a nitrogen heat gun. The device will survive 10 seconds at this temperature. The static breakdown for GaAs devices is approximately 330°C.
2. Pure, dry nitrogen should be used as the heat source.
3. If the devices cannot be lifted/ placed by a vacuum device, then ESD die-lifting tweezers are preferable.
4. Supply lines should be decoupled with 100pF capacitors. Larger planar capacitors could be used if available.
5. Aluminium wire must not be used.

Arralis European Offices
t: +(44) 1793 239670 (UK)
e: sales@arralis.com

arralis.com

Arralis USA Office
+(1) 386 301 3249 (USA)
e: emilie.wren@arralis.com