Frequency Tripler 229B
High-Efficiency 690 – 780 GHz

Bias-able Frequency Tripler in WR-1.2 Based on ACST's High-Power Multiplier Technology.

229x series is a family of passive frequency triplers which requires bias. These triplers are based on ACST high-power multiplier technology, covering frequency range between 600 GHz and 900 GHz. This series allows for building cost-effective high-power MM-Wave sources in combination with ACSTs 1213x mm-wave sources covering the 200-300 GHz frequency range.

All multiplier designs within this series are based on balanced configuration to suppress undesired harmonics. These triplers provide a conversion efficiency of typically >2-4 % within frequency bandwidth of about 12-17 %, and they can reliably handle up to 50 mW of input power. For even higher power level requirements please ask ACST for availability of ultrahigh-power versions.

Model 229B is the standard power version of this family. It requires input signal within frequency range of 230 to 260 GHz generating output signal within frequency range of 690 to 780 GHz. Bias control is required for optimal operation at specified input power levels. ACST usually provides a 711C bias box calibrated according to customer specification for typically available input power.

Various options can optionally be offered and integrated on customer request:

- Horn antenna (for coupling the output signal to free space),
- Waveguide sections compatible with the output RF-port
- Waveguide Variable or fixed Attenuator
- Dedicated 1213B Source to provide optimal input RF power

Please consult sales@acst.de for available options for this product type

Product Features

> Compactness & High-Efficiency

> Large bandwidth

> Flat response

Application Areas

> Laboratory instrumentation

> MM-wave FMCW-Radar

> Active imaging

> 5G Telecommunications

> LO Source for MM/SubMM wave heterodyne receivers

Technical Specification

	Minimum	Typ	Maximum
Input Port (UG 387/U-M)		WR-3.4	
Input Frequency (GHz)	230 (225)		260 (265)
Input Power (dBm)	+10	+15	+18
Output Port (UG 387/U-M)		WR-1.2	
Output Frequency (GHz)	690 (675)		780 (795)
Output Power (dBm)	-7	+2	+5
Conversion Efficiency* (%)	1	4	6
Input VSWR	1.45:1	1.6:1	1.9:1
Material		Brass	
Finishing		Gold-Plated	

* Please, do not exceed maximum input power. The conversion efficiency above typical input power will reduce significantly. Lower Efficiency can be expected at input power lower than minimum specified and near the band edges.

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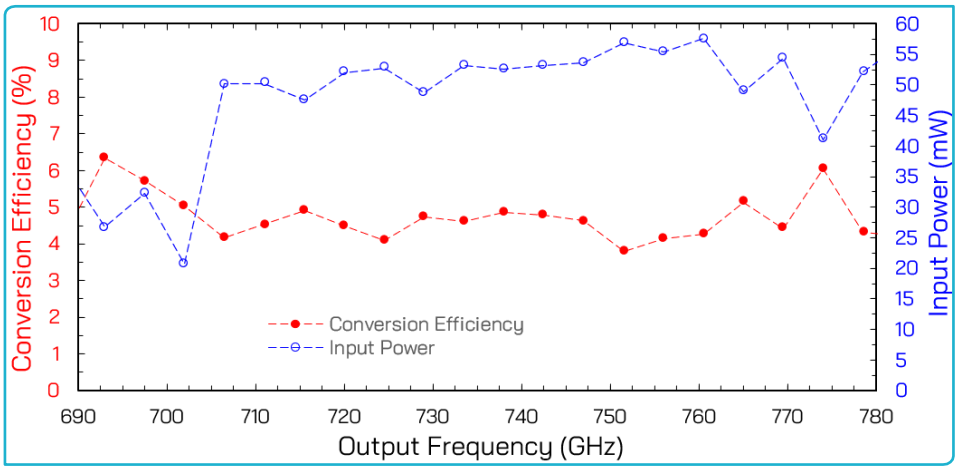
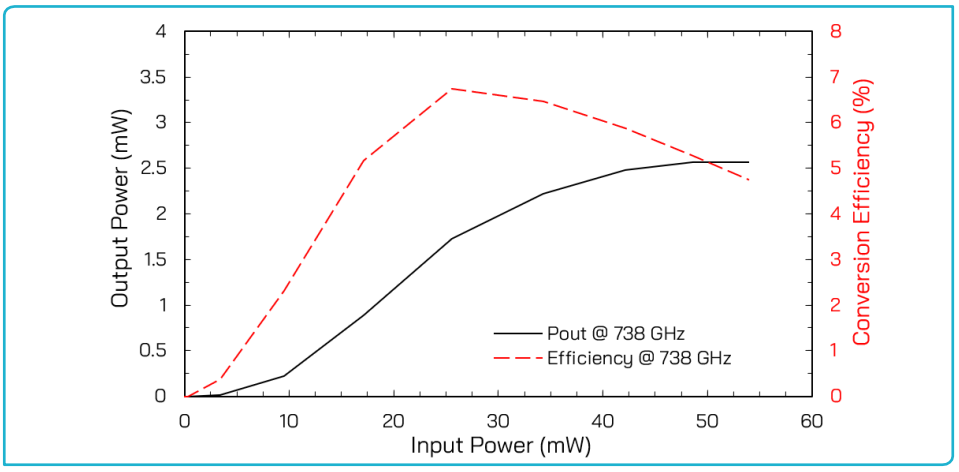
Typical Performance





Absolute Maximum Ratings

	Maximum
Input Power (dBm)	+18
Operational Temperature (at the surface) and Humidity	5 °C to 45 °C // 0% to 80%
Storage Temperature and Humidity	5 °C to 65 °C // 0% to 80%

Order information

- Please indicate product name and type.
- Please indicate expected input power requirements

Notes

> All plotted data represent typical values. The actual data may vary from unit to unit.

> All tests are carried out at a room temperature of 24 °C.

> All tests are carrier out using the included Bias Box 711C

Caution

> Absolute maximum ratings should not be used under normal operating conditions. Exceeding maximum ratings may lead to permanent failure.

> Any foreign body inserted into the waveguide will cause a loss of performance and may damage the device.

ESD

ACST GmbH reserves the right to make changes to the product or information contained herein without notice. Visit www.acst.de for additional data sheets and product information.

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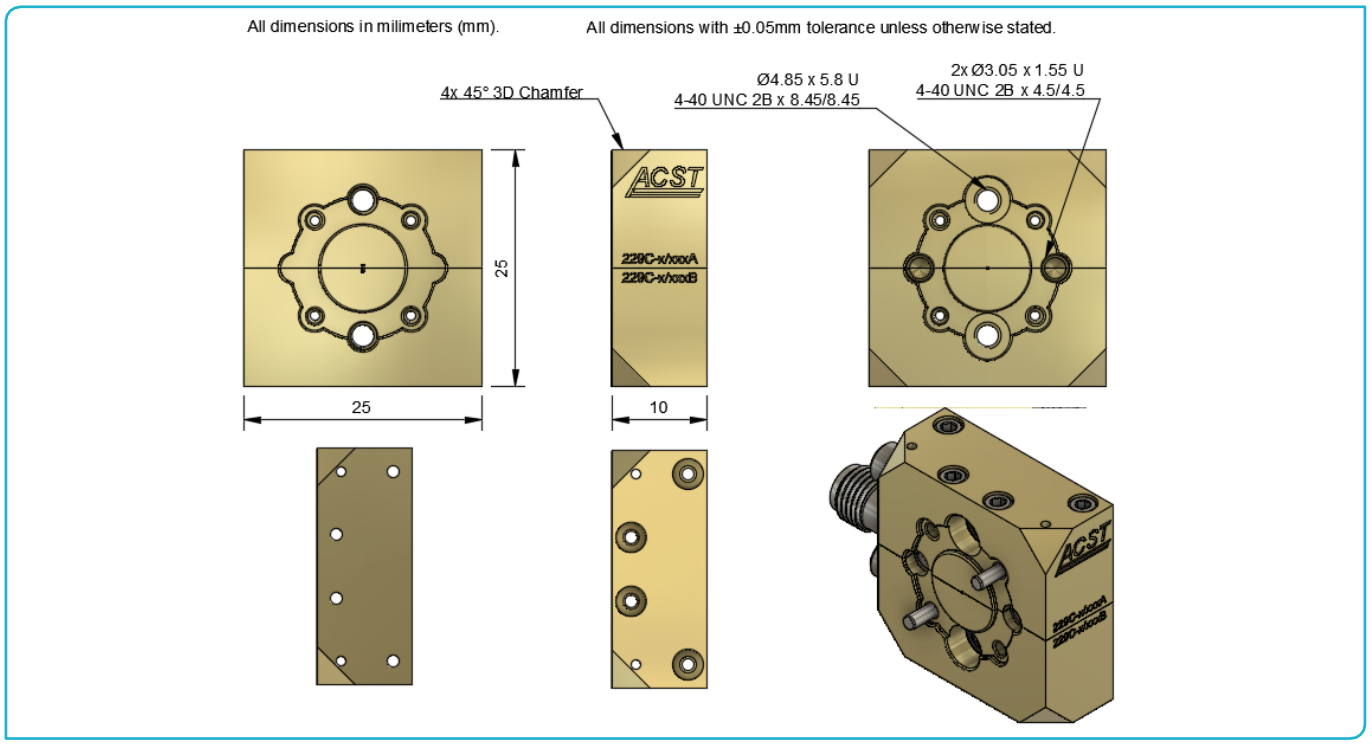
Outline Dimensions



Mechanical Description

	Maximum
Size (without dowel pin)	10 mm x 25 mm x 25 mm
Output Waveguide Orientation	E-Plane

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