Frequency Tripler 225D
High-Efficiency 275 – 295 GHz

Self-bias Frequency Tripler in WR-3.4 Based on ACST's High-Efficiency Multiplier Technology.

225x series is a family of passive frequency triplers with integrated self-bias. These triplers are based on ACST high-efficiency multiplier technology, covering frequency range between 200 GHz and 300 GHz. This series allows for building cost-effective high-power MM-Wave sources in combination with commonly-available Power Amplifier MMIC technology developed for fixed service in telecommunications within frequency bands of 71 – 76 GHz; 81 – 86 GHz and 92 – 95 GHz.

All multiplier designs within this series are based on balanced configuration to suppress undesired harmonics. These triplers provide a conversion efficiency of typically >15 % within frequency bandwidth of about 12-17 % and are able to reliably handle up to 100mW of input power. For even higher power level requirements please ask ACST for availability of high- and ultrahigh-power versions.

Model 225D requires input signal within frequency range of 91 to 99 GHz generating output signal within frequency range of 275 to 295 GHz. This multiplier implements ACST's modified flange that allows maximum compactness while maintaining compatibility with standard UG 387 flange in both the input and output port. No Bias control is required for this multiplier series.

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 Source (611A) 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-10	
Input Frequency (GHz)	91.6		98.33
Input Power (dBm)	+16	+18	+20
Output Port (UG 387/U-M)		WR-3.4	
Output Frequency (GHz)	275		295
Output Power (dBm)	+7	+11.5	+13
Conversion Efficiency* (%)	14	17	20
Input VSWR	1.45:1	1.6:1	1.9:1
Material		Brass	
Finishing		Gold-Plated	

* Lower Efficiency may be expected at input power lower than specified and near the band edges.

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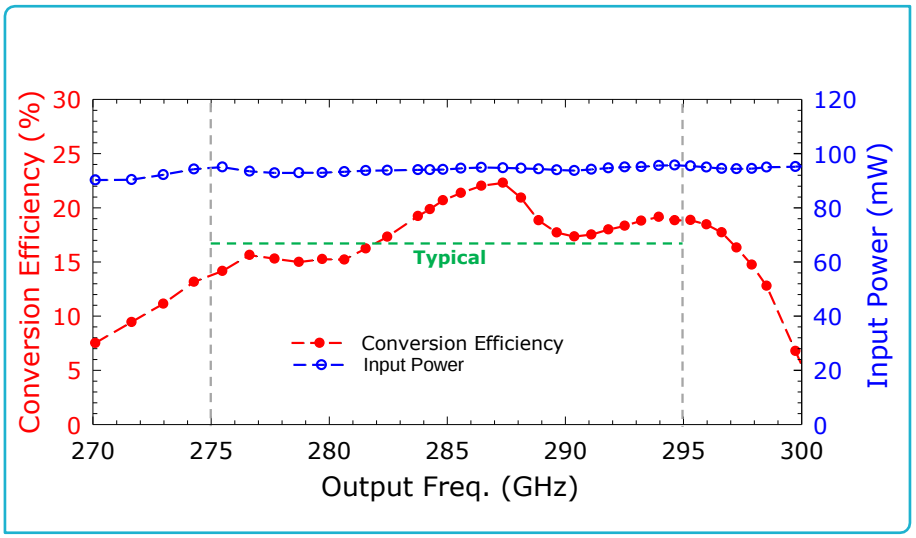
Typical Performance



Absolute Maximum Ratings

	Maximum
Input Power (dBm)	+21
Operational Temperature 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.

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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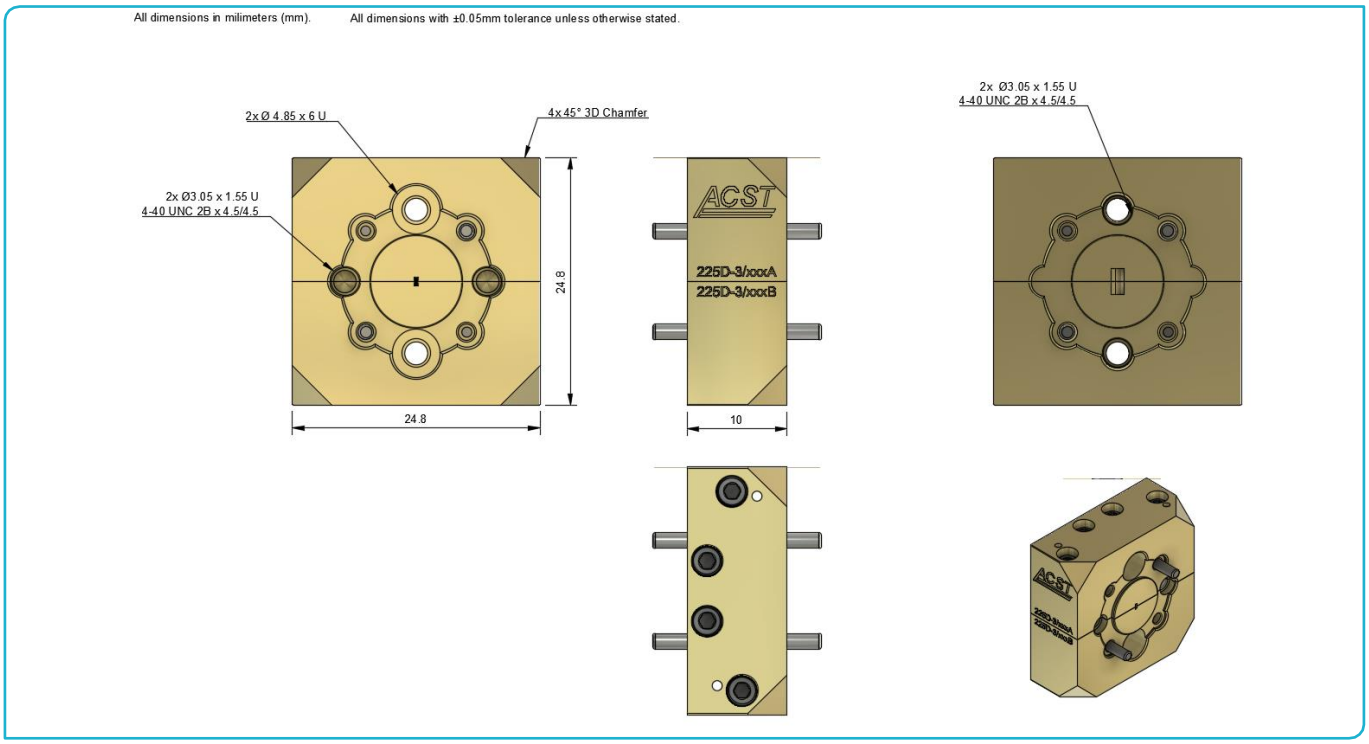
Outline Dimensions



Mechanical Description

	Maximum
Size (without dowel pin)	10 mm x 24.8 mm x 24.8 mm
Output Waveguide Orientation	E-Plane

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