Frequency Tripler 223B
Broadband 165 – 260 GHz

Non-Biasable Full-band Frequency Tripler in WR-4.3 Based on ACST's High-Power Multiplier Technology.

223x series is a family of passive frequency Triplers which don't require bias. These Triplers are based on ACST high-power multiplier technology, covering the frequency range between 140 GHz and 260 GHz. This series allows for building cost-effective high-power full-band MM-Wave sources in combination with most powerful commercially-available High-Power Amplifier MMIC technology developed at V and E-Band.

All multiplier designs within this series are based on balanced configuration to suppress undesired harmonics. These Triplers provide a conversion efficiency of typically >5 % within frequency bandwidth of about 40-45 %, and they can reliably handle up to 200 mW of input power. For even higher power level requirements please ask ACST for availability of high- and ultrahigh-power versions.

Model 223B is the standard version of this family. It requires input signal within frequency range of 55 to 85 GHz generating output signal within frequency range of 165 to 260 GHz. Bias control isn't required.

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 to provide optimal input RF power (1216B)

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

Product Features

> Compactness, High-Power & Efficiency

> Full Waveguide 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

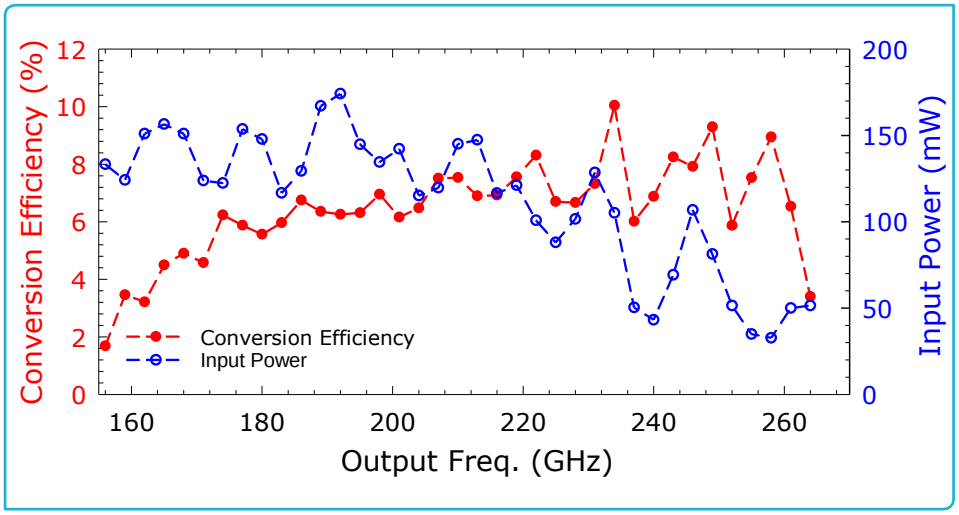
	Minimum	Typ	Maximum
Input Port (UG 387/U-M)		WR-12	
Input Frequency (GHz)	55		85
Input Power (dBm)	+16	+19	+23
Output Port (UG 387/U-M)		WR-4.3	
Output Frequency (GHz)	165		260
Output Power (dBm)	+4	+8	+12
Conversion Efficiency* (%)	3	5	8
Input VSWR	1.45:1	1.6:1	1.9:1
Material		Brass	
Finishing		Gold-Plated	

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

ACST GmbH · Josef-Bautz Str. 15 · DE-63457 Hanau · Germany
Phone: +49 (0) 6181 96 69 86 00 · sales@acst.de · www.acst.de

Frequency Tripler 223B
Broadband 165 – 260 GHz

Typical Performance



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.

Absolute Maximum Ratings

	Maximum
Input Power (dBm)	+23
Operational Temperature and Humidity	5 °C to 45 °C // 0% to 80%
Storage Temperature and Humidity	5 °C to 65 °C // 0% to 80%

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.

Order information

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

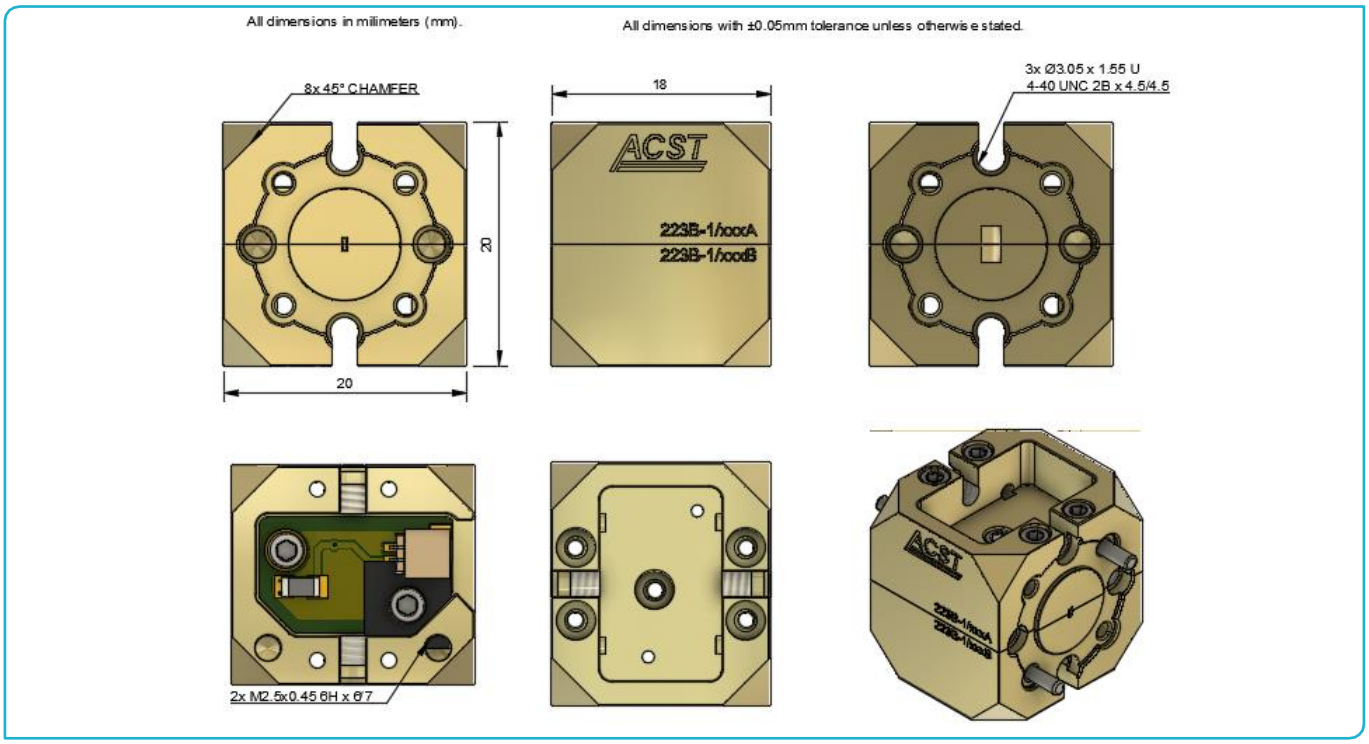
ESD

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.

ACST GmbH · Josef-Bautz Str. 15 · DE-63457 Hanau · Germany
Phone: +49 (0) 6181 96 69 86 00 · sales@acst.de · www.acst.de

Frequency Tripler 223B
Broadband 165 – 260 GHz

Outline Dimensions



Mechanical Description

	Maximum
Size (without dowel pin)	18 mm x 20 mm x 20 mm
Output Waveguide Orientation	E-Plane

ACST GmbH · Josef-Bautz Str. 15 · DE-63457 Hanau · Germany
Phone: +49 (0) 6181 96 69 86 00 · sales@acst.de · www.acst.de