

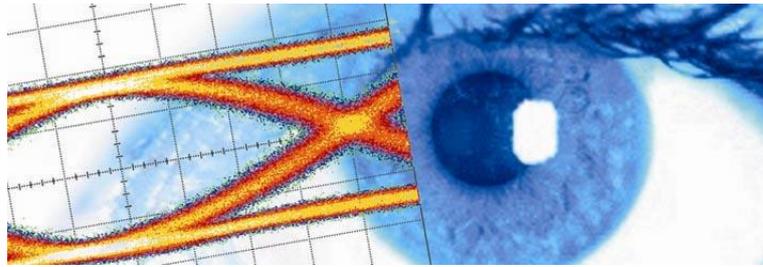


SHF Communication Technologies AG

Wilhelm-von-Siemens-Str. 23D • 12277 Berlin • Germany

Phone +49 30 772051-0 • Fax +49 30 7531078

E-Mail: sales@shf-communication.com • Web: www.shf-communication.com



Datasheet

SHF 2856 B

Frequency Doubler





Description

The SHF 2856 B is a balanced diode frequency doubler with integrated output buffer amplifier. It features a low conversion gain of approximately 0 dB in the output frequency range between 50 GHz and 60 GHz. Beyond those limits the frequency doubler operates with slightly worse characteristic. A co-planar balun ensures a good suppression of the fundamental frequency.

Features

- Low Input Power Drive: 0 dBm
- Fundamental Suppression: >30 dBc
- Single Supply: +5V @ 150 mA



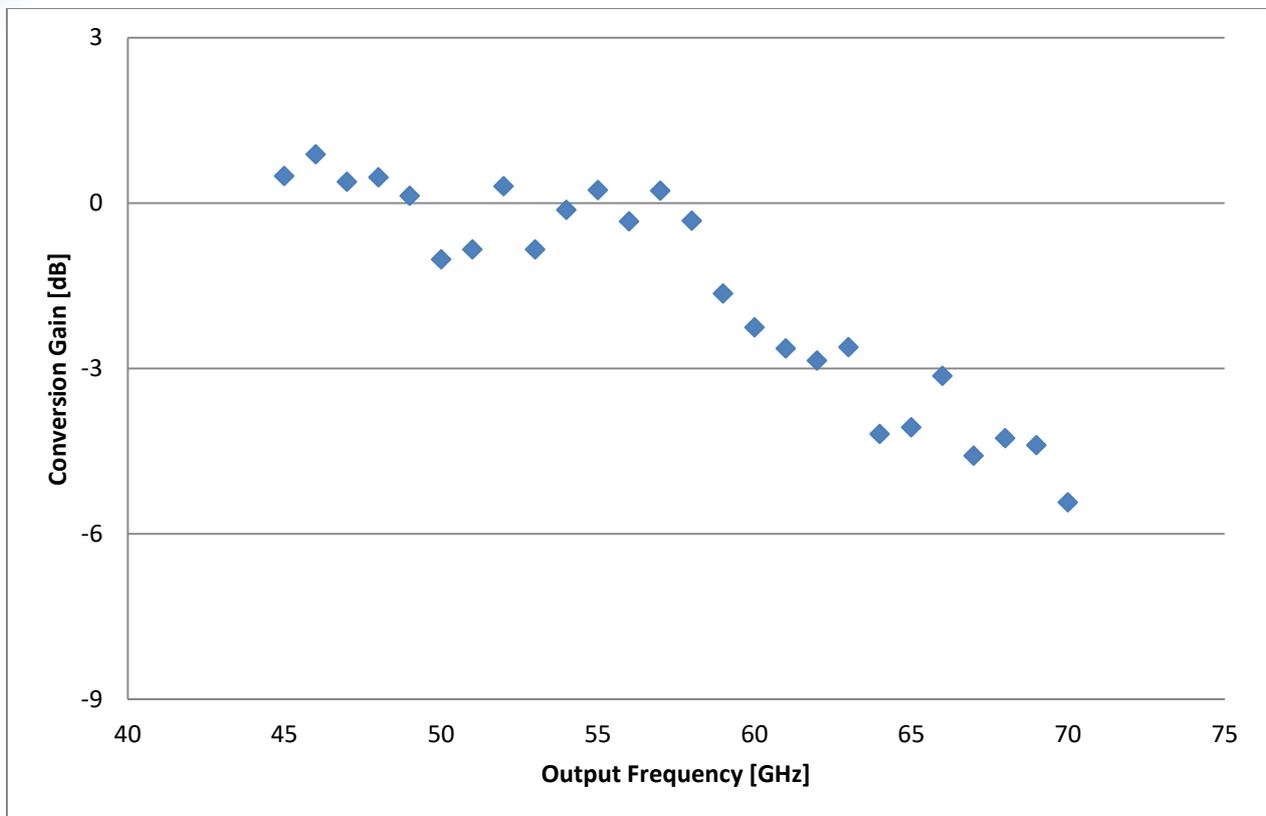
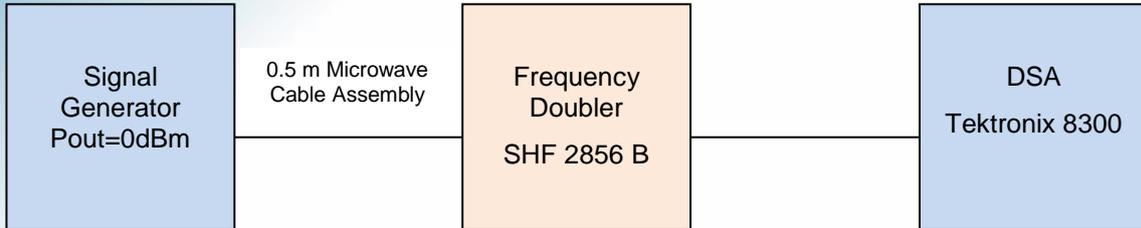
Specifications – SHF 2856 B

Parameter	Unit	Symbol	Min.	Typ.	Max.	Comment
Absolut Maximum Ratings						
DC Voltage at RF Input	V				±9	AC coupled input
DC Voltage at RF Output	V				±7	AC coupled output
Case Temperature	°C	T _{case}	10	30	50	
Input						
Input Frequency	GHz	f _{in}	25		32	
Input Power Level	dBm	P _{in}	-6	0	4	
Input Return Loss	dB		4			
Output						
Output Frequency	GHz	f _{out}	50		64	
Output Power Level	dBm	P _{in}	-6	0	4	varies with P _{in}
Suppression of Fundamental	dBc		25	30		
Power						
Supply Voltage	V		+4.75		+5.25	
Supply Current	mA			150		
Power Consumption	mW			750		@ 5V Supply Voltage
Mechanical Parameters						
Input Connector						1.85 mm (V) female
Output Connector						1.85 mm (V) male
Dimensions	mm					27 x 18 x 10



Typical Conversion Gain

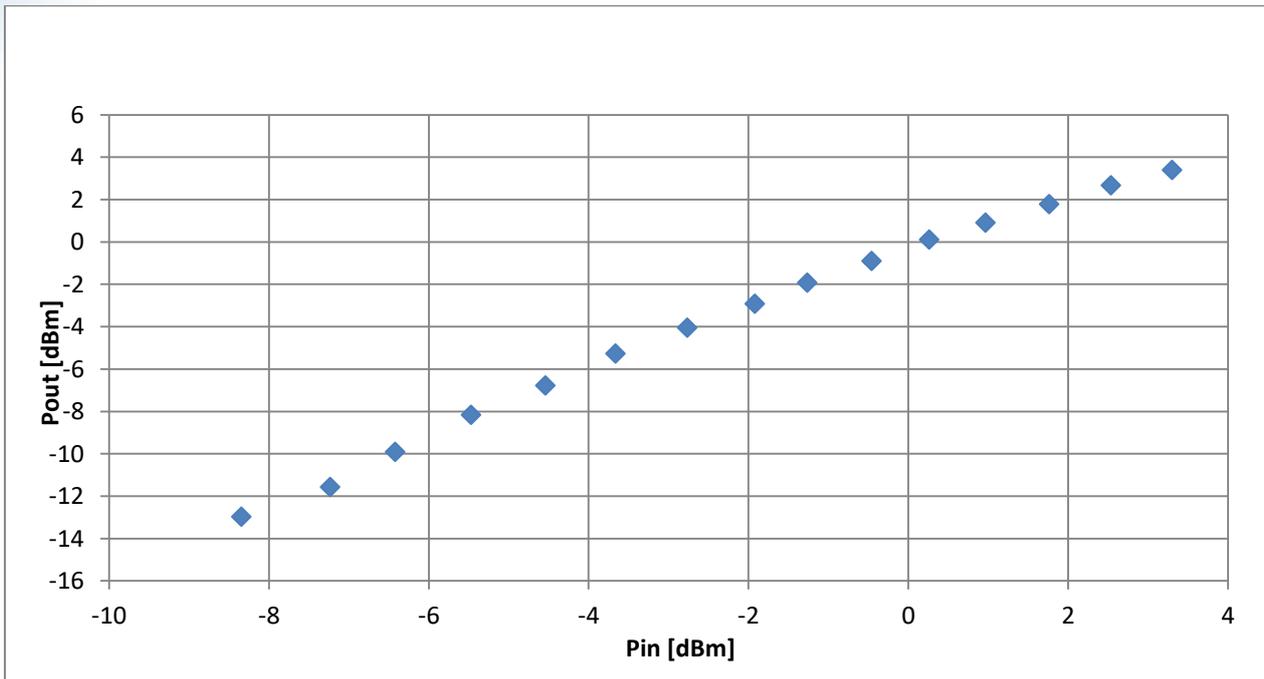
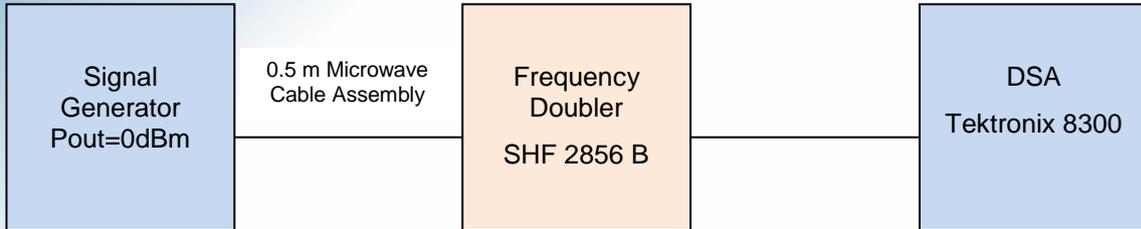
The measurements below have been performed using a Tektronix DSA (8300) with a 70 GHz Sampling Module (80E11) and a Phase Reference Module (82A04B-60G).





Typical P_{IN} to P_{OUT} Relation

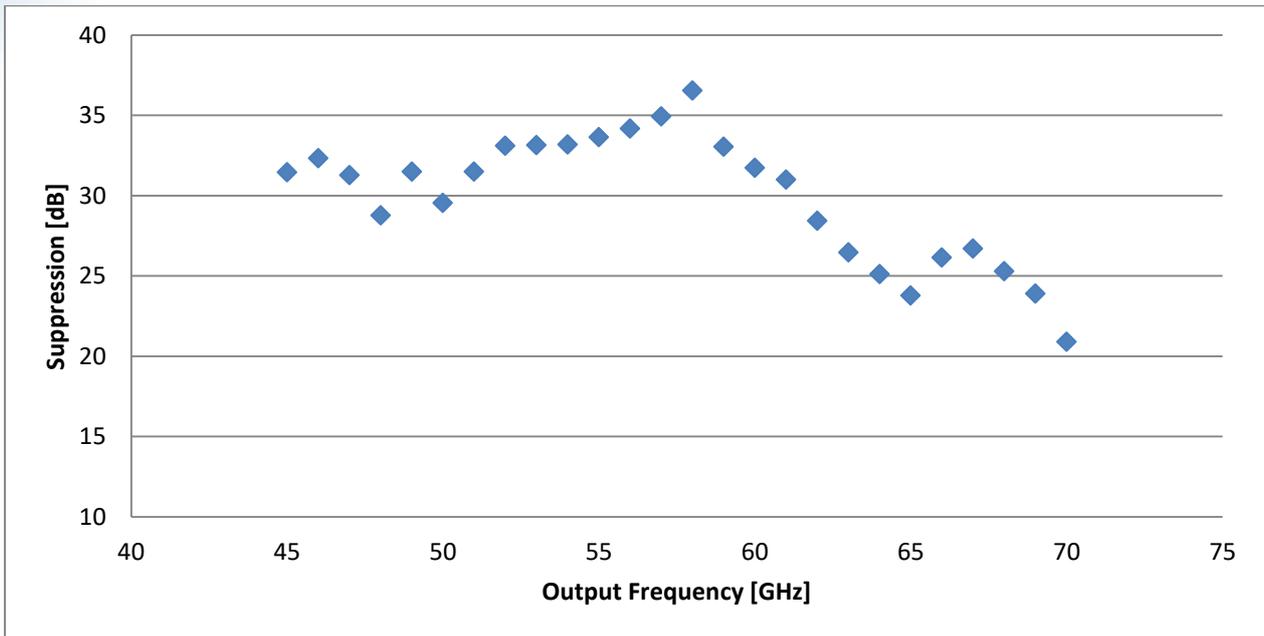
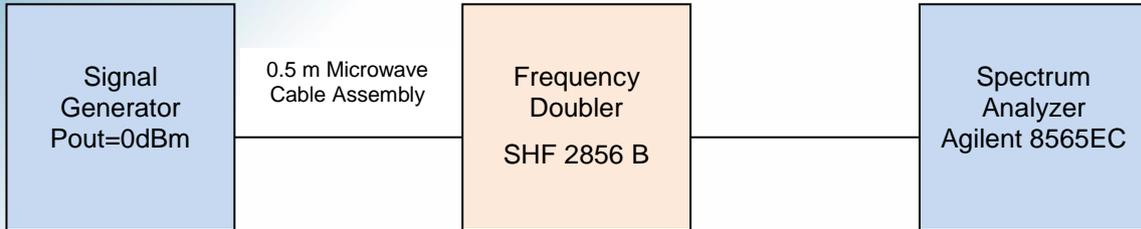
The measurements below have been performed using a Tektronix DSA (8300) with a 70 GHz Sampling Module (80E11) and a Phase Reference Module (82A04B-60G) at 56 GHz output frequency.





Typical Suppression of Fundamental Signal

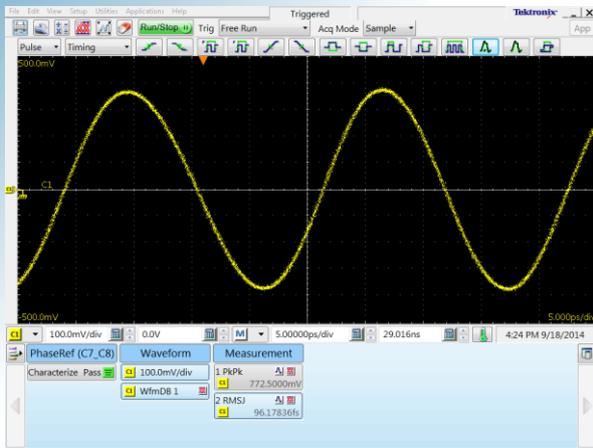
The measurements below have been performed using a Anritsu 68197C Signal Generator with a 0,5m Totoku cable assembly and an Agilent 8565 EC Spectrum Analyzer.



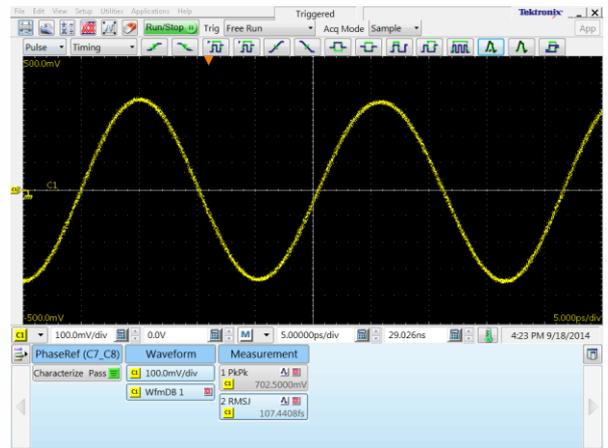


Typical Output Waveforms

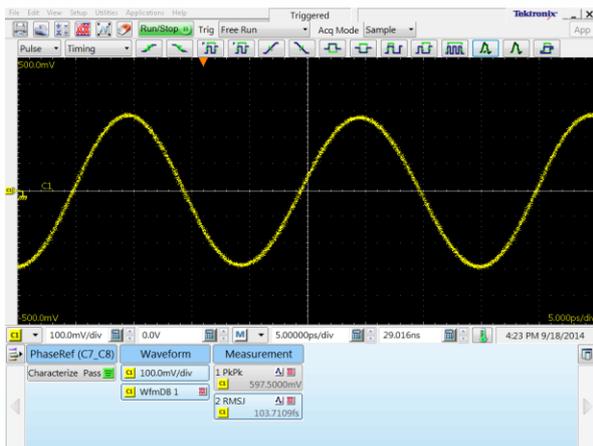
The measurements below have been performed using a Tektronix DSA (8300) with a 70 GHz Sampling Head (80E11) and a Phase Reference Module (82A04B-60G) with approximately 0 dBm input power.



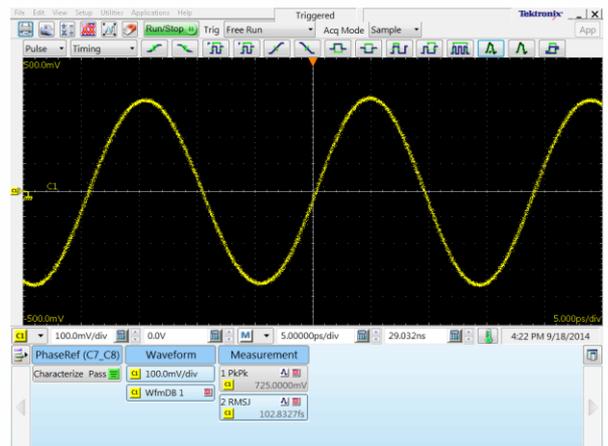
Output signal @ $f_{out} = 46$ GHz



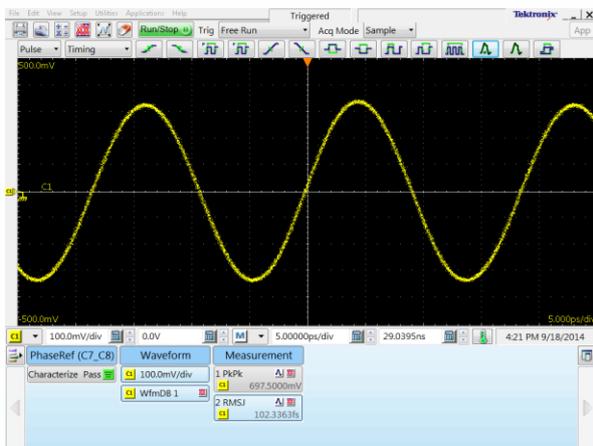
Output signal @ $f_{out} = 48$ GHz



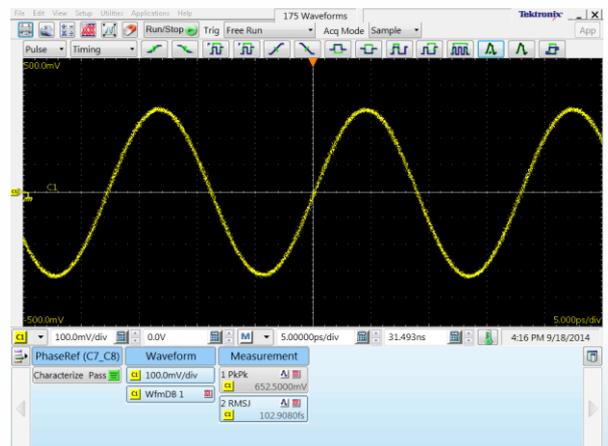
Output signal @ $f_{out} = 50$ GHz



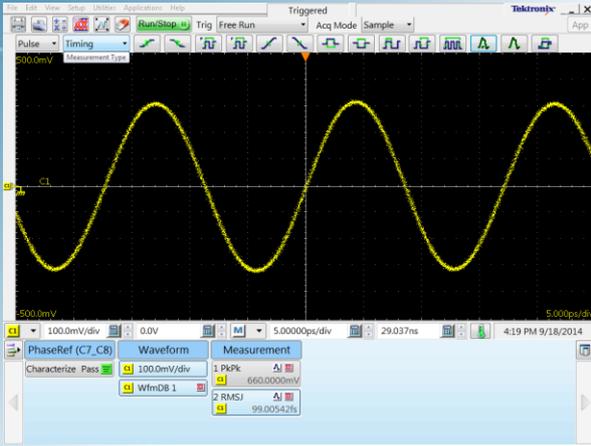
Output signal @ $f_{out} = 52$ GHz



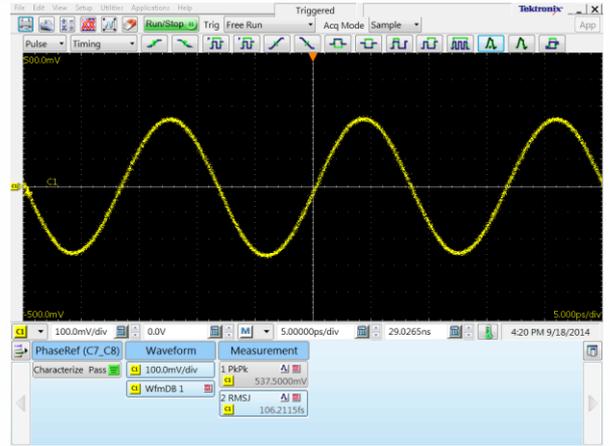
Output signal @ $f_{out} = 54$ GHz



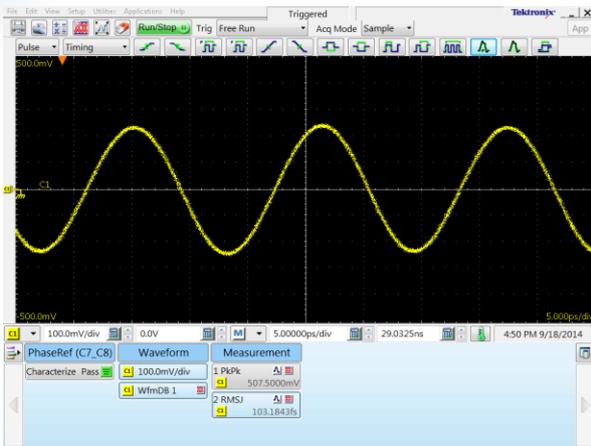
Output signal @ $f_{out} = 56$ GHz



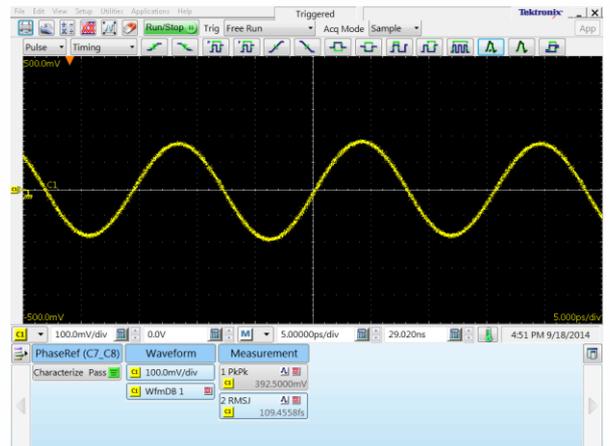
Output signal @ $f_{out} = 58$ GHz



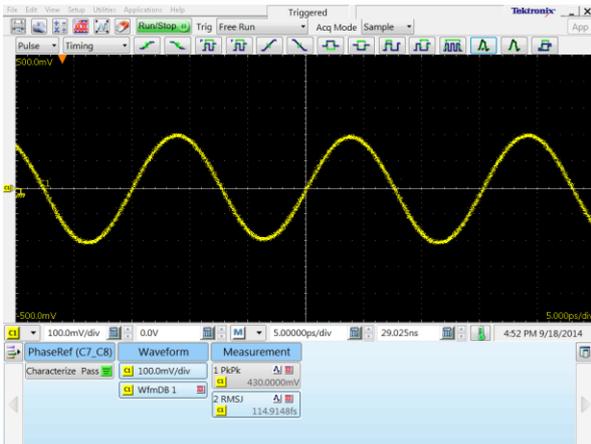
Output signal @ $f_{out} = 60$ GHz



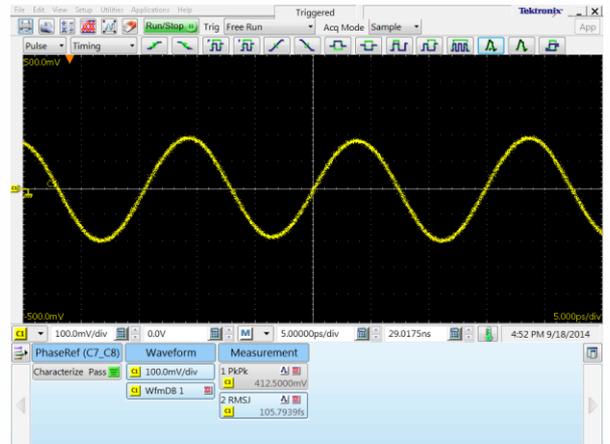
Output signal @ $f_{out} = 62$ GHz



Output signal @ $f_{out} = 64$ GHz



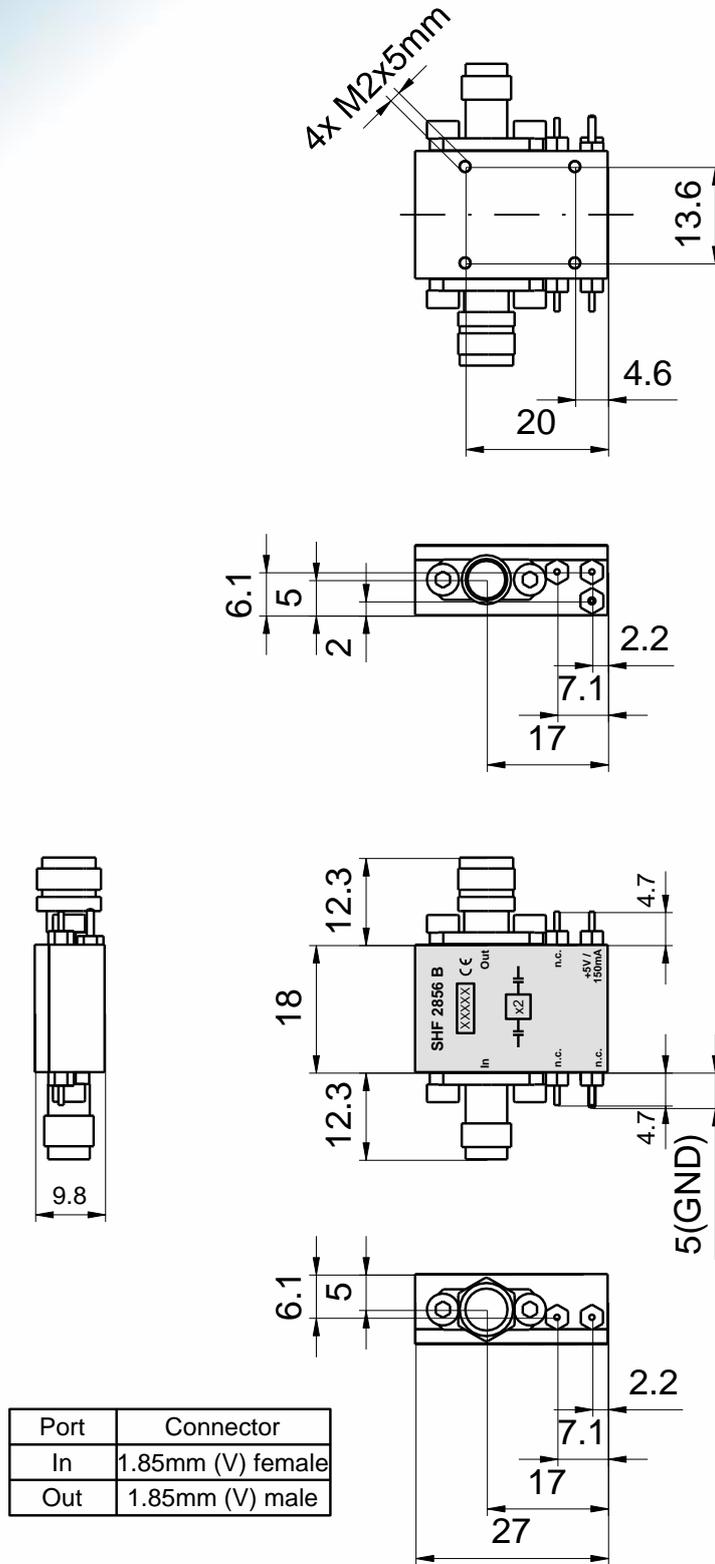
Output signal @ $f_{out} = 66$ GHz



Output signal @ $f_{out} = 68$ GHz



Mechanical Drawing



All dimensions in mm