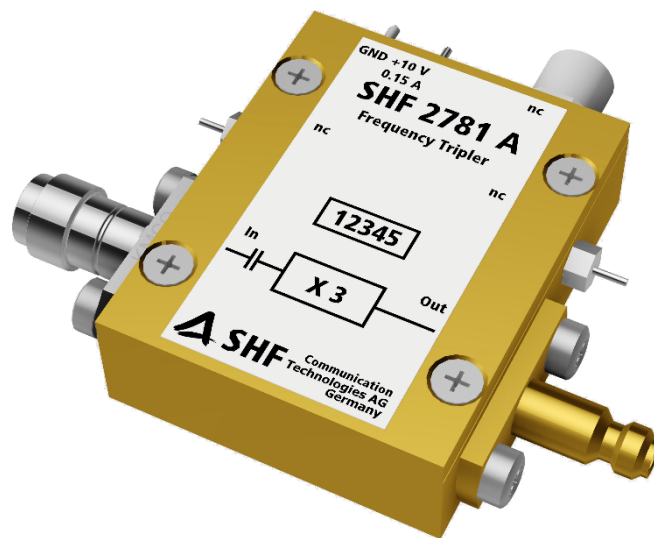


Data Sheet

SHF 2781 A



Frequency Tripler



Description

The SHF 2781 A is an active frequency tripler. With as little input power as -10 dBm the SHF 2781 A provides a clean output signal covering nearly the whole E-Band (57 GHz up to 81 GHz). The build in filter ensures an outstanding fundamental suppression.

Features

- Frequency triplication from 19... 27 to 57... 81 GHz
- Low input drive power: -10 dBm... -3 dBm
- Fundamental suppression: >50 dBc
- 2nd Harmonic suppression: >30 dBc
- Wide Single Supply Range 6 V...14 V @ <250 mA

Ease of Use

- Only a single 6 V...14 V DC supply is needed for operation.
- Upon delivery, the multiplier is ready to use. No additional software is needed.



Specifications

Absolute Maximum Ratings

Parameter	Unit	Symbol	Min	Typ	Max	Comment
Input Power	dBm	P_{in}			-2	
External DC Voltage on RF-In	V	V_{DC}	-6		+6	Only on AC coupled port
DC Supply Voltage	V	V_{Supply}	0		20	

Electrical Characteristics (At 28°C case temperature, unless otherwise specified)

Parameter	Unit	Symbol	Min	Typ	Max	Comment
Input Frequency	GHz	f_{in}	19		27	
Input Power	dBm	P_{in}	-10		-3	
Output Frequency	GHz	f_{out}	57		81	
Output Power	dBm	P_{out}	-12		-4	See typ. output power page 4
Fundamental Suppression	dBc	H_{01}	50		80	
Second Harm. Suppression	dBc	H_{02}	30		80	
Spurious Signals	dBc	S		-60		

Power Requirements

Parameter	Unit	Symbol	Min	Typ	Max	Comment
DC Supply Voltage	V	V_{supply}	6		14	
DC Supply Current	I	I_{supply}	90		250	
Power Dissipation	W	P_d			1.5	

Mechanical Characteristics

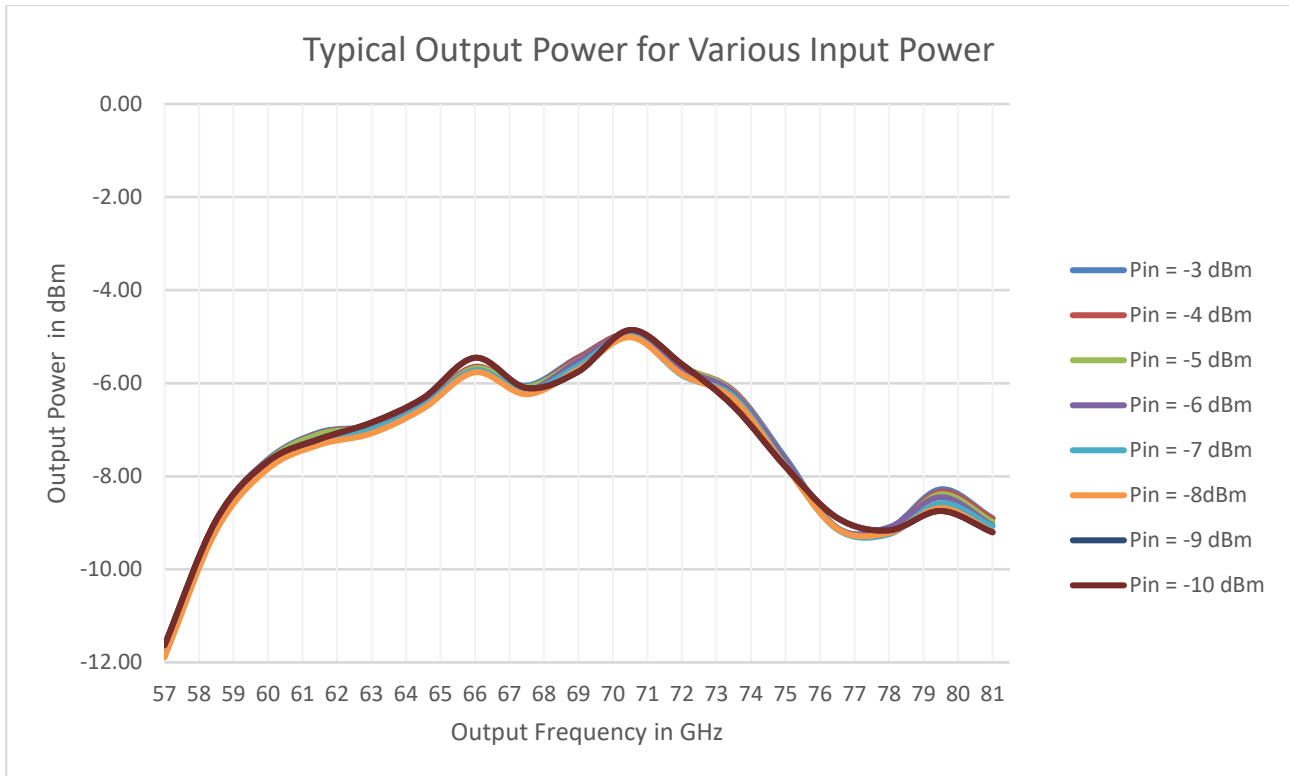
Parameter	Unit	Symbol	Min	Typ	Max	Conditions
Input Connector						1.85 mm (V) female ¹
Output Connector						1 mm female ¹
Weight						

¹Other gender configurations are available on request.



Typical Output Power

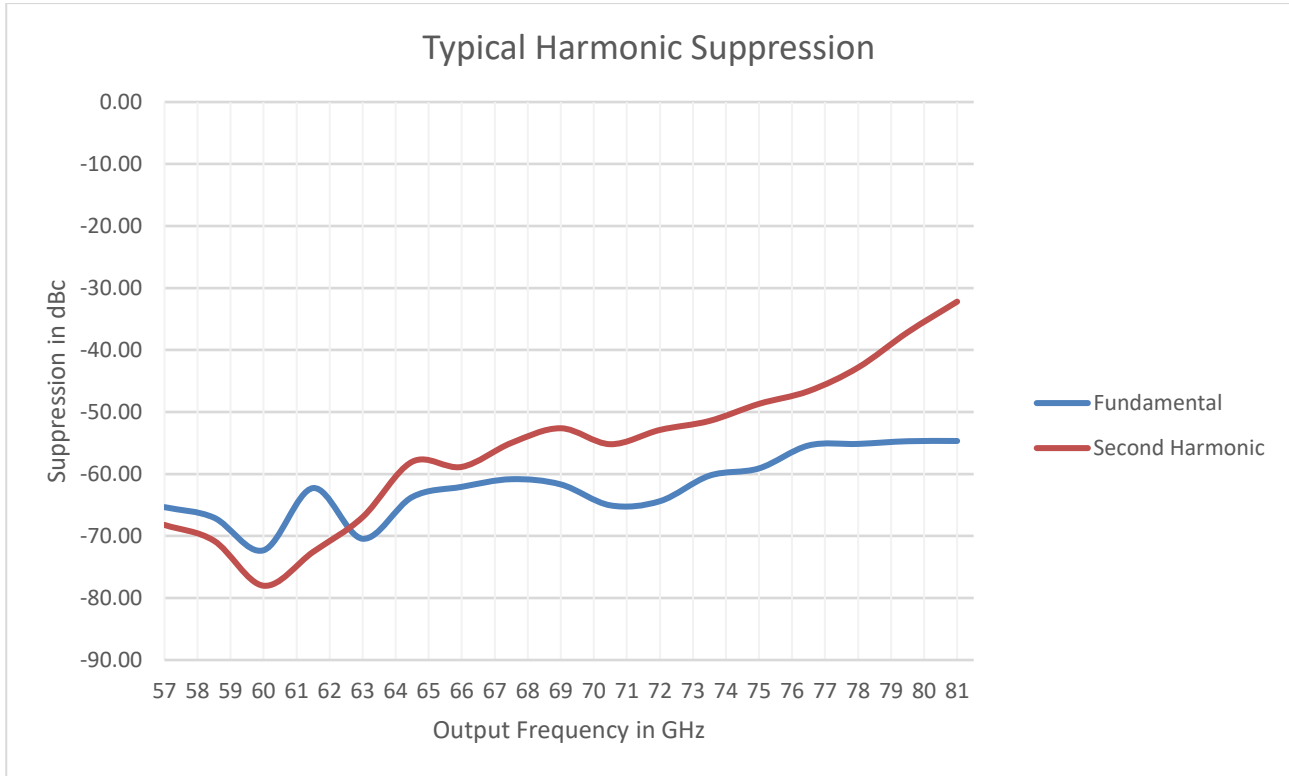
The measurement below has been performed using an R&S[®] FSW-85 and an R&S[®] SMR-40 as a signal generator. The SHF 2781 A has been directly connected to the FSW.





Typical Harmonic Suppression

The measurement below has been performed using an R&S[®] FSW-85 and an R&S[®] SMR-40 as a signal generator with an output power of -6 dBm. The SHF 2781 A has been directly connected to the FSW.

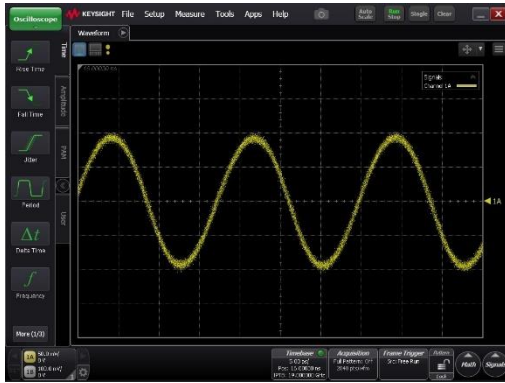


©R&S is a registered trademark of Rohde & Schwarz GmbH & Co. KG

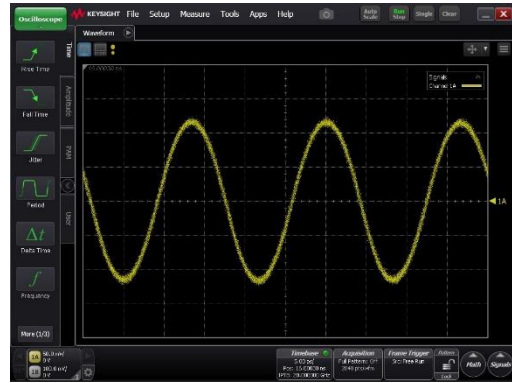


Typical Waveforms

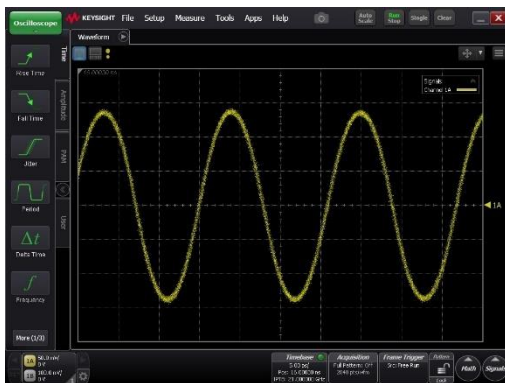
The measurement below has been performed using an Keysight® N1000A DCA with a 100 GHz sampling head (N1046A) and an Agilent® E8244A as a signal generator. The SHF 2781 A has been directly connected to the N1046A.



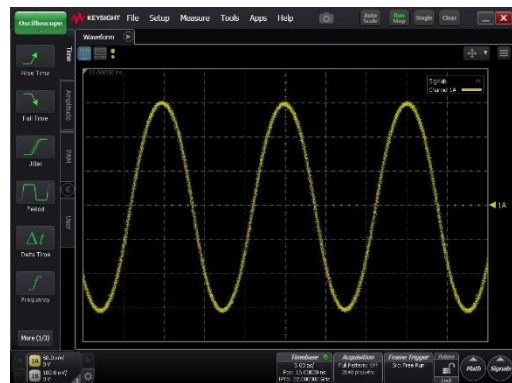
Output Signal @ 57 GHz



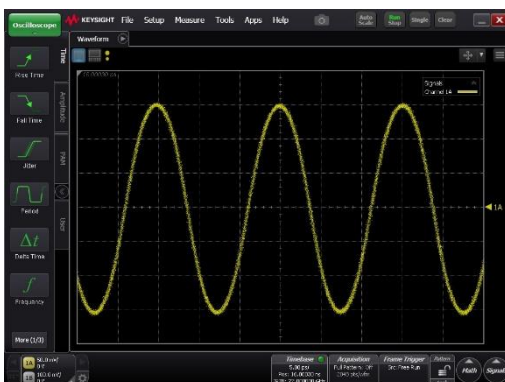
Output Signal @ 60 GHz



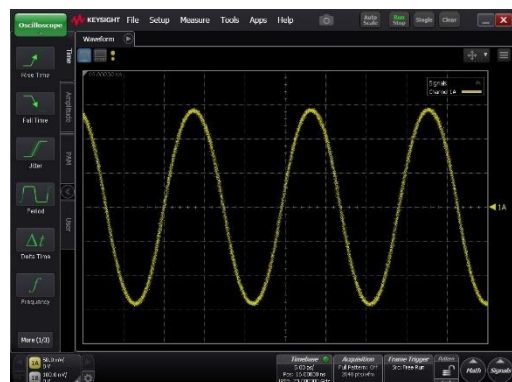
Output Signal @ 63 GHz



Output Signal @ 66 GHz

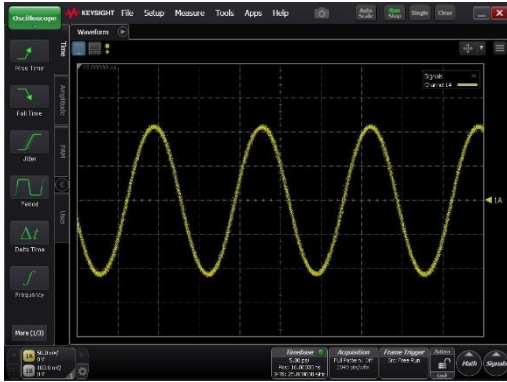


Output Signal @ 69 GHz

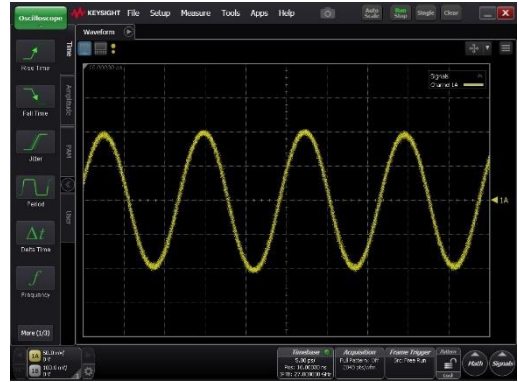


Output Signal @ 72 GHz

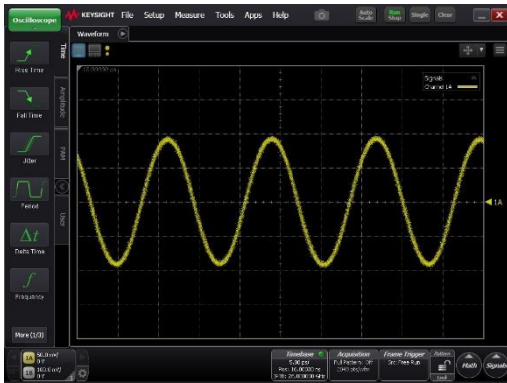
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Output Signal @ 75 GHz



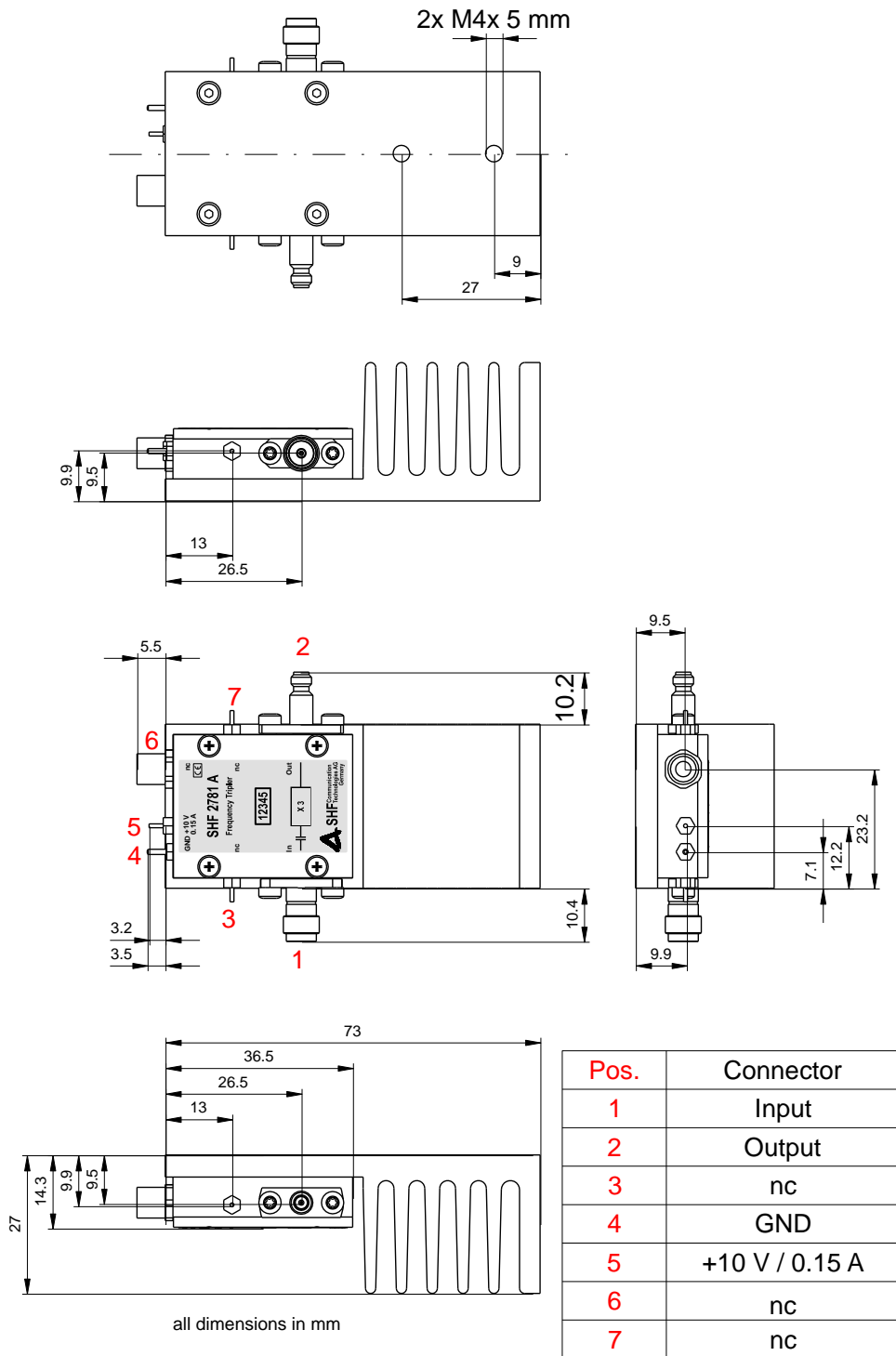
Output Signal @ 78 GHz



Output Signal @ 81 GHz



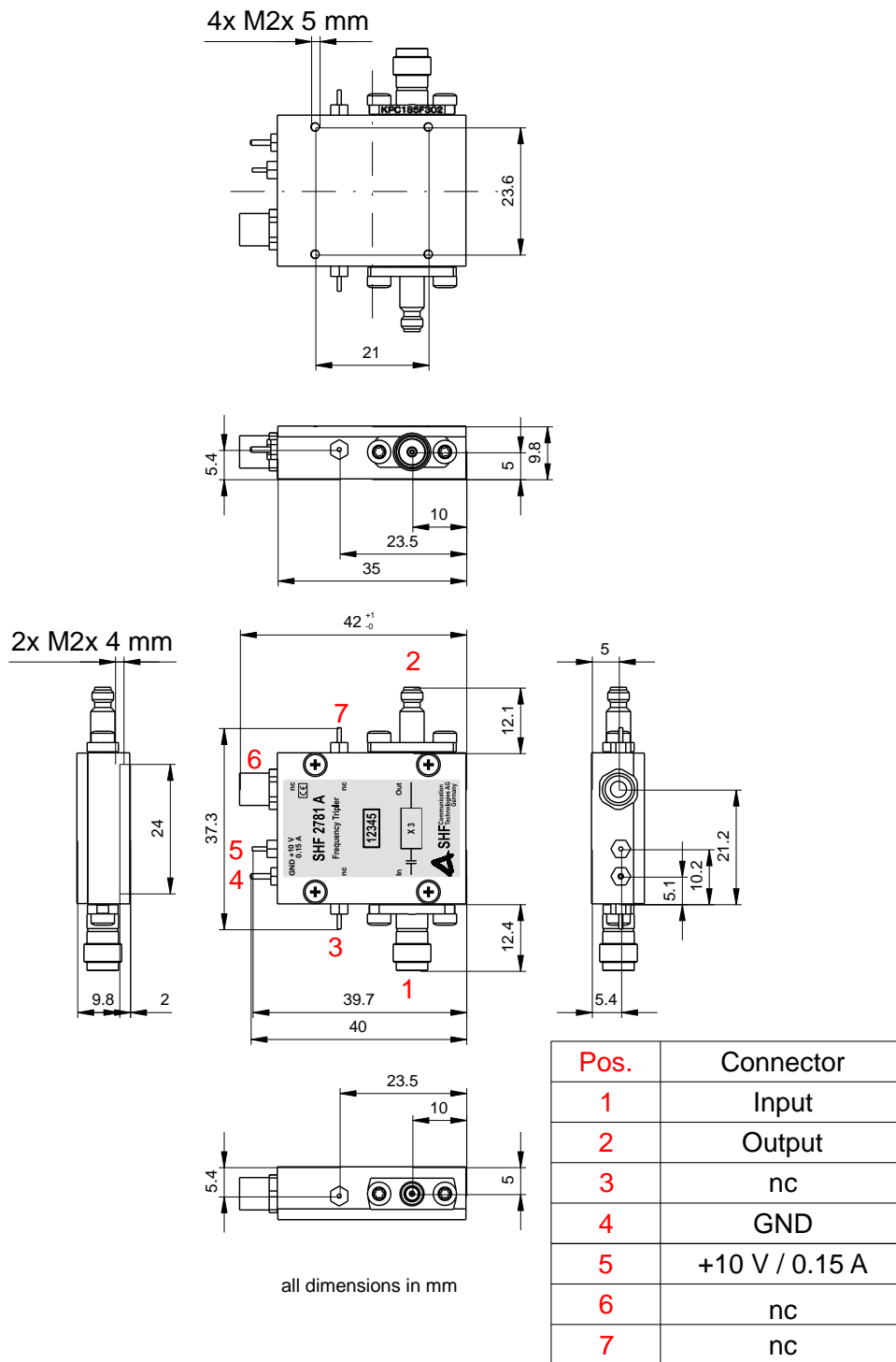
Mechanical Drawing with Heat Sink



For permanent mounting remove the heat sink from the multiplier. In that case, please ensure that adequate cooling of the is guaranteed. It is recommended to use thermal paste or a thermal gap pad for the mounting. In order to separate the heat sink, remove the four screws on the heat sink. Please note, thermal paste is used between the heat sink and the multiplier housing.



Mechanical Drawing without Heat Sink



Please ensure that adequate cooling of the multiplier is guaranteed.



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