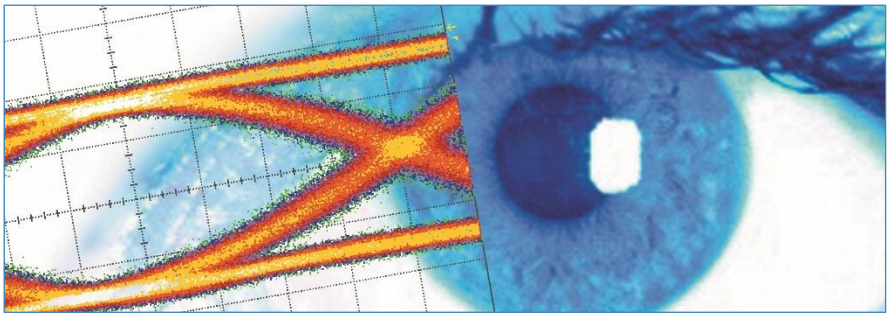


Data Sheet
SHF PDV110 A

110 GHz Power Divider

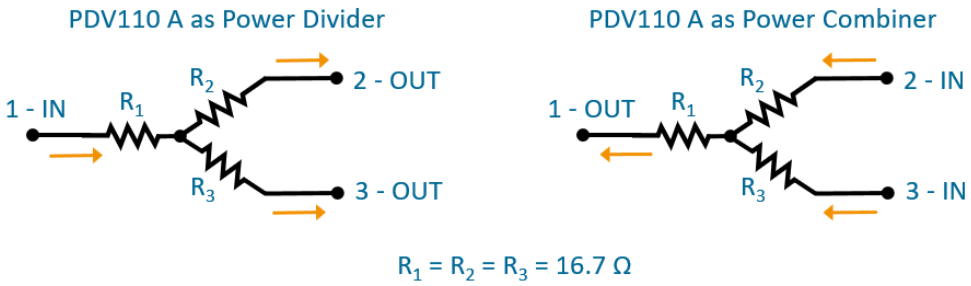
Description

The SHF PDV110 A is a compact, high-performance resistive power divider with a bandwidth exceeding 110 GHz. Output ports (2 and 3) are amplitude and phase-matched.

Fully customizable 1.0 mm connector configurations as well as between series (1.0 mm ↔ 1.85 mm) configurations are available to meet individual requirements of the customer and to avoid additional adapters in the setup.

Dedicated mounting holes on the back side allow secure installation on a mounting plate for stable system integration.

The SHF PDV110 A can also be used as a power combiner, using port 2 and 3 as input ports.



Circuit schematic of the PDV110 A.

Features

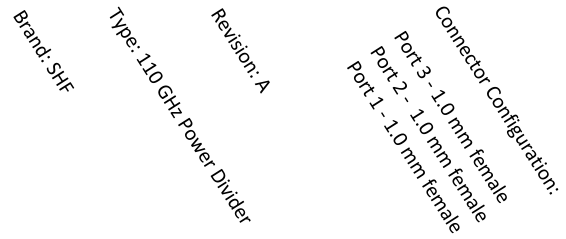
- Small and lightweight
- Low loss and low reflection
- Excellent phase and amplitude matching at output ports
- Bi-directional (can be used as divider or combiner)

Configurations

- WFWFWF: All ports 1.0 mm female
- Other configurations on request

Product Code Example

- SHF PDV110 A | WFWFWF



Specifications[1]

Absolute Maximum Ratings

Parameter	Unit	Symbol	Min	Typ	Max	Conditions
Power handling	W	$P_{in,\ max}$			1	$P_{in,max}$ represents the overall maximum power that can flow through the PDV110 A. When used as a combiner, each input should not be fed more than $P_{in,max}/2$ = 0.5 W.

Mechanical Characteristics

Parameter	Unit	Symbol	Min	Typ	Max	Conditions
Operating temperature	°C	T_{case}	10		50	
Connectors						1 mm
Dimensions	mm				42.2 30.1 9	Width Length Height
Weight	g			15.3		

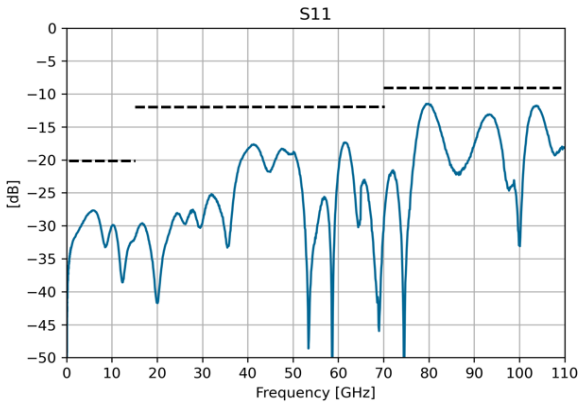
[1] These specifications are valid for the WFWFWF configuration.

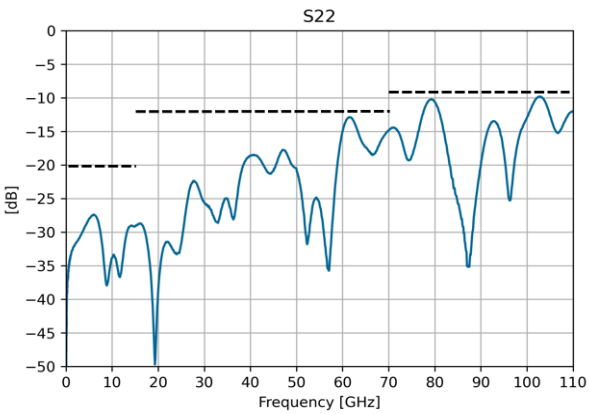
Electrical Characteristics (At 35°C case temperature, unless otherwise specified)

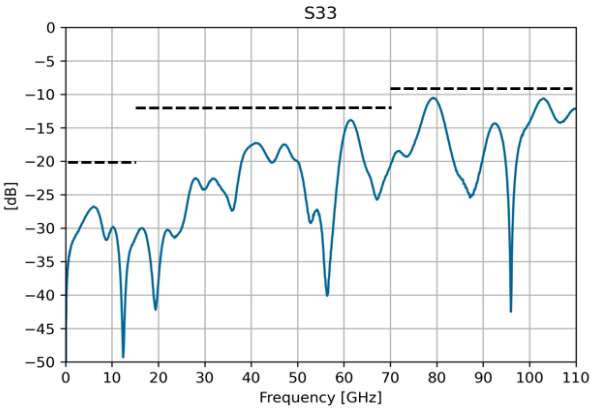
Parameter	Unit	Symbol	Min	Typ	Max	Conditions
Maximum Operating Frequency	GHz	f_{max}	67			
Minimum Operating Frequency		f_{min}			DC	
Input impedance	Ω	R_L		50		
Insertion loss	dB	IL			7 7.8 8.5 9	f < 15 GHz 15 GHz < f < 40 GHz 40 GHz < f < 70 GHz 70 GHz < f < 110 GHz
Return loss	dB	RL	20 12 12 9			f < 15 GHz 15 GHz < f < 40 GHz 40 GHz < f < 70 GHz 70 GHz < f < 110 GHz
Power handling	W	$P_{in,max}$			1	
Amplitude Balance	dB				 ±0.5 ±0.8 ±1.2	Amplitude balance[2] between output ports. f < 30 GHz 30 GHz < f < 70 GHz 70 GHz < f < 110 GHz
Phase Balance	deg				 ±5 ±10 ±15	Phase balance[3] between output ports. f < 30 GHz 30 GHz < f < 70 GHz 70 GHz < f < 110 GHz

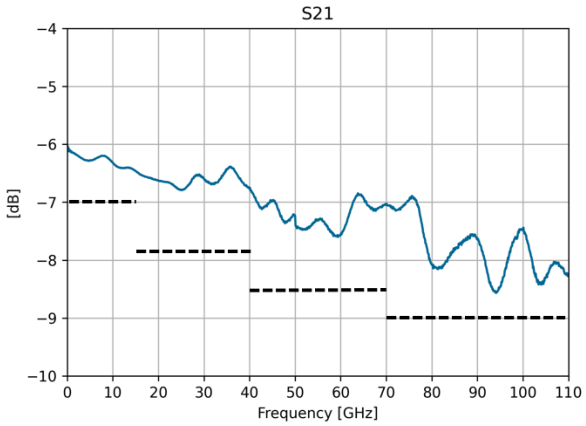
[2] The amplitude balance is defined as the amplitude difference in dB of the output signals at port 2 and 3. It is calculated as: $|S_{31}|_{dB} - |S_{21}|_{dB}$.
[3] The phase balance is defined as the phase difference in degrees of the output signals at port 2 and 3. It is calculated as: $\varphi_{31} - \varphi_{21}$, where φ_{31} and φ_{21} indicate the unwrapped phase of S_{31} and S_{21}, respectively.

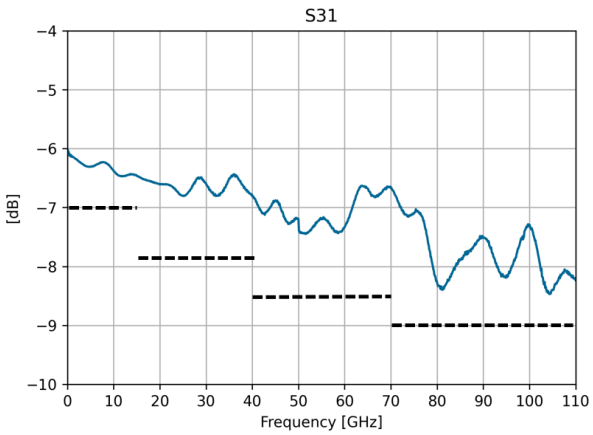
Typical S-Parameters and Balance Properties[4]

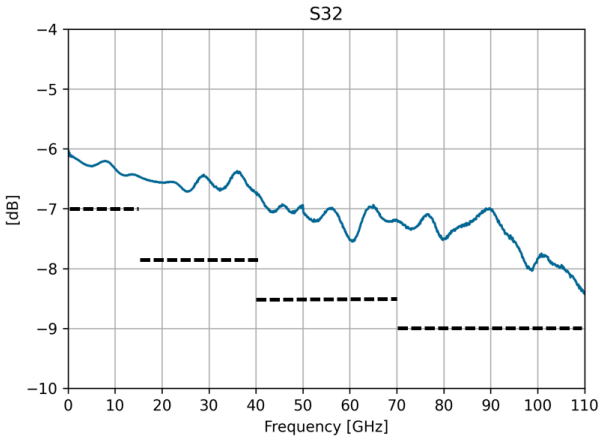




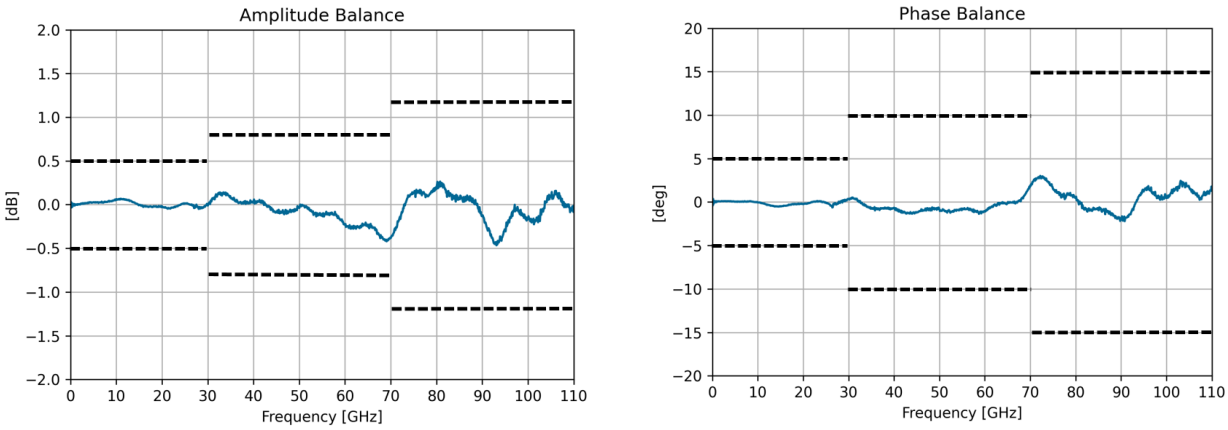






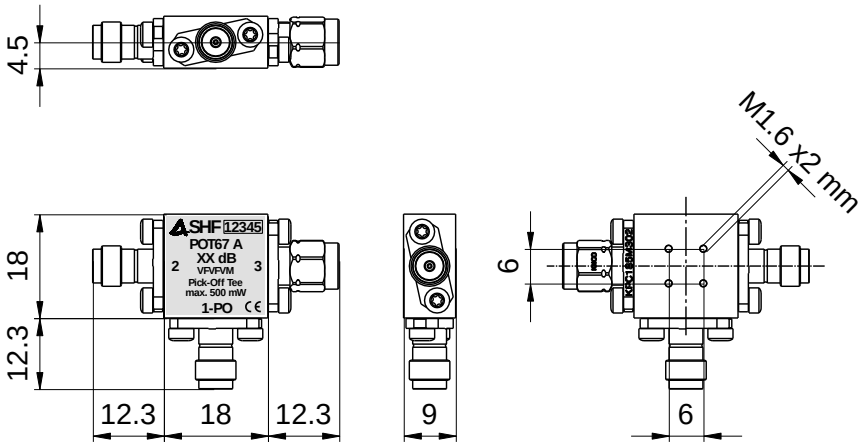


[4] These typical plots are valid for the WFWFWF configuration.



- **Blue solid lines: Measurements**
- **Black dashed lines: Specifications**

Mechanical Drawing



All dimensions in mm

SHF Communication Technologies AG

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

+49 30 772 051 0

sales@shf-communication.com

www.shf-communication.com