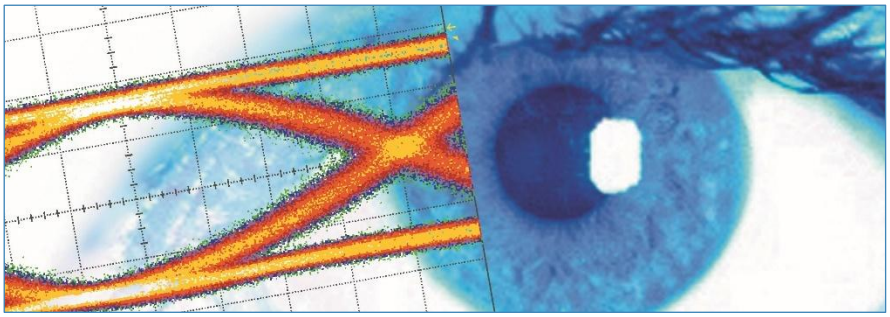


Data Sheet
SHF PSP67 A

67 GHz Power Splitter

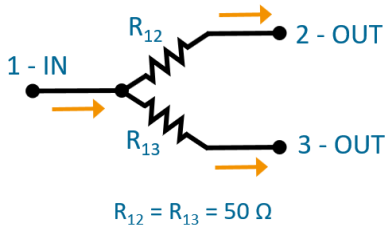
Description

The SHF PSP67 A is a compact, high-performance, resistive power splitter with a bandwidth exceeding 67 GHz.

Fully customizable 1.85 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 PSP67 A is a unidirectional device and is not intended to be used for signal combining. The designated input port is Port 1, with Ports 2 and 3 being the outputs.



Circuit schematic of the PSP67 A.

Applications

- Gain and compression measurements
- Signal rationing and leveling

Features

- Small and lightweight
- Flat insertion loss, low reflection
- Optimized effective output match for leveling-loop applications or rationing systems
- Excellent phase and amplitude balance at output ports for minimal measurement uncertainty

Configurations

- VFVFVF
- Other configurations on request

Product Code Example

- SHF PSP67 A | VFVFVF

Brand: SHF
Type: 67 GHz Power-Splitter
Revision: A
Connector Configuration:
Port 3 - 1.85 mm female
Port 2 - 1.85 mm female
Port 1 - 1.85 mm female

Specifications[1]

Absolute Maximum Ratings

Parameter	Unit	Symbol	Min	Typ	Max	Conditions
Power handling	W	$P_{in,\ max}$			0.5	

Mechanical Characteristics

Parameter	Unit	Symbol	Min	Typ	Max	Conditions
Operating temperature	°C	T_{case}	10		50	
Connectors						1.85 mm
Dimensions	mm				42.6 30.3 9	Width Length Height
Weight	g			17.5		

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

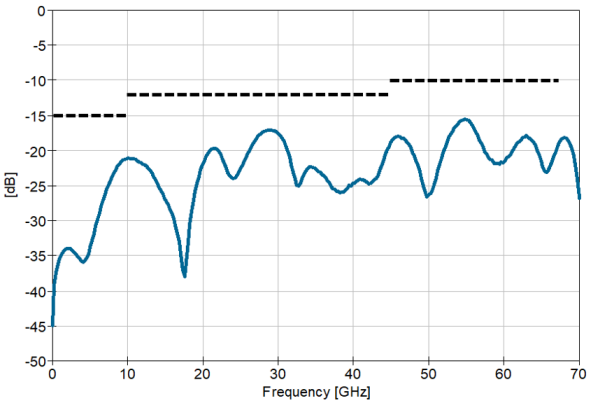
Electrical Characteristics (At 25°C case temperature, unless otherwise specified)

Parameter	Unit	Symbol	Min	Typ	Max	Conditions
Maximum Operating Frequency	GHz	f_{max}	67			
Minimum Operating Frequency		f_{min}			DC	
Input Impedance	Ω			50		
Insertion Loss	dB	IL			7 7.5 7.8 8	f < 10 GHz 10 GHz < f < 30 GHz 30 GHz < f < 45 GHz 45 GHz < f < 67 GHz
Input Return Loss (Port 1)	dB	RL	15 12 10			f < 10 GHz 10 GHz < f < 45 GHz 45 GHz < f < 67 GHz
Effective Output Match[2] (Ports 2 and 3)	dB	Γ_g	15 11 10 9 8			f < 10 GHz 10 GHz < f < 30 GHz 30 GHz < f < 45 GHz 45 GHz < f < 60 GHz 60 GHz < f < 67 GHz
Amplitude Balance[3]	dB				±0.4 ±0.7 ±0.8	f < 10 GHz 10 GHz < f < 30 GHz 30 GHz < f < 67 GHz
Phase Balance[4]	deg				±4 ±7 ±8 ±10	f < 10 GHz 10 GHz < f < 30 GHz 30 GHz < f < 45 GHz 45 GHz < f < 67 GHz

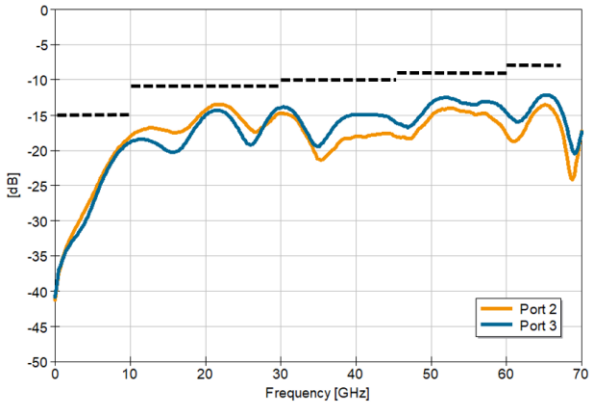
[2] The "effective output match", also called "equivalent source match" or "equivalent output reflection coefficient", is defined as $\Gamma_{g,2} = S_{22} - S_{21} * S_{32} / S_{31}$ and $\Gamma_{g,3} = S_{33} - S_{31} * S_{23} / S_{21}$ for port 2 and 3, respectively.
[3] The amplitude balance between the output ports is defined as the amplitude difference in dB of the output signals at port 2 and 3. It is calculated as: $|S_{31}|_{dB} - |S_{21}|_{dB}$.
[4] The phase balance between the output ports 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[5]

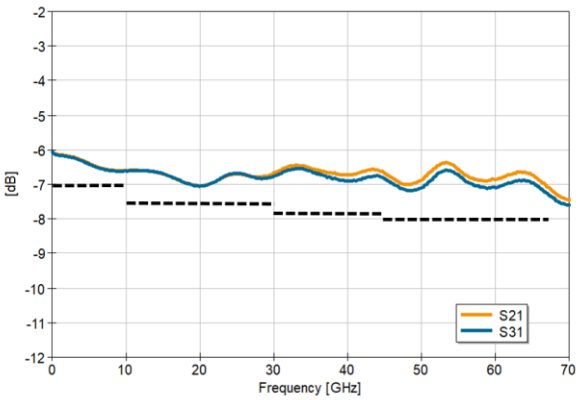
S11



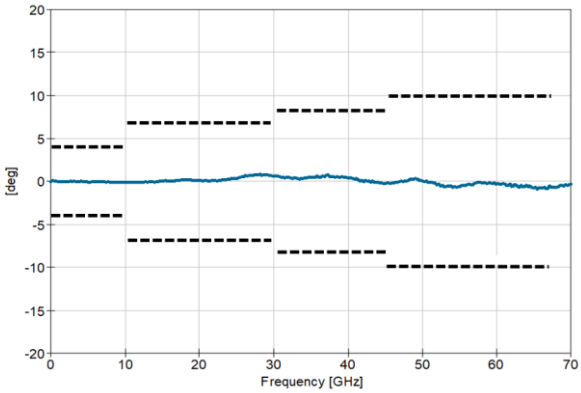
Effective Output Match



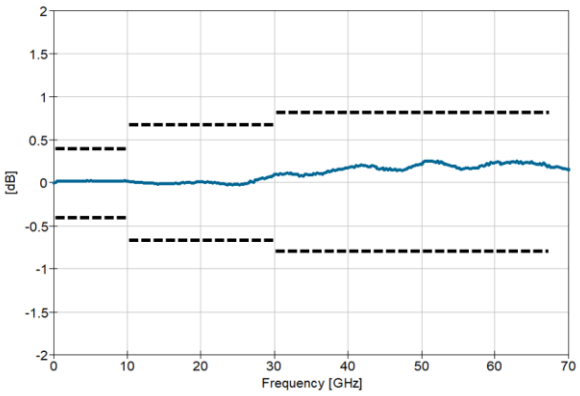
S21, S31



Phase Balance



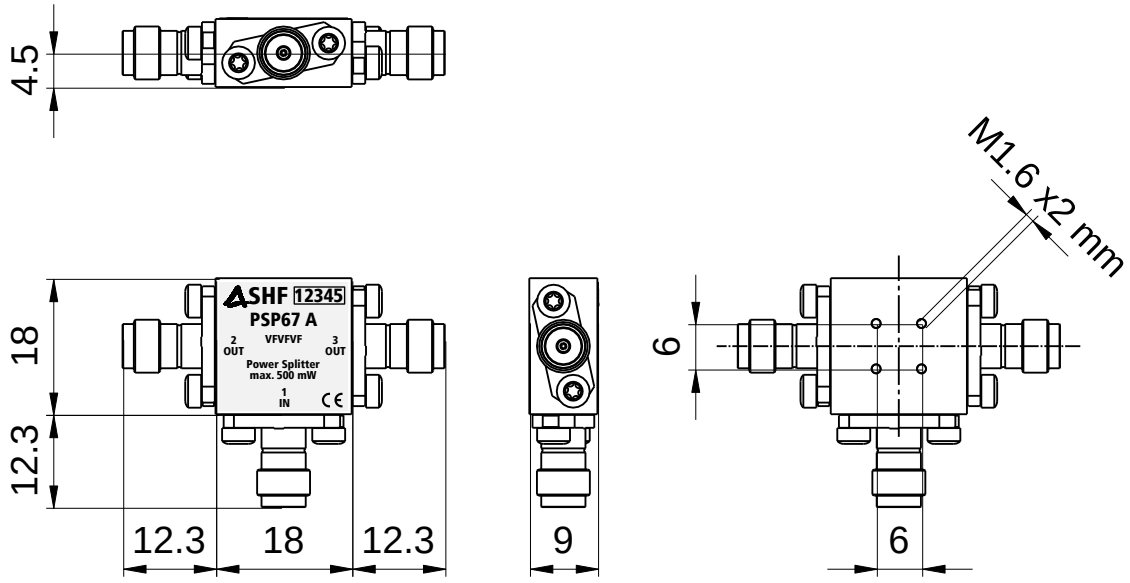
Amplitude Balance



- **Solid lines = Measurements**
- **Black dashed lines = Specifications**

[5] These typical plots are valid for the VFVFVF configuration.

Mechanical Drawing



All dimensions in mm

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