

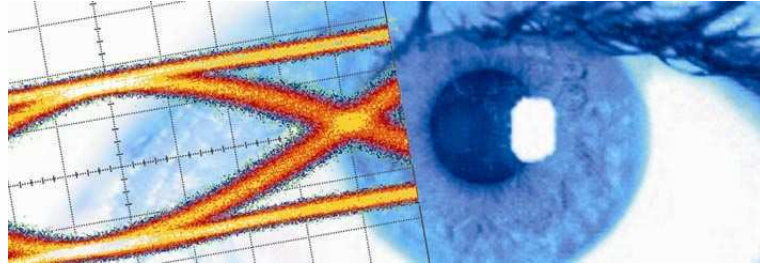


## SHF Communication Technologies AG

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

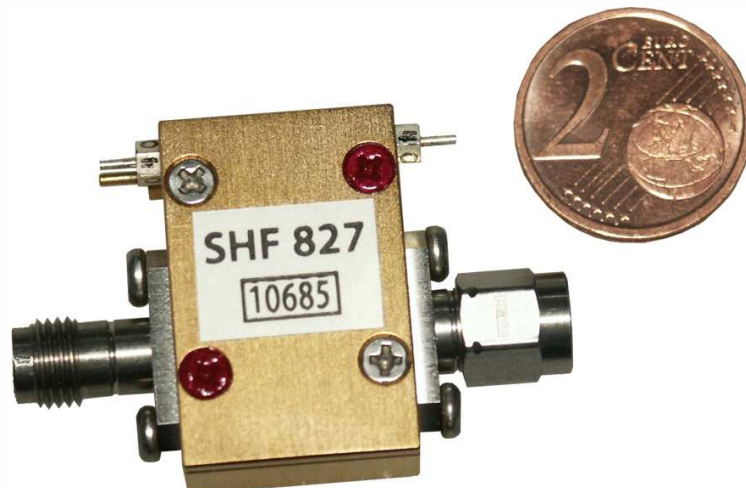
Phone ++49 30 / 772 05 10 • Fax ++49 30 / 753 10 78

E-Mail: [sales@shf.de](mailto:sales@shf.de) • Web: <http://www.shf.de>



# Datasheet

## SHF 827





## Specifications – SHF 827

(Typical Data at 30°C case temperature (T <sub>C</sub> ); V <sub>DD</sub> =5V / I <sub>DD</sub> ~130mA; unless otherwise specified)						
Parameter	Symbol	Unit	Min	Typ	Max	Conditions
High frequency 3dB point	f <sub>High3</sub>	GHz	65			note 1
Low frequency 3dB point	f <sub>Low</sub>	kHz			50	note 1
Small Signal Gain	G <sub>p</sub>	dB	10			@40MHz; note 2
Output Eye Amplitude	V <sub>out</sub>	V <sub>pp</sub>	2.0			V <sub>in</sub> ~ 0.68V <sub>pp</sub> , see page
Saturated Output Eye Amplitude	V <sub>sat</sub>	V <sub>pp</sub> (dBm)	3.5 (15)			
Input signal level	V <sub>in</sub>	V <sub>pp</sub> (dBm)			2 (10)	
Output jitter, RMS value	J	fs			550	calculated value; note 2
Input return loss	S <sub>11</sub>	dB			-10	< 12 GHz
					-5	< 40 GHz
Output return loss	S <sub>22</sub>	dB			-10	< 30 GHz
					-5	< 45 GHz
Positive supply voltage	V <sub>DD</sub>	V	4		6	
Positive supply current (drain current)	I <sub>DD</sub>	mA		130		for 50% Crossing @ max. output level; depends on V <sub>G1</sub> ; note 3
Bias control voltage (gate voltage)	V <sub>G1</sub>	V	-5		5	max. 15mA; ; note 3
Power dissipation	P <sub>D</sub>	W		0.65		
Input connector						V (1.85mm; female)
Output connector						V (1.85mm; male)
Storage temperature	T <sub>STG</sub>	°C	-55		+75	

### Note 1:

With -20dBm signal input power. The inspection report (included in every delivery) will show the gain characteristics up to 80 GHz (110 GHz on request).

### Note 2:

Signal source SHF BPG 44E; bit rate 44Gbps; pattern length: 2<sup>31</sup>-1 NRZ; Jitter in: ~335fs; V<sub>out</sub>: ~2.4 V<sub>pp</sub>; TC = 30°C. Measured jitter values are corrected according to the formula: J = (J<sub>out2</sub> – J<sub>in2</sub>)<sup>1/2</sup>.

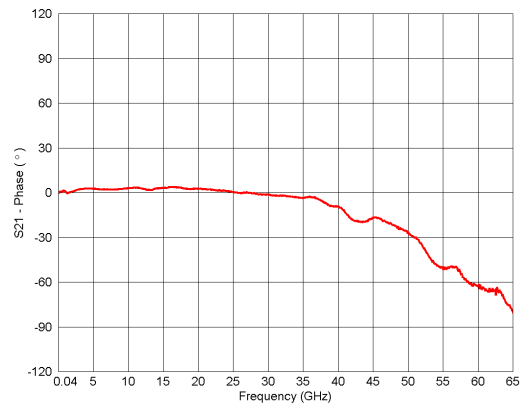
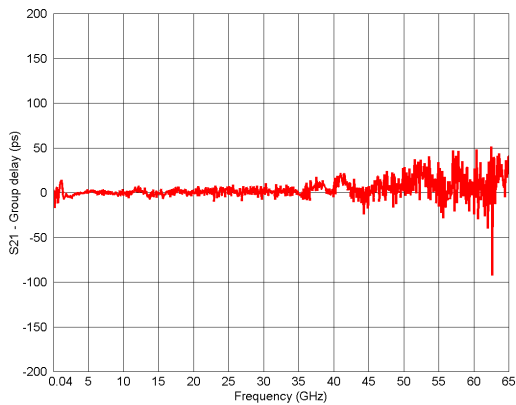
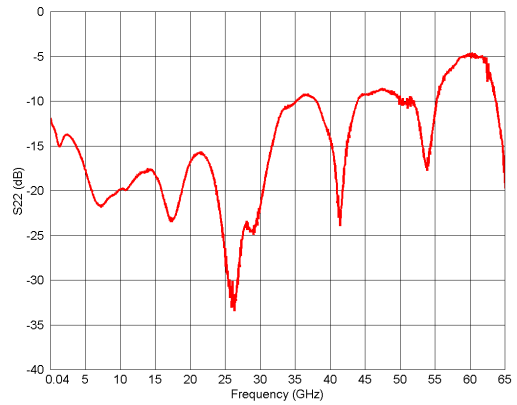
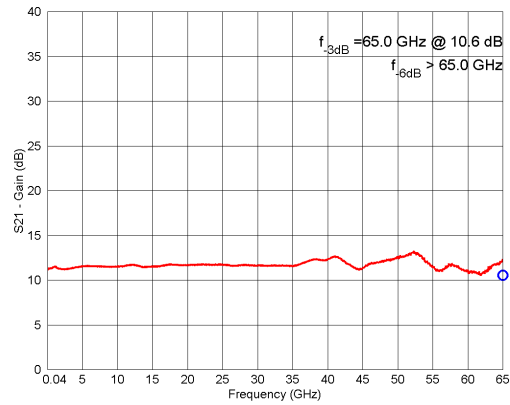
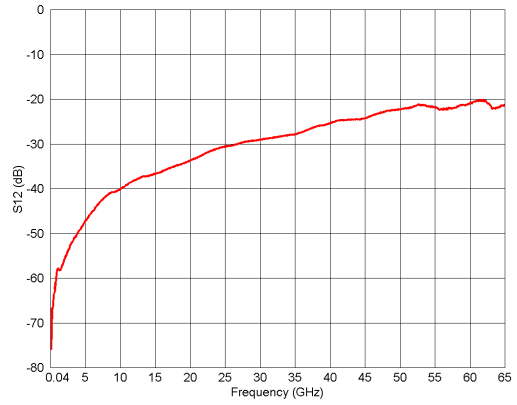
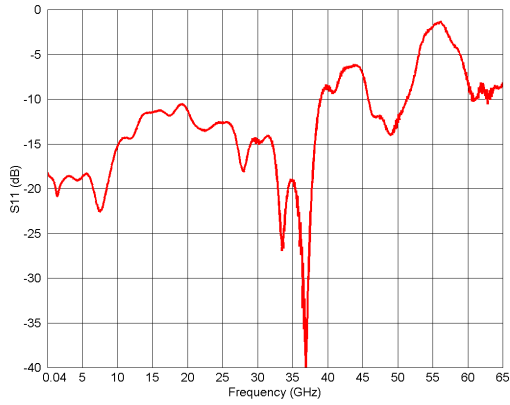
### Note 3:

Value depends on MMICs.

Individual values for optimum drain current (IDD) and 50% crossing will be provided for each particular amplifier.

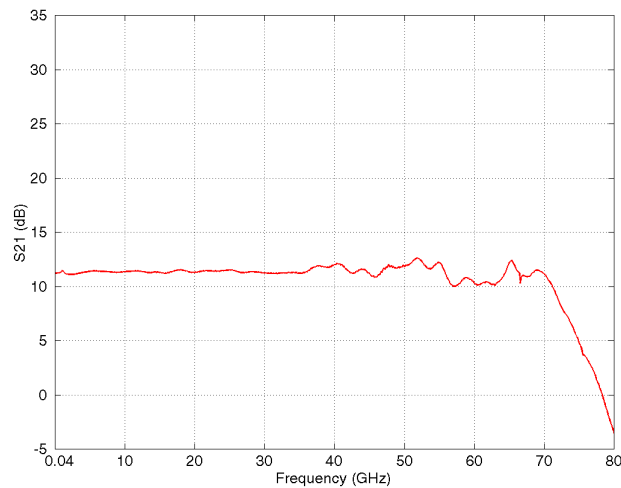


# S-Parameters – SHF 827



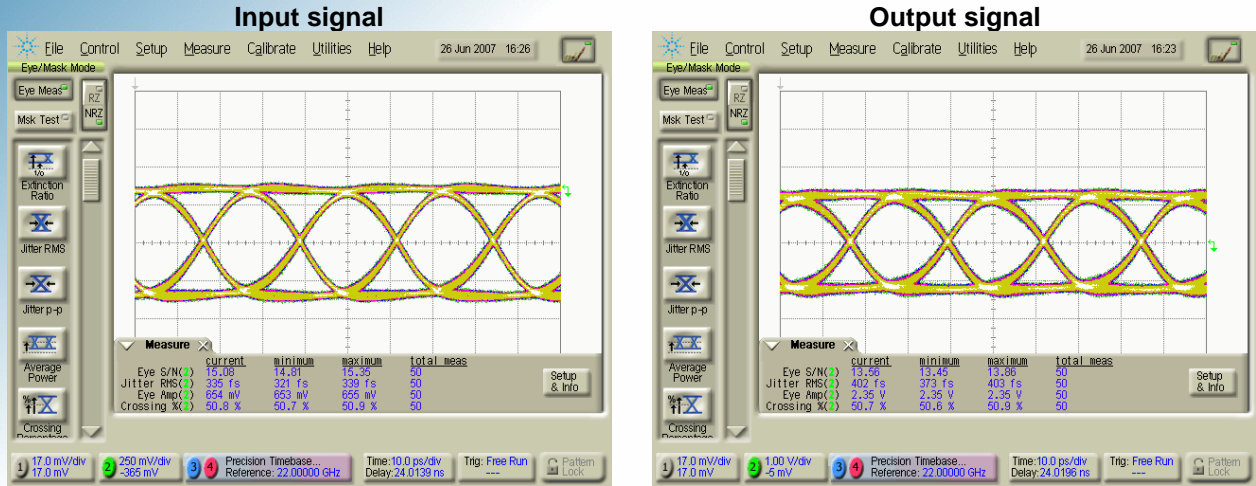
Aperture of Group Delay measurement: 91 MHz

## Typical gain characteristic up to 80 GHz



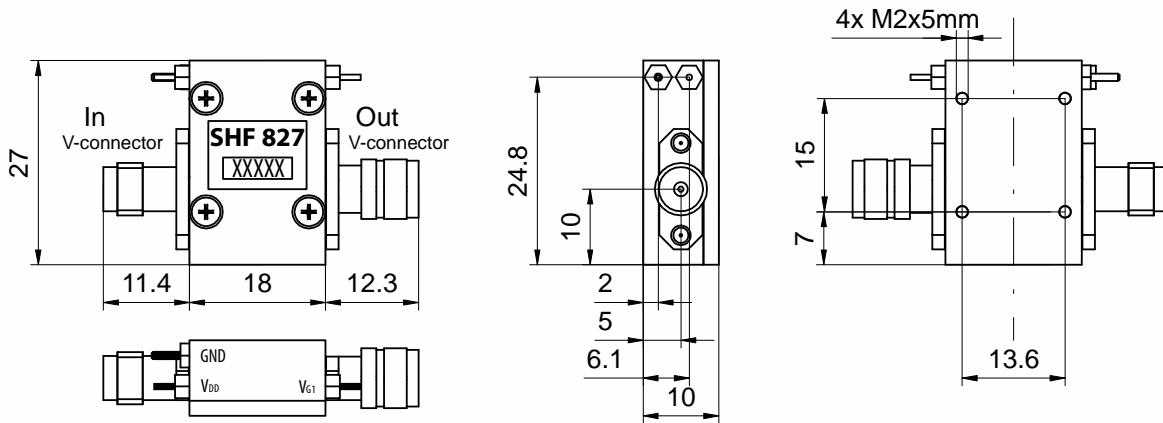


# Eye diagram at 44 Gbps – SHF 827



Measured with Agilent 86100A with 86118A plug-in (70 GHz) and 86107A precision time base.  
Signal source: SHF BPG 44 E; Pattern length:  $2^{31}-1$ (NRZ)

## Mechanical drawing – SHF 827



## Available Options – SHF 827

- 01: DC return on input (max. ±1.75 V, max. 35 mA)
- 02: Built-in bias tee on input (max. ±10 V, max. 220 mA)
- 03: DC return on output (max. ±1.75 V, max. 35 mA)
- 04: Built-in bias tee on output (max. 0...10 V, max. 220 mA)
- MT: Special tuning available to optimize performance with E/O modulators (Positive gain slope of up to +3 dB possible)
- MP: Matches the phase of two amplifiers

### Please note:

Only one option out of 01 – 04 is available at the same time.

S parameters may be slightly different from above stated specifications if of option 01, 02, 03 or 04 is chosen.