

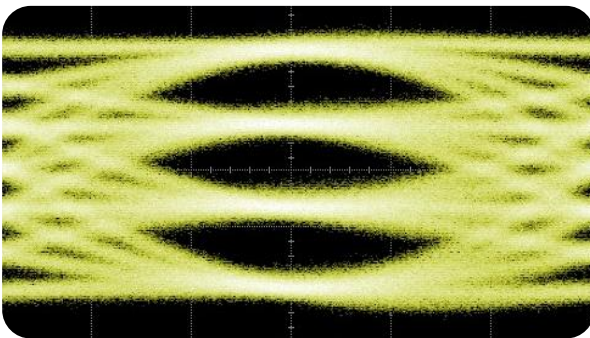
SHF Broadband Amplifiers

SHF has 40 years of experience in amplifier design and production. All key MMICs used in our products are our own in-house designs. The outstanding RF performance makes our amplifiers well suited for a wide variety of applications in research & development. This includes not only optical communications, but also satellite communications, high-speed pulse experiments, data transmission, radar measurements, quantum communication and computing.

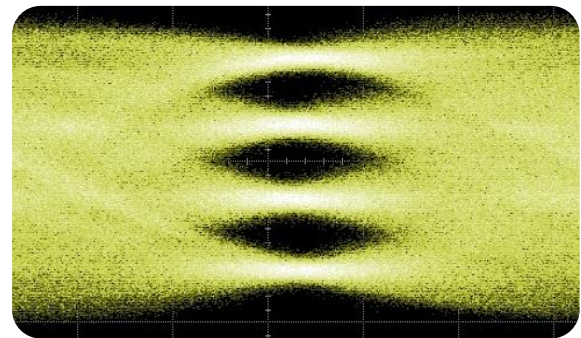


The Fastest Amplifiers

The SHF T850 C set a milestone as the first commercially available amplifier surpassing 100 GHz of 3 dB bandwidth. Now, with the SHF T851 A, we introduce an equally fast amplifier with enhanced linearity and optimized group delay performance. Amplified PAM4 signals are shown below.



112 GBaud (224 Gbps)



140 GBaud (280 Gbps)

Output Signals of a SHF T851 A¹

Linear Operation

In some modulation schemes, the optical modulator is driven with an electrical multi-level signal (e.g. for QAM or PAM) or with an analog signal (e.g. for OFDM). SHF amplifiers have been verified for their excellent performance with multi-level and analog signals.

Ease of Use

All operating voltages are generated internally. Therefore, only one single external power supply is needed. In addition, built-in safety features such as reverse-voltage protection and current regulators eliminate the potential risk of accidental damage.

Options

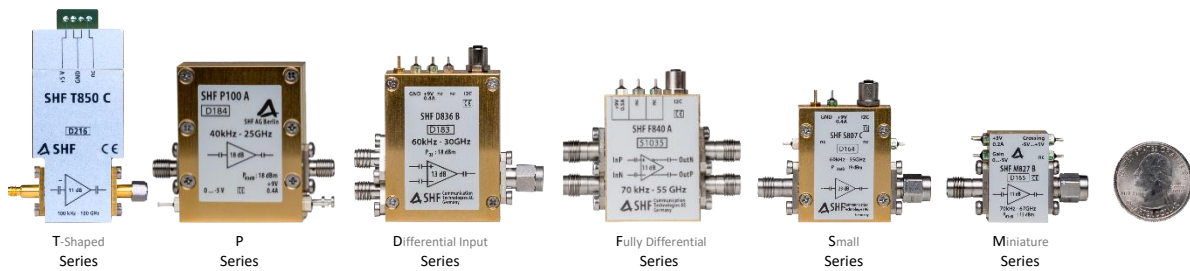
Internal bias tees can be added to the input or output ports. Matched pair options are also available for applications where the DUT has to be driven differential or on multiple lines. In addition to that it is possible to mount two or four amplifiers on one common heat sink, to place the amplifiers as close as possible to the DUT (e.g. an optical modulator with two or four inputs).

¹ Measurements performed with a Keysight M8199B AWG (SSPRQ Pattern) after an "in-system" calibration.



Form Factor & Control Functions

SHF amplifiers are available in different styles as indicated by the first letter in the product code.



Each amplifier has a gain control function to reduce the gain continuously by up to 3 dB. The SHF “S”, “D” and “F” series even provide a software control to set parameters like gain, output power, bandwidth and crossing (if available for the particular amplifier type). The “D” series features differential input, single-ended output linear drivers with excellent common mode suppression. The SHF F840 A is SHF’s first fully differential amplifier.

Product Range

The table shows all the SHF amplifiers with their guaranteed small signal bandwidth and typical gain. For linear applications, the guaranteed 1 dB power compression point indicates the possible output amplitude (note, for binary applications the higher 3 dB compression is a more appropriate value).

Bandwidth	100 GHz	T850 C 11 dB	T851 A 10 dB							
	70 GHz		M827 B WFSM 11 dB							
	66 GHz		M804 C 22 dB	M827 B 11 dB						
	60 GHz				S804 B 22 dB					
	55 GHz		M803 A 22 dB			F840 A 11 dB	S807 C 23 dB			
	50 GHz					M833 B 12.5 dB				
	35 GHz				D837 C 10 dB			SHF S824 A 25 dB		
	34 GHz						M834 B 15 dB			
	30 GHz					D836 C 12 dB				
	25 GHz					P100 A 18 dB	P115 A 25 dB		P101 A 16 dB	S126 A 29 dB
14 GHz								P101 A ML 16 dB		
		10 dBm	11 dBm	12 dBm	13 dBm	14 dBm	15 dBm	16 dBm	18 dBm	23 dBm
1 dB compression point										

