

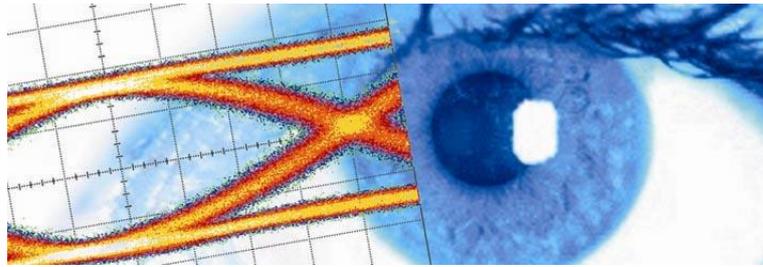


SHF Communication Technologies AG

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

Phone +49 30 772051-0 • Fax +49 30 7531078

E-Mail: sales@shf-communication.com • Web: www.shf-communication.com



Datasheet

SHF C623 B

120 Gbps

1:2 Demultiplexer





Description

The SHF C623 B is a ROHS compliant 1:2 demultiplexer (DEMUX) operating at data rates up to 120 Gbps for use in broadband test setups and telecom transmission systems. It is the ideal counterpart to the SHF C603 B (MUX).

One single ended or differential serial data stream is accepted by the demultiplexer and converted into two single ended data signals at a output data rate of 60 Gbps. A single-ended clock signal with a frequency half of the input data rate drives the SHF C623 B. All RF in- and output ports are AC-coupled and internally terminated with 50 Ohm to GND. Unused in- or output ports should be terminated with 50 Ohm.

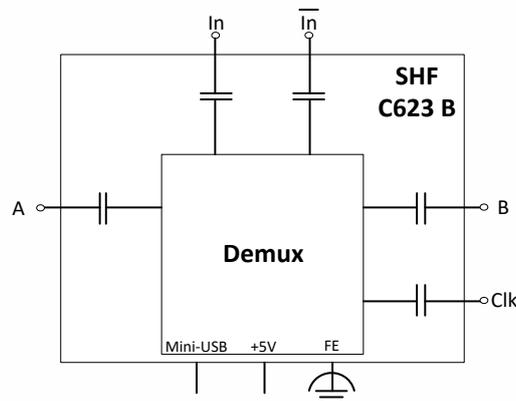
Features

- Broadband operation up to 120 Gbps
- Differential data input
- Data Input Sensitivity <110 mV (single ended)
- Single ended data outputs

Applications

- 100G, 200G, 400G and 1T system evaluation & development
- Telecom transmission
- Broadband test and measurement equipment

Block Diagram



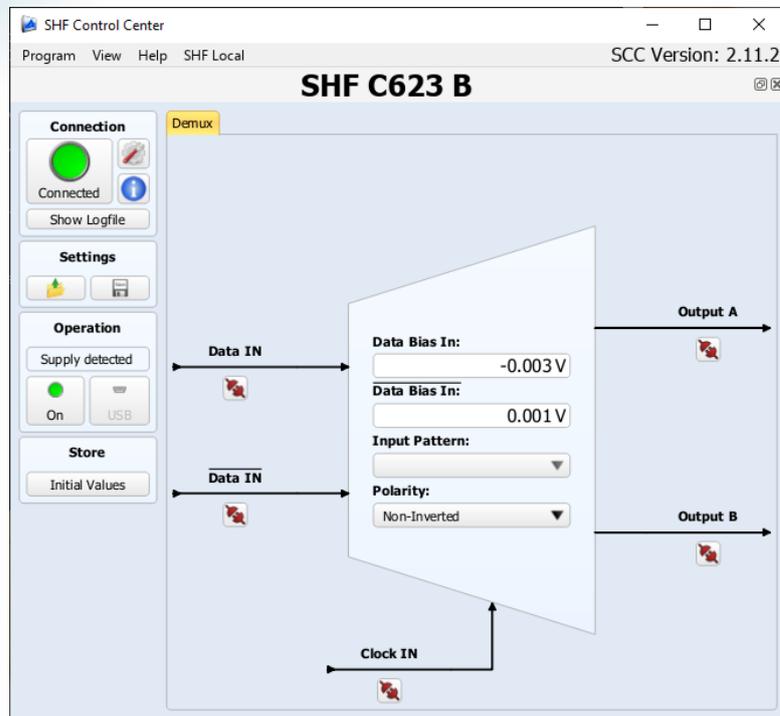
Accessories

- +5V Power Supply Desktop Adapter
- Functional earth cable
- Mini-USB cable



Remote Interface & Software

The DEMUX is controlled by the easy to use software package SHF Control Center (SCC). The DC input threshold voltages (Data / Inverted Data Bias) can be set and are displayed in the graphical user interface (GUI).



SHF Control Center (SCC)

Absolute Maximum Ratings

Parameter	Unit	Symbol	Min.	Typ.	Max.	Comment
Input Parameters						
Data Input Voltage	mV	$V_{data\ in}$			900	Peak-to-Peak
Clock Input Voltage	mV	$V_{clk\ in}$			900	Peak-to-Peak
External DC Voltage on Data Input Ports	V	V_{DCin}	-3		+3	AC coupled input
External DC Voltage on Clock Input Port	V	V_{DCin}	-6		+6	AC coupled input
External DC Voltage on RF Output Ports	V	V_{DCout}	-6		+6	AC coupled output
DC Supply Voltage	V	V_{cc}	0		+6	



Specifications

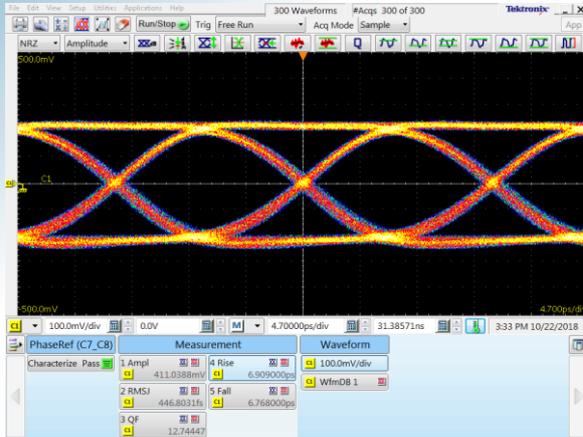
Parameter	Unit	Symbol	Min.	Typ.	Max.	Comment
Input Parameters						
Minimum Input Data Rate	Gbps	$R_{in,min}$			10	
Maximum Input Data Rate	Gbps	$R_{in,max}$	120			
Data Input Voltage	mV	$V_{data\ in}$		400	800	Eye Amplitude; Single-ended
Data Input Sensitivity	mV	$V_{data\ in}$	60 80 110			≤ 80 Gbps > 80 ... ≤ 100 Gbps > 100 Gbps Eye height; Single-ended; On scope display; See Page 7
Min. Clock Input Frequency	GHz	$f_{in,min}$			5	
Max. Clock Input Frequency	GHz	$f_{in,max}$	60			
Clock Input Voltage	mV	$V_{clk\ in}$	550 400		800 800	> 100 Gbps ≤ 100 Gbps Peak-to-Peak
Output Parameters						
Output Amplitude	mV	V_{out}	350	400		Eye Amplitude; Single-ended
Rise / Fall time	ps	t_r/t_f		7	9	20 % / 80 %; On scope display
Output Jitter, RMS value ¹	fs	J_{rms}		400	650	
Power Requirements						
Supply Voltage	V	V_{cc}	+5	5.2	+5.5	2.5 x 0.7 mm DC Power Jack
Supply Current	mA	I_{ee}		830	950	
Power Dissipation	mW	P_d		4150		@ $V_{cc} = +5V$
Mechanical Characteristics						
Connectors	Ω			50		1.85 mm (V) female
Dimensions	mm					see pages 8 & 9
Weight	g			90		
Conditions						
Operating Temperature	$^{\circ}C$	$T_{ambient}$	15		35	

¹ Test condition: Input Signal Jitter_{RMS} = 230 fs

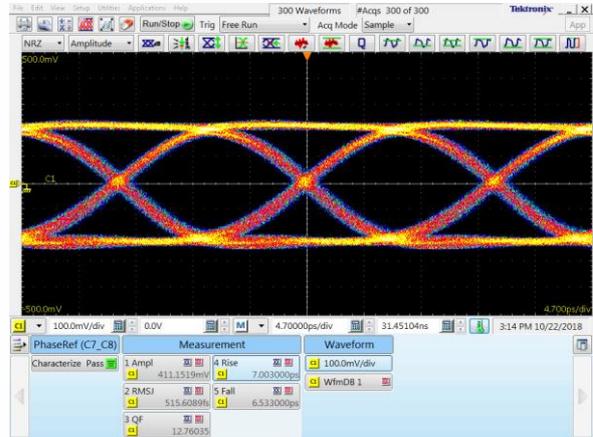


Typical Output Eye Diagrams

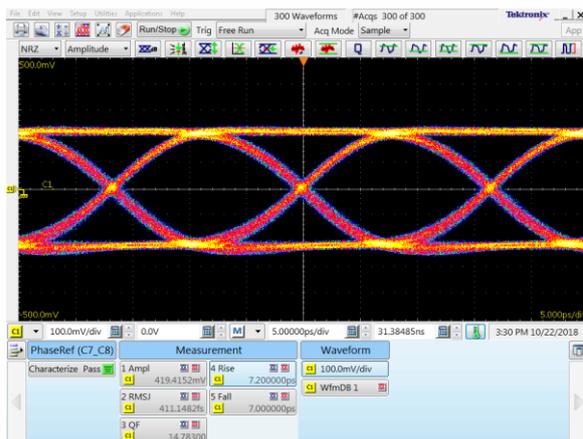
The measurements below had been performed using a SHF 603 B MUX (PRBS $2^{31}-1$) and a Tektronix DSA8300 with Phase Reference Module (82A04B) and 70 GHz Sampling Head (80N01). The outputs of the demultiplexer module had been connected by 10 dB attenuators to the DSA input.



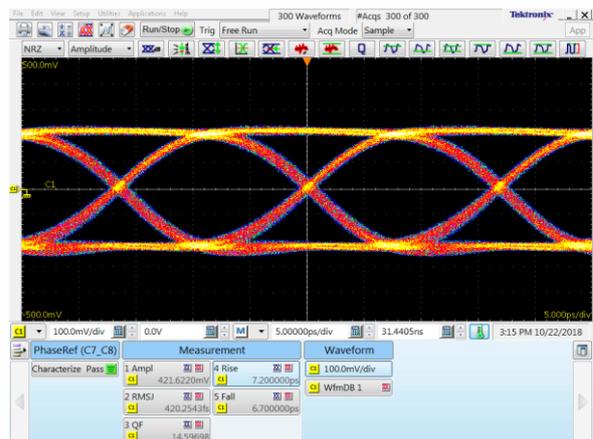
Out A @ 64 Gbps Output Bitrate



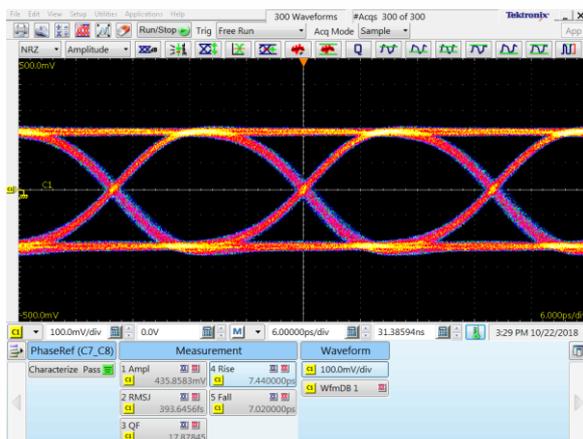
Out B @ 64 Gbps Output Bitrate



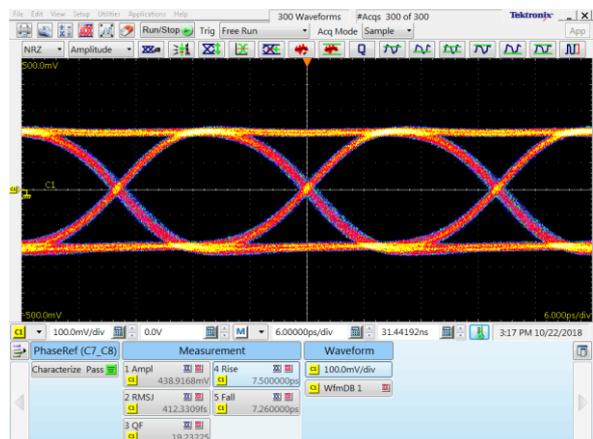
Out A @ 60 Gbps Output Bitrate



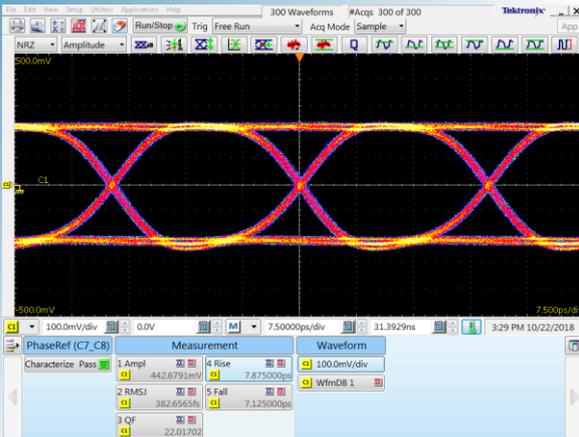
Out B @ 60 Gbps Output Bitrate



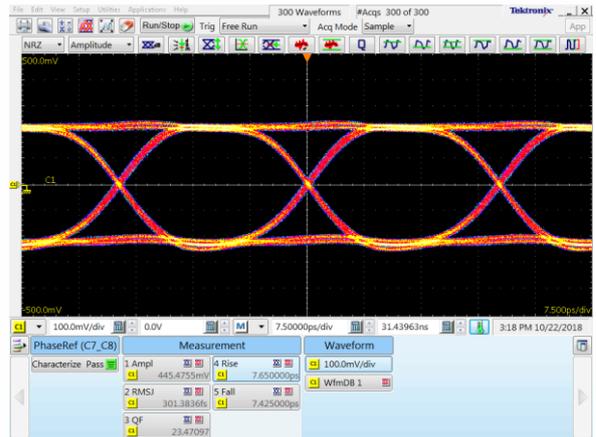
Out A @ 50 Gbps Output Bitrate



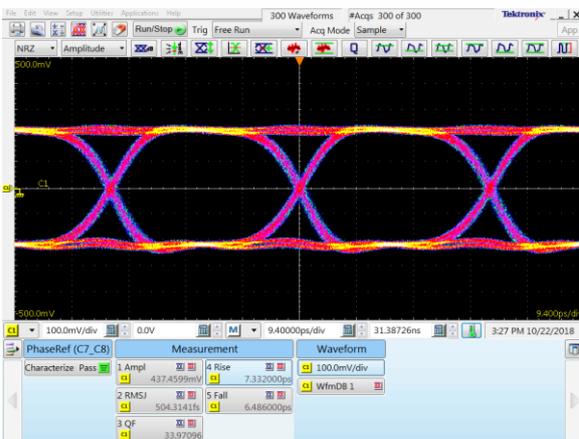
Out B @ 50 Gbps Output Bitrate



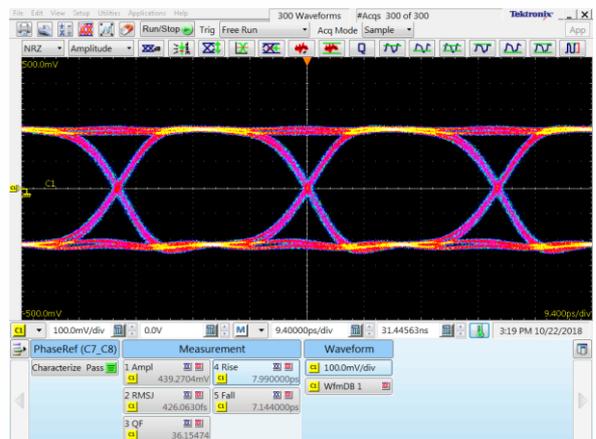
Out A @ 40 Gbps Output Bitrate



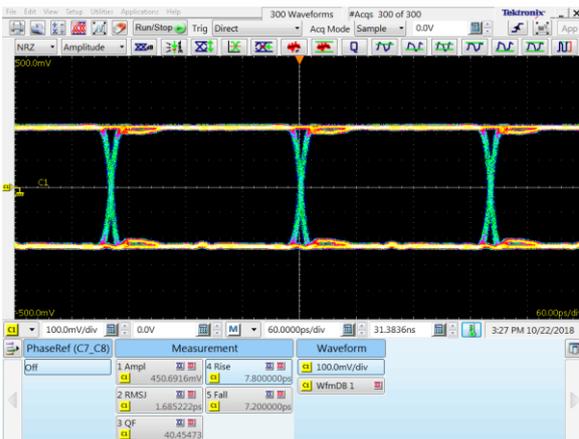
Out B @ 40 Gbps Output Bitrate



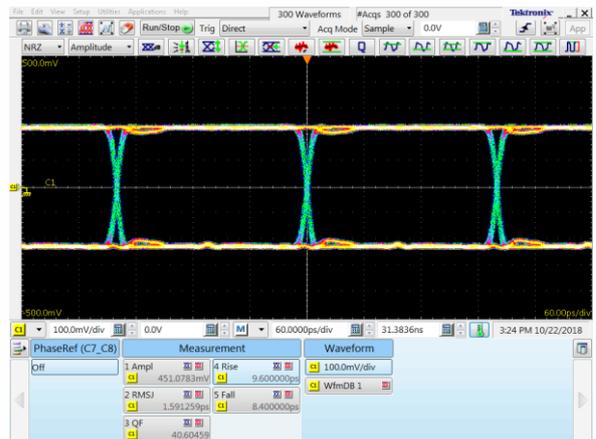
Out A @ 32 Gbps Output Bitrate



Out B @ 32 Gbps Output Bitrate



Out A @ 5 Gbps Output Bitrate

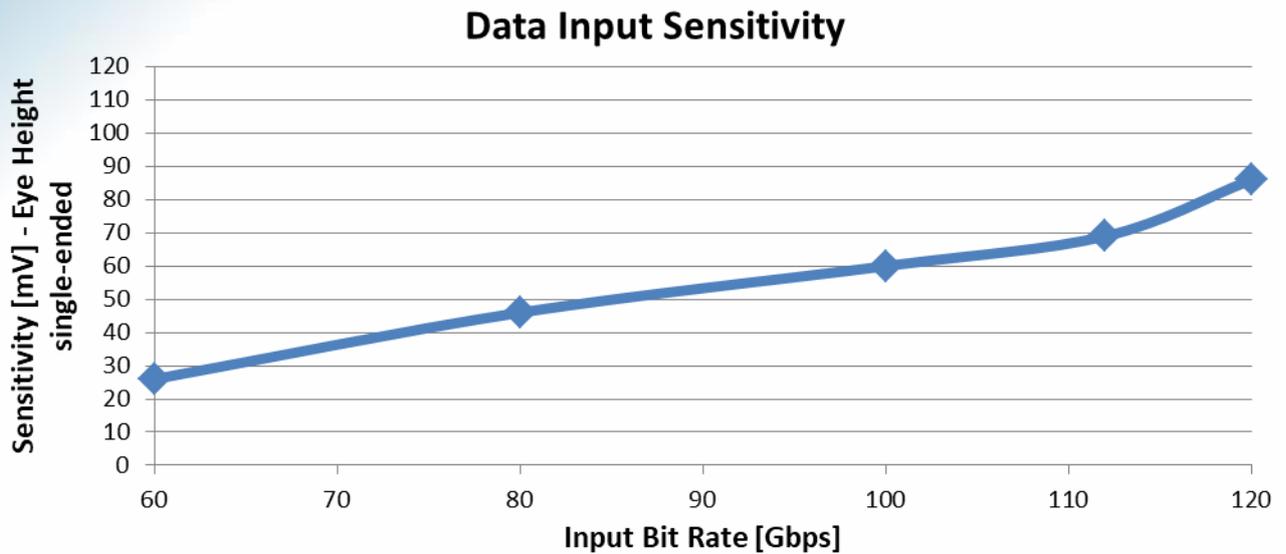


Out B @ 5 Gbps Output Bitrate



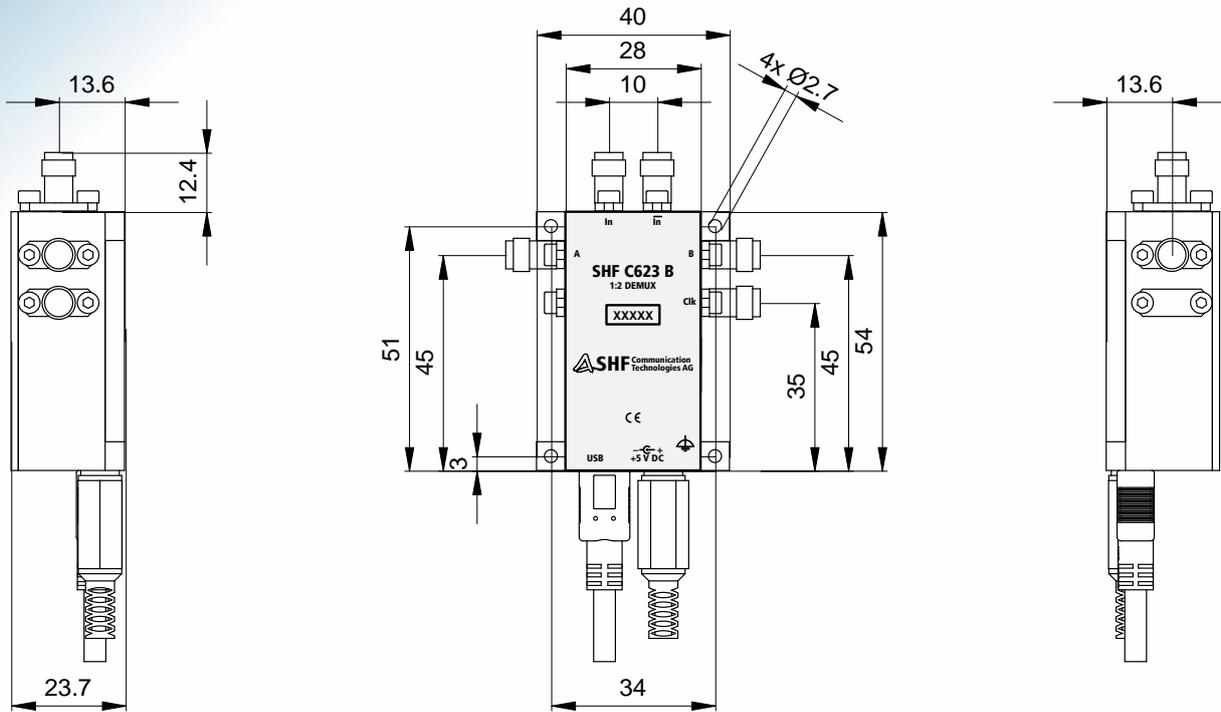
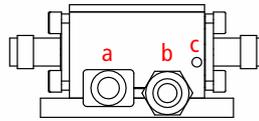
Typical Performance

The measurements shown below had been performed using a SHF C603 B MUX (PRBS $2^{31}-1$), a SHF 11104 A Error Analyzer, a Keysight DCA-X N1000 A with Precision Timebase and 70 GHz Sampling Head (80N01) to determine the eye height of the input signal. For the sensitivity measurement the input signal had been reduced until a BER limit of $<10^{-9}$ was achieved.

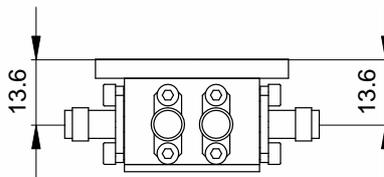




Outline Drawing – Module



Port	Connector
In	1.85mm (V) female
In	1.85mm (V) female
A	1.85mm (V) female
B	1.85mm (V) female
Clk	1.85mm (V) female



all dimensions in mm

Port	Connector
a	USB
b	Power Supply
c	Functional earth (FE)



Outline Drawing – Module with Heat Sink

