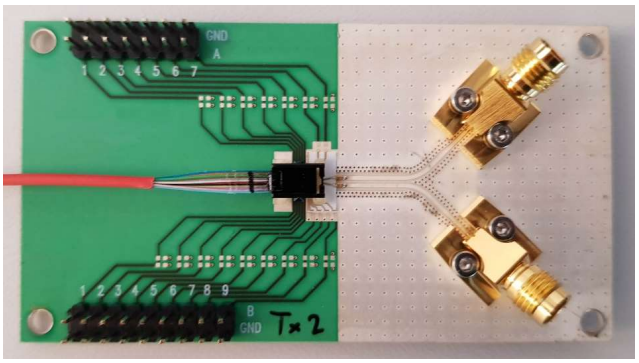
Datasheet
T56-850TB

Vertically Integrated Systems

Up to 56 Gbit/s NRZ
800-1550 nm
Single channel optical transmitter

Product Code:
T56-850TB



Sample image only. Actual product may vary.

Engineering Samples
Preliminary datasheet

Product Description

The T56-850 transmitter optical subassembly combines an 850nm VCSEL and an optional driver IC integrated on a test board and fiber coupled with a 50/125 µm multimode fiber. The T56-850nm is designed for high speed data communication applications. The device is configured for differential drive and a controlled impedance circuit is available for optimum performance.

VCSEL version installed: **VM100-850-GSG** (datasheet) or **VM100-850-qSM** (datasheet)
IC version installed: **A56-230C** High Speed VCSEL driver (up to 56 Gb/s NRZ) (datasheet)

Features
- Up to 56 Gbit/s (NRZ modulation)
- 50/125 um fiber coupled testboard
- 1.85 mm electrical RF connectors
- FC/PC optical connector

Applications
- CEI-56G-NRZ (XSR/USR/MR/LR)
- Proprietary optical interconnects
- Research and development

Parameter	Typical	Notes
Operating Wavelength	800 ~ 1550 nm	
Data rate	up to 56 Gbit/s	NRZ
Supply voltage	3.3 V	
Maximum power consumption	250 mW	

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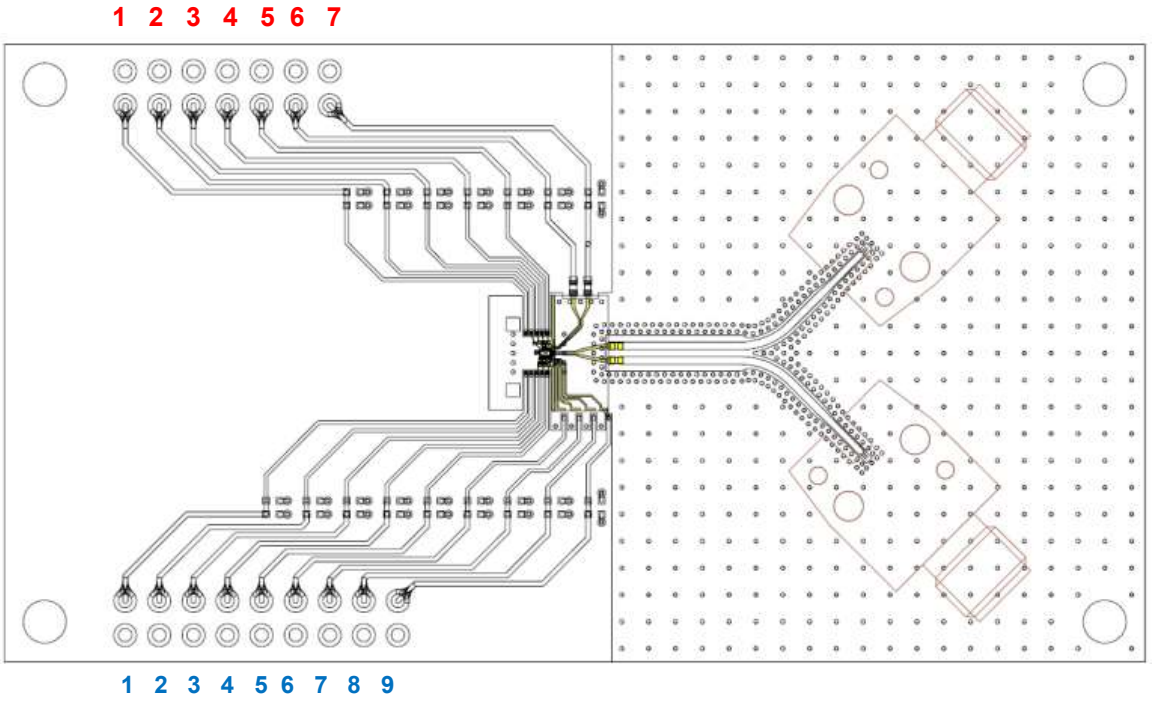
Electro-Optical Specifications (T = 0 to 85°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Peak emission wavelength	□	P_{out} = 0.5mW	840	850	860	nm
Case operating temperature	T_{op}		10		50	°C
RMS spectral width	λrms	P_{out} = 0.5mW			0.5	nm
λp temperature coefficient	Δλ			0.06		nm/°C
Relative intensity noise	RIN	56 Gbit/s			130	dB/Hz
Rise/Fall time	T_r	P_{out} = 0.5mW		8		psec
20-80%	T_f	56 Gbit/s		9		psec
Threshold current	I_{th}			0.7		mA
Ith temp variation	□ I_{th}	T = 10 °C to 50 °C		+1.0	+2.0	mA
Laser forward voltage	V_f	P_{out} = 0.5mW		2.2		V

PIN configuration

Pin	Name
1	Thru
2	Bias
3	Mod
4	PE
5	Xing
6	Not used
7	Not used
1	Not used
2	Vcc
3	Vcc
4	BW
5	Vcc
6	Not used
7	Not used
8	Not used
9	Not used



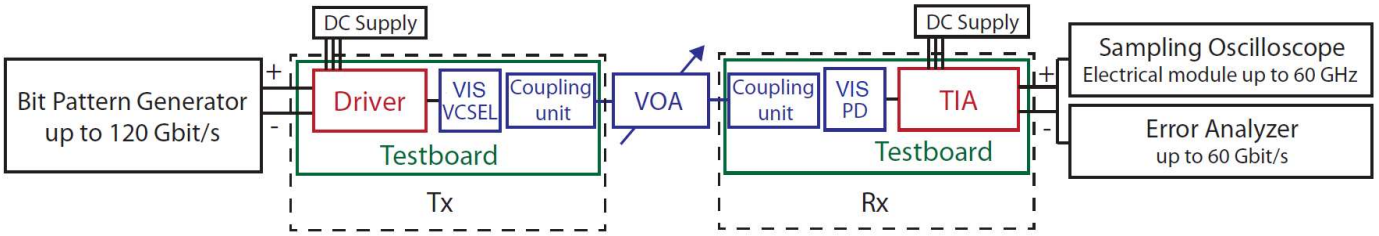
Exemplary voltages and currents:

RX version	*Vcc*	*Vmod*	*Vbias*	*Vxing*	*Vno_xing*	*Vbw*	*Input*
	3.3V (~67mA)	*2.5V (~1mA)*	*2V (~1mA)*	*2.2V (<1mA)*	*3.3V (~1mA)*	*Grounded*	*1.2Vpp (diff.)*

- See how control voltages influence the operation in the IC datasheet
- Ground supplied by RF connector.
- Common ground for all PINs is required.
- All Vcc PINs connected together to the same power supply channel.

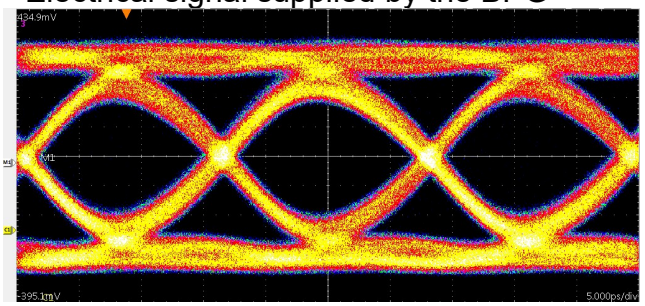
Exemplary performance

Test setup with T56-850TB as Tx and R56-850TB as Rx:

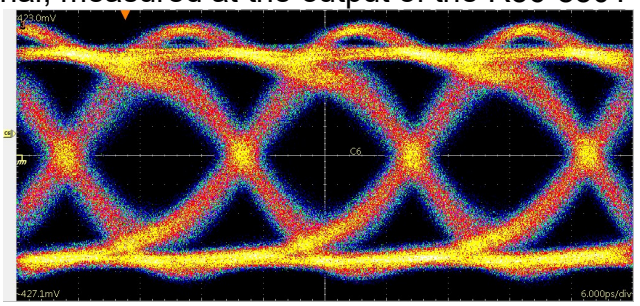


60 Gbit/s NRZ modulation

Electrical signal supplied by the BPG



Signal, measured at the output of the R56-850T

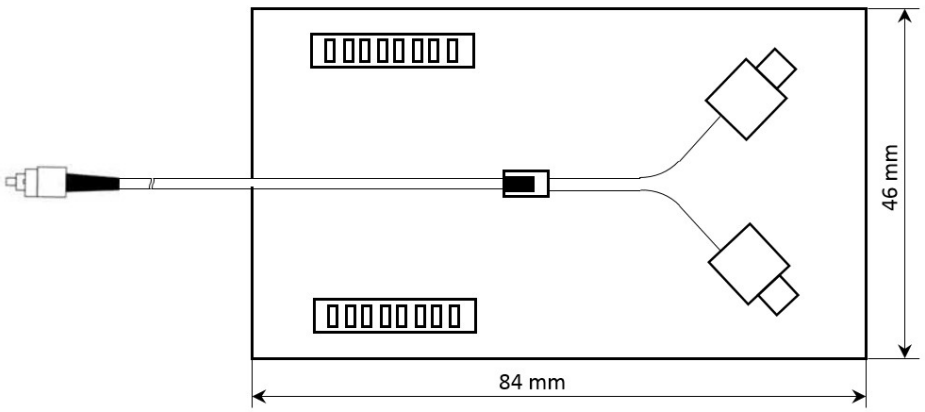


Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Storage temperature	T_{St}		-10		+50	°C
Laser forward current 85°C	I_F				7	mA
Laser reverse voltage	VR_{RD}				-2	V
ESD (Human Body Model)	T_r				Class 1	

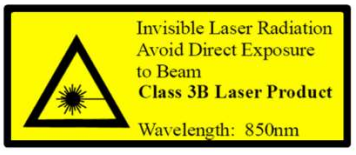
Stress in excess of any of the individual Absolute Maximum Ratings can cause immediate irreversible damage to the component even if all other parameters are within the electro-optical specifications. Exposure to any of the Absolute Maximum Ratings for extended periods can adversely affect the reliability of these chips.

Dimensions



Attention: As soon as supply voltage of 3.3 V is applied the laser will start lasing!
Vbias has to switched on immediately to the correct value, otherwise the laser can be damaged by high current supplied to it.

RoHS Compliant



VI Systems GmbH
Hardenbergstrasse 7
10623 Berlin
Tel.: +49 30 3083143 30
Fax: +49 30 3083143 59
sales@v-i-systems.com
www.v-i-systems.com