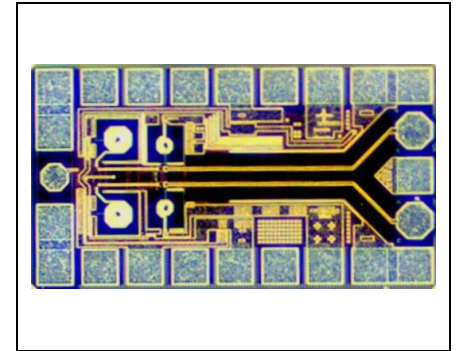


Transimpedance Amplifier 50 Gbit/s



Sample image only. Actual product may vary

Product Code: T50-150C

Preliminary

Product Description

The T50-150C is a high speed transimpedance amplifier IC designed for use by 50G receiver modules in fiber optic transmission systems. The T50-150C operates from a single +3.3 V supply typically dissipating 150mW of DC power and is designed for the use with PIN photodetectors in a wire-bond or flip-chip design.

Features

- 0.25 μm SiGe-BiCMOS technology
- Supports data rates of up to 56 Gbit/s
- Low power consumption: typ. 150mW
- Input sensitivity -10 dBm
- 3.3V power supply
- Small dimensions 1000 μm x 600 μm

Applications

- 25G/50G Ethernet channel testing
- Fibre Channel 32GFC
- Fiber optics systems tests
- Research and development

All product specifications and descriptions are subject to change without notice.

Please contact our sales department for additional information and to receive a quotation: sales@v-i-systems.com

Electrical Specifications

Preliminary

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Maximum Data Rate		BER < 10 ⁻¹²		50	56	Gbit/s
Differential Transimpedance Gain	Z _T	Diff. p-p F=100 MHz			5	kΩ
Input current	I _{IN}				500	μA p-p
Differential Output Amplitude	V _{OUTp} - V _{OUTn}			800		V _{pp}
Small Signal Bandwidth (3dB)	BW			35		GHz
Rise / Fall Time	t _R / t _F	20-80% for I _{IN} > 0.5mA p-p	7	10	12	ps
Input-Referred RMS Noise	I _{N,rms}	40GHz BW			25	pA/Hz ^{1/2}
Total Jitter	J _T	Peak-to-peak, no filter			1.5	ps
Output DC voltage	V _{OUTdc}		0.75		1.6	V
Output Return Loss	RL _{OUT}	< 40 GHz	7	10		dB

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Power Supply Voltage	V _{CC}		-0.5		5	V
Shipping/Storage Temp.	T _{ST}		-40		+125	°C
Soldering Temp.	T _{SD}	< 10 sec			+300	°C

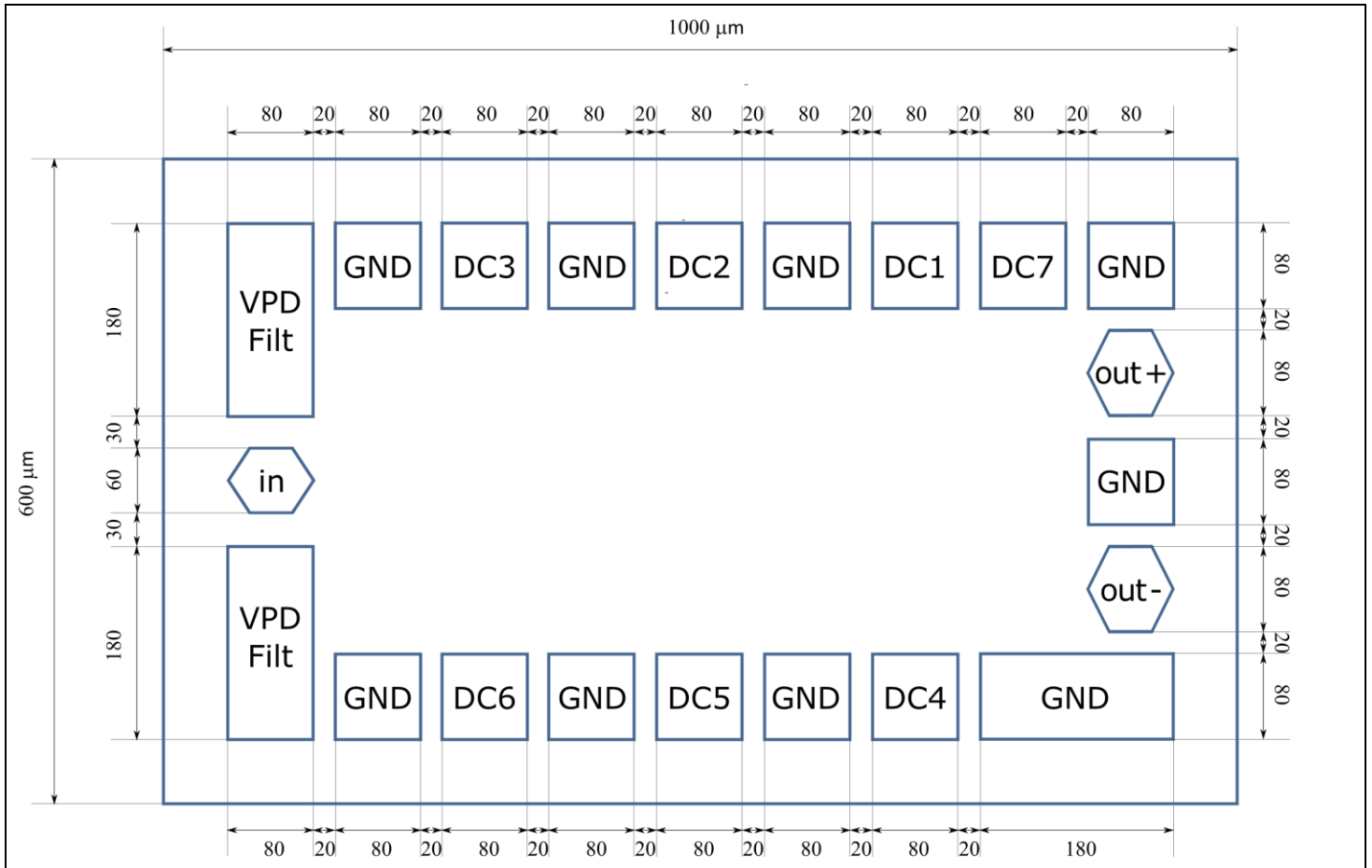
Operating Conditions

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Power Supply Voltage	V _{CC}		+3.1	+3.3	+3.4	V
Power Dissipation	P _D			150		mW
Operating Temperature	T _J		-10	+25	+85	°C

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Pad Layout



Name	Pin	Description	Function
Input	In	Data input: from PIN photodiode	Input
RF GND	VPD Filt	Ground (PIN photodiode)	Input
out-/out+	out-/out+	Data outputs: positive CML	Output
Cblock	DC7	100nF (optional)	Output
Vcc	DC4/DC5/DC6	Power Supply: 3.3V	Supply
PDbias	DC3	PD Supply: typ. 2 to 5V	PD Supply
Vmod	DC2	0 to 3.3V / typ. 3.3V	Supply
Ving	DC1	0 to 3.3V / typ. 1.65V	Supply
GND	GND	Ground	Ground

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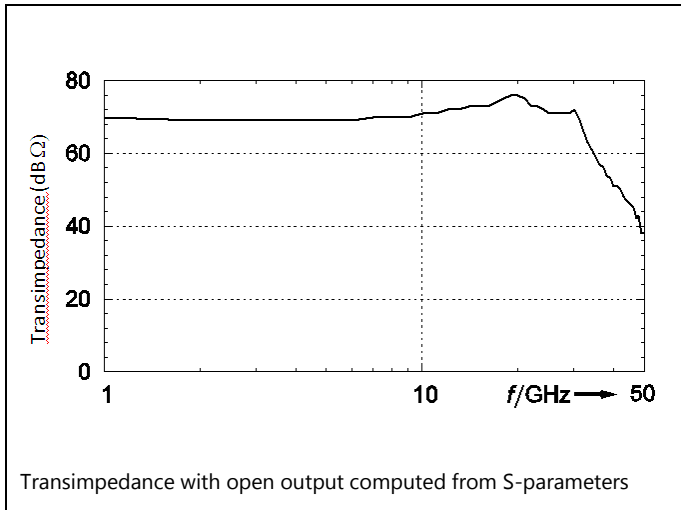
Datasheet

T50-150C

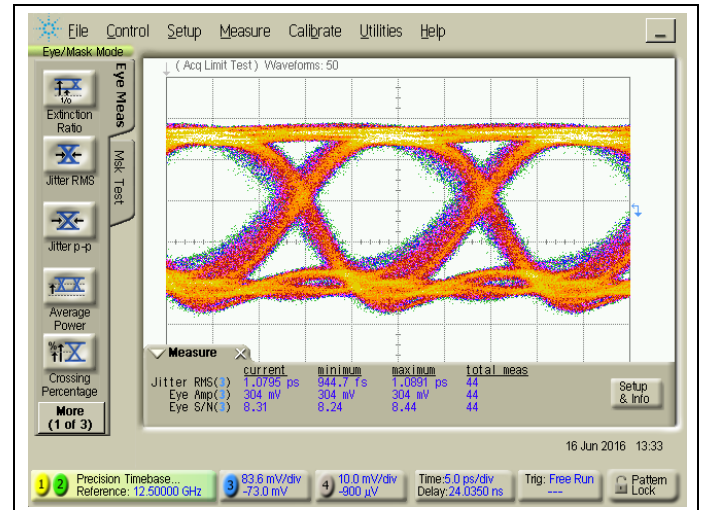


Vertically Integrated Systems

Transimpedance



Eye diagram at 50 Gbit/s



Limited Qualification Notification

The T50-150C has been tested to meet specifications outlined in this data sheet at room temperature. However, it has not undergone full qualification testing or characterization and therefore may not meet the performance specifications over all extremes.



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