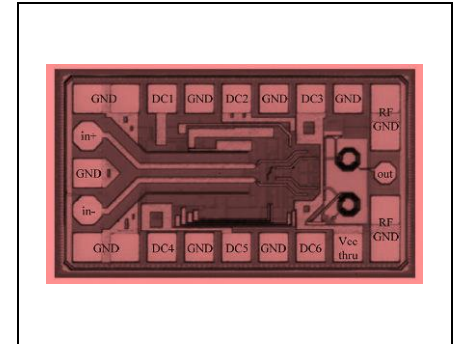


50 Gbit/s Optical modulator Driver IC



Sample image only. Actual product may vary

Product Code: A50-300C90

Preliminary

Product Description

The A50-300C90 is a three stage high speed driver IC designed for the use with 50 Gbit/s optical modulated laser in fiber optic transmission systems. The A50-300C90 operates from a single +5 V supply. It features a high voltage drive capability and low power consumption.

Features

- data rate up to 56 Gbit/s
- Differential ended signal input
- Output drive voltage 2.0Vpp
- small footprint 600 μm x 1,000 μm
- supply voltage 5V
- low power dissipation

Applications

- Research and development
- IEEE 40/100G transceiver
- Proprietary fiber optic links

Parameter	Typical (PD chips)	Notes
Data rate	56 Gbit/s	
Output Voltage Swing	2.0 Vpp	extrapolated at a capacitive load
Supply Voltage	5 V	
Power Consumption	380mW	

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
Small signal bandwidth	BW			35		GHz
Rise / Fall Time	t _R / t _F				10	ps
Max. Deterministic Jitter	J _D				1.5	ps
Voltage Swing Input	V _{IN}			250		mVpp
Output voltage swing	V _{OUT}	extrapolated at a capacitive load			2	Vpp
Reference Impedance (SE)	Z _{0, SE}	Single ended		50		Ω
Reference Impedance (DIFF)	Z _{0, diff}	Differential		100		Ω

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Power Supply Voltage	V _{CC}			5	5.2	V
Input Stage	V _{xing}		0	1.6	3.3	V
Output Stage	V _{mod}		0	1.6	3.3	V
Shipping/Storage Temp.	T _{ST}		-40		+125	°C
Soldering Temp.	T _{SD}	< 10 sec			+300	°C

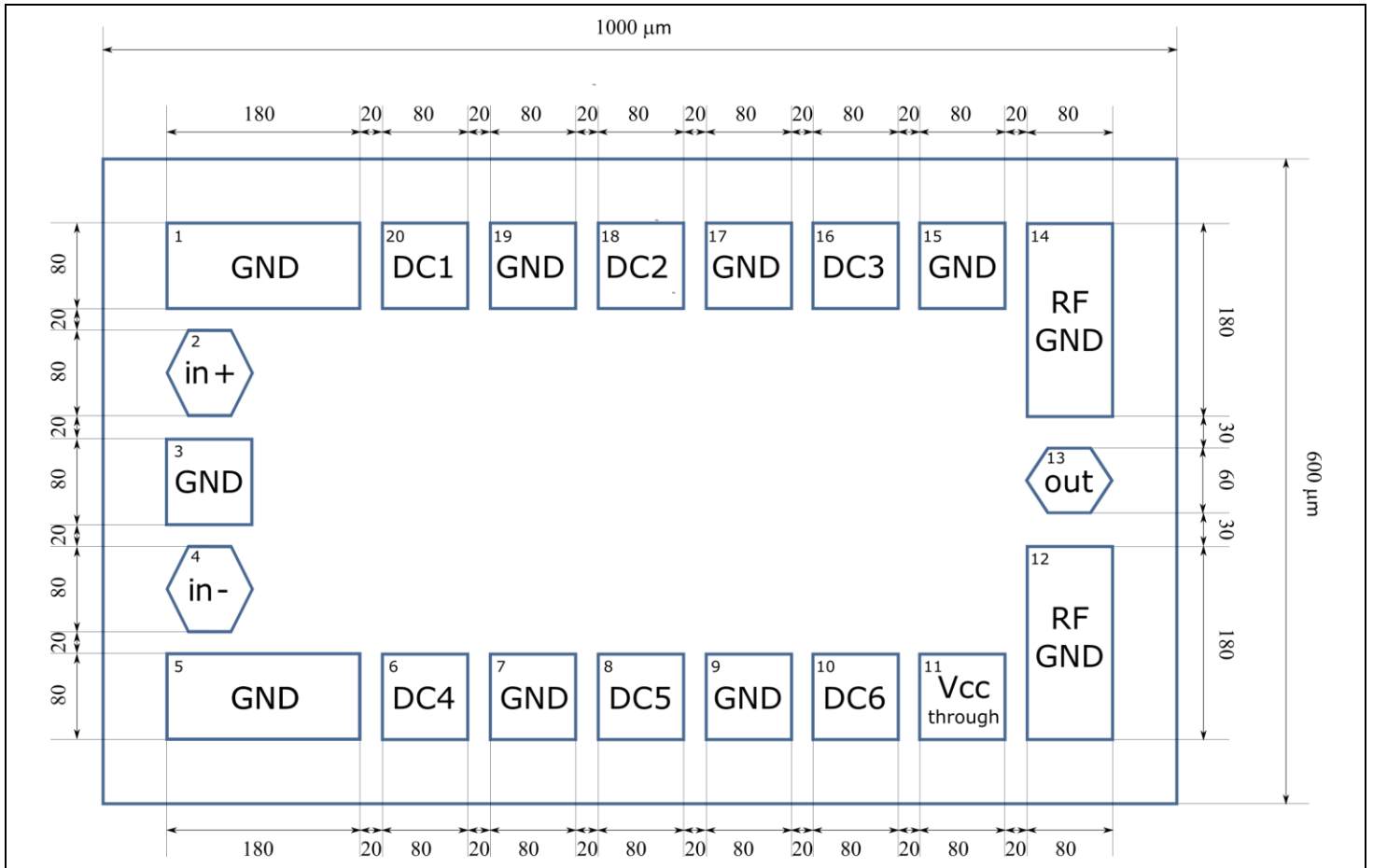
Operating conditions

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Power Supply Voltage	V _{CC}			5	5.2	V
Power Dissipation	P _D			380	400	mW
Operating Temperature	T _J		-10	+25	+85	°C

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Pad Layout



Name	Pin	Description	Function
Vin+	2	HF input (positive)	Input
Vin -	4	HF input (negative)	Input
Vout	13	HF output	Output
Vcc	16/18/20	5V Supply voltage	Supply
Vxing	6	Input stage: 0 to 3.3V / typ. 1.6V	Supply
Vmod	8	Output stage: 0 to 3.3V / typ. 1.6V	Supply
Vbias	10	Through connection to RF ground	No use
RF GND	12,14	Internally connected	Supply
GND	1,3,5,7,9,15,17,19	Ground	Ground

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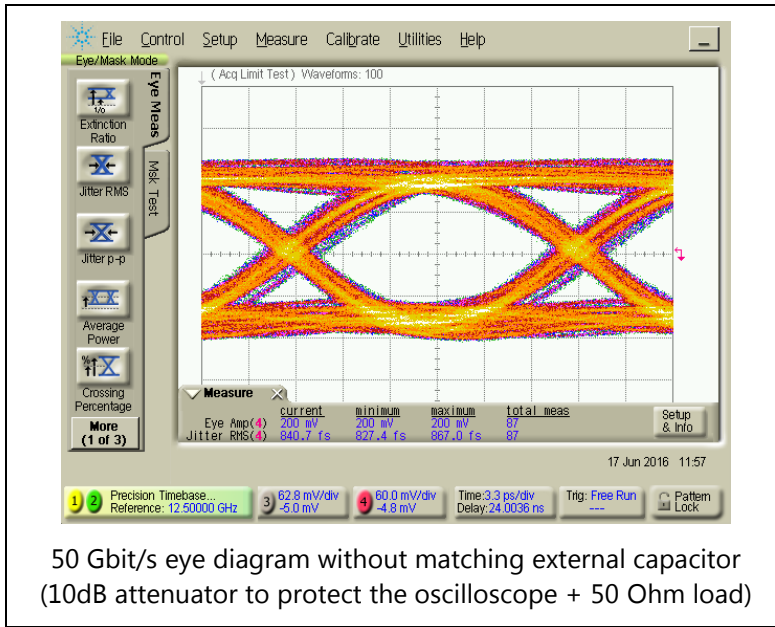
Datasheet

A50-300C90



Vertically Integrated Systems

Eye diagram at 50 Gbit/s



50 Gbit/s eye diagram without matching external capacitor (10dB attenuator to protect the oscilloscope + 50 Ohm load)

Limited Qualification Notification

The A50-300C 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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