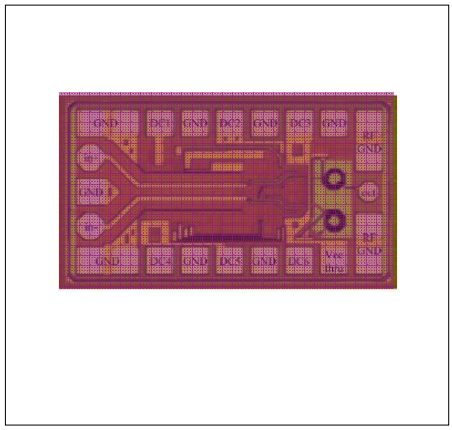
Datasheet

Vertically Integrated Systems

40 Gbit/s Driver IC for EOM-VCSEL

Product Code: A40-300C



Sample image only. Actual product may vary.

Preliminary

Product Description

The A40-300C is a high speed driver IC designed for use with electro-optical modulated VCSEL for up to 40 Gbit/s in fiber optic transmission systems. The A40-300C operates from a single +5 V supply typically dissipating 350mW of DC power The device is available as engineering sample.

Features

· data rate up to 40 Gbit/s
· Differential ended signal input
· small footprint 600 µm x 1,000 µm
· supply voltage 5V

Applications

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

Parameter	Typical	Notes
Data rate	40 Gbit/s	
Output Voltage Swing	2.6 V	
Modulation current	10 mA	
Supply Voltage	5 V	

Preliminary

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Maximum Data rate		10^{-12}	40			Gbit/s
Rise / Fall Time	t_R / t_F				10	ps
Max. Deterministic Jitter	J_D				1.5	ps
Voltage Swing Input	V_{pp}		400	500	600	mV
Output voltage swing					260	mV
Reference Impedance (SE)	$Z_{0,\ SE}$	Single ended		50		Ω
Reference Impedance (DIFF)	$Z_{0,\ diff}$	Differential		100		Ω

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VCSEL Driver IC
A40-300C

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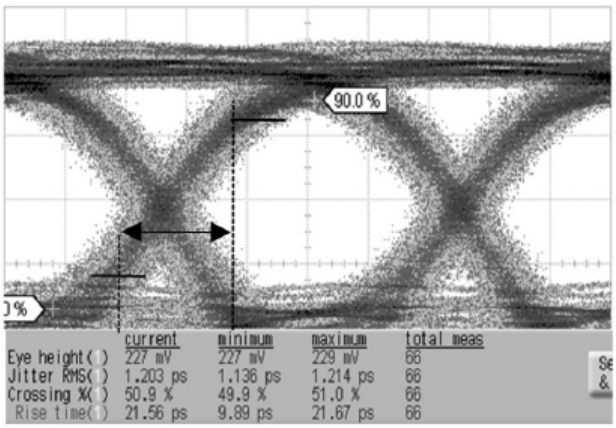
Eye diagram



$t_{r\ (20\%-80\%)}$ ~ 9ps
40 Gbit/s eye diagram without
matching external capacitor

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Power Supply Voltage	V_{cc}			5	5.2	V
BIAS Voltage	V_{bias}		3.0	3.2	3.4	V
Input Stage	V_{xing}	or open	0	1.6	3.3	V
Output Stage	V_{mod}	or open	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		V
Power Dissipation	P_D			370		mW
Operating Temperature	T_J		-10	+25	+85	°C

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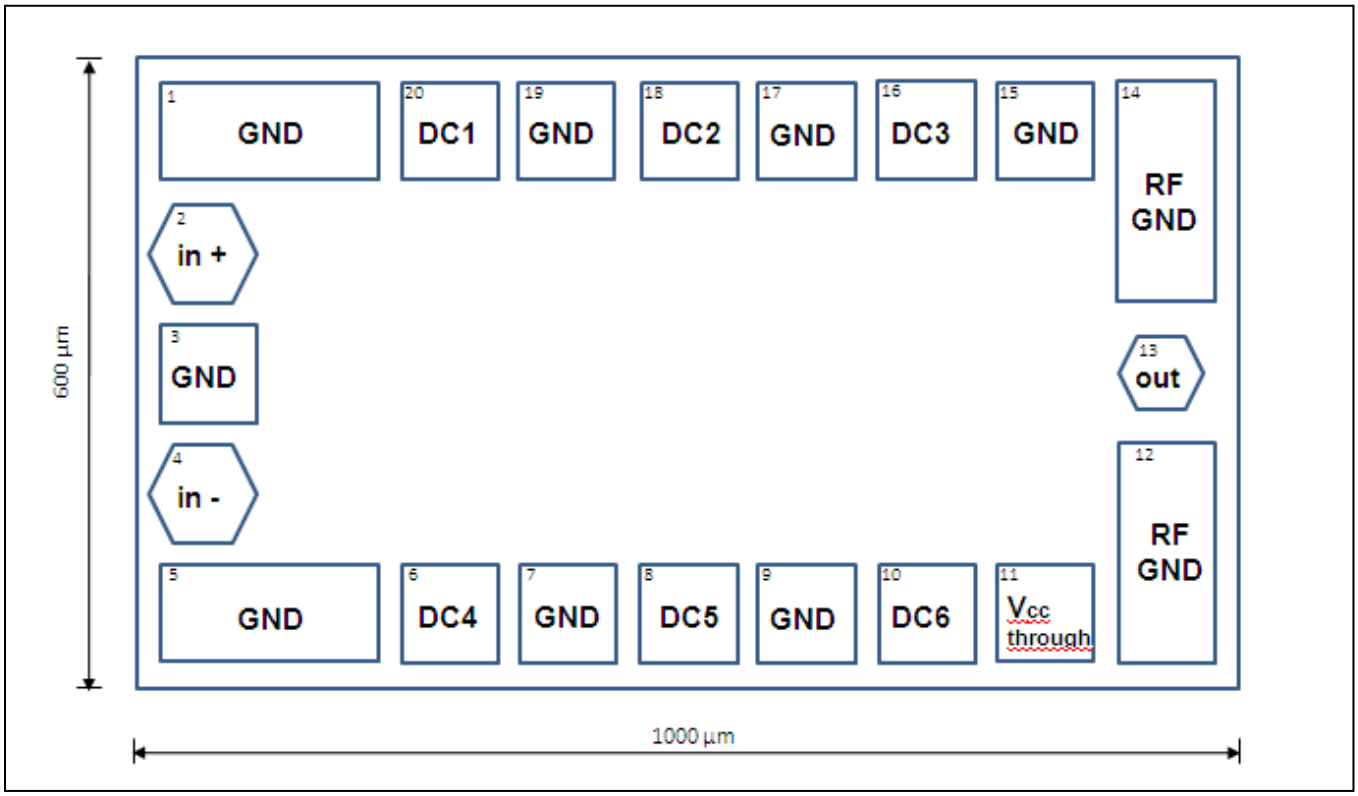
Pad Layout



Name	Pin	Description	Function
Vin+	2	HF input (positive)	Input
Vin -	3	HF input (positive)	Input
Vout	13	HF output	Output
Vxing	6	0 to 3.3V / typ. 1.6V	Supply
Vmod	8	0 to 3.3V / typ. 1.6V	Supply
Vbias	9/10	0 to 3.4V / typ. 3.2V	Supply
Vcc	16/18/20	Supply Voltage, typ. 5V	Supply
RF GND	12/14	0 to 3.4V / typ. 3.2V	Supply
GND	1/3/5/7/9	Ground	Supply
GND	15/17/19	Ground	Supply

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VCSEL Driver IC
A40-300C

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Limited Qualification Notification

The A40-300C 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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