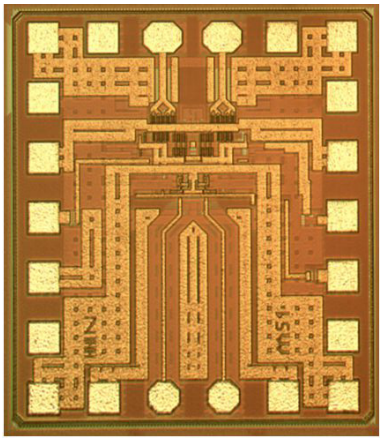
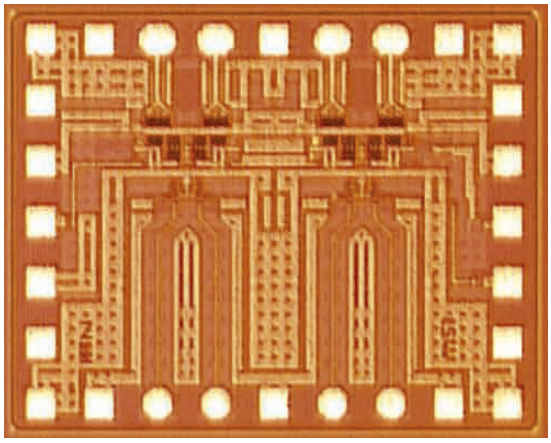
32 GBd OPTICAL MODULATOR DRIVER

Fraunhofer HHI





AT A GLANCE

32 GBd differential driver for telecom and datacom application

Features

- Differential input and differential output
- Back-terminated outputs
- 3.0 Vpp differential output at 2 x 25 Ω loads
- Low EVM and BER in electro-optical measurement
- Adjustable output swing
- Twin-channel driver available

Applications

- Mach-Zehnder modulator driver
- Broadband signal amplification conversion

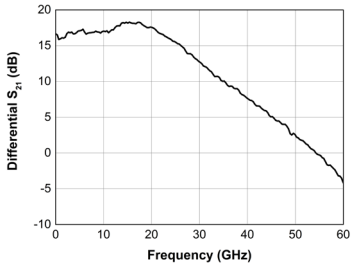
Low-power SiGe Driver IC

HHI provides back-terminated SiGe linear driver IC for InP Mach-Zehnder modulator.It features with 2 x 25 Ω back-termination for the impedance matching with the modulator. Upon customer's request, HHI provides customized linear driver IC for the modulator using co-design techniques.

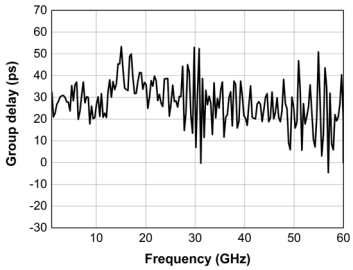
Specifications

Parameter	Min	Typ	Max	Unit	Conditions
Bandwidth		28		GHz	$P_{in,diff}$ = -1 dBm
Power	370	660		mW	without coil, with coil: 310 (min), 510 (typ) mW
Data Rate			32	GBd	
Rise/ fall time		12.5		ps	20%-80%
Group Delay Distortion*			±8	ps	
Jitter (p-p)		4.6		ps	
Differential Input Signal		700		mVpp	AC-coupled
Differential Output Signal	1.7	3		Vpp	2 x 25 Ω load
$P_{1\,dB}$		13.4		dBm	output-referred, $Z_{load.diff}$ = 50 Ω
CMRR*	18.6			dB	up to 20 GHz
Chip Dimension	1030 (H) x 900 (V)			µm	dicing distance excluded
Operation Temperature		40		°C	

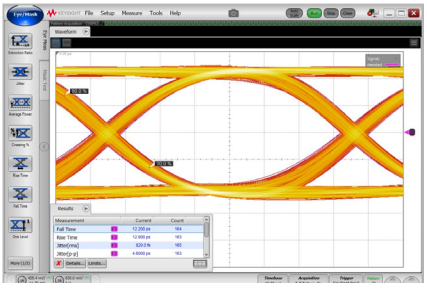
** denotes that measurements were carried out at room temperature condition, 23 °C. Unless noted, measurement temperature was 40 °C*



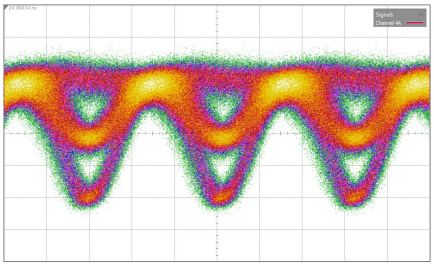
Differential S21 measurement result ($P_{in,diff}$= -1 dBm, Temp =23°C, $Z_{in,diff}$=100 Ω, $Z_{Load,diff}$=50 Ω)



Group delay distortion measurement (23°C)



Electrical eye at 28 Gb/s



32 GBd QPSK electro-optical eye of IQ MZ-modulator (EVM: 5.7 % RMS)

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