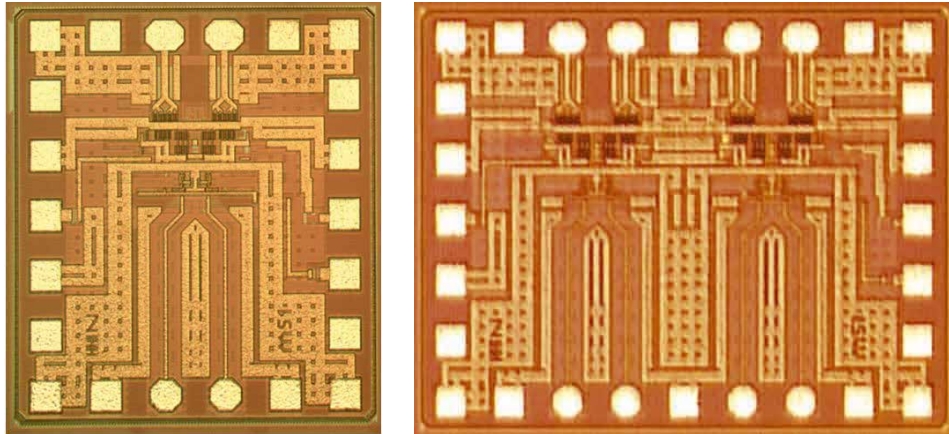


32 GBd OPTICAL MODULATOR DRIVER



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

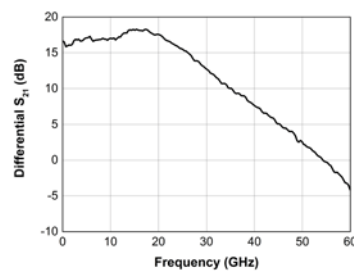
Low-power SiGe Driver IC

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.

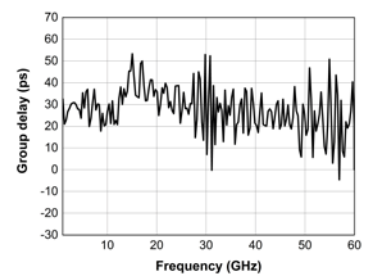
Specifications

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	$2 \times 25 \Omega$ load
P_{1dB}		13.4		dBm	output-referred, $Z_{load,diff} = 50 \Omega$
CMRR*	18.6			dB	up to 20GHz
Chip Dimension	1030(H) x 900(V)			μm	dicing distance excluded
Operation Temperature		40		$^{\circ}C$	

* denotes that measurements were carried out at room temperature condition, 23 $^{\circ}C$. Unless noted, measurement temperature was 40 $^{\circ}C$



Differential S_{21} measurement result ($P_{in,diff} = -1$ dBm, Temp = 23 $^{\circ}C$, $Z_{in,diff} = 100 \Omega$, $Z_{Load,diff} = 50 \Omega$)



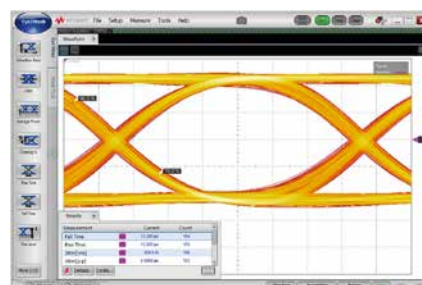
Group delay distortion measurement (23 $^{\circ}C$)

Jung Han Choi
 Photonic Components

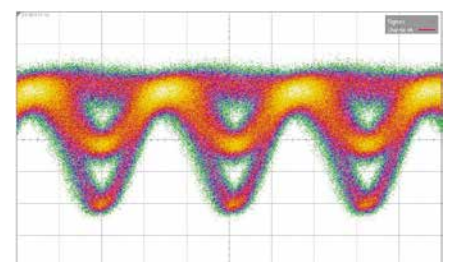
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Electrical eye at 28 Gb/s



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