IMPEDANCE CONVERSION IC

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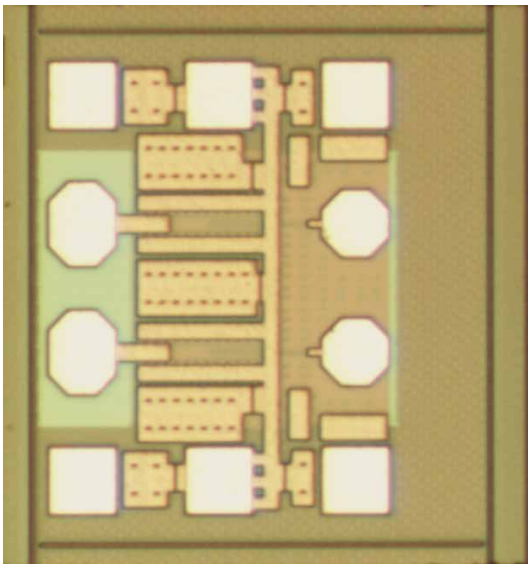

AT A GLANCE

Impedance conversion: 25 Ω↔50 Ω, Ultra-broadband operation more than 67 GHz

Features

- Differential input 50 Ω and differential output 100 Ω
- Integrated DC supply pad
- Supports data rates more than 32 GBd
- RF input pads for double wire-bondings

Applications

- Characterization of Mach-Zehnder modulator driver
- Ultra-broadband impedance conversion

Ultra broad-band Impedance Conversion IC

Ultra broad-band impedance conversion IC is used to characterize RF components in both time- and frequency-domain, which does not have 50 Ω impedance (25 Ω). It shows more than 67 GHz band-width and provides integrated DC supply pads. It suits for the characterization of Mach-Zehnder modualtor driver IC since it has either open-collector or the output impedance of 2 x 25 Ω.

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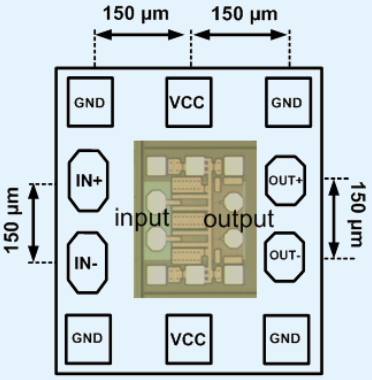
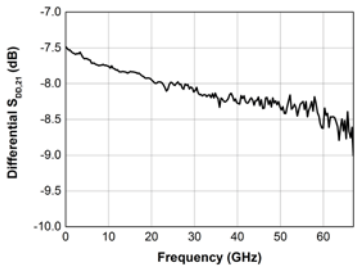


Pad configuration

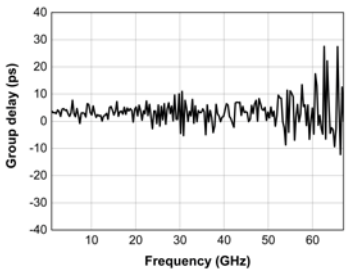
Specifications

Parameter	Min	Typ	Max	Unit	Conditions
Bandwidth	67			GHz	refer to $S_{DD,21}$
Data Rate	32			GBd	
Group Delay Distortion*			±4	ps	
Differential Input Impedance		50		Ω	output terminated with $Z_{out,diff}$ = 100 Ω
Differential Output Impedance		100		Ω	input terminated with $Zi_{n,diff}$ = 50 Ω
Differential Input Reflection*	DC < f < 8 GHz 8 GHz < f < 24 GHz 24 GHz < f < 67 GHz		-30 -23 -13	dB	
Differential Output Reflection*	DC < f < 8 GHz 8 GHz < f < 24 GHz 24 GHz < f < 67 GHz		-24 -15 -8	dB	
Chip Dimension	400 (H) x 530 (V)			µm	seal-ring and dicing distance excluded
Operation Temperature		40		°C	

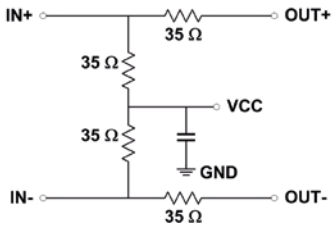
** denotes that measurements were carried out at room temperature condition, 23 °C. Unless noted, measurement temperature was 40 °C*



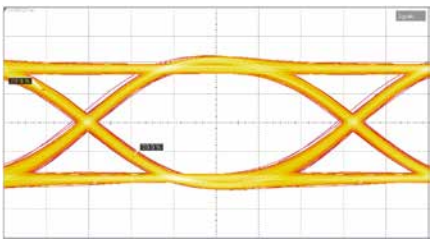
Differential $S_{DD,21}$ measurement result (Temp = 23°C, $Z_{in,diff}$ = 50 Ω, $Z_{Load,diff}$ = 100 Ω)



Group delay distortion measurement (23°C)



Equivalent circuit schematic



32 GBd electrical eye with 30 GHz IC (5 ps/div, 700 mV/div)

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