

AT A GLANCE

Impedance conversion: $25\Omega \leftrightarrow 50\Omega$,
Ultra-broadband operation more
than 67 GHz



Features

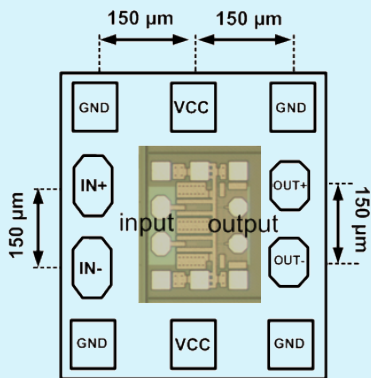
- Differential input 50Ω and differential output 100Ω
- Integrated DC supply pad
- Supports data rates more than 32 GBd
- RF input pads for double wire-bondings

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 50Ω impedance (25Ω). It shows more than 67 GHz bandwidth and provides integrated DC supply pads. It suits for the characterization of Mach-Zehnder modulator driver IC since it has either open-collector or the output impedance of $2 \times 25\Omega$.



Pad configuration



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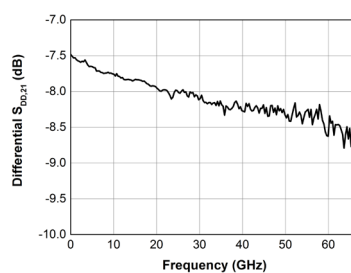
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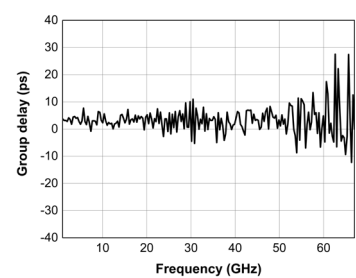
Specifications

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 $Z_{out,diff} = 100\Omega$
Differential Output Impedance		100		Ω	input terminated with $Z_{in,diff} = 50\Omega$
Differential Input Reflection*	DC < f < 8 GHz		-30	dB	
	8 GHz < f < 24 GHz		-23		
	24 GHz < f < 67 GHz		-13		
Differential Output Reflection*	DC < f < 8 GHz		-24	dB	
	8 GHz < f < 24 GHz		-15		
	24 GHz < f < 67 GHz		-8		
Chip Dimension	400 (H) x 530 (V)			μm	seal-ring and dicing distance excluded
Operation Temperature		40		$^{\circ}\text{C}$	

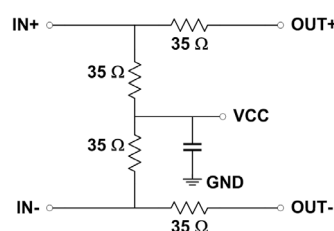
* denotes that measurements were carried out at room temperature condition, 23°C. Unless noted, measurement temperature was 40°C



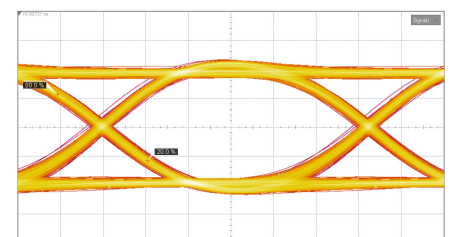
Differential $S_{DD,21}$ measurement result
(Temp = 23°C, $Z_{in,diff} = 50\Omega$, $Z_{Load,diff} = 100\Omega$)



Group delay distortion measurement (23°C)



Equivalent circuit schematic



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