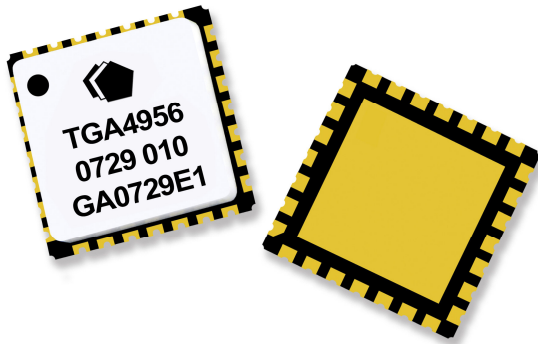


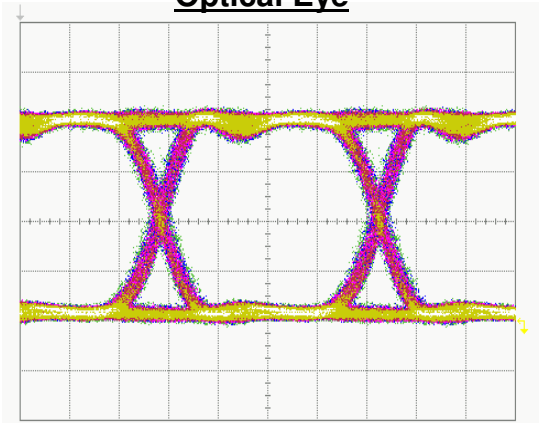
3 V – 7 V Optical Modulator Driver



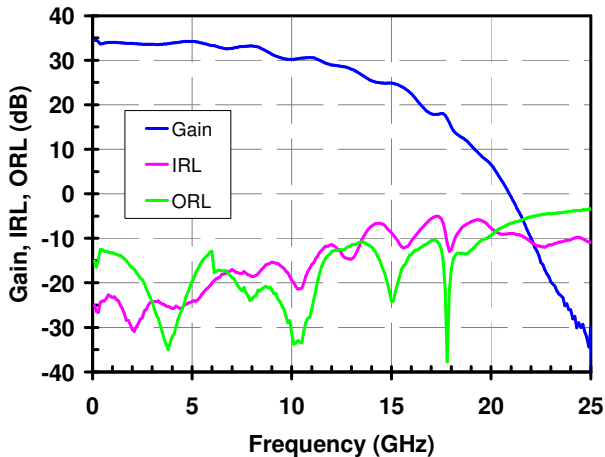
Measured Performance

Bias conditions: $V_d = 3.3\text{ V}$, $I_d = 120\text{ mA}$

Optical Eye



11.32 Gbps, PRBS 231 -1, $V_{in} = 1\text{ Vpp}$, $V_{out} = 3.0\text{ Vpp}$, Rise / Fall time = 22.2 / 23.1 ps, Additive RMS Jitter = 1.9 ps, Extinction Ratio = 13.7 dB



Key Features

- 9.9 - 12.5 Gb/s Data Rates
- Additive RMS Jitter < 1.5 psec
- High Gain > 32 dB
- Adjustable Output Amplitude 3 Vpp – 7 Vpp
- Low Power Dissipation, <0.42 W
- Rise/Fall Times <25 psec
- Integrated High Frequency Bias-Tee
- 3.3 V, 120 mA Bias (3 Vpp output)
- 5 V, 200 mA Bias (6 Vpp output)
- Package Size: 8 x 8 x 2.1 mm

Primary Applications

- 10 Gb/s Optical Market
- MZ & Low V_{π} Modulator Driver

Product Description

The TriQuint TGA4956-SM is a MZ and low voltage modulator driver amplifier designed to operate at frequencies that target the 10 Gb/s optical market using an economical 8x8 mm surface mount package.

The TGA4956-SM consists of two high performance wideband amplifiers combined with off chip circuitry assembled in a surface mount package. A single TGA4956-SM placed between the MUX and Optical Modulator provides OEMs with a low-cost, surface mount modulator driver solution.

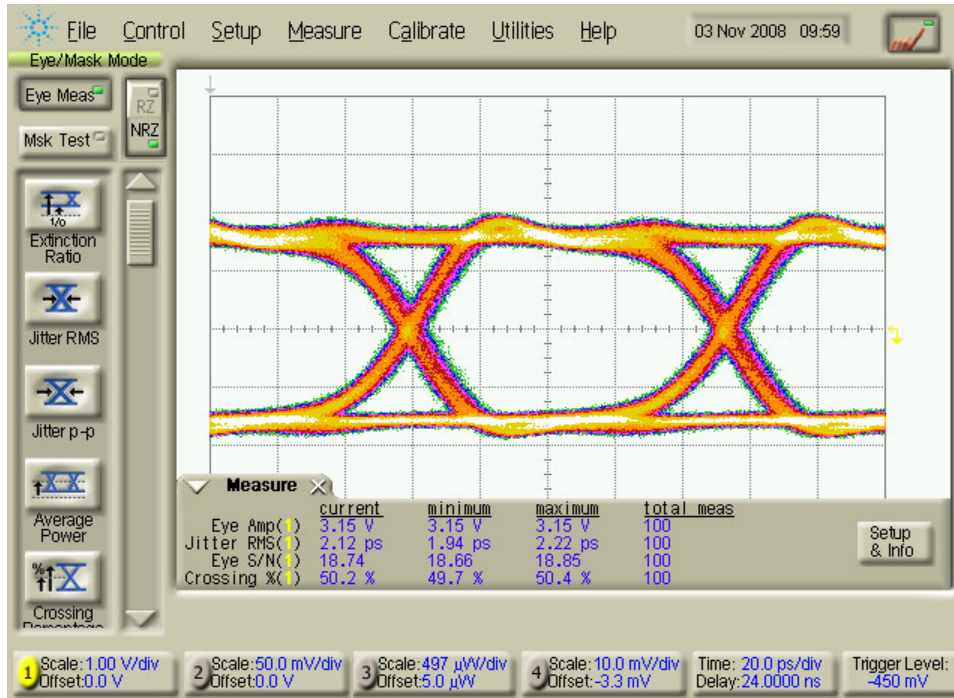
The TGA4956-SM provides Metro and Long Haul designers with scalable power dissipation for varying output drive requirements (< 0.42 W at $V_o = 3\text{ Vpp}$, <1 W at $V_o = 6\text{ Vpp}$).

ROHS compliant, Moisture Sensitivity Level 1.

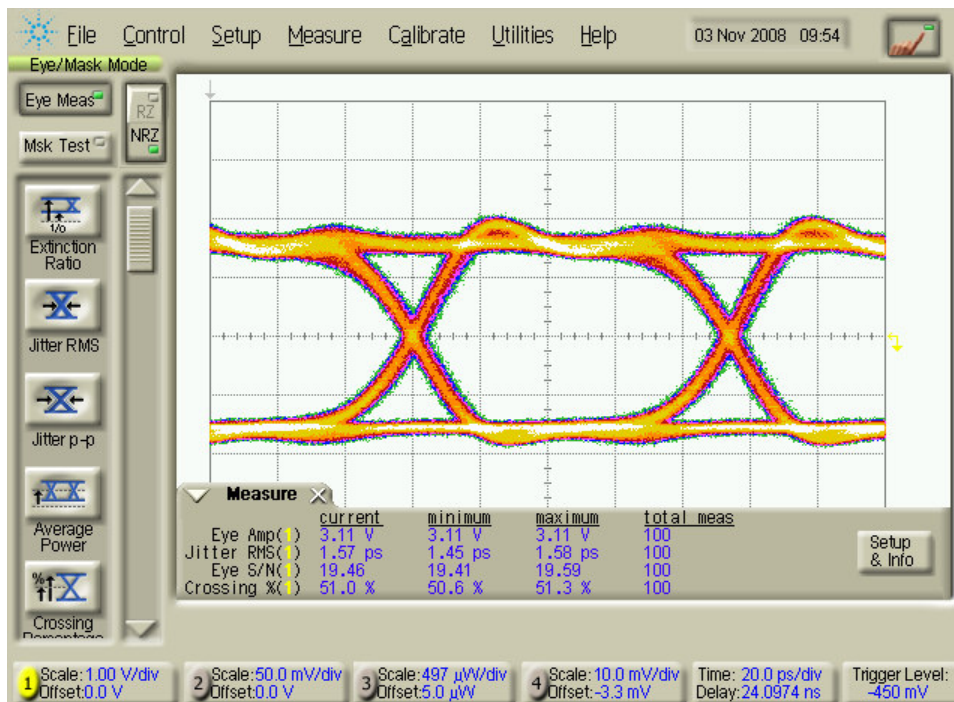
Evaluation boards available upon request.

Datasheet subject to change without notice.

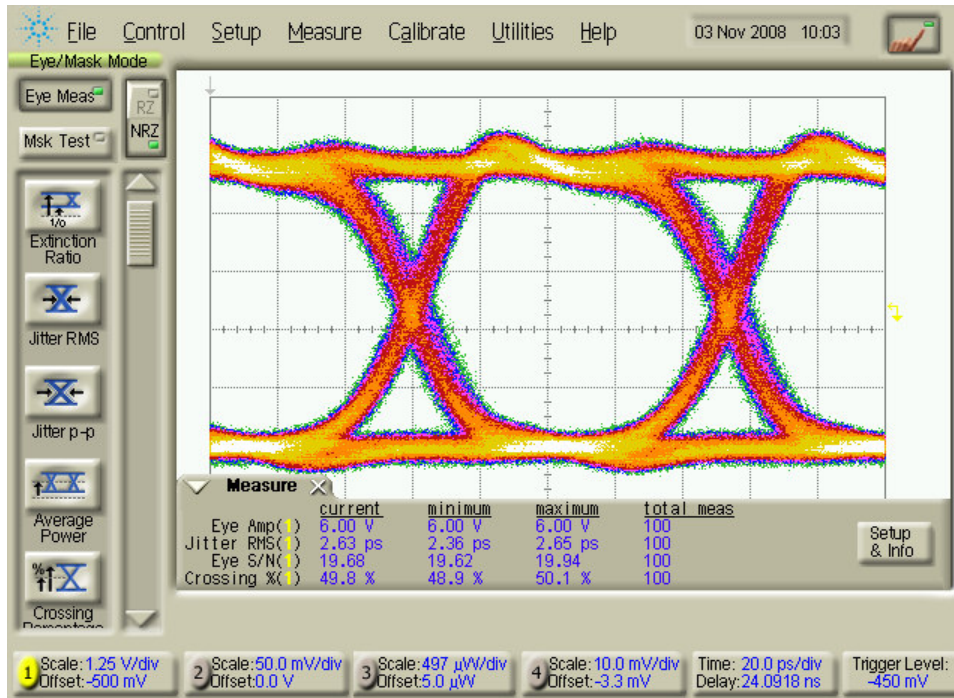
**Measured Data: $V_d = 3.3\text{ V}$, $V_{in} = 0.2\text{ Vpp}$, $V_{out} = 3.1\text{ Vpp}$, 10.7 Gb/s
RMS Source Jitter = 1.44 ps**



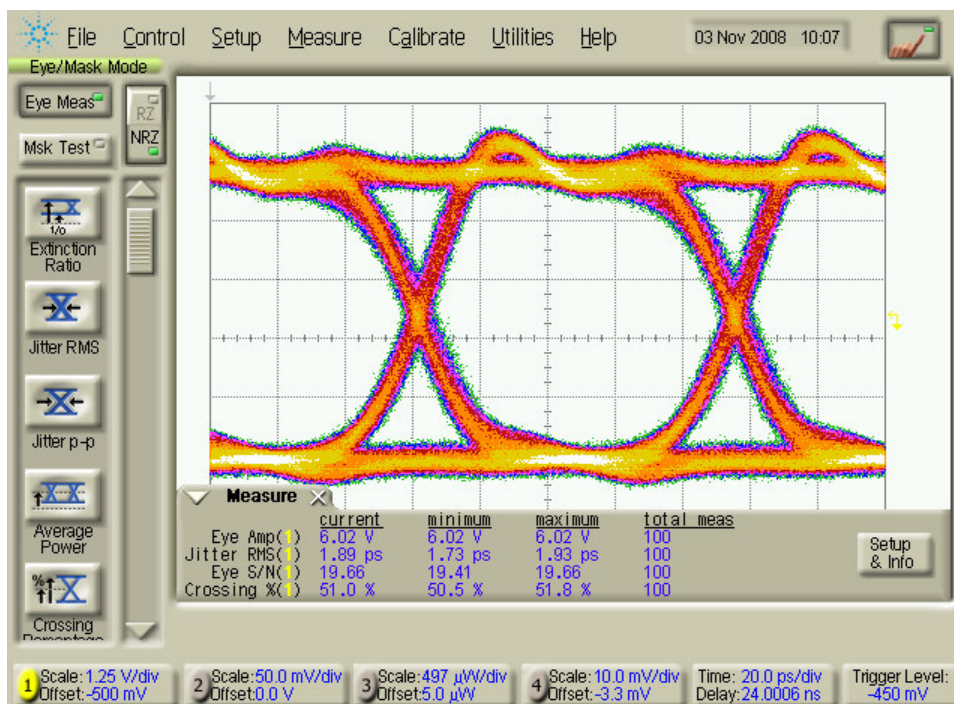
**$V_d = 3.3\text{ V}$, $V_{in} = 0.5\text{ Vpp}$, $V_{out} = 3.1\text{ Vpp}$, 10.7 Gb/s
RMS Source Jitter = 1.2 ps**



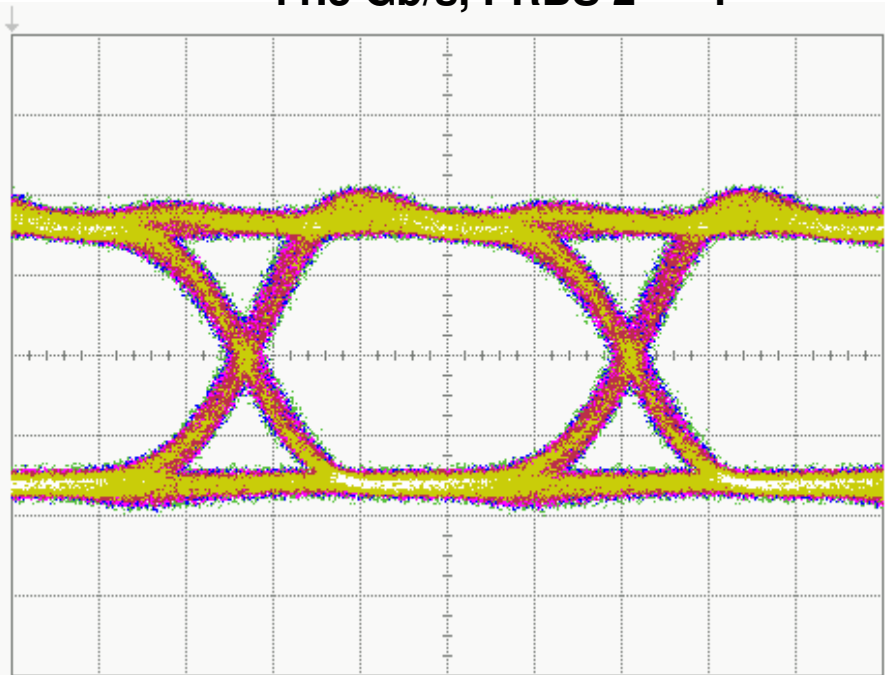
**Measured Data: $V_d = 5\text{ V}$, $V_{in} = 0.2\text{ Vpp}$, $V_{out} = 6\text{ Vpp}$, 10.7 Gb/s
RMS Source Jitter = 1.44 ps**



**$V_d = 5\text{ V}$, $V_{in} = 0.5\text{ Vpp}$, $V_{out} = 6\text{ Vpp}$, 10.7 Gb/s
RMS Source Jitter = 1.2 ps**

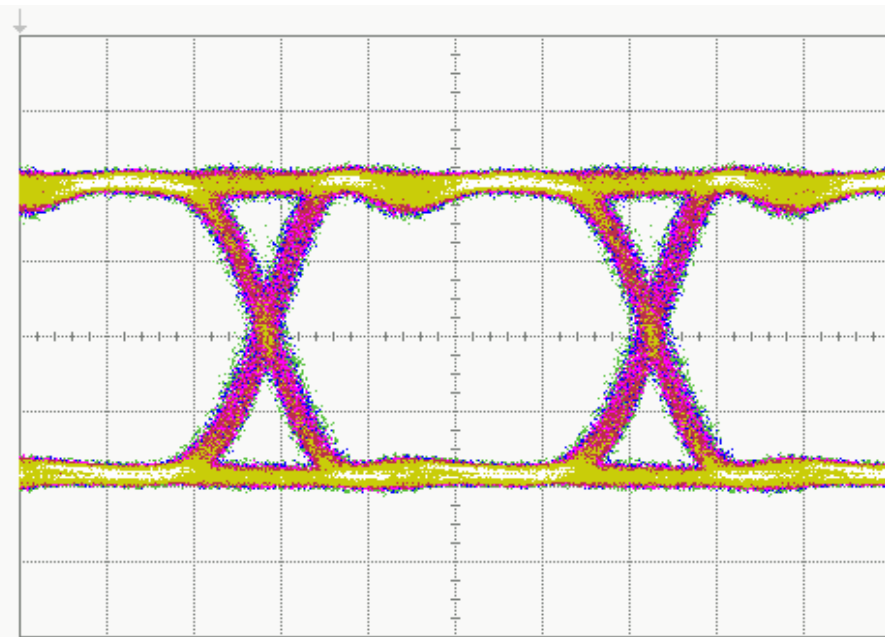


**Measured Data: $V_d = 3.3\text{ V}$, $V_{in} = 1\text{ V}_{pp}$, $V_{out} = 3.0\text{ V}_{pp}$,
11.3 Gb/s, PRBS $2^{31} - 1$**



Electrical Eye:

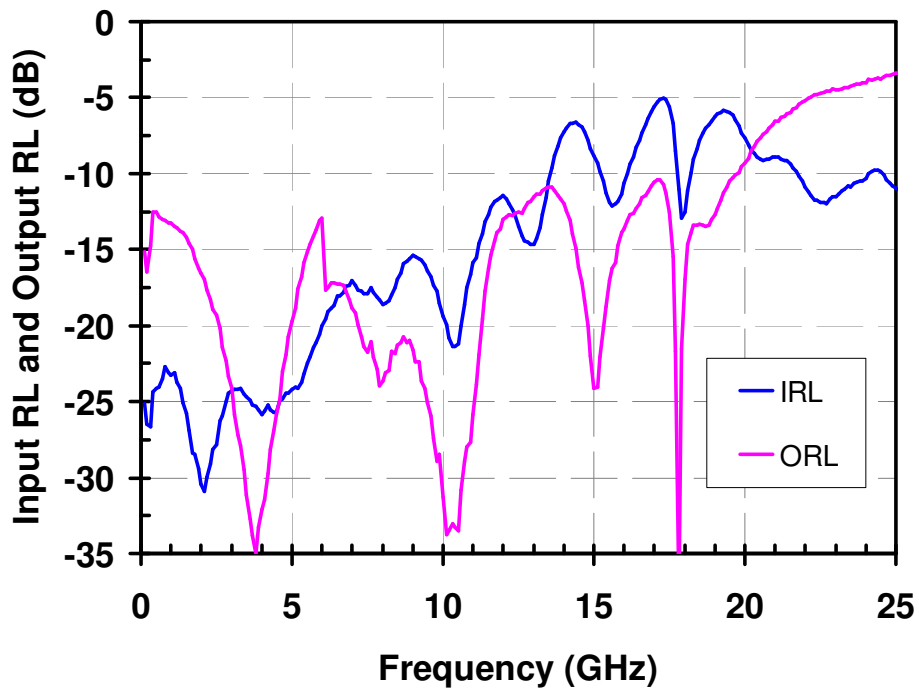
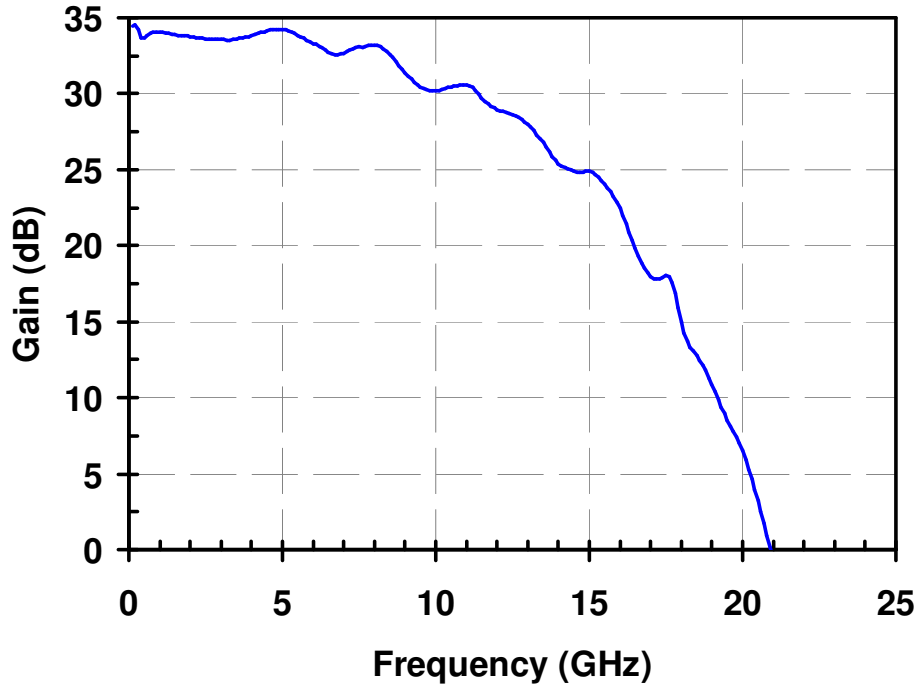
Additive RMS Jitter = 2.0 ps, 10%-90% Rise / Fall Time = 30.7 / 35.1 ps



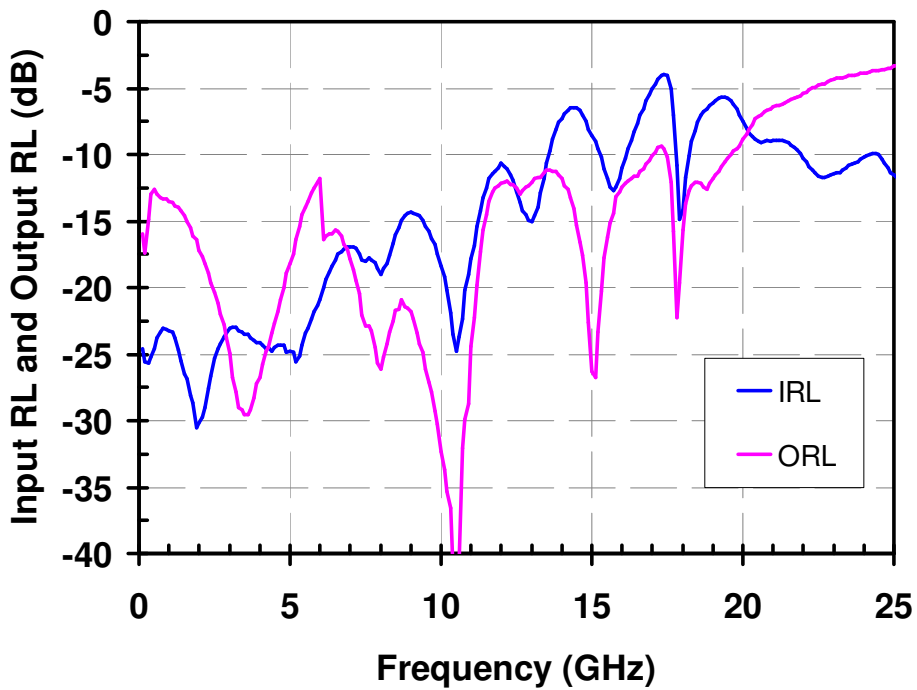
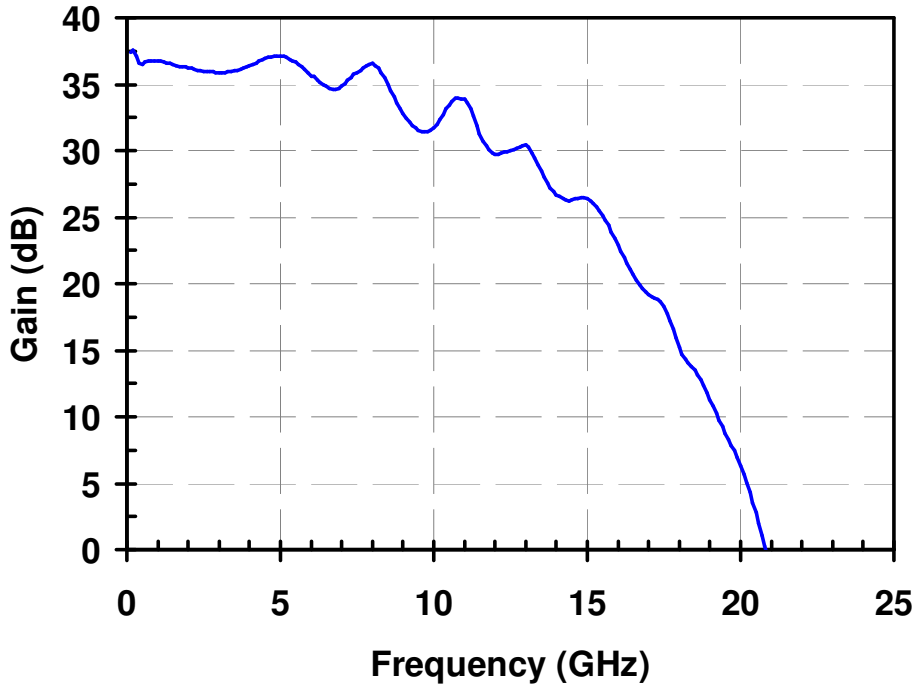
Optical Eye:

Additive RMS Jitter = 1.9 ps, 20% - 80% Rise / Fall Time = 22.2 / 23.1 ps, Extinction Ratio = 13.7 dB

Measured Data
Vd = 3.3 V, Id = 115 mA

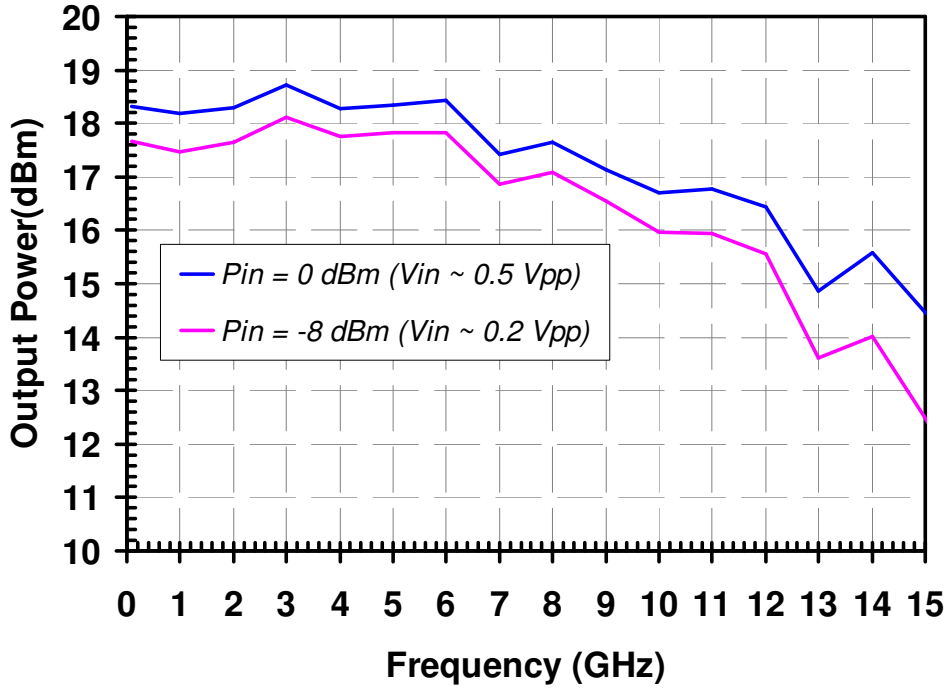


Measured Data
Vd = 5 V, Id = 200 mA



Measured Data

Vd = 3.3 V, Idq = 115 mA



Vd = 5 V, Idq = 200 mA

