

Keywords: MAX3701, blue laser diode, violet laser diode, blue violet laser diode, optical measurements, blue laser driver

## APPLICATION NOTE 2934

# MAX3701: Interfacing the MAX3701 to a Blue/Violet Laser Diode [Application Brief]

Dec 18, 2003

*Abstract: This Application Brief is an outline of the detailed information that can be found in the complete version of HFDN (High Frequency Design Note) 028.0. HFDN-028.0 explains in detail how optical measurements were performed, and provides guidelines for interfacing the MAX3701 blue laser driver with the blue/violet laser.*

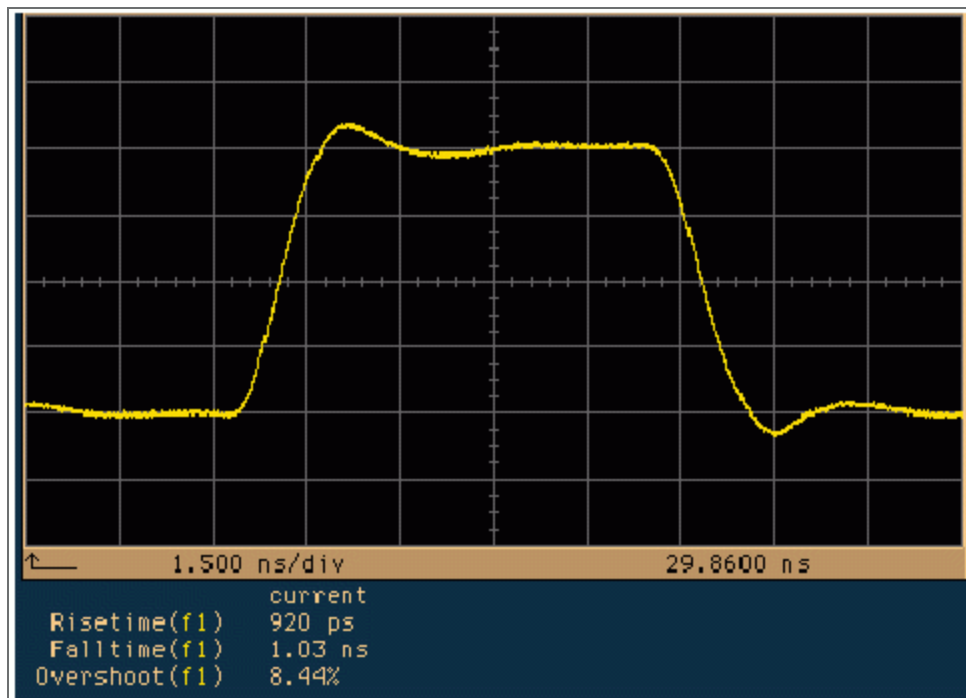


Figure 1. Optical output of a blue/violet laser driven by the MAX3701.

## Background and Purpose

Optical measurements of the MAX3701 driving a blue/violet laser diode were performed prior to the release of the MAX3701 in October of 2003. These measurements verified that the MAX3701 is capable of driving the blue/violet laser with rise/fall times of  $\leq 1$ ns and overshoot  $< 9\%$  as shown in **Figure 1**.

This Application Brief is an outline of the detailed information that can be found in the complete version

of HFDN (High Frequency Design Note) 28.0. HFDN-28.0 explains in detail how optical measurements were performed, and provides guidelines for interfacing the MAX3701 with the blue/violet laser.

The complete version of HFDN-28.0 can be obtained by request from the following link: [MAX3701 datasheet](#).

Topics include:

## Optical Evaluation Printed Circuit Board

- Materials and layout of the MAX3701 optical evaluation board
- Schematic diagram of the laser interface
- Connections and geometry of transmission lines

## Optical Test Equipment

- Optical test equipment setup
- Mounting information, including thermal heat sink
- Fiber optic patch cable alignment
- Optical-to-electrical converter
- Oscilloscope-recorded waveforms of blue/violet laser driver optical output

## Performance Optimization

- Parasitic elements
- Reducing overshoot and ringing on rising and falling edges
- Minimizing inductance

## Decreasing the Rise/Fall Time

- Optical rise and fall times limitations
- Analysis and performance relationships

### Related Parts

[MAX3701](#)

2x Blue Laser Driver with Sample and Hold

### More Information

For Technical Support: <http://www.maximintegrated.com/support>

For Samples: <http://www.maximintegrated.com/samples>

Other Questions and Comments: <http://www.maximintegrated.com/contact>

Application Note 2934: <http://www.maximintegrated.com/an2934>

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