Data Sheet June 15, 2004 FN7212

## 4-Channel Laser Diode Driver + Oscillator

The EL6146 is a four channel laser diode current amplifier that provides controlled current to a grounded laser diode. Channels 2, 3, and 4 must be used as the write channels, with switching speeds of approximately one nanosecond rise/fall time. All four channels are summed together at the $I_{OUT}$ output, allowing the user to create multilevel waveforms in order to optimize laser diode performance. The level of the output current is set by an analog voltage applied to an external resistor which converts the voltage into a current at the $I_{IN}$ pin (virtually ground). The current seen at this pin is then amplified to become a current source at pin $I_{OUT}$.

An on-chip 500MHz oscillator is provided to allow current modulation when in any mode. This is turned on when the OSCEN pin is held high. Complete control of amplitude and frequency is set by two external resistors connected to ground at pins $R_{FREQ}$ and $R_{AMP}$ (see graphs in this data sheet for further explanation).

Output current pulses are enabled when an 'L' signal is applied to the OUTEN pin. No output current flows when OUTEN is 'H', and additional laser diode protection is provided since the OUTEN input will float high when open. Complete $I_{OUT}$ shutoff is also achieved by holding the ENABLE pin low, which will override all other control pins.

The external resistors allow the user to accurately and independently set each amplifier transconductance by applying a voltage to each resistor, without restriction on the voltage range, thus ensuring broad voltage DAC compatibility. Alternatively, the $I_{IN}$ pin can be biased from a current DAC or other current source.

## Ordering Information

| PART NUMBER | PACKAGE | TAPE & REEL | PKG. DWG. # |
|---|---|---|---|
| EL6146CU-T7 | 16-Pin QSOP | 7" | MDP0040 |

## Features

- "Shrink-small" Outline Package
- Voltage-controlled output current source requiring one external set resistor per channel
- Current-controlled output current source
- Rise time = 0.8ns
- Fall time = 0.8ns
- On chip oscillator with frequency and amplitude control by use of external resistors to ground
- Oscillator to 500MHz
- Oscillator to $100mA_{PK/PK}$
- Single +5V supply (±10%)
- Disable feature for power-up protection and power savings
- CMOS control signals

## Applications

- CD-RW applications
- Writable optical drives
- Laser diode current switching

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