

Features

- Split Supply for Blue Laser diode capability
- High-performance laser diode driver
- Voltage-controlled output current source to 150mA per channel, requiring one external set resistor per channel
- Current-controlled output current source to 150mA per channel
- Rise time = 2.0ns
- Fall time = 2.0ns
- 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 ($\pm 10\%$)
- Disable feature for power-up protection and power savings
- CMOS control signals

Applications

- Writable optical drives
- Laser diode current switching
- General blue laser usage

Ordering Information

Part No	Temp. Range	Package	Outline #
EL6250CU	0°C to +70°C	QSOP-24	MDP0040

General Description

The EL6250C is a split supply, 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 two nanoseconds rise/fall time. All four channels are summed together at the I_{OUT} output, allowing the user to create multi-level 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 pin I_{IN}. 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 the read mode. This is turned on when the EOSC pin is held high (floating not recommended). Complete control of amplitude and frequency is set by two external resistors connected to ground at pins RFREQ and RAMP (see graphs in this data sheet for further explanation).

Output current pulses are enabled when an 'L' signal is applied to the OE pin. No output current flows when OE is 'H', and additional laser diode protection is provided since the OE input will float high when open. Complete I_{OUT} shut-off is also achieved by holding the CE pin low, which will override the OE control pins. VCC2 should be set to about 1.5V above the maximum laser voltage, while VCC1 should be set to +5V to minimize chip dissipation.

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.

Connection Diagram

1	GND	GND	24
2	IINR	VCC2	23
3	GND	VCC2	22
4	IIN2	IOUT	21
5	RFREQ	IOUT	20
6	IIN3	GND	19
7	IIN4	RAMP	18
8	VCC1	CE	17
9	OE2	EOSC	16
10	OE3	VCC2	15
11	OE4	VCC2	14
12	GND	GND	13

Note: All information contained in this data sheet has been carefully checked and is believed to be accurate as of the date of publication; however, this data sheet cannot be a "controlled document". Current revisions, if any, to these specifications are maintained at the factory and are available upon your request. We recommend checking the revision level before finalization of your design documentation.

EL6250C - Product Brief

Split Supply Laser Driver and Oscillator

General Disclaimer

Specifications contained in this data sheet are in effect as of the publication date shown. Elantec, Inc. reserves the right to make changes in the circuitry or specifications contained herein at any time without notice. Elantec, Inc. assumes no responsibility for the use of any circuits described herein and makes no representations that they are free from patent infringement.

élantec

HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

Elantec Semiconductor, Inc.

675 Trade Zone Blvd.

Milpitas, CA 95035

Telephone: (408) 945-1323

(888) ELANTEC

Fax: (408) 945-9305

European Office: +44-118-977-6020

Japan Technical Center: +81-45-682-5820

WARNING - Life Support Policy

Elantec, Inc. products are not authorized for and should not be used within Life Support Systems without the specific written consent of Elantec, Inc. Life Support systems are equipment intended to support or sustain life and whose failure to perform when properly used in accordance with instructions provided can be reasonably expected to result in significant personal injury or death. Users contemplating application of Elantec, Inc. Products in Life Support Systems are requested to contact Elantec, Inc. factory headquarters to establish suitable terms & conditions for these applications. Elantec, Inc.'s warranty is limited to replacement of defective components and does not cover injury to persons or property or other consequential damages.