élantec
HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

EL6253C - Product Brief

3-Channel Laser Diode Driver + Oscillator

Features

- Ultra-Small Package Outline
- Voltage-controlled output current source to 120 mA per channel, requiring one external set resistor per channel
- Current-controlled output current source to 120 mA per channel
- Rise time = 1.0 ns
- Fall time = 1.1 ns
- On chip oscillator with frequency and amplitude control by use of external resistors to ground
- Oscillator to 500 MHz
- Oscillator to 100 mA pk/pk
- Single +5V supply (±10%)
- Current amplification = 100
- Disable feature for power-up protection and power savings
- TTL/CMOS control signals
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Applications

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

Ordering Information

Part No	Temp. Range	Package	Outline #
EL6253CU	0°C to +70°C	QSOP-16	MDP0041

General Description

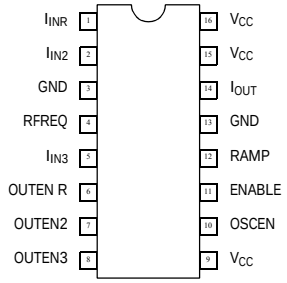
The EL6253C is a high-performance three channel laser diode current amplifier that provides controlled current to a grounded laser diode. Amplifiers R and 2 can provide up to 120 mA per channel of DC or pulsed current whereas amplifier 3 can provide up to 240 mA. Channels 2 and 3 must be used as the write channels, with switching speeds of approximately one nanosecond rise/fall time. All three 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 the I_{IN} pin (virtually ground). The current seen at this pin is then amplified by 100X to become a current source at pin I_{OUT}.

An on-chip 500 MHz oscillator is provided to allow current modulation when in the read mode. This is turned on when the OSCEN 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). The oscillator will also turn off whenever any of the OUTEN pins for channels 2 or 3(the write channels) are low (see truth table).

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} shut-off is also achieved by holding the ENABLE pin low, which will override the OUTEN 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.

Connection Diagram



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.

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General Disclaimer

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