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3-Channel Laser Diode Driver w/Oscillator & APC Amplifier

élantec

The EL6173 is a high performance three-channel laser driver that provides controlled current to a grounded laser diode. Write channels 2 and 3 can provide up to 200mA per channel of DC or pulsed current, 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 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 output 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} shut-off is also achieved by holding the ENABLE pin low, which will override all other control pins.

The EL6173 also includes a fast-settling APC amplifier designed to interface directly with the front end monitor diode and the sample-and-hold amplifier for read and write power control. Its 100MHz bandwidth and 30ns settling time enable up to 16X CD-RW design.

Ordering Information

PART NUMBER	PACKAGE	TAPE & REEL	PKG. DWG. #
EL6173CU	16-Pin QSOP	-	MDP0040
EL6173CU-T7	16-Pin QSOP	7"	MDP0040
EL6173CU-T13	16-Pin QSOP	13"	MDP0040
EL6173CUZ (See Note)	16-Pin QSOP (Pb-free)	-	MDP0040
EL6173CUZ-T7 (See Note)	16-Pin QSOP (Pb-free)	7"	MDP0040
EL6173CUZ-T13 (See Note)	16-Pin QSOP (Pb-free)	13"	MDP0040

NOTE: Intersil Pb-free products employ special Pb-free material sets; molding compounds/die attach materials and 100% matte tin plate termination finish, which is compatible with both SnPb and Pb-free soldering operations. Intersil Pb-free products are MSL classified at Pb-free peak reflow temperatures that meet or exceed the Pb-free requirements of IPC/JEDEC J Std-020B.

Features

- "Shrink-Small" outline package
- Voltage-controlled output current source to 200mA per channel, requiring one external set resistor per channel
- Current-controlled output current source to 200mA per channel
- 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
- Fast-settling APC amplifier
- Pb-free Available as an Option

Applications

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

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CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures.

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