élantec
HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

EL6270C (Preliminary)

Laser Driver with Ocillator and APC

Features

- Highly integrated laser diode driver and power regulator
- Disable feature for power-up protection and power savings
- Output current source to 100 mA
- Small size - 8pin SOIC package
- Sleep mode - < 5uA consumption
- Oscillator frequency to 400 MHz
- Oscillator amplitude to 100 mA pk/pk
- Single +5V supply (±10%)
- TTL/CMOS control switching

Applications

- DVD-ROM drives
- CD-ROM drives
- Communications laser drivers
- Laser diode current switching

Ordering Information

Part No	Temp. Range	Package	Outline #
EL6270CS	0°C to +70°C	8-Lead SOIC	MDP0027
EL6270CY	0°C to +70°C	8-Pin MSOP	MDP00XX

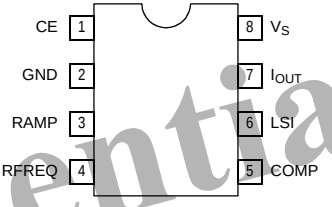
General Description

The EL6270C is a high-performance single channel laser diode power regulator and oscillator for a grounded cathode laser diode and photo-diode system. The EL6270C's APC (Automatic Power Controller) will set the average laser diode input current for a desired average photo-diode output current. The APC can provide up to 100 mA of DC current.

An on-chip programable oscillator is provided to allow current modulation of the output laser current. Two external resistors control of amplitude and frequency. The Oscillator can provide up to 100mA pk/pk.

A disable function is included which reduces supply current to less than 5uA.

Connection Diagram



8-Pin SOIC/MSOP-8

EL6270C (Preliminary)

Laser Driver with Ocillator and APC

Absolute Maximum Ratings (T_A = 25 °C)

Voltages Applied to:		Operating Ambient Temperature Range	0°C to +70°C
V_S	-0.5V to +6.0V	Maximum Junction Temperature	+125°C
CE, LSI	-0.5V to V_{CC} +0.5V	Storage Temperature Range	-65°C to +150°C
I_{OUT}	-0.5V to V_{CC} +0.5V	I_{OUT}Current	100mA AVG
Power Dissipation (maximum)	See Curves		

Important Note:

All parameters having Min/Max specifications are guaranteed. The Test Level column indicates the specific device testing actually performed during production and Quality inspection. Elantec performs most electrical tests using modern high-speed automatic test equipment, specifically the LTX77 Series system. Unless otherwise noted, all tests are pulsed tests, therefor $T_J = T_C = T_A$.

Test Level	Test Prodcedure
A	100% production tested at the specified temperature(s)
B	QA sample tested per QA test plan QCX0002 at the specified temperature(s)
C	Parameter is a typical value at the specified temperature(s) for information purposes only.

Electrical Characteristics

T_A=25°C,Vs=5v, Ccomp=50nF, Rsense=12500, Ramp=500Ω, Rfreq=3000Ω

Parameter	Description	Conditions	Min	Typ	Max	Test Level	Units
IS,D	Supply Current, Disabled	CE = 0			5	A	uA
IS,E	Supply Current, IOUT=0	CE = 1, V_{RFREQ}=V_{RAMP}=V_S		7	16	A	mA
VINL	Enable Low Voltage	CE Pin			0.8	A	V
VINH	Enable High Voltage	CE Pin	2.4			A	V
IINL	Enable Low Current	CE=0.0V	-2			A	µA
IINH	Enable High Current	CE=5.0V			2	A	µA
VREF	Reference Voltage (LSI pin)	Relative to Vs	2.45	2.55	2.65	A	V
IOUT(range)	Minimum APC Current Range	See Applications Section	100		TBD	C	mA
PSR	IOUT Supply Rejection	VS =4.5, 5.5V		1.4	2	A	%/V
TC, IOUT	IOUT Temperature Sensitivity			25		C	ppm°/C
GM	APC Gain, LSI Voltage to FOUT	IOUT=50, 100mA	4	10.5		A	A/V
IIN, LSI	Input Bias Current at LSI Pin			TBD		A	uA
F_{OSC}(range)	Oscillator Frequency Range	See Applications Section	TBD		400	A	MHz
F_{OSC}	Oscillator Frequency	Rfreq=3000, Ramp=500	170	200	240	A	MHz
A_{OSC}(range)	Oscillator Amplitude Range	See Applications Section	0		100	A	mA p-p
A_{OSC}	Oscillator Amplitude	Rfreq=3000, Ramp=500	40	50	60	A	mA p-p
T_{DIS}	Disable Time	CE 50% H-L to I_{OUT} 50% Final Value			50	C	usec
T_{EN}	Enable Time	CE 50% L-H to I_{OUT} 50% Final Value			1	C	msec
VFREQ	Voltage at RFREQ pin			1.1		C	V
VRAMP	Voltage at RAMP pin			2.33		C	V

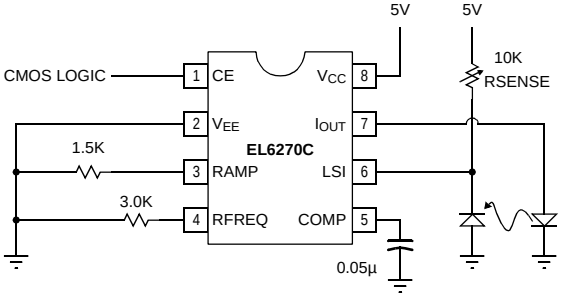
EL6270C (Preliminary)

Laser Driver with Ocillator and APC

Pin Description

Name	Type	Description
GND	Power Supply	Ground
V_S	Power Supply	+5V Supply
I_{OUT}	Analog	Output current source for laser diode
LSI	Analog	Laser power sense Input
CE	Digital	Digital control for disable mode (CE=0 is disable)
RFREQ	Analog	External resistor to ground which sets oscillator frequency
RAMP	Analog	External resistor to ground which sets oscillator amplitude
COMP	Analog	Sense amplifier conpensation

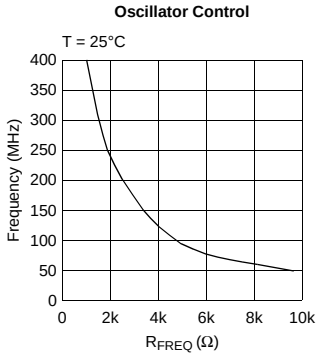
Typical Schematic

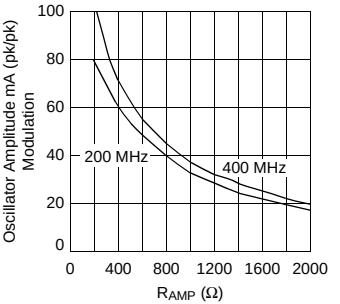


EL6270C (Preliminary)

Laser Driver with Ocillator and APC

Applications Information





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, Inc.
1996 Tarob Court
Milpitas, CA 95035
Telephone: (408) 945-1323
(800) 333-6314
Fax: (408) 945-9305
European Office: 44-71-482-4596

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.