

## EDL-1 2.5V CW LASER DIODE DRIVER

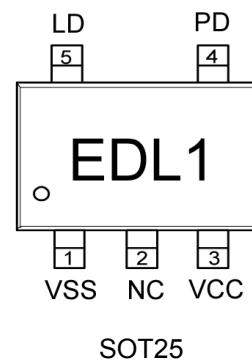
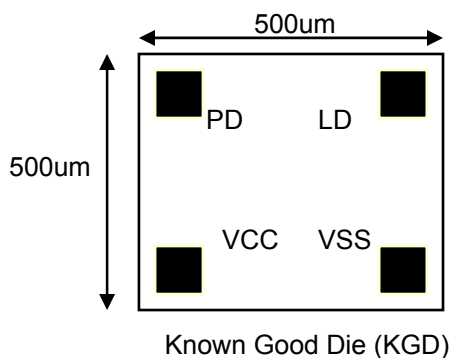
### FEATURES

- CW operation up to 60mA from 2.5..6V supply voltage
- Simple power adjustment via the external resistor
- Control loop accuracy better than 5% with changes in temperature, supply voltage and load current
- Permanent shutdown with excessive temperature and overcurrent (i.e. if the laser diode is damaged or the feedback current path fails)
- Wide monitor current range from 10 $\mu$ A to 0.5mA
- One external capacitor is required on output

### APPLICATIONS

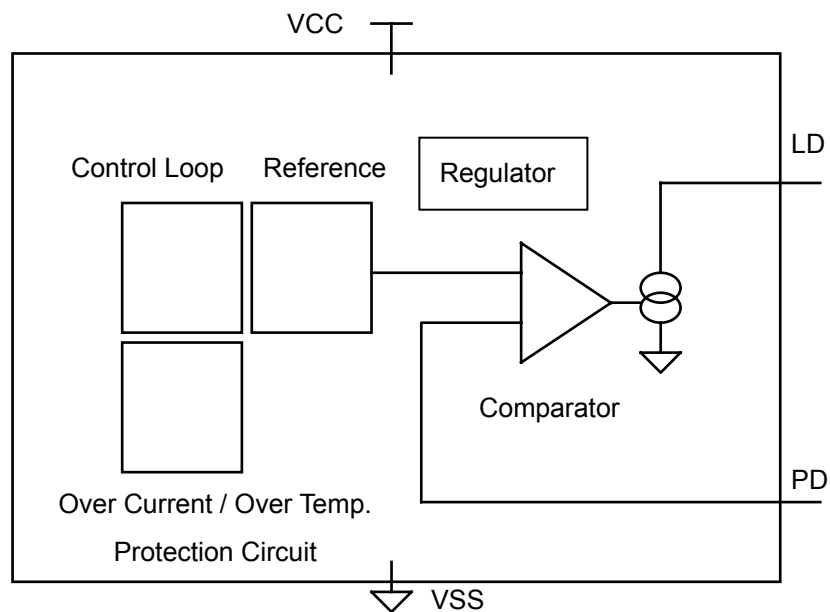
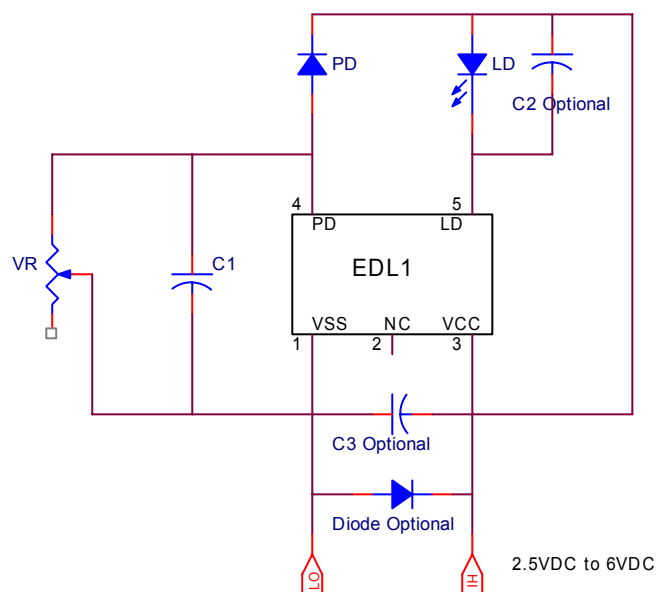
- Industrial Laser Diode Module
- LD Pointers
- Laser Leveling
- Bar Code Reader
- Laser Measuring Equipment

### PACKAGES



**SOT 25 PIN CONFIGURATION**

No.	Name	Function
1	VSS	Ground
2	NC	No Connection
3	VCC	+2.5 .. +6V Supply Voltage
4	PD	APC Setup, Monitor Input, PD Anode
5	LD	Driver Output (LD Cathode)

**BLOCK DIAGRAM**

**APPLICATION CONNECTION**


## DESCRIPTION

The EDL-1 device is a driver for laser diodes in continuous wave operation which requires only few external components. The broad power supply range of 2.5V to 6V and the integrated protection allow for battery operation with a minimum of two cells.

The driver includes integrated circuitry protecting against destruction by ESD, excessive temperature and over current. The driver also filters the laser diode power supply for transients.

The power supply is regulated and adapted for the laser diode used by an external resistor at PD. The monitor current acts as a reference and is regulated independent of the influence of temperature and supply voltage (range: 10 $\mu$ A to 0.5mA). There is only one external capacitor required.

In the event of failure, such as over current in the laser path with a lack of feedback, for example, a quick power lockout is activated. The shutdown continues until power is reapplied, permitting a restart. The strain on power packs and batteries is relieved and the laser class is retained even in the event of a disturbance.

## ABSOLUTE MAXIMUM RATINGS

Beyond these values damage may occur; device operation is not guaranteed.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
VCC	Voltage at VCC		-0.3		7	V
I(VCC)	Current in VCC		-500		100	mA
I(LD)	Current in LD				80	mA
I(PD)	Current in PD				6	mA
VR	Reverse Voltage				-4	V
VD	ESD Susceptibility at all pins	MIL-STD-883, Method 3015, HBM 100pF discharged through 1.5kS			1	kV
Tj	Operating Junction Temperature		-40		150	$^{\circ}$ C
Ts	Storage Temperature Range		-40		150	$^{\circ}$ C

**THERMAL DATA**

Operating Conditions: VCC= 2.5..6V

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Ta	Operating Ambient Temperature Range		-20		80	°C
Rthja	Thermal Resistance Chip / Ambient	SOT25 package, soldered on PCB, no additional cooling areas			140	K/W

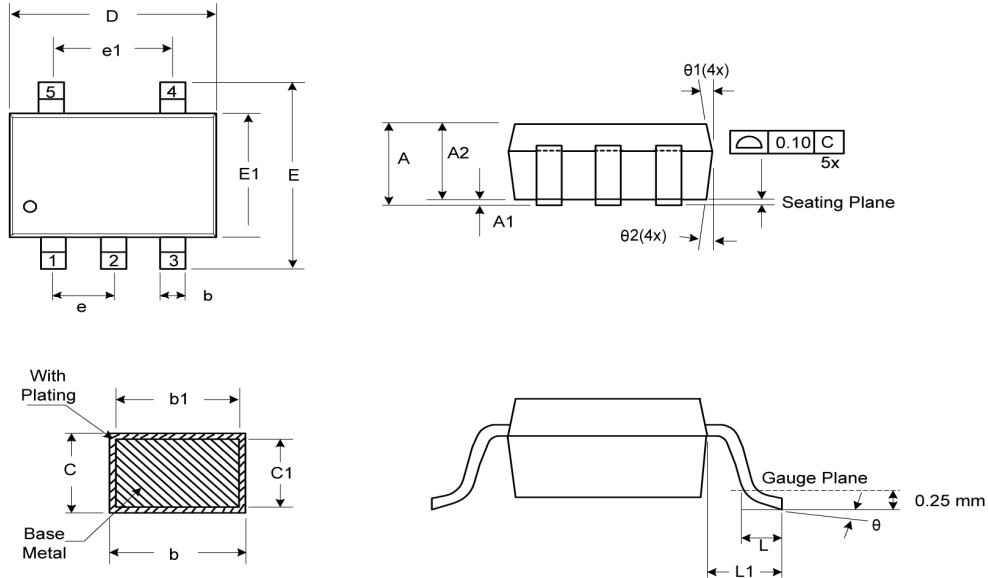
All voltages are referenced to ground unless otherwise noted.

All currents into the device pins are positive; all currents out of the device pins are negative.

**ELECTRICAL CHARACTERISTICS**

Operating Conditions: VCC= 2.5..6V, VR= 2KΩ..100KΩ, Ta= -20..80°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
VCC	Permissible Supply Voltage		2.5		6	V
I(LD)	Permissible Laser Diode Current	power control range	5	35	60	mA
I(PD)	Permissible Photo Diode Current	power control range	10		500	μA
ton()	Turn-on Delay	VCC: 0V→5V to 95% I(LD); I(LD)= 60mA			70	μs
APCerr	Control Error	VR= 10kΩ, Ta= 0..50°C VR= 10kΩ, Ta= -20..80°C			5 10	% %
Ioff(LD)	Laser Diode Shutdown Current		65	70	80	mA
Rout	Power Adjustment Resistor	power control range	1.2		60	KΩ
I(VCC)	Supply Current in VCC	power control range			13	mA
V(PD)	Voltage on PD	power control range	0.5	0.6	0.7	V

**SOT25 Package Drawing**


Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	1.05	1.20	1.35	0.041	0.047	0.053
A1	0.05	0.10	0.15	0.002	0.004	0.006
A2	1.00	1.10	1.20	0.039	0.043	0.047
b	0.25	-	0.55	0.010	-	0.022
b1	0.25	0.40	0.45	0.010	0.016	0.018
c	0.08	-	0.20	0.003	-	0.008
c1	0.08	0.11	0.15	0.003	0.004	0.006
D	2.70	2.85	3.00	0.106	0.112	0.118
E	2.60	2.80	3.00	0.102	0.110	0.118
E1	1.50	1.60	1.70	0.059	0.063	0.067
L	0.35	0.45	0.55	0.014	0.018	0.022
L1	0.60 Ref.			0.024 Ref.		
e	0.95 Bsc.			0.037 Bsc.		
e1	1.90 Bsc.			0.075 Bsc.		
$\theta$	0°	5°	10°	0°	5°	10°
$\theta1$	3°	5°	7°	3°	5°	7°
$\theta2$	6°	8°	10°	6°	8°	10°