

iC-WKN

15 V CW LASER DIODE DRIVER



iC-WKN is a driver for laser diodes in continuous wave operation with laser currents of up to 300 mA, which requires only four external components. The wide power supply range of up to 15 V allows the operation of blue laser diodes.

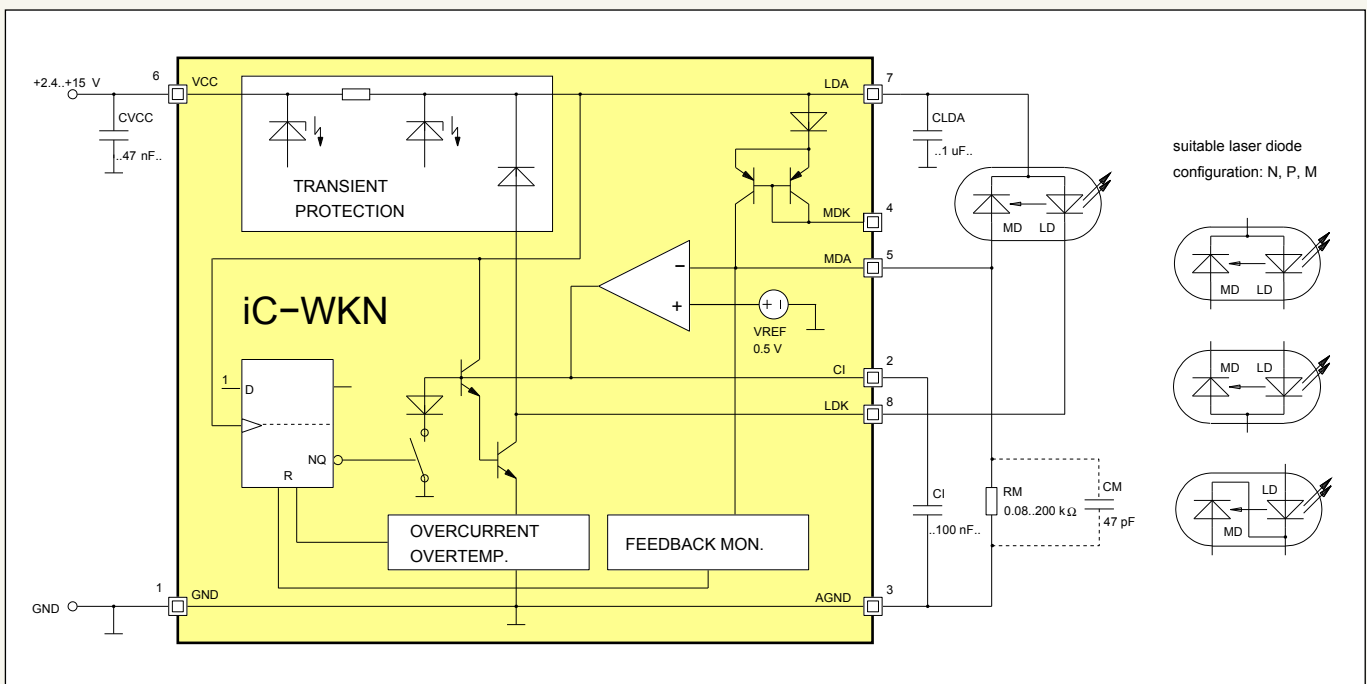
The iC includes integrated circuitry protecting against destruction by ESD, excessive temperature and overcurrent plus a soft start of the regulator to protect the laser diode when the power supply is switched on. The iC also filters the laser diode power supply for transients.

Applications

- Blue laser diodes
- Laser diode modules
- Laser diode pointers
- Leveling lasers
- Bar-code readers

Features

- CW operation up to 300 mA from 2.4 to 15 V supply voltage
- Rapid soft start after power-on typical within 70 μ s
- Optimised for N-type laser diodes
- Simple power adjustment via the external resistor
- Control loop accuracy better than 1.5 % with changes in temperature, supply voltage and load current
- Integrated reverse polarity protection for the iC and laser diode
- Strong suppression of transients with very small external capacitors; integrated flyback path
- Permanent shutdown with excessive temperature and overcurrent (i.e. if the laser diode is damaged or the feedback current path fails)
- Two feedback inputs permit all current LD types to be used (M/P/N configurations)
- Modulation via feedback inputs possible
- Wide monitor current range from 2.5 μ A to 6.25 mA



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The regulator is adapted to the laser diode by an external resistor at pin MDA. The monitor current acts as a reference and is regulated independent of the influence of temperature and supply voltage (range: 2.5 μ A to 6.25 mA). The capacitor at CI determines the control time constants and start-up time.

A second monitor input, pin MDK, allows the driver to be used for other types of laser diode configuration; alternatively, it can be used as an analog modulation input (DC to a few kHz).

In the event of failure, such as overcurrent in the laser path with a lack of feedback, for example, a quick power lockout is activated. The shutdown persists 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.

iC-WKN offers additional protection by means of spike detection at pin MDA. Should spikes or oscillation occur at pin MDA the power lockout is activated after a time-out.

Key Specifications

General	
Supply Voltage Range	2.4 to 15 V
Laser Drive Current	10 to 300 mA
Turn-on Delay CI = 47 nF	70 ns
CI = 100 nF	150 ns

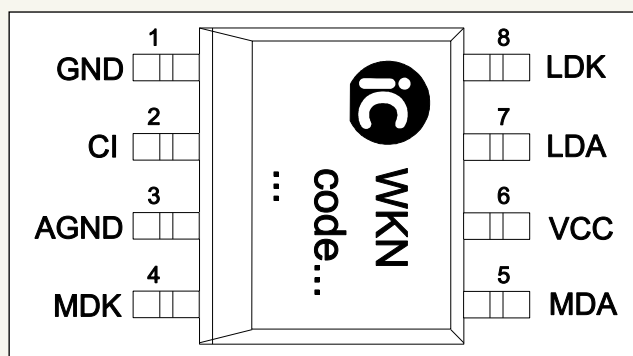
Control Circuit	
Control Error RM = 10 k, Tj = 0.80 °C	0.3 %
RM = 10 k, Tj = -40..125 °C	1 %
Supply Voltage Suppression	\pm 0.2 %/V
Load Balancing Error	\pm 1.5 %

Laser Driver	
Saturation Voltage at LDK	350 to 700 mV
Overcurrent Threshold in LDK	300 to 700 mA
Overcurrent Reset Delay CI = 47 nF	85 μ s
CI = 100 nF	170 μ s

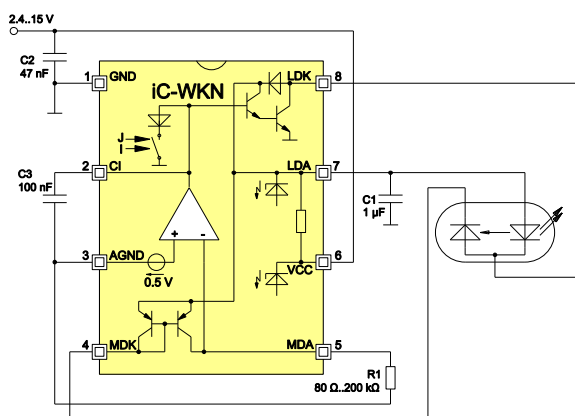
Pin Functions

No.	Name	Function
1	GND	Ground
2	CI	Capacitor for Power Control
3	AGND	Reference Ground for CI, RM
4	MDK	Monitor Input 2 (MD Cathode, modulation)
5	MDA	APC Setup, Monitor Input 1 (MD Anode)
6	VCC	+2.4 to +15 V Supply Voltage
7	LDA	Laser Supply (LD Anode)
8	LDK	Driver Output (LD Cathode)

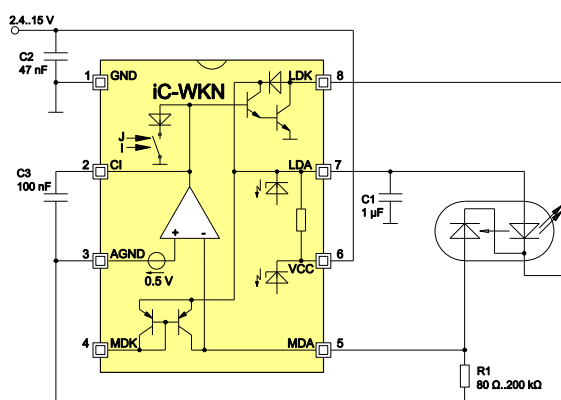
Pin Configuration S08



P-type Configuration



M-type Configuration



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