

# iC-HK, iC-HKB

## 155 MHz LASER SWITCH



Laser Switch iC-HK/B enables the spike-free switching of laser diodes with well-defined current pulses at frequencies ranging from DC to 155 MHz.

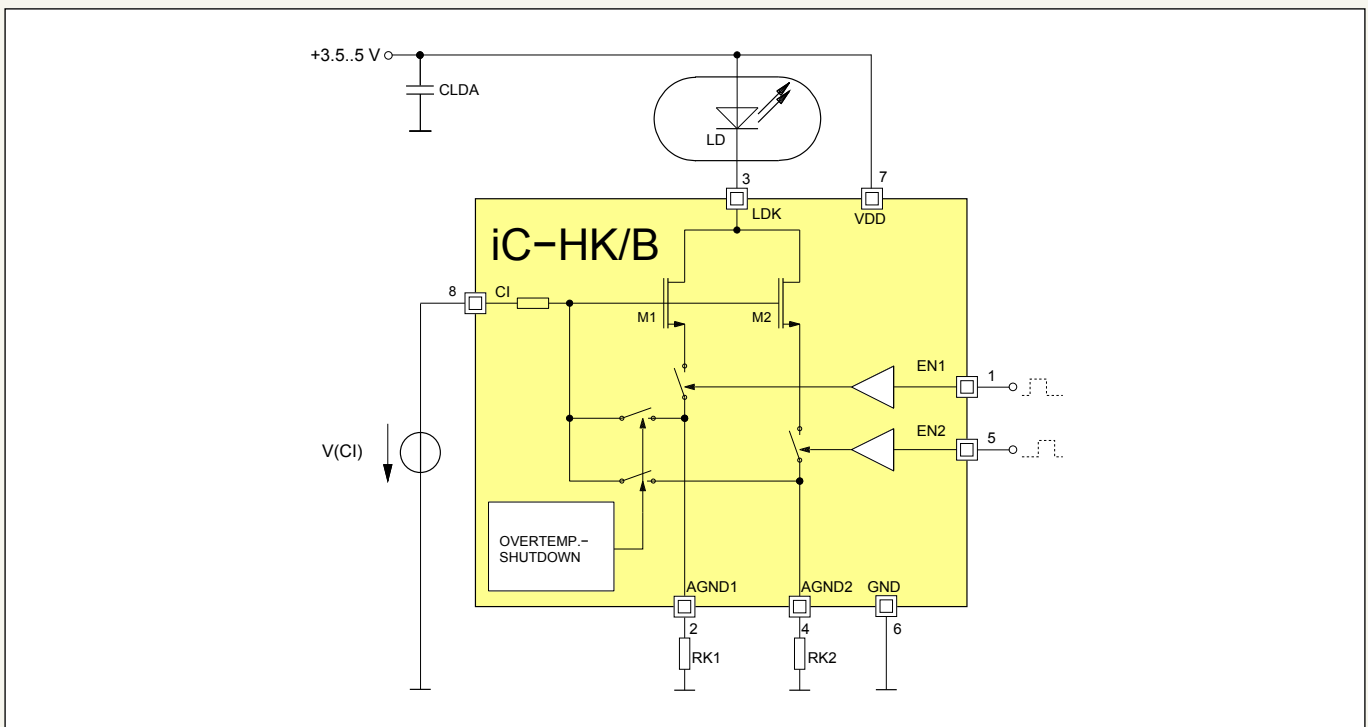
The diode current is determined by the voltage at pin CI and by the resistors RK1 and RK2. The two fast switches are controlled independently via CMOS inputs EN1 and EN2. The laser diode can thus be turned on and off or switched between different current levels defined by the ratio of RK1 and RK2.

### Applications

- Data transmission
- Laser scanning devices
- Optical storage devices

### Features

- Laser switch for frequencies from CW up to 155 MHz
- iC-HKB for driving blue laser diodes
- Dual spike-free switching inputs with independent current control
- Operates as a voltage-controlled current source
- Pulsed operation with up to 700 mA per channel
- CW operation with up to 150 mA per channel
- Control to the average of the laser power in conjunction with iC-WK/L (CW laser diode driver)
- Supplement to iC-WK/L for pulsed operation
- Thermal shutdown





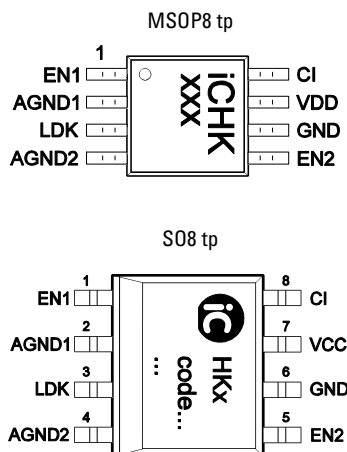
# iC-HK, iC-HKB 155 MHz LASER SWITCH

Each channel can be operated on 150 mA DC and up to 700 mA pulsed current depending on the frequency, duty cycle and heat dissipation.

The integrated thermal shutdown feature prevents damage from excessive temperature.

iC-HK/B supplements the laser diode driver iC-WK which uses the monitor current of the laser diode to control the laser power. iC-WK therefore controls the voltage at pin CI in such a way that the average value of the emitted laser power is constant (APC), providing there is a constant duty cycle and a switching frequency higher than 100 kHz.

## Pin Configurations



## Key Specifications

General		
Permissible Voltage at LDK	iC-HK iC-HKB	5.5 V 12 V
Permissible CW Current in LDK (per channel)		150 mA
Permissible Pulsed Current in LDK (per channel)	$f > 100 \text{ kHz}$ , $t_{hi}/T > 1:10$	700 mA
Saturation Voltage at LDK	$I(LDK) = 40 \text{ mA}$ $I(LDK) = 60 \text{ mA}$ $I(LDK) = 150 \text{ mA}$ , iC-HK $I(LDK) = 150 \text{ mA}$ , iC-HKB	1.2 V 1.3 V 1.5 V 1.8 V
LDK Current Rise Time	$I_{op} = 150 \text{ mA}$ $I(LDK): 10\% \rightarrow 90\% I_{op}$	max. 1.5 ns
LDK Current Fall Time	$I_{op} (LDK) = 150 \text{ mA}$ $I(LDK): 90\% \rightarrow 10\% I_{op}$	max. 1.5 ns
Propagation Delay	$V(ENx) \rightarrow I(LDK)$ $ENx \text{ hi} \leftrightarrow \text{lo}$ , $V(50\%) \rightarrow I(50\%)$	max. 3 ns
Current Matching Channel1/Channel2	$V(CI) = 0 \dots VDD$ $I(LDK) = 30 \dots 300 \text{ mA}$ , $RK1 = RK2$	min. 0.95 max. 1.05

## Pin Functions

No.	Name	Function
1	EN1	Channel 1 Switching Input
2	AGND1	Channel 1 Reference Ground
3	LDK	Driver Output (LD Cathode)
4	AGND2	Channel 2 Reference Ground
5	EN2	Channel 2 Switching Input
6	GND	Ground
7	VDD	+5 V Supply Voltage
8	CI	Voltage Reference for Current Control

## Application Example

