

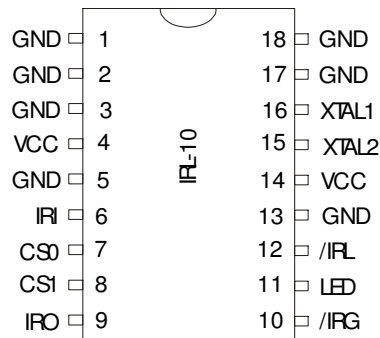
## IRL-10 Technical Specifications

### Infra red remote control learner IC

Version 1.4

#### Features

- Learns 4 infra red remote control codes
- Stores codes in non-volatile memory
- Can generate the learnt codes
- New codes can overwrite the previously stored codes
- Very easy to use with minimum external components
- Designed for inclusion in any device to control IR remote capable appliances
- Ideal for home automation applications



#### Description

IRL-10 is an 18 pin, standard 0.3" wide DIL packaged IC. It can be directly connected to an infra red remote controller detector IC and learn 4 Infra red remote control codes.

Once codes are learnt, any of the codes can be regenerated to control the appliance by choosing the code number on the code select input pins.

#### IR Learning

To start learning the 4 IR codes:

1. Set the **IRL** (pin 12) to GND for at least 10ms to initiate the learning process
2. The **LED** (pin 11) oscillates between GND and VCC levels.
3. If a demodulated infra-red signal is received on the **IRI** (pin 6) within 30 seconds, then while the IR is being received the **LED** (pin 11) will oscillate at the same rate as the received IR signal and then will go to the VCC level for about 2 seconds once a complete IR code is received.
4. The received code at step 3 will be stored in non-volatile memory.
5. This sequence (2-4) repeats until all 4 codes are received and stored.
6. The **LED** pin will stay at the VCC level for about 5 seconds and then will go the GND level.
7. If no code is received after power up within 30 seconds, the codes (if any) that have been stored previously will be used.

**NOTE:** Ensure all 4 codes are learnt together. If less than 4 codes are required, continue the learning process with the same code until all 4 codes are learnt.

#### IR Generation

To generate a specific IR code:

1. Select the code to be generated using **CS0** (pin 7) and **CS1** (pin 8) based on table 1.
2. Set the **IRG** (pin 10) to GND. While **IRG** is at the GND level code selected at step 1 will be generated continuously.

# IRL-10

## Pin Configuration



## Electrical Specification

Parameter	min	max	unit
Supply voltage	3.0	5.25	V
Current*	1	4	mA
Operating Temp.	0	70	°C
Input Low Voltage	GND	0.2Vcc	V
Input High Voltage	0.8Vcc	Vcc	V
Output Low Voltage	-	0.6	V
Output High Voltage	Vcc-0.7	-	V
XTAL1,2	20	20	MHz

## Pin Description

Pin	Symbol	I/O	Function
1, 2, 3, 5, 13, 17, 18	GND	-	Ground
4, 14	VCC	-	Supply voltage
6	IRI	I	IR input. Remote Controller Infra Red detector Input
7	CS0*	I	Code Select 0. Low bit IR transmit code select
8	CS1*	I	Code Select 1. High bit IR transmit code select
9	IRO	O	IR output. Modulated at 38.46KHz. Normally at GND. Can source and sink upto 20mA.
10	/IRG	I	IR Generate. When pulled to GND transmits learnt code selected by C0, C1 inputs.
11	LED	O	Normally at GND level. Designed for connection to a LED. Can source and sink upto 20mA. Oscillates between VCC and GND when learning and generating IR codes.
12	/IRL	I	IR Learn. When pulled to GND for at least 10ms, enables learning IR codes from a IR remote control detector connected to the IRI pin.
16	XTAL1	I	20MHz crystal connection.
15	XTAL2	O	20MHz crystal connection.

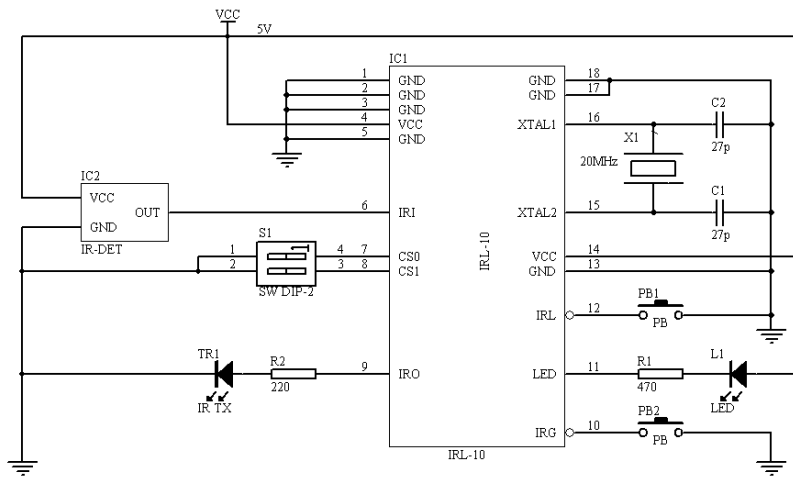
### NOTES:

\* While **IRG** is at GND level, the IR code selected by the CS0 and CS1 based on the following table will be transmitted continuously:

Code to Transmit	CS1	CS0
1	GND	GND
2	GND	VCC
3	VCC	GND
4	VCC	VCC

Table 1 – Code selection

# IRL-10



Infra red detector IC2 receives 37-40KHz modulated IR signal from common remote control emitters and produces a demodulated signal corresponding to the envelope of the IR signal. Such as PIC26043SM by Kodenshi available from Farnell part no. 139-877

IR Emitter diode TR1 such as SFH415-U by Infineon available from Farnell part no: 332-7954