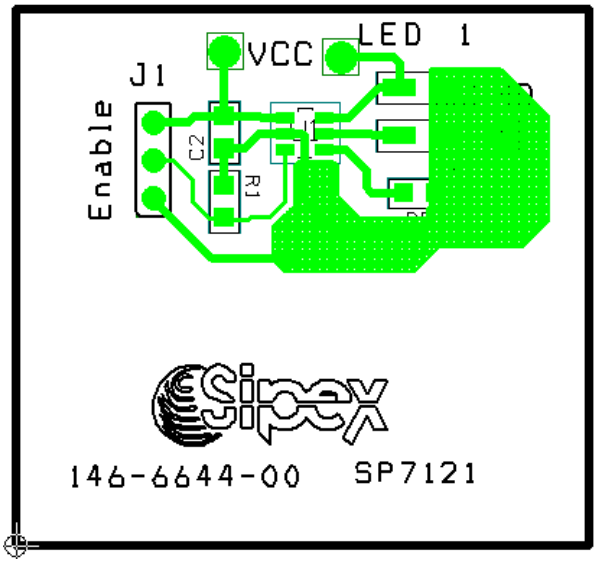
Evaluation Board Manual

- LED Driver for common cathode parallel connected LEDs
- Ultra Low Dropout Voltage of 200mV
- No EMI, no switching noise
- Integrated current matching
- PWM and Analog brightness control
- Enable/Shutdown control
- Shutdown current < 1μA
- Small footprint SOT23-6 Package



DESCRIPTION

The SP7121 driver provides a simple solution for a matched current source for any color common cathode LEDs. The common cathode connection allows the user to increase the led power dissipation by having the cathodes heat sinked to the ground plane of the circuit board. The SP7121 output current value is set by external resistor. At shutdown mode (EN pin is LOW) the supply current drops to .04uA typical. The SP7121 driver is available in a small footprint 6-pin SOT23-6 package.

BOARD SCHEMATIC

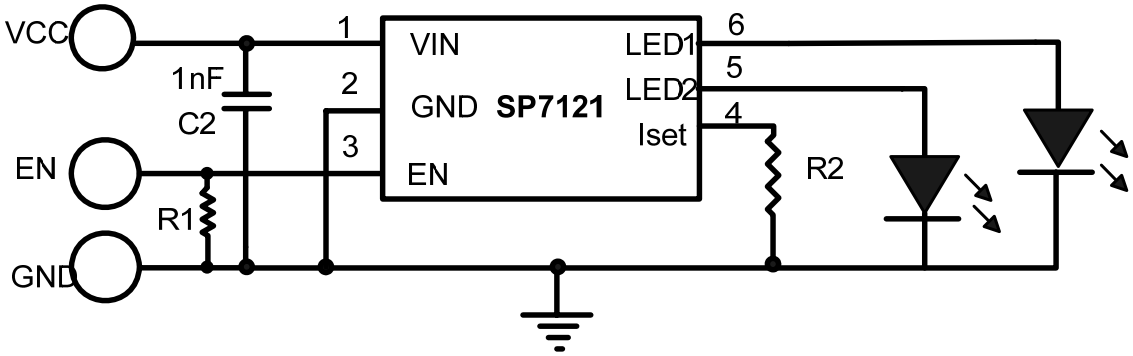


Figure 1 SP7121 Powering 2 LEDs

USING THE EVALUATION BOARD

1) Powering Up the SP7121

The Evaluation Board can be powered from inputs ranging from 2.7 to 5.5Vin. All that is required is to populate the LED location with desired LED and connect the source voltage to VCC and GND. There is a jumper located on the PCB. The jumper needs to be set between center pin and VCC (Enable logic high) to activate the part. If the jumper is left unpopulated the driver will be off due to the pull down resistor on the enable pin

Setting the Current in the SP7121

Current amplifier provides current gain function where the R2 resistor is connected from the Iset pin (pin 4) to GND. The current, produced by the R2 resistor is then amplified and delivered to the LED output. The external R2 resistor value for SP7121 is determined by following equation:

R2 = 205 x Vset/ILED

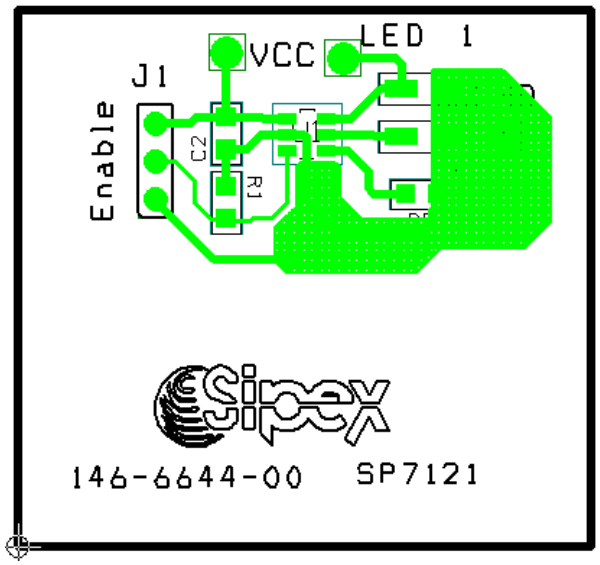
Where ILED = required LED current value in mA per channel.
Vset = 1.22V
205 is the typical gain

The LED current level can be set anywhere from 10mA to 25mA per each output to be guaranteed by specification table. For currents above 25mA up to 30mA specifications are not guaranteed by the specification table but the part will operate without damage.

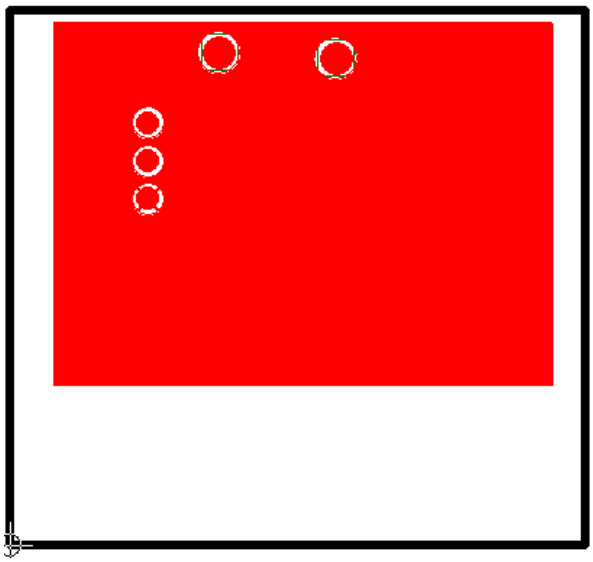
The SP7121 does not have protection from ISET pin being shorted to ground or R2 value being too low. With an operational maximum current of 30mA per channel device may be damaged if ISET pin is shorted to the ground or R2 value is below 8k.

For typical test results please refer to the data sheet.

EVALUATION BOARD LAYOUT



TOP Side SP7121



BOTTOM Side SP7121

SP7121

QTY	Ref Desigantor	Manufacturer	Part Number	Description
1	U1	Sipex	SP7121	
2	C2	Murata	GRM188R71H102KA01	1nF Capacitor
1	R2	Vishay	CRCW060312K4FKEA	12.4K Resistor
1	R1	Vishay	CRCW060380K6FKEA	80.6K Resistor
1	J1	Wurth	61303611121	3 Pin 2.54 mm Header
1		Wurth	60900213421	2.54mm Jumper
3		Millmax(DigiKey)	0300-11501-4727100	Test point pin
1		Sipex	146-6644-00	PCB

Part Number	Description
SP7121EB	SP7121 Eval Board

For further assistance:

Email: Sipexsupport@sipex.com
WWW Support page: http://www.sipex.com/content.aspx?p=support
Sipex Application Notes: http://www.sipex.com/applicationNotes.aspx

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