



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

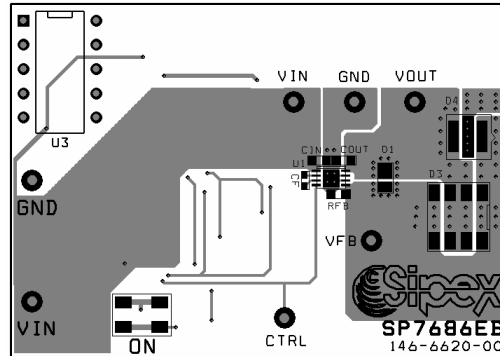
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





SP7686EB Evaluation Board Manual

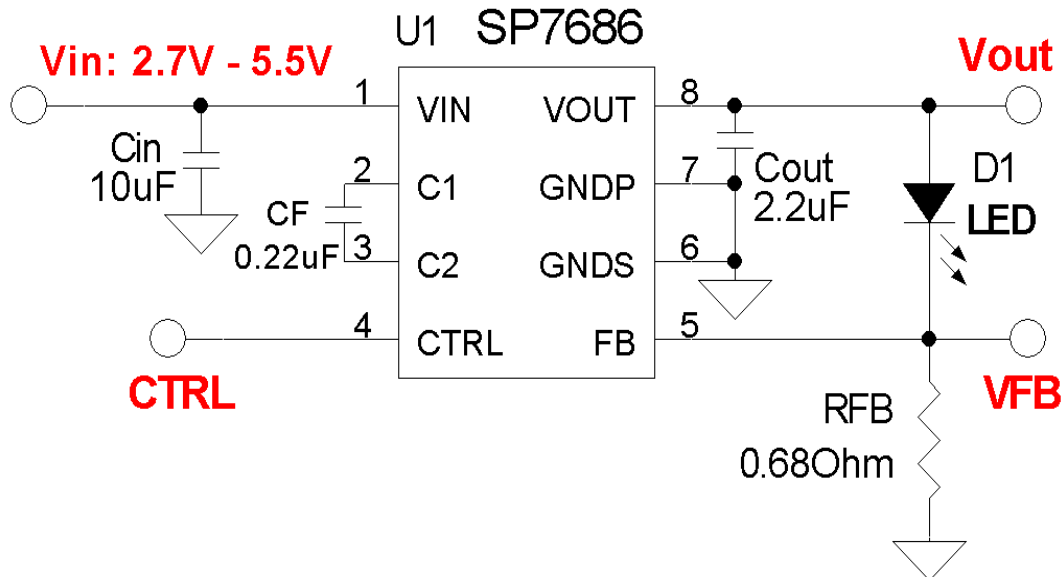
- 2.7V to 5.5V Input Range
- One line serial interface
- Output Current up to 500mA
- High Efficiency in 1X mode, high V_{OUT} in 2X mode
- Small 2x3mm 8-Pin DFN Package
- 2.4MHz Switching Frequency
- Integrated Design with Minimal Components.
- 3.5sec Time out function to protect the LED
- Thermal shutdown protection
- Built-in over-voltage & over-current protection
- Use with 1 cell Lithium Ion Battery



DESCRIPTION AND BOARD SCHEMATIC

The **SP7686EB Evaluation Board** is a compact circuit including the SP7686 in 3x2mm DFN and 3 small 0603 capacitors which can provide a stable drive current for a 1W LED such as the AOT White LED, Lumi-LEDs Luxeon I or PWF1 type light sources. The evaluation board is a completely assembled and tested surface mount board which provides easy probe access points to all SP7686 inputs and outputs so that the user can quickly connect and measure electrical characteristics and waveforms.

SP7686EB Schematic



TO GET STARTED:

1. Connect VIN from VIN to GND (VIN range 2.7V to 4.2V).
2. Apply a combination of positive pulses on CTRL pin to enable the part.

POWER SUPPLY DATA

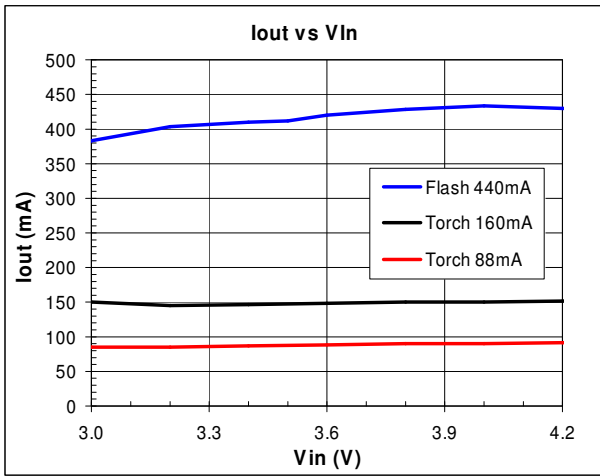


Figure 1. Output Current with PWF1 LED

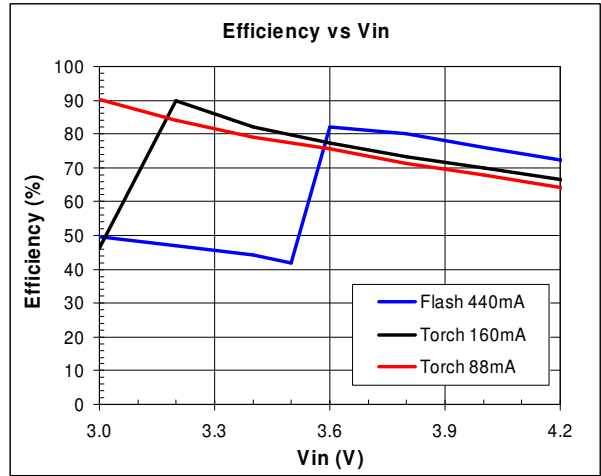


Figure 2. Output Efficiency with PWF1 LED

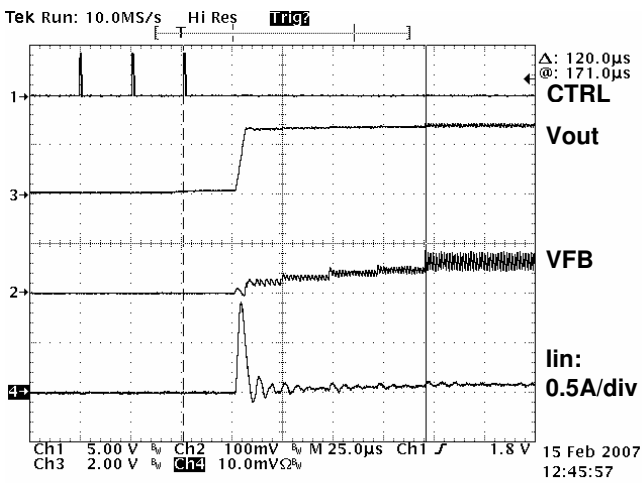


Figure 3. Start Up, Iout = 80mA, Vin=4.2V

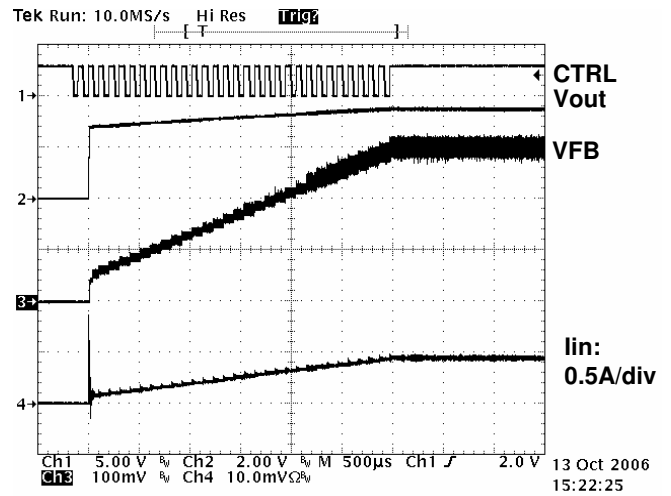


Figure 4. Start Up, Iout = 450mA, Vin=4.2V

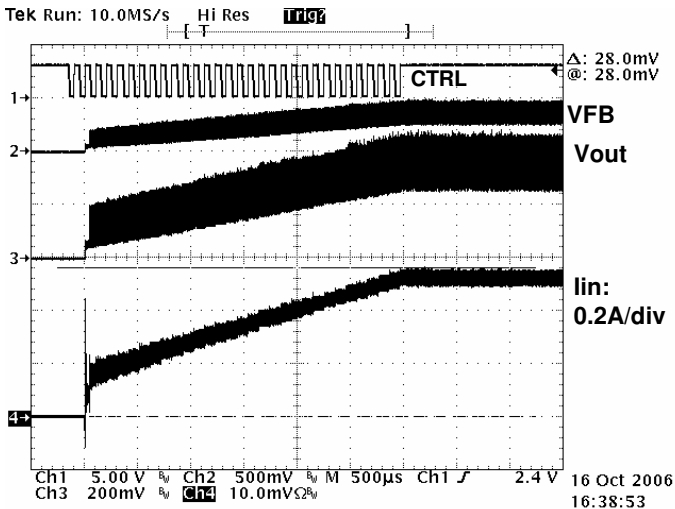


Figure 5. LED Shorted, Vin=4.2V

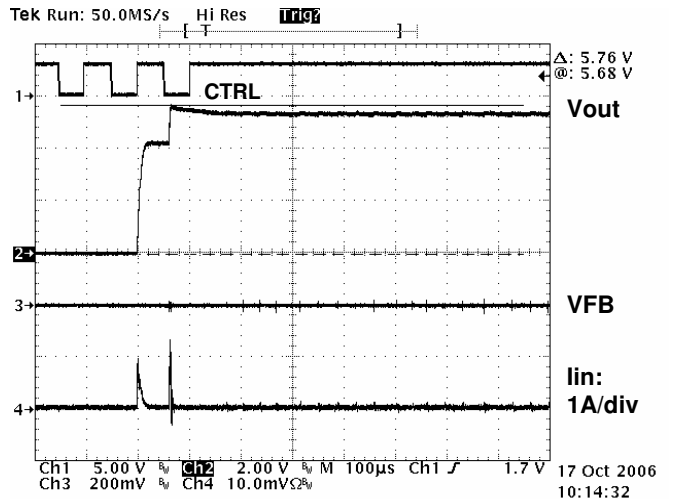


Figure 6. LED Open, Vin=4.2V

EVALUATION BOARD LAYOUT

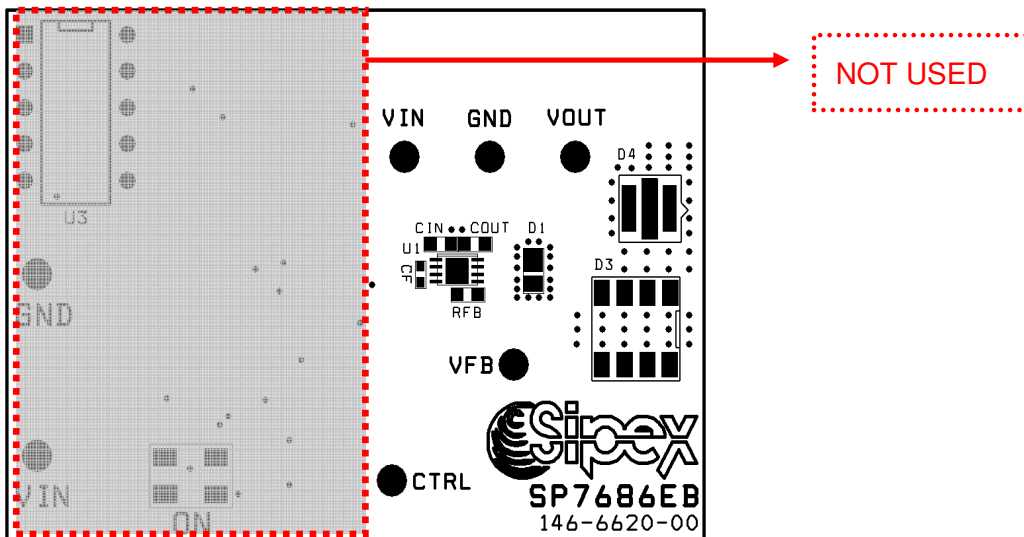


FIGURE 7: SP7686EB COMPONENT PLACEMENT

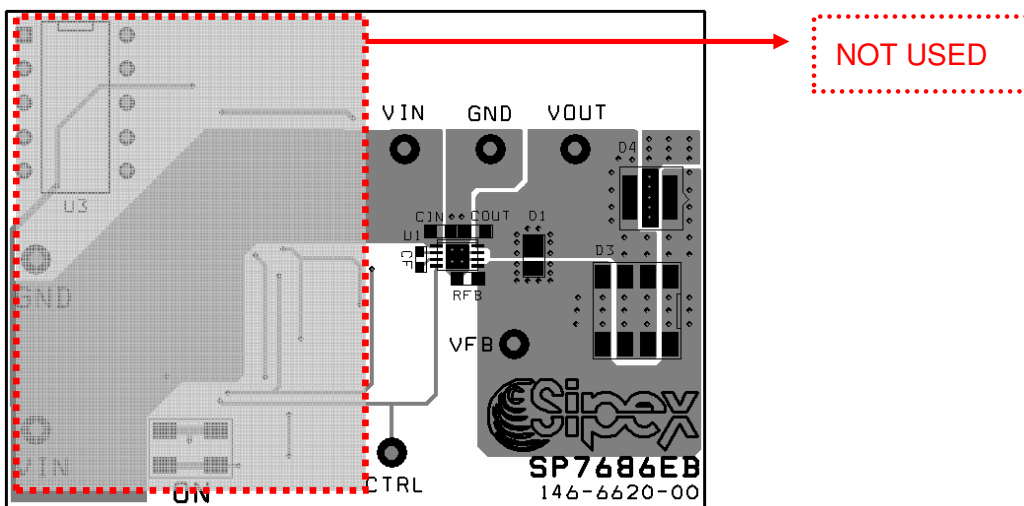


FIGURE 8: SP7686EB PC LAYOUT TOP SIDE

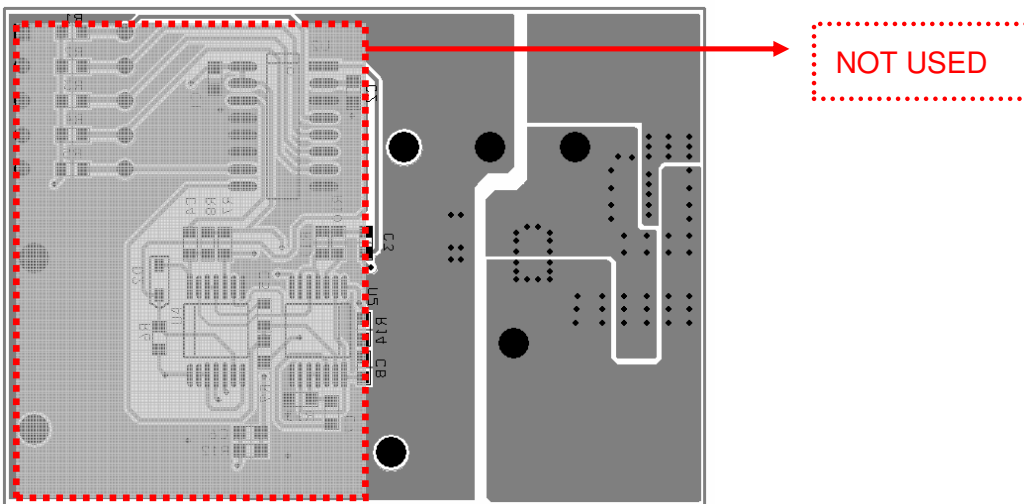


FIGURE 9: SP7686EB PC LAYOUT BOTTOM SIDE

Note: “Not Used” section of the board is for optional CTRL PULSE digital circuit – consult factory Applications for details.

TABLE1: SP7686EB LIST OF MATERIALS

Part Reference	Part Number	Value	Size	Manufacturers/ Website
U1	SP7686ER		3x2mm DFN - 8 pin	www.sipex.cpm
CIN	GRM188R60J106M	10uF/6.3V/X5R	0603	www.murata.com
COU	GRM188R61A225K	2.2uF/10V/X5R	0603	www.murata.com
CF	GRM155R60J224K	0.22uF/6.3V/X5R	0402	www.murata.com
RFB	CRCW0603R680F	0.68Ω/1%, 1/10W	0603	www.vishay.com
J1	61303611121	3-Pin 2.54mm Header	6.0x2.54mm	www.we-online.com
	60900213421	2.54mm Jumper	5.0x2.54mm	www.we-online.com
TP(VIN,GND,VOUT,CTRL&VFB)	0300-11501-4727100	Test point female pin	.042" Dia	Mil-Max (digi-key)

ORDERING INFORMATION

Model	Temperature Range	Package Type
SP7686EB.....	-40°C to +85°C.....	SP7686AEB Evaluation Board
SP7686ER.....	-40°C to +85°C.....	8-pin 3x2 DFN