

LM2611 Demoboard

National Semiconductor
Application Note 1203
Mark Hartman
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Introduction

The LM2611 demoboard is a working demonstration of a typical LM2611 Cuk converter layout. This application note contains information about the board. See the datasheet for more information on the LM2611 and Cuk topology.

General Description

The LM2611 is typically used in inverting Cuk converter applications. The Cuk converter offers the advantages of low input and output ripple current and the ability to step up or step down the magnitude of the input voltage. The NFB pin

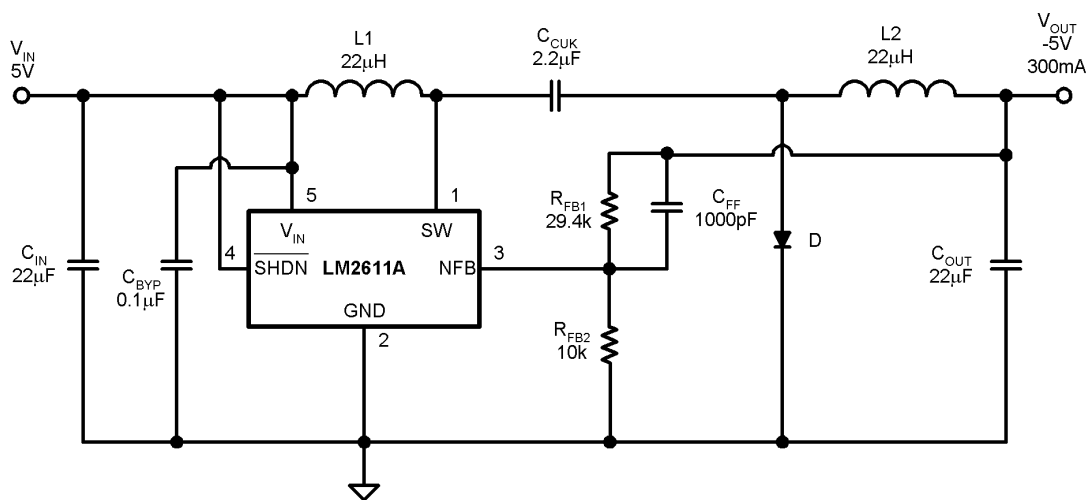
allows for simple feedback of the negative output voltage. The demoboard is assembled to show a small yet practical layout. The board will operate under the following conditions:

$$4.5V \leq V_{IN} \leq 5.5V$$

$$V_{OUT} = -5V$$

$$0 \leq I_{OUT} \leq 300mA$$

Note: The input capacitor is rated for 6.3V. Do not apply greater than 5.5V without first replacing the input capacitor with one of higher voltage rating ($V_{IN(MAX)} = 14V$). The input voltage may be as low as 2.7V, however the maximum load will be lower than 300 mA.



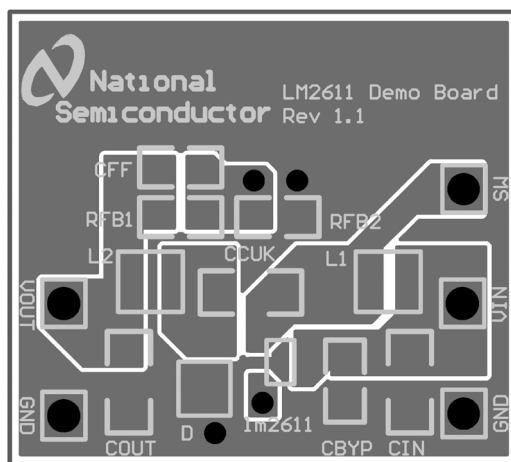
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FIGURE 1.

TABLE 1. Bill of Materials

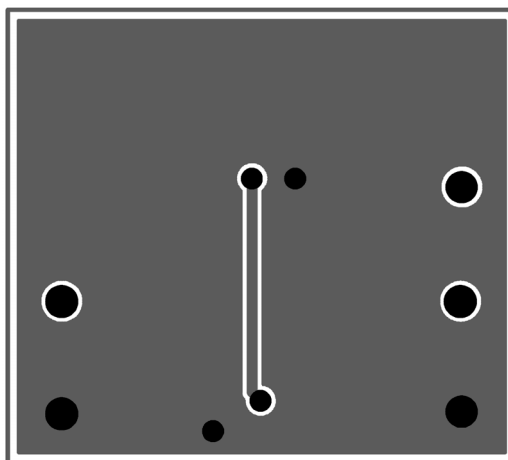
Component	Value	Description	Model Number
C _{BYP}	0.1µF	Bypass Capacitor	VJ0805Y104KXAAT (Vishay)
C _{CUK}	2.2µF	Cuk Capacitor	EMK316BJ225ML (Taiyo Yuden)
C _{FF}	1nF	Feedforward Capacitor	VJ0805Y102KXAAT (Vishay)
C _{IN}	22µF/6.3V	Input Capacitor	LMK325BJ226MM (Taiyo Yuden)
C _{OUT}	22µF/6.3V	Output Capacitor	LMK325BJ226MM (Taiyo Yuden)
D		Scottky Diode	MBRM120LT3 (Motorola)
L ₁	22µH	Input Inductor	CR32-220 (Sumida)
L ₂	22µH	Output Inductor	CR32-220 (Sumida)
R _{FB1}	29.4kΩ	Feedback Resistor	CRCW08052492FRT1 (Vishay)
R _{FB2}	10.0kΩ	Feedback Resistor	CRCW08051002FRT1 (Vishay)

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FIGURE 2. LM2611 Demoboard Top Layer Layout



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FIGURE 3. LM2611 Demoboard Bottom Layer Layout

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National Semiconductor Corporation
Americas
Email: support@nsc.com

www.national.com

National Semiconductor Europe

Fax: +49 (0) 180-530 85 86
Email: europe.support@nsc.com
Deutsch Tel: +49 (0) 69 9508 6208
English Tel: +44 (0) 870 24 0 2171
Français Tel: +33 (0) 1 41 91 8790

National Semiconductor Asia Pacific Customer Response Group

Tel: 65-2544466
Fax: 65-2504466
Email: ap.support@nsc.com

National Semiconductor Japan Ltd.

Tel: 81-3-5639-7560
Fax: 81-3-5639-7507