AN–1203 LM2611 Demo Board

1 Introduction

The LM2611 demo board is a working demonstration of a typical LM2611 Cuk converter layout. This document contains information about the board. For more information on the LM2611 and Cuk topology, see the device-specific data sheet.

2 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 demo board is assembled to show a small yet practical layout. The board will operate under the following conditions:

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

$V_{OUT} = -5\ V$

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

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

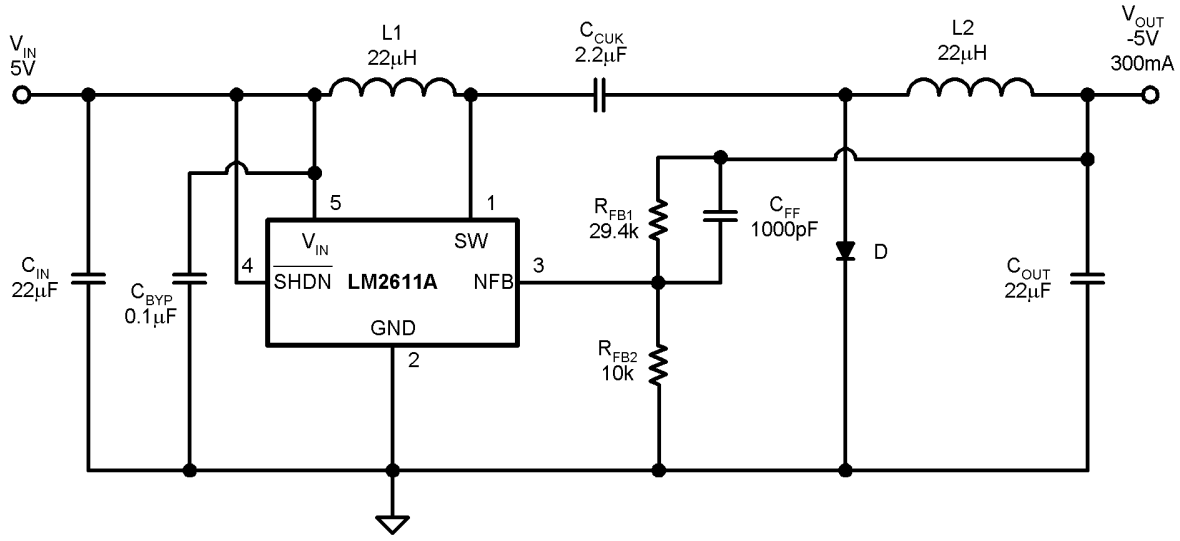

Table 1. Bill of Materials

Component	Value	Description	Model Number
C_{BYP}	0.1 µF	Bypass Capacitor	VJ0805Y104KXAAT (Vishay)
C_{CUK}	2.2 µF	Cuk Capacitor	EMK316BJ225ML (Taiyo Yuden)
C_{FF}	1 nF	Feedforward Capacitor	VJ0805Y102KXAAT (Vishay)
C_{IN}	22 µF/6.3 V	Input Capacitor	LMK325BJ226MM (Taiyo Yuden)
C_{OUT}	22 µF/6.3 V	Output Capacitor	LMK325BJ226MM (Taiyo Yuden)
D		Scottky Diode	MBRM120LT3 (Motorola)
L_1	22 µH	Input Inductor	CR32-220 (Sumida)
L_2	22 µH	Output Inductor	CR32-220 (Sumida)
R_{FB1}	29.4 kΩ	Feedback Resistor	CRCW08052492FRT1 (Vishay)
R_{FB2}	10.0 kΩ	Feedback Resistor	CRCW08051002FRT1 (Vishay)

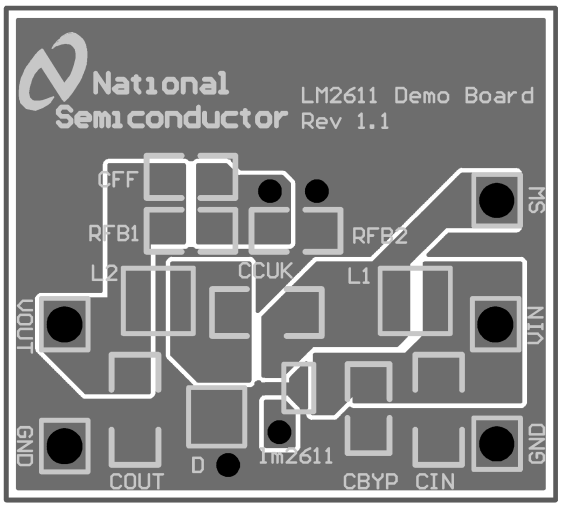

Figure 1. LM2611 Demo Board Top Layer Layout

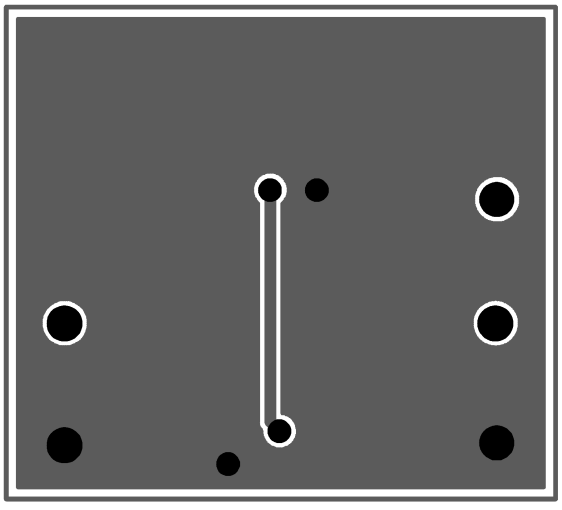

Figure 2. LM2611 Demo Board Bottom Layer Layout

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