

FEATURES

Single Inverting Output: -5 V

Output Current: 0.5 A

Input voltage: 4.5-5.5 V

Low Ripple

DESCRIPTION

This ADP2301 Reference Design uses 4.5 V to 5.5 V for the input voltage. Design criteria are for small size and low cost. The ripple is less than 1% of vout. Transient response varies over the load range and is not considered high priority. The switching frequency is fixed at 1.4 MHz.

Table 1. User Target Specs, Vout1

<i>Spec</i>	<i>Target Value</i>	<i>Actual Value</i>	<i>Units</i>
Vout	-5	-5	Volts
Iout	0.5	0.5	Amps
Tamb	50	50	degC
Vinmin	4.5	4.5	Volts
Vinmax	5.5	5.5	Volts

Table 2. Default Design Target Specs, Vout1

<i>Spec</i>	<i>Target Value</i>	<i>Actual Value</i>	<i>Units</i>
Vout ripple max	0.050	0.030	Volts
Ioutstep	0.25	0.25	Apk
Vout step error	N/A	N/A	Volts
MaxHeight	5	2.4	mm

Rev. 0

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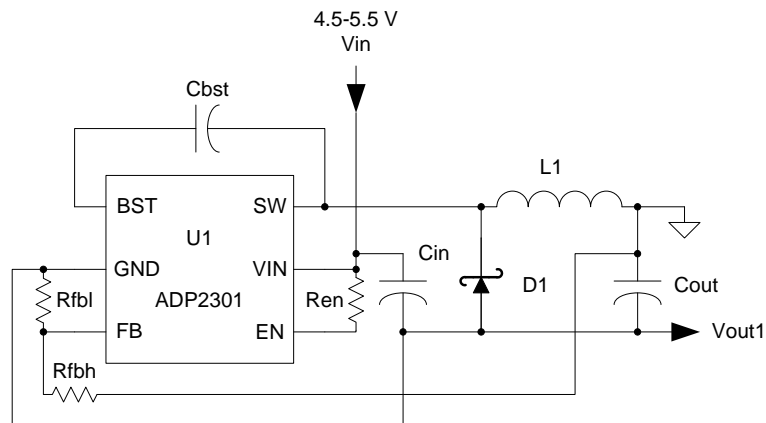
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REVISION HISTORY

8/03/2009—Revision 0: Initial Version

SCHEMATIC

Figure 1. Inverting buck boost Schematic



BILL OF MATERIALS

Table 3. Bill of Materials

Item #	Des	Mfg	Part Number	Component Specs	Package	Qty	Area (mm ²)	Height (mm)	Cost
1	U1	ADI	ADP2301	Current Mode Step Down DC/DC Regulator	TSOT-6	1	8.12	1.0	
2	L1	Coilcraft	LPS6225-682MLC	6.8uH, 100mOhm 2x2 inductor	6x6	1	36.0	2.4	
3	D1	Diodes Inc.	B230A	Single,2A,30V Schottky	SMA	1	16.8	2.3	
4	Cin	Murata	GRM31CR71C106K	10uF,16V,X7R,2mOhm	1206	1	5.1	1.6	
5	Cout	Murata	GRM31CR60J226K	22uF,6.3V,X5R,2mOhm	1206	1	5.1	1.6	
6	Cbst	Murata	GRM188R70J104KA01	100nF,6.3V,X7R	0603	1	1.3	0.8	
7	Rfbh	Vishay	1% tolerance	22.1kohm	0603	1	1.3	0.5	
8	Rfbl	Vishay	1% tolerance	4.12kohm	0603	1	1.3	0.5	
9	Ren	Vishay	1% tolerance	10.0kohm	0603	1	1.3	0.5	
Total:						9	76.3	2.4	

NOTES