

LM2597HV Design Document

National Semiconductor
LM2597HV
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1.0 Design Specifications

Inputs	Outputs #1
VinMin=9	Vout1=12
VinMax=60	Iout1=1.5

2.0 Design Description

The design uses a LM2597HV simple switcher buck regulator operating at 150kHz. A second stage filter is added to further reduce the output ripple.

Careful PC board layout is critical to achieve low switching losses and clean, stable operation. The switching power stage requires particular attention. Few points to note for this design are:

1) Decoupling capacitors are close to IC pins as possible. Keep separate power ground plane.

2) Input and output capacitors are connected to the power ground plane; all other capacitors are connected to the signal ground plane.

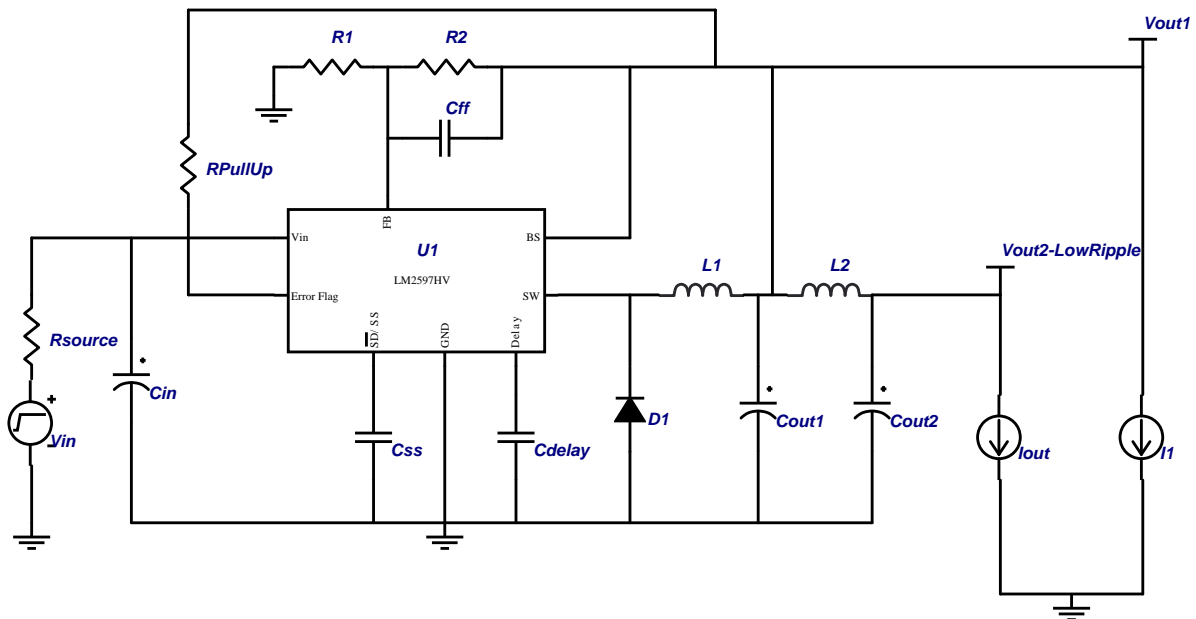
3) High current paths are very short.

4) Multiple MOSFETs have been used to reduce the conduction and switching losses

5) Feedback connections are short and direct and routed away from any noisy traces (i.e. switch node).

6) High-side MOSFETs are as close as possible to the controller

3.0 Schematic



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FIGURE 1. Example Schematic Showing Connection for all Components.

4.0 Bill Of Materials

Part	Manufacturer	Part#	Attributes
Cdelay	Optional	Optional	
Cff	Vitramon	VJ0805A101KXAA	100p F
Cin	TDK	C45X7R2A105M	NumCaps=1, 1u F

Part	Manufacturer	Part#	Attributes
Cout1	Sprague	293D156X9035E2	NumCaps=1, 15u F
Cout2	Optional	Optional	NumCaps=1
Css	Vitramon	VJ1206Y104KXAA	0.1u F
D1	ONSEMI	MBRS1100TR	0.75 V
L1	Coilcraft	DO3316-334	330u H, 0.81 Ohms
L2	Optional	Optional	
R1	Dale	CRCW12062002F	20k Ohms
R2	Dale	CRCW12063743F	374k Ohms
RPullUp	Optional	Optional	
U1	National Semiconductor	LM2597HV	

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