

# LM2737 Design Document

National Semiconductor  
LM2737  
August 2006



## 1.0 Design Specifications

Inputs	Outputs #1
VinMin=12	Vout1=3
VinMax=14	Iout1=2.0

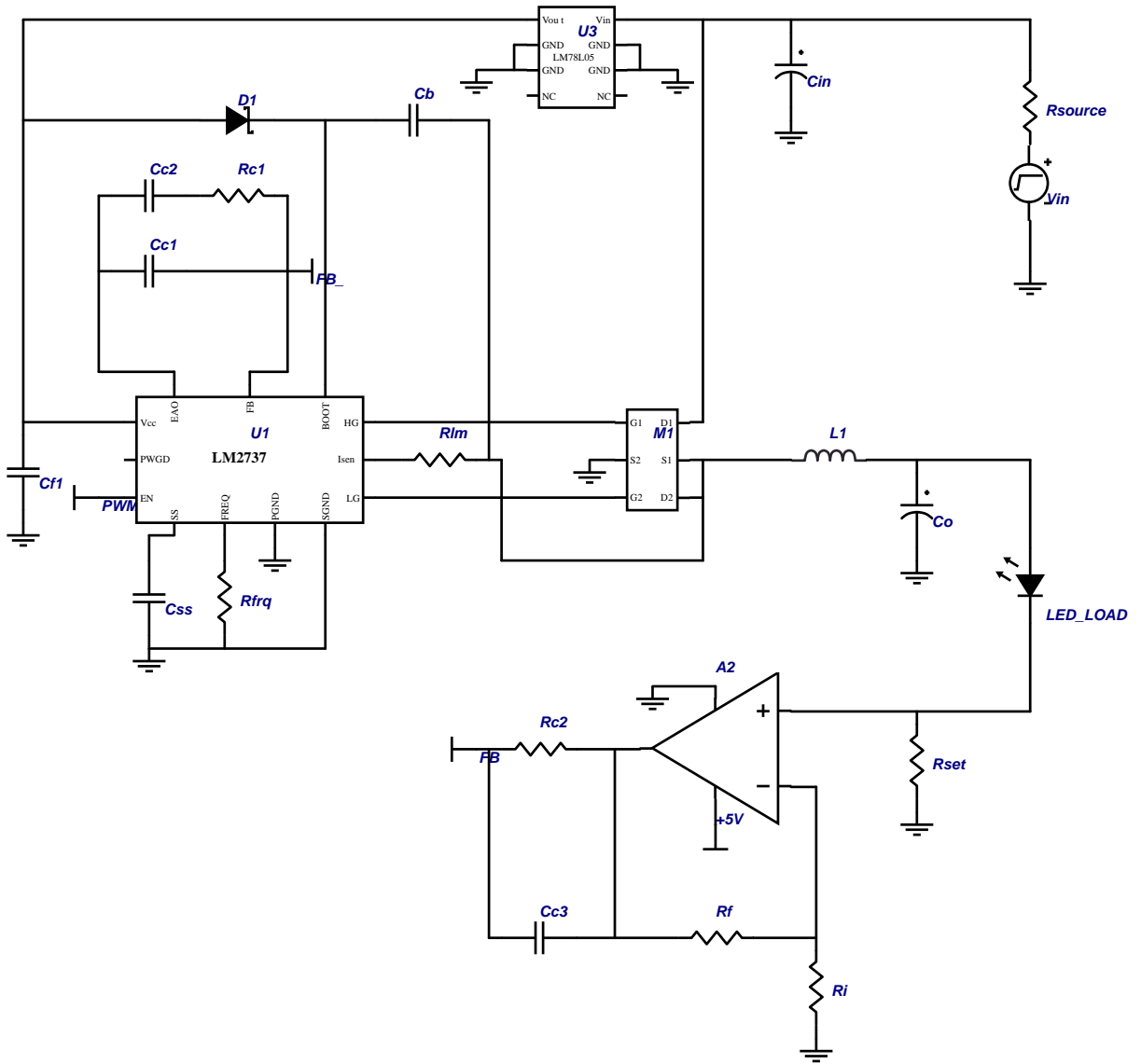
## 2.0 Design Description

This circuit delivers a constant current of 2A to a multi-die IR LED device. The solar cell input requires very high efficiency, and a synchronous buck controller allows the use of a small FET at high frequency (800kHz) to achieve that efficiency.

The LM78L05 provides a simple 5V rail for both the logic and FET drive of the LM2737 and the LMV321.

The LM2737 is especially well suited to PWM because the LM2737 discharges the output through the bottom power FET when disabled.

### 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
A2	National Semiconductor	LMV321	
Cb	Vishay	VJ1206Y104KXXAT	100n F
Cc1	Vishay	VJ1206A181KXX	180p F
Cc2	Vishay	VJ1206Y472KXX	4.7n F
Cc3	Vishay	VJ1206A681KXX	680p F
Cf1	TDK	C3216X7R1E105K	1u F
Cf2	Vishay	VJ1206Y104KXXAT	100n F
Cin	TDK	C3225X5R1C106	NumCaps=1, 10u F
Co	TDK	C3216X7R1A106M	10u F

Part	Manufacturer	Part#	Attributes
Css	Vishay	VJ1206Y102KXX	1n F
D1	Vishay	MBR0520	0.3 V
L1	COILCRAFT	DO1813P-472HC	4.7u H, 0.054 Ohms
M1	Vishay	FDC6401N	
Rc1	Vishay	CRCW12062211F	2.21k Ohms
Rf	Vishay	CRCW12061002F	10k Ohms
Rfrq	Vishay	CRCW12063012F	30.1k Ohms
Ri	Vishay	CRCW12064991F	4.99k Ohms
Rlm	Vishay	CRCW12064221F	4.22k Ohms
Rset	Vishay	CRCW1206R10J	0.1 Ohms
U1	National Semiconductor	LM2737	
U3	National Semiconductor	LM78L05	

## Notes

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