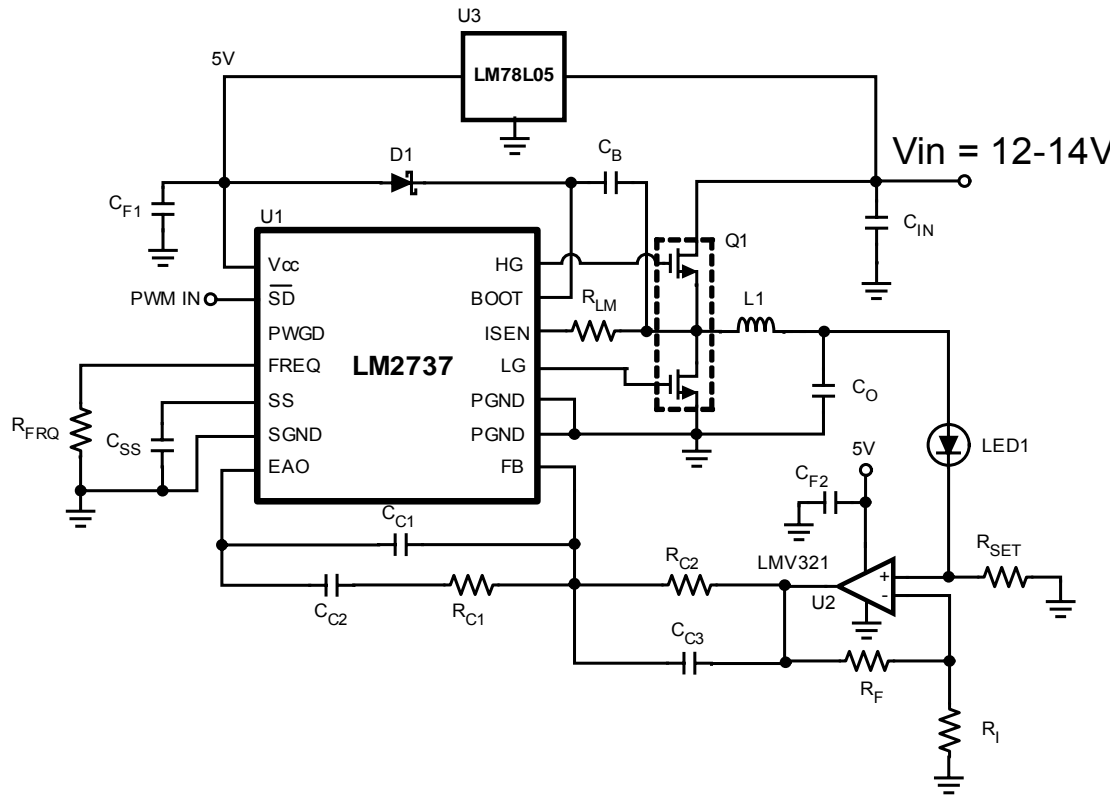


## LM2727 Solar Cell Input LED Driver



### Theory of Operation

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.

ID	Part Number	Type	Size	Parameters	Qty	Vendor
U1	LM2737	Synchronous Controller	TSSOP-14		1	NSC
U2	LMV321	Op-amp	SOT23-5	1MHz	1	NSC
U3	LM78L05	Linear Regulator	SO-8	5V 50mA	1	NSC
Q1	FDC6401N	Dual N-MOSFET	SuperSOT-6	20V	1	Fairchild
D1	MBR0520	Schottky Diode	SMA	20V	1	Vishay
L1	DO1813P-472HC	Inductor	5.2x5.6 x1.8mm	4.7µH, 2.2A 54mΩ	1	Coilcraft
Cin	C3225X5R1C106	Capacitor	1210	10µF, 16V	1	TDK

Co	C3216X7R1A106M	Capacitor	1206	10uF, 10V	1	TDK
Cb Cf2	VJ1206Y104KXXAT	Capacitor	1206	100nF, 25V	2	Vishay
Cf1	C3216X7R1E105K	Capacitor	1206	1uF, 25V	2	TDK
Css	VJ1206Y102KXX	Capacitor	1206	1nF 10%	1	Vishay
Cc1	VJ1206A181KXX	Capacitor	1206	180pF 10%	1	Vishay
Cc2	VJ1206Y472KXX	Capacitor	1206	4.7nF 10%	1	Vishay
Cc3	VJ1206A681KXX	Capacitor	1206	680pF 10%	1	Vishay
Ri	CRCW12064991F	Resistor	1206	4.99kΩ 1%	1	Vishay
Rc1	CRCW12062211F	Resistor	1206	2.21kΩ 1%	1	Vishay
Rfrq	CRCW12063012F	Resistor	1206	30.1kΩ 1%	1	Vishay
Rset	CRCW1206R10J	Resistor	1206	0.1Ω 5%	1	Vishay
Rf	CRCW12061002F	Resistor	1206	10kΩ 1%	1	Vishay
Rlm	CRCW12064221F	Resistor	1206	4.22kΩ 1%	1	Vishay