



LD7575

6/5/2007

Green-Mode PWM Controller with High-Voltage Start-Up Circuit

REV: 04a

General Description

The LD7575 is a current-mode PWM controller with excellent power-saving operation. It features a high-voltage current source to directly supply the startup current from bulk capacitor and further to provide a lossless startup circuit. The integrated functions such as the leading-edge blanking of the current sensing, internal slope compensation, and the small package provide the users a high efficiency, minimum external component counts, and low cost solution for AC/DC power applications.

Furthermore, the embedded over voltage protection, over load protection and the special green-mode control provide the solution for users to design a high performance power circuit easily. The LD7575 is offered in both SOP-8 and DIP-8 package.

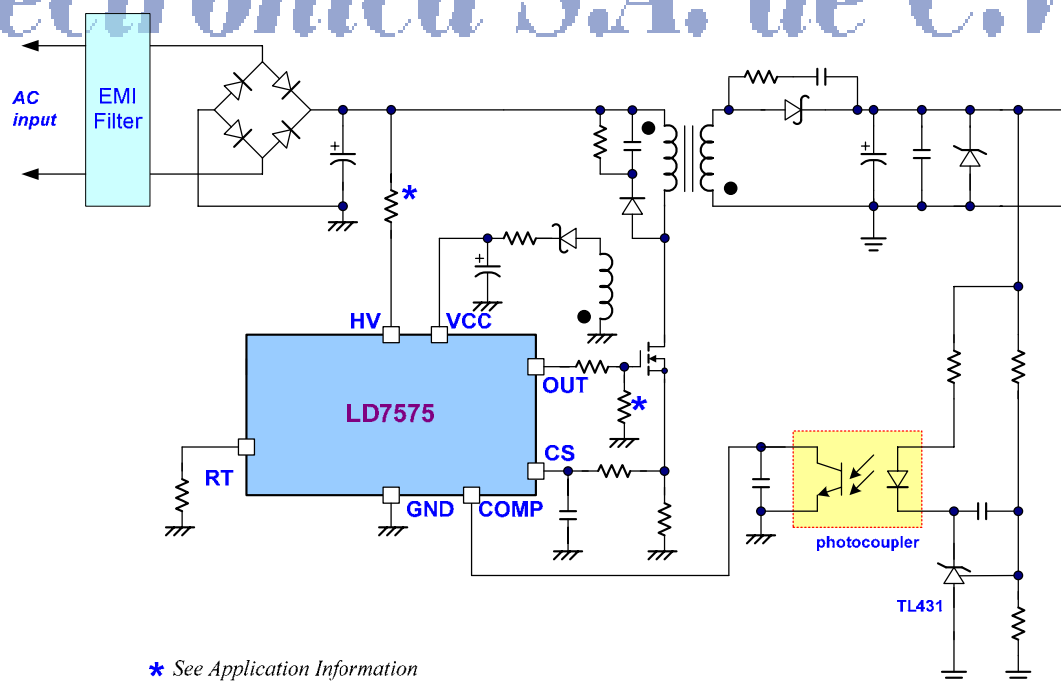
Features

- High-Voltage (500V) Startup Circuit
- Current Mode Control
- Non-Audible-Noise Green Mode Control
- UVLO (Under Voltage Lockout)
- LEB (Leading-Edge Blanking) on CS Pin
- Programmable Switching Frequency
- Internal Slope Compensation
- OVP (Over Voltage Protection) on Vcc
- OLP (Over Load Protection)
- 500mA Driving Capability

Applications

- Switching AC/DC Adapter and Battery Charger
- Open Frame Switching Power Supply
- LCD Monitor/TV Power

Typical Application



* See Application Information



LD7575

Electrical Characteristics

($T_A = +25^\circ\text{C}$ unless otherwise stated, $V_{CC}=15.0\text{V}$)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
High-Voltage Supply (HV Pin)					
High-Voltage Current Source	$V_{CC} < UVLO(\text{on})$, HV=500V	0.5	1.0	1.5	mA
Off-State Leakage Current	$V_{CC} > UVLO(\text{off})$, HV=500V			35	μA
Supply Voltage (Vcc Pin)					
Startup Current				100	μA
Operating Current (with 1nF load on OUT pin)	$V_{COMP}=0\text{V}$		2.0	3.0	mA
	$V_{COMP}=3\text{V}$		2.5	4.0	mA
	Protection tripped (OLP, OVP)		0.5		mA
UVLO (off)		9.0	10.0	11.0	V
UVLO (on)		15.0	16.0	17.0	V
OVP Level		25.0	27.5	30.0	V
Voltage Feedback (Comp Pin)					
Short Circuit Current	$V_{COMP}=0\text{V}$		1.5	2.2	mA
Open Loop Voltage	COMP pin open		6.0		V
Green Mode Threshold VCOMP			2.35		V
Current Sensing (CS Pin)					
Maximum Input Voltage		0.80	0.85	0.90	V
Leading Edge Blanking Time			350		nS
Input impedance		1			M Ω
Delay to Output			100		nS
Oscillator (RT pin)					
Frequency	RT=100K Ω	60.0	65.0	70.0	KHz
Green Mode Frequency	Fs=65.0KHz		20		KHz
Temp. Stability	(-40 $^\circ\text{C}$ ~105 $^\circ\text{C}$)			3	%
Voltage Stability	(VCC=11V-25V)			1	%
Gate Drive Output (OUT Pin)					
Output Low Level	VCC=15V, Io=20mA			1	V
Output High Level	VCC=15V, Io=20mA	9			V
Rising Time	Load Capacitance=1000pF		50	160	nS
Falling Time	Load Capacitance=1000pF		30	60	nS
OLP (Over Load Protection)					
OLP Trip Level			5.0		V
OLP Delay Time (note)	Fs=65KHz		30		mS

Note: The OLP delay time is proportional to the period of switching cycle. So that, the lower RT value will set the higher switching frequency and the shorter OLP delay time.