ACT337

Product Brief, 15-Apr-11

High Performance *ActivePSR*™ Primary Switching Regulator

FEATURES

- **Ultra Low Standby Power < 30mW**
- **Patented Primary Side Regulation Technology**
- **Suitable Operation Frequency up to 85kHZ**
- **Proprietary Fast Startup Circuit**
- **Integrated Line and Primary Inductance Compensation**
- **Integrated Programmable Output Cord Resistance Compensation**
- **Line Under-Voltage, Output Over-Voltage, Output Short-Circuit and Over-Temperature Protection**
- **Complies with all Global Energy Efficiency and CEC Average Efficiency Standards**
- **Adjustable Power from 7W to 12W**
- **Minimum External Components**
- **SOP-8 Package**

APPLICATIONS

- **RCC Adapter Replacements**
- **Linear Adapter Replacements**
- **Standby and Auxiliary Supplies**

GENERAL DESCRIPTION

The ACT337 belongs to the high performance patented *ActivePSR*™ Family of Universal-input AC/DC off-line controllers for battery charger and adapter applications. It is designed for flyback topology working in discontinuous conduction mode (DCM). The ACT337 meets all of the global energy efficiency regulations (CEC, European Blue Angel, and US Energy Star standards) while using very few external components.

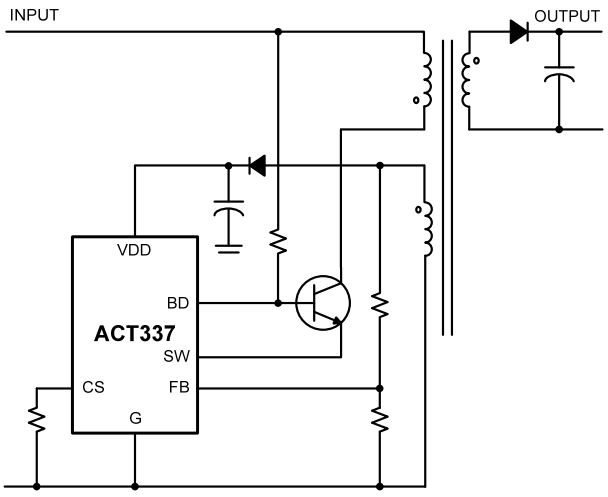
The ACT337 ensures safe operation with complete protection against all fault conditions. Built-in protection circuitry is provided for output short-circuit, output over-voltage, line under-voltage, and over temperature conditions.

The ACT337 *ActivePSR*™ is optimized for high performance, cost-sensitive applications, and utilizes Active-Semi's proprietary primary-side feedback architecture to provide accurate constant voltage, constant current (CV/CC) regulation without the need of an opto-coupler or reference device. Integrated line and primary inductance compensation circuitry provides accurate constant current operation despite wide variations in line voltage and primary inductance. Integrated output cord resistance compensation further enhances output accuracy. The ACT337 achieves excellent regulation and transient response, yet requires less than 30mW of standby power.

The ACT337 is optimized for compact size 7W to 12W charger applications. It is available in space-saving 8 pin SOP-8 package.

Figure 1:

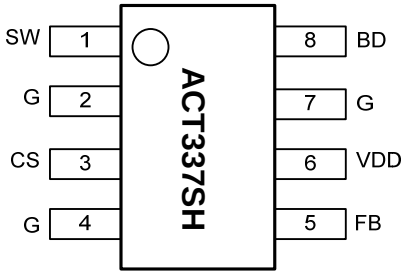
Simplified Application Circuit



ORDERING INFORMATION

PART NUMBER	TEMPERATURE RANGE	PACKAGE	PINS	PACKING METHOD	TOP MARK
ACT337SH-T	-40°C to 85°C	SOP-8	8	TAPE & REEL	ACT337SH

PIN CONFIGURATION



SOP-8
ACT337SH

PIN DESCRIPTIONS

PIN SOP-8	NAME	DESCRIPTION
1	SW	Switch Drive. Switch node for the external NPN transistor. Connect this pin to the external power NPN's emitter. This pin also supplies current to VDD during startup.
2,4,7	G	Ground(2,4 and 7 pin must be connected together).
8	BD	Base Drive. Base driver for the external NPN transistor.
6	VDD	Power Supply. This pin provides bias power for the IC during startup and steady state operation.
5	FB	Feedback Pin. Connect this pin to a resistor divider network from the auxiliary winding.
3	CS	Current Sense Pin. Connect an external resistor (R_{CS}) between this pin and ground to set peak current limit for the primary switch. The peak current limit is set by (0.396V × 0.9) / R_{CS}. For more detailed information, see Application Information.

Figure 6:

Universal VAC Input, 5V/2. 1A Output Charger

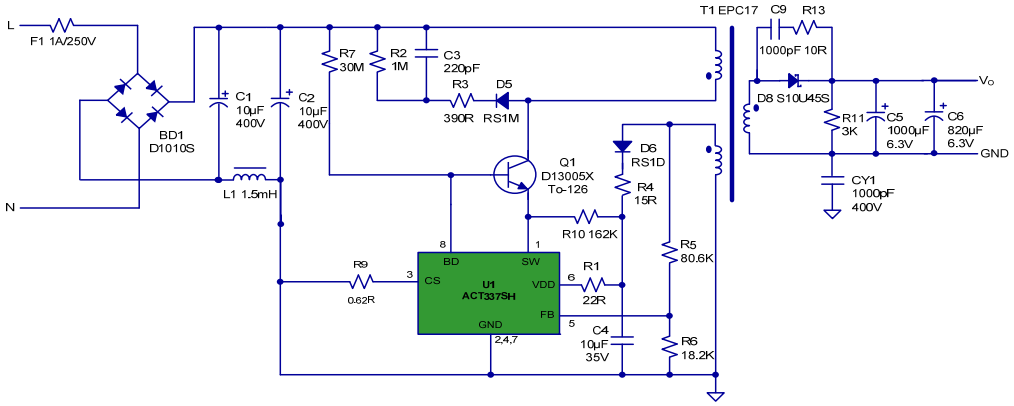


Table 1:ACT337 Bill of Materials

Item	Reference	Description	QTY
1	C1, C2	Capacitor, Electrolytic, 10μF/400V, 10×16mm（Low leakage current）	2
2	C3	Capacitor, Ceramic,220pF/500V,1206,SMD	1
3	C4	Capacitor, Ceramic, 10μF/35V,1206,SMD	1
4	C5	Capacitor, Electrolytic, 1000μF/6.3V, 8 ×16mm	1
5	C6	Capacitor, Electrolytic, 820μF/6.3V, 6.3 × 16mm	1
6	C9	Capacitor, Ceramic,1000pF/50V,0805,SMD	1
7	CY1	Safety Y1,Capacitor,1000pF/400V,Dip	1
8	BD1	Bridge Rectifier,D1010S,1000V/1.0A,SDIP	1
9	D5	Fast Recovery Rectifier, RS1M,1000V/1.0A, RMA	1
10	D6	Fast Recovery Rectifier,RS1D,200V/1.0A,SMA	1
11	D8	Diode, Schottky, 45V/10A, S10U45S, SMD	1
12	L1	Choke Coil, 1.5mH, ¢6x8mm, DIP	1
13	Q1	Transistor, NPN, 700V,D13005,TO-126	1
14	F1	Fuse:1A 250V 3.6*10mm With Pigtail, ceramic tube	1
15	R1	Chip Resistor, 22Ω, 0805, 5%	1
16	R2	Chip Resistor, 1M,1206, 5%	1
17	R3	Chip Resistor, 390Ω,1206, 5%	1
18	R4	Chip Resistor, 15Ω, 0805, 5%	1
19	R5	Chip Resistor, 80.6k,0805, 1%	1
20	R6	Chip Resistor,18.2k,0805, 1%	1
21	R7	Chip Resistor, 30MΩ, 1206, 5%	1
22	R9	Chip Resistor, 0.62Ω,1206, 1%	1
23	R10	Chip Resistor, 162k,0805, 5%	1
24	R11	Chip Resistor, 3k, 0805, 5%	1
25	R13	Chip Resistor, 10Ω, 0805, 5%	1
26	T1	Transformer, L_P = 1.25mH±7%, EPC17	1
27	U1	IC, ACT337SH-T,SOP-8	1