

High Performance *ActivePSR™* Primary Switching Regulator

FEATURES

- Patented Primary Side Regulation Technology
- No Opto-Coupler
- Suitable Operation Frequency up to 85kHz
- Best-in-Class Constant Voltage Accuracy
- Proprietary Fast Startup with Big Capacitive Load
- Built-in Soft-Start 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
- Dedicate Adapter Application from 6W to 14W

APPLICATIONS

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

GENERAL DESCRIPTION

The ACT366 belongs to the high performance patented *ActivePSR™* Family of Universal-input AC/DC off-line controllers for adapter applications. It is designed for flyback topology working in discontinuous conduction mode (DCM). The ACT366 meets all of the global energy efficiency regulations (CEC, European Blue Angel, and US Energy Star standards) while using very few external components.

The ACT366 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 ACT366 *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 ACT366 achieves excellent regulation and transient response, yet requires less than 150mW of standby power.

The ACT366 is optimized for compact size 6W to 14W adapter applications. It is available in SOP-8/EP (Exposed Pad) package.

Figure 1:
Simplified Application Circuit

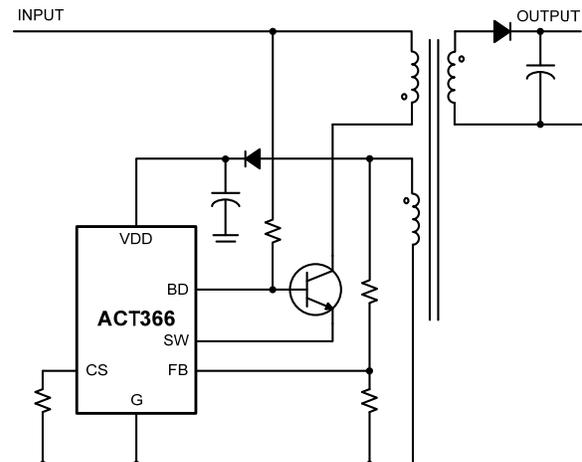


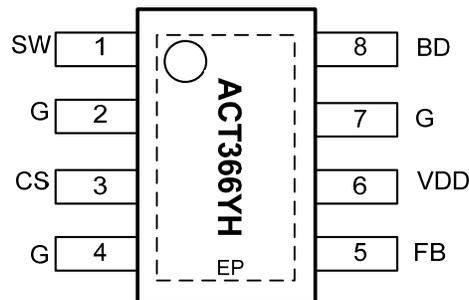
Table 1:
Output Power Table

PART NUMBER	85-265VAC	
	TYPICAL APPLICATION	Po MAX
ACT366YH-T (SOP-8/EP)	12V/1A	14W

ORDERING INFORMATION

PART NUMBER	TEMPERATURE RANGE	PACKAGE	PINS	PACKING METHOD	TOP MARK
ACT366YH-T	-40°C to 85°C	SOP-8/EP	8	TAPE & REEL	ACT366YH

PIN CONFIGURATION



SOP-8/EP
ACT366YH

PIN DESCRIPTIONS

PIN	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.
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 $(0.396V \times 0.9) / R_{CS}$. For more detailed information, see Application Information.
EP	EP	Exposed Pad shown as dashed box. The exposed thermal pad should be connected to board ground plane and pin 4. The ground plane should include a large exposed copper pad under the package for thermal dissipation (see package outline). The leads and exposed pad should be flush with the board, without offset from the board surface.

Figure 3:
Universal VAC Input, 12V/1A Output Adapter

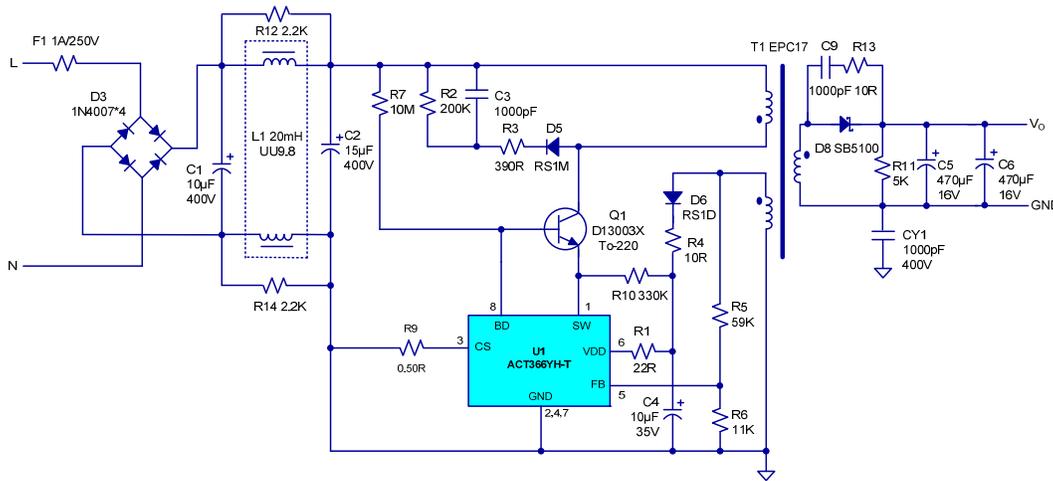


Table 2:
ACT366 Bill of Materials

ITEM	REFERENCE	DESCRIPTION	QTY	MANUFACTURER
1	C1	Capacitor, Electrolytic, 10µF/400V, 10×12mm	1	KSC
2	C2	Capacitor, Electrolytic, 15µF/400V, 10×12mm	1	KSC
2	C3	Capacitor, Ceramic, 1000pF/500V, 1206, SMD	1	POE
3	C4	Capacitor, Electrolytic, 10µF/35V, 1206, SMD	1	KSC
4	C5	Capacitor, Electrolytic, 470µF/16V, 8 ×12mm	1	KSC
5	C6	Capacitor, Electrolytic, 470µF/16V, 8 ×12mm	1	KSC
6	C9	Capacitor, Ceramic, 1000pF/50V, 0805, SMD	1	POE
7	CY1	Safety Y1, Capacitor, 1000pF/400V, Dip	1	UXT
8	D1-D4	Diode, Rectifier, 1000V/1A, 1N4007, DO-41	4	Good-Ark
9	D5, D6	Diode, Ultra Fast, FR107, 1000V/1.0A, DO-41	2	Good-Ark
10	D8	Diode, Schottky, 100V/5A, SB5100, DO-210AD	1	Good-Ark
11	L1	Common choke mode, UU9.8, 20mH, DIP	1	
12	Q1	Transistor, NPN, 700V, 1.5A, D13003, TO-220	1	Huawei
13	F1	Fuse: 1A 250V 3.6*10mm With Pigtail, ceramic tube	1	walter
14	R1	Chip Resistor, 22Ω, 0805, 5%	1	TY-OHM
15	R2	Chip Resistor, 200k, 1206, 5%	1	TY-OHM
16	R3	Chip Resistor, 390Ω, 1206, 5%	1	TY-OHM
17	R4	Chip Resistor, 10Ω, 0805, 5%	1	TY-OHM
18	R5	Chip Resistor, 59k, 0805, 1%	1	TY-OHM
19	R6	Chip Resistor, 11k, 0805, 1%	1	TY-OHM
20	R7	Chip Resistor, 10MΩ, 1206, 5%	1	TY-OHM
21	R9	Chip Resistor, 0.5Ω, 1206, 1%	1	TY-OHM
22	R10	Chip Resistor, 330k, 0805, 5%	1	TY-OHM
23	R11	Chip Resistor, 5k, 0805, 5%	1	TY-OHM
24	R12, R14	Chip Resistor, 2.2K, 0805, 5%	2	TY-OHM
25	R13	Chip Resistor, 10Ω, 0805, 5%	1	TY-OHM
26	T1	Transformer, L _p = 0.9mH±7%, EPC17	1	
27	U1	IC, ACT366YH-T, SOP-8/EP	1	Active-Semi