

## Reference Design RD-350

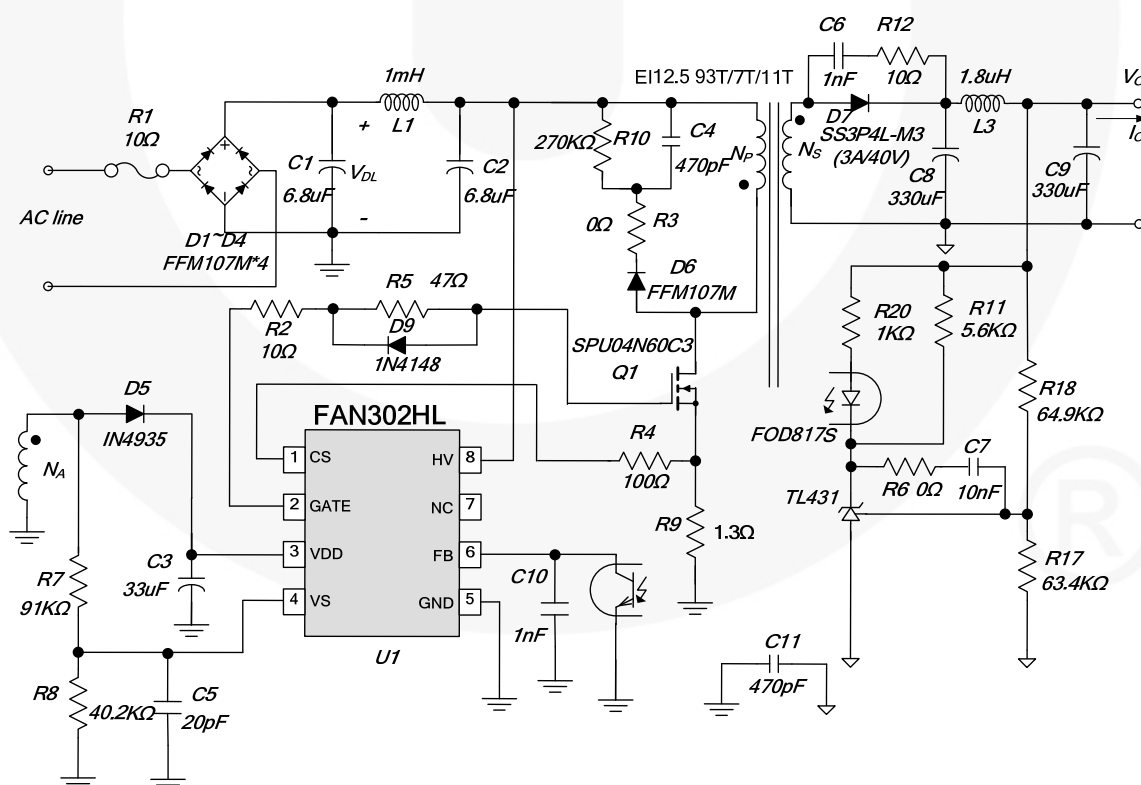
# 5W Power Supply Adapter Design Using FAN302HL, mWSaver™ Technology PWM Controller for Low Standby Power

Featured Device	Application	Input Voltage Range	Output Voltage (Rated Current)	Rated Output Power	Topology
FAN302HL	Cell Phone Charger	90~264V <sub>AC</sub>	5V (1A)	5W	Primary-Side Regulated Flyback

Featured Fairchild Product: FAN302HL

- Ultra-Low Standby Power: Under 10mW at 230V<sub>AC</sub>
- Constant-Current (CC) Control without Secondary-Feedback Circuitry
- Fixed PWM Frequency at 85kHz with Frequency Hopping to Reduce EMI
- High-Voltage Startup
- Low Burst Mode Operating Current (350μA Maximum) and Operating Current (3.5mA Typical)
- Protection Functions (V<sub>S</sub> OVP, V<sub>DD</sub> OVP, V<sub>DD</sub> UVLO and Over-Temperature Protection)
- Available in SOIC-8 Package

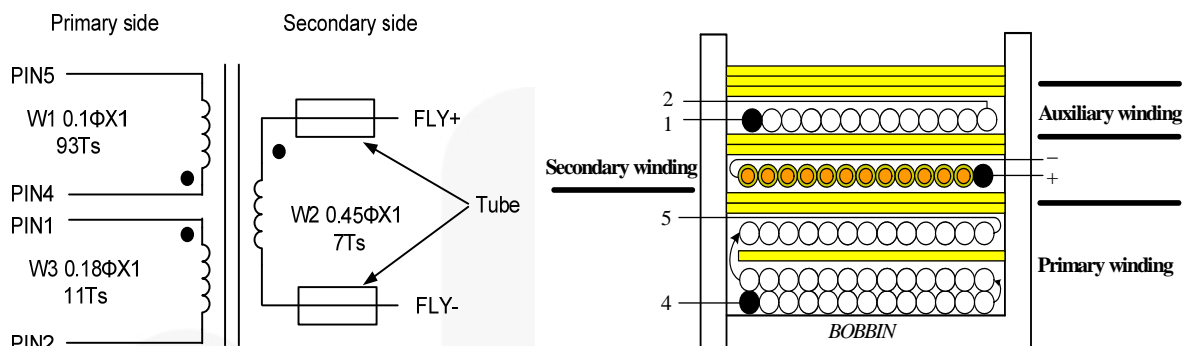
## 1. Schematic



### Figure 1. FAN302HL 5W Application Schematic

## 2. Transformer

### 2.1. Transformer Schematic Diagram



### 2.2. Winding Specification

	Pin(S → F)	Wire	Turns	Isolation Tape	Winding Method
W1	4 → 5	2UEW 0.1φ	26	0	Space Winding
			25	1	Space Winding
			24	0	Space Winding
			18	3	Space Winding
W2	Fly+ → Fly-	TEX-E 0.45φ	7	2	Space Winding
W3	1 → 2	2UEW 0.18φ	11	3	Space Winding
		Core Rounding Tape		3	
		Core		0	
W4	2 → -	2UEW 0.18φ	5	0	Space Winding
		Core Rounding Tape		3	

#### Notes:

- W1 is four winds, each wind of turns referred to above as turns. Need to add one insulating tape between the one and two layers.
- W2 is wound two layers and used triple-insulated wire, end of positive fly line is 3cm, the end of negative fly line is 2.5cm.
- W3 is sparse winding in one layer.
- W4 is wound in the core of the outermost layer and sparse winding.

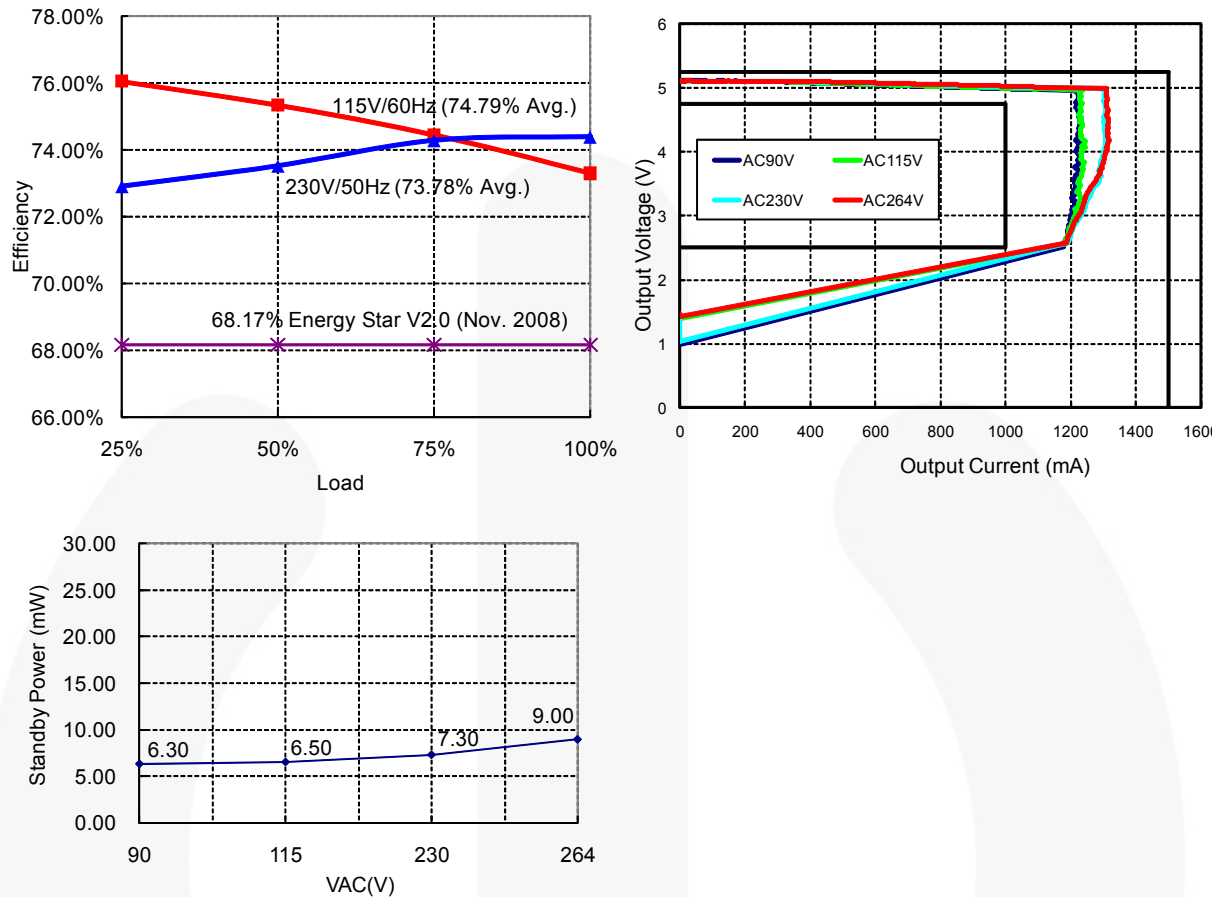
Core: EI12.5

Bobbin: EI12.5

### 2.3. Electrical Characteristics

	Pin	Spec.	Remark
Primary-Side Inductance	4 – 5	700μH ±7%	100kHz, 1V
Primary-Side Leakage Inductance	4 – 5	200μH max.	Short one of the secondary windings

### 3. Typical Performance



### Related Resources

[FAN302HL — PWM Controller-CC from Primary side and CV from Secondary Side](#)

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