

## Reference Design RD-FSB127H-T001

### Flyback Power- 16W/5V Design

Featured Device	Application	Input Voltage Range	Output Voltage (Rated Current)	Rated Output Power	Topology
FSB127HNY	SMPS	90~264V <sub>AC</sub>	5V/3.2A	16W	Flyback

#### Key Features

- Achieves Low No-Load Power Consumption: < 40mW at 230V<sub>AC</sub> (EMI Filter Loss Included)
- Eliminates X-Cap Discharge Resistor Loss with AX-CAP™ Technology
- Built-in 5ms Soft-Start
- Meets 2013 ErP Standby Power Regulation (< 0.5W at 0.25W Load) for Auxiliary ATX Power and LCD TV Power
- 700V High-Voltage JFET Startup Circuit Eliminates Startup Resistor Loss
- Linearly Decreased Switching Frequency at Light-Load Condition
- Advanced Burst Mode Operation at No-Load Condition



## 2. Transformer

### 2.1. Transformer Schematic Diagram

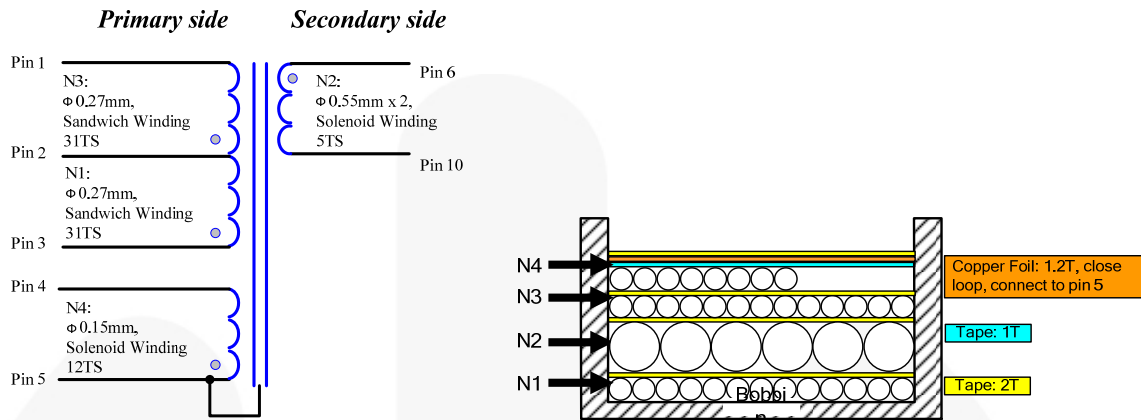


Figure 2. Main Transformer

### 2.2. Winding Specification

	Pin (S → F)	Wire	Turns	Isolation Tape	Winding Method
<b>Main Transformer</b>					
	Pin (S → F)	Wire	Turns	Isolation Tape	Winding Method
N1	3 → 2	0.27φ	31	2	Sandwich Winding
N2	6 → 10	0.55φ x 2	5	2	
N3	2 → 1	0.27φ	31	2	Sandwich Winding
N4	4 → 5	0.15φ	12	1	
Shielding	5	Copper Foil	1.2	2	

Main Transformer

Core: EI-22

Bobbin: EI-22

### 2.3. Electrical Characteristics

Main Transformer	Pin	Specification	Remark
Primary-Side Inductance	1 - 3	900μH ±10%	100kHz, 1V

### 3. Typical Performance

#### 3.1. Power Consumption

Output Watt		Actual Output Watt	Input Watt	Specification
No Load	230V <sub>AC</sub>		0.039	Input Watt <0.3W
0.25W	230V <sub>AC</sub>	0.25	0.360	Input Watt <0.5W
0.5W	230V <sub>AC</sub>	0.5	0.677	Input Watt <1W

#### 3.2. Efficiency

Output Watt	4W	8W	12W	16W	Avg.
115V/60Hz	77.82%	77.75%	77.37%	76.41%	77.33%
230V/60Hz	75.76%	76.92%	77.52%	77.70%	76.97%

## Related Resources

[\*FSB127H — mWSaver™ Fairchild Power Switch \(FPS™\)\*](#)

#### Reference Design Disclaimer

Fairchild Semiconductor Corporation ("Fairchild") provides these reference design services as a benefit to our customers. Fairchild has made a good faith attempt to build for the specifications provided or needed by the customer. Fairchild provides this product "as is" and without "recourse" and MAKES NO WARRANTY, EXPRESSED, IMPLIED OR OTHERWISE, INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Customer agrees to do its own testing of any Fairchild reference designs in order to ensure design meets the customer needs. Neither Fairchild nor Customer shall be liable for incidental or consequential damages, including but not limited to, the cost of labor, re-qualifications, rework charges, delay, lost profits, or loss of goodwill arising out of the sale, installation or use of any Fairchild product.

Subject to the limitations herein, Fairchild will defend any suit or proceeding brought against Customer if it is based on a claim that any product furnished hereunder constitutes an infringement of any intellectual property rights. Fairchild must be notified promptly in writing and given full and complete authority, information and assistance (at Fairchild's expense) for defense of the suit. Fairchild will pay damages and costs therein awarded against Customer but shall not be responsible for any compromise made without its consent. In no event shall Fairchild's liability for all damages and costs (including the costs of the defense by Fairchild) exceed the contractual value of the products or services that are the subject of the lawsuit. In providing such defense, or in the event that such product is held to constitute infringement and the use of the product is enjoined, Fairchild, in its discretion, shall procure the right to continue using such product, or modify it so that it becomes noninfringing, or remove it and grant Customer a credit for the depreciated value thereof. Fairchild's indemnity does not extend to claims of infringement arising from Fairchild's compliance with Customer's design, specifications and/or instructions, or the use of any product in combination with other products or in connection with a manufacturing or other process. The foregoing remedy is exclusive and constitutes Fairchild's sole obligation for any claim of intellectual property infringement and Fairchild makes no warranty that products sold hereunder will not infringe any intellectual property rights.

All solutions, designs, schematics, drawings, boards or other information provided by Fairchild to Customer are confidential and provided for Customer's own use. Customer may not share any Fairchild materials with other semiconductor suppliers.