

Fairchild Reference Design

The following reference design supports inclusion of **FAN103MY** in design of LED illumination. It should be used in conjunction with the FAN103MY datasheet as well as Fairchild’s application notes and technical support team. Please visit Fairchild’s website at <http://www.fairchildsemi.com>.

Application	Fairchild Device	Input Voltage Range	Rated Output Power	Output Voltage (Rated Current)
LED Illumination	FAN103MY	90-265V _{AC}	13W	21V (0.62A)

Key Features

- Constant-Voltage (CV) and Constant-Current (CC) Control without Secondary-Feedback Circuitry
- Low EMI through Frequency Hopping
- Low Power Consumption in Standby
- Protection Functions: UVLO, Over-Voltage, Over-Current, and Over-Temperature

1. Schematics

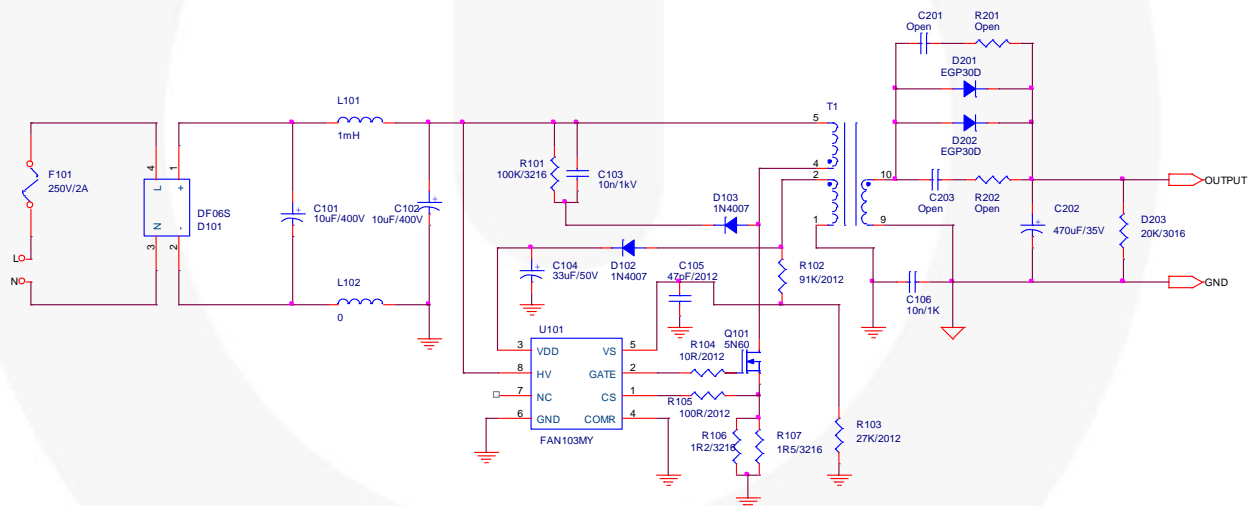
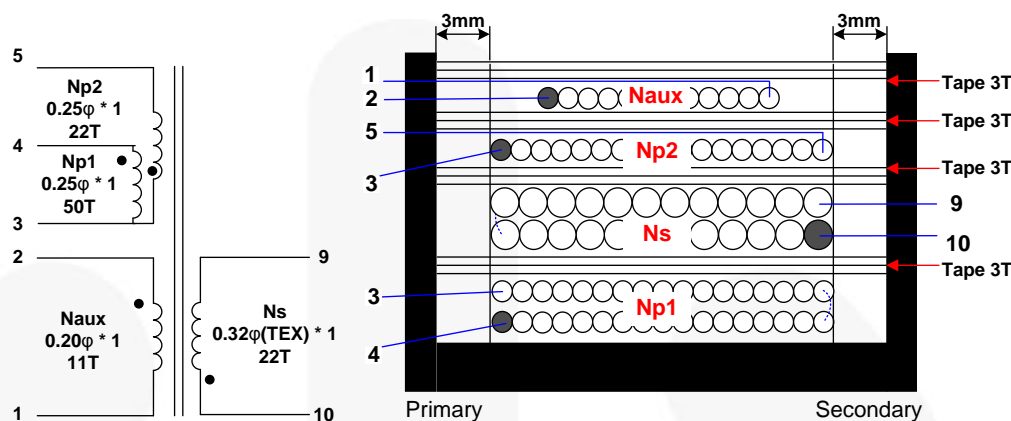


Figure 1. Schematic

2. Transformer

2.1. Transformer Schematic Diagram



2.2. Winding Specification

No.	Winding	Pin (S → F)	Wire	Turns	Winding Method
1	Np1	4 → 3	0.25 Φ * 1	50	Solenoid Winding
2	Insulation: Polyester Tape t = 0.05 mm, 3 Layers				
3	Ns	10 → 9	0.32 Φ (TEX) * 1	22	Solenoid Winding
4	Insulation: Polyester Tape t = 0.05 mm, 3 Layers				
5	Np2	3 → 5	0.25 Φ * 1	22	Solenoid Winding
6	Insulation: Polyester Tape t = 0.05 mm, 3 Layers				
7	Naux	2 → 1	0.20 Φ * 1	11	Center Solenoid winding
8	Outer Insulation: Polyester Tape t = 0.05 mm, 3 Layers				

Core: EFD-20 (PC-40)

Bobbin: 10 Pins

2.3. Electrical Characteristics

	Pin	Spec.	Remark
Inductance	4 - 5	0.59mH ± 10%	1kHz, 1V

3. Performance

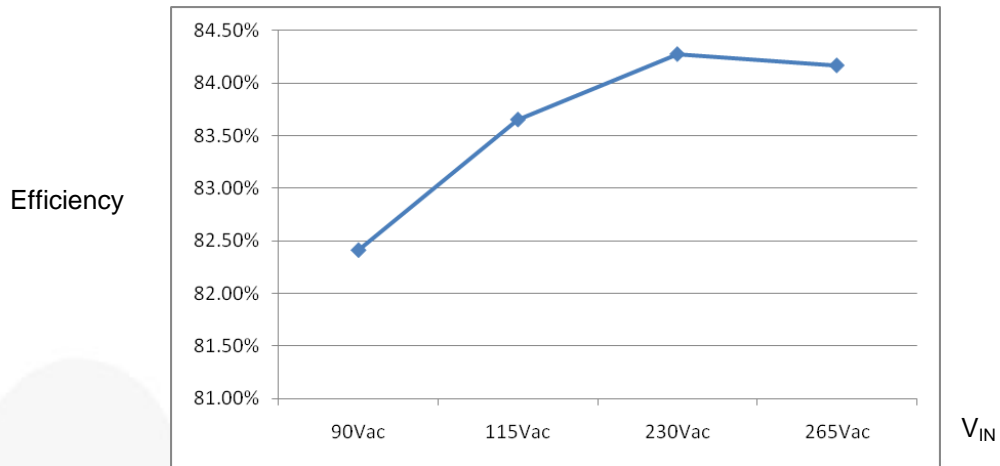


Figure 2. Efficiency Curve

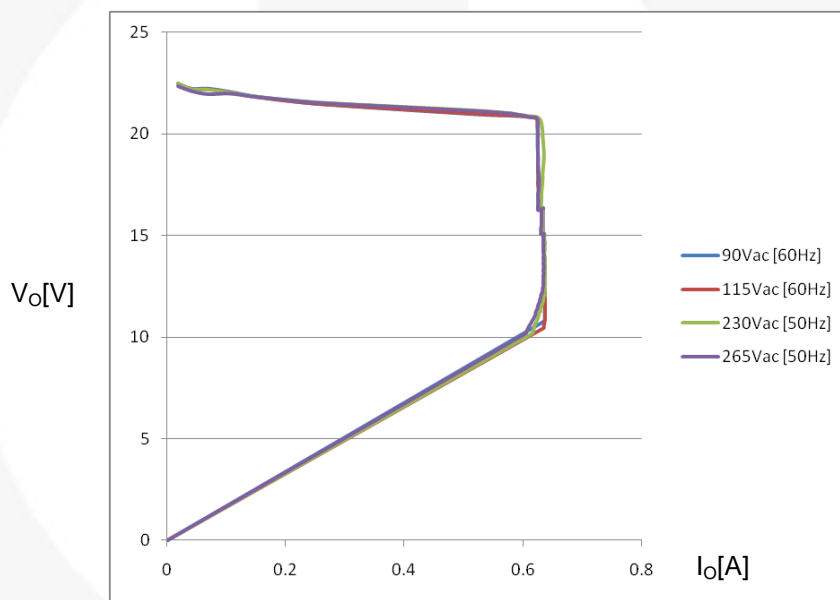


Figure 3. CC/CV Curve

4. Related Resources

[Datasheet link FAN103](#)

<http://www.fairchildsemi.com/referencedesign/>

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