

TNY264/266-268

TinySwitch-II Family

Enhanced, Energy Efficient,
Low Power Off-line Switcher



Product Highlights

TinySwitch-II Features Reduce System Cost

- Fully integrated auto-restart for short circuit and open loop fault protection—saves external component costs
- Built-in circuitry practically eliminates audible noise with ordinary varnished transformer
- Programmable line under-voltage detect feature prevents power on/off glitches—saves external components
- Frequency jittering dramatically reduces EMI (~10 dB)—minimizes EMI filter component costs
- 132 kHz operation reduces transformer size—allows use of EF12.6 or EE13 cores for low cost and small size
- Very tight tolerances and negligible temperature variation on key parameters eases design and lowers cost
- Lowest component count switcher solution

Better Cost/Performance over RCC & Linears

- Lower system cost than RCC, discrete PWM and other integrated/hybrid solutions
- Cost effective replacement for bulky regulated linears
- Simple ON/OFF control—no loop compensation needed
- No bias winding—simpler, lower cost transformer

EcoSmart®—Extremely Energy Efficient

- No load consumption < 50 mW with bias winding and < 250 mW without bias winding at 265 VAC input
- Meets Blue Angel, Energy Star, and EC requirements
- Ideal for cell-phone charger and PC standby applications

High Performance at Low Cost

- High voltage powered—ideal for charger applications
- High bandwidth provides fast turn on with no overshoot
- Current limit operation rejects line frequency ripple
- Built-in current limit and thermal protection

Description

TinySwitch-II maintains the simplicity of the *TinySwitch* topology, while providing a number of new enhancements to further reduce system cost and component count, and to practically eliminate audible noise. Like *TinySwitch*, a 700 V power MOSFET, oscillator, high voltage switched current source, current limit and thermal shutdown circuitry are integrated onto a monolithic device. The start-up and operating power are derived directly from the voltage on the DRAIN pin, eliminating the need for a bias winding and associated circuitry. In addition, the

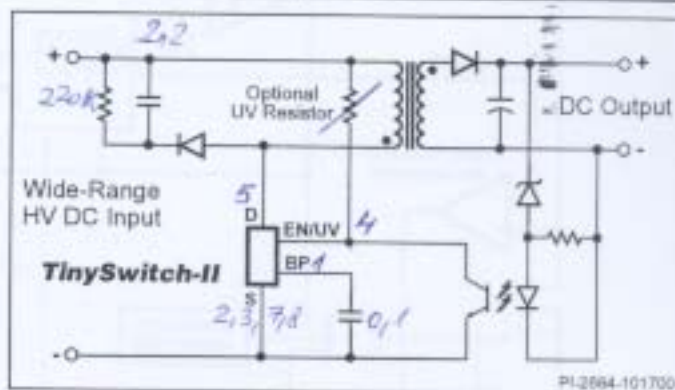


Figure 1. Typical Standby Application.

OUTPUT POWER TABLE

PRODUCT ⁽¹⁾	230 VAC ±15%		85-265 VAC	
	Adapter ⁽¹⁾	Open Frame ⁽²⁾	Adapter ⁽¹⁾	Open Frame ⁽²⁾
TNY264P or G	5.5 W	9 W	4 W	6 W
TNY266P or G	10 W	15 W	6 W	9.5 W
TNY267P or G	13 W	19 W	8 W	12 W
TNY268P or G	16 W	23 W	10 W	15 W

Table 1. Notes: 1. Typical continuous power in a non-ventilated enclosed adapter measured at 50 °C ambient. 2. Maximum practical continuous power in an open frame design with adequate heat sinking, measured at 50 °C ambient (See key applications section for details). 3. Packages: P: DIP-8B, G: SMD-8B. Please see part ordering information.

TinySwitch-II devices incorporate auto-restart, line under-voltage sense, and frequency jittering. An innovative design minimizes audio frequency noise with a simple ON/OFF control scheme utilizing ordinary taped/varnished transformer construction. The fully integrated auto-restart circuit safely limits output power during fault conditions such as output short circuit or open loop, reducing component count and secondary feedback circuitry cost. An optional line sense resistor externally programs a line under-voltage threshold, which eliminates power down glitches caused by the slow discharge of input storage capacitors present in applications such as standby supplies. The operating frequency of 132 kHz is jittered to significantly reduce both the quasi-peak and average EMI, minimizing filtering cost.