

# LNK500

## LinkSwitch® Family

Energy Efficient, CV or CV/CC Switcher for Very Low Cost Adapters and Chargers



### Product Highlights

#### Cost Effective Linear/RCC Replacement

- Lowest cost and component count, constant voltage (CV) or constant voltage/constant current (CV/CC) solution
- Extremely simple circuit configuration
- Up to 75% lighter power supply reduces shipping cost
- Primary based CV/CC solution eliminates 10 to 20 secondary components for low system cost
- Combined primary clamp, feedback, IC supply, and loop compensation functions – minimizes external components
- Fully integrated auto-restart for short circuit and open loop fault protection – saves external component costs
- 42 kHz operation simplifies EMI filter design

#### Much Higher Performance Over Linear/RCC

- Universal input range allows worldwide operation
- Up to 70% reduction in power dissipation – reduces enclosure size significantly
- CV/CC output characteristic without secondary feedback
- System level thermal and current limit protection
- Meets all single point failure requirements with only one additional clamp capacitor
- Controlled current in CC region provides inherent soft-start
- Optional opto feedback improves output voltage accuracy

#### EcoSmart® – Extremely Energy Efficient

- Consumes <300 mW at 265 VAC input with no load
- Meets California Energy Commission (CEC), Energy Star, and EU requirements
- No current sense resistors – maximizes efficiency

#### Applications

- Linear transformer replacement in all  $\leq 3$  W applications
- Chargers for cell phones, cordless phones, PDAs, digital cameras, MP3/portable audio devices, shavers, etc.
- Home appliances, white goods and consumer electronics
- Constant output current LED lighting applications
- TV standby and other auxiliary supplies

### Description

LinkSwitch is specifically designed to replace low power linear transformer/RCC chargers and adapters at equal or lower system cost with much higher performance and energy efficiency. LNK500 is a lower cost version of the LNK501 with a wider tolerance output CC characteristic. LinkSwitch introduces a revolutionary patented topology for the design of low power switching power supplies that rivals the simplicity and low

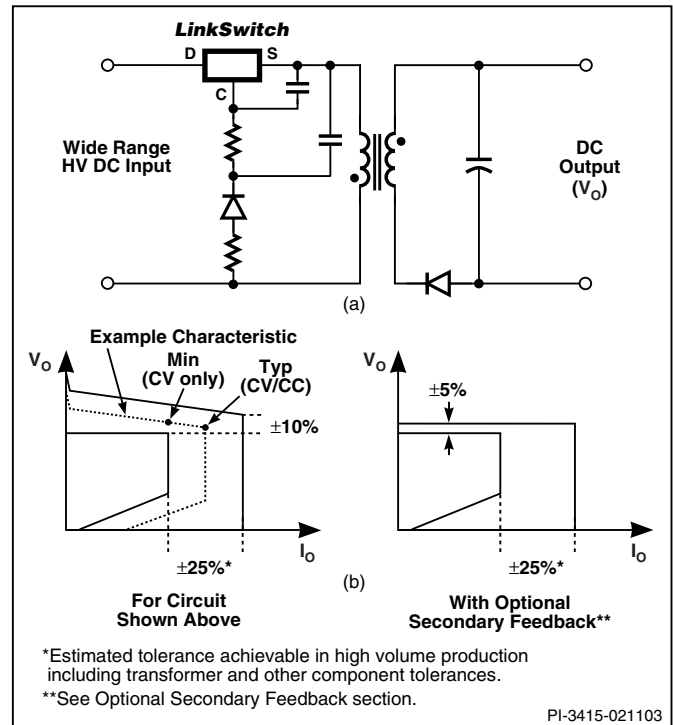


Figure 1. Typical Application – Not a Simplified Circuit (a) and Output Characteristic Tolerance Envelopes (b).

OUTPUT POWER TABLE <sup>1</sup>					
PRODUCT <sup>4</sup>	230 VAC $\pm 15\%$		85-265 VAC		No-Load Input Power
	Min <sup>2</sup>	Typ <sup>2</sup>	Min <sup>2</sup>	Typ <sup>2</sup>	
LNK500	3.2 W	4 W	2.4 W	3 W	<300 mW
P or G	4.3 W	5.5 W	2.9 W	3.5 W	<500 mW <sup>3</sup>

Table 1. Notes: 1. Output power for designs in an enclosed adapter measured at 50 °C ambient. 2. See Figure 1 (b) for Min (CV only designs) and Typ (CV/CC charger designs) power points identified on output characteristic. 3. Uses higher reflected voltage transformer designs for increased power capability – see Key Application Considerations section. 4. For lead-free package options, see Part Ordering Information.

cost of linear adapters, and enables a much smaller, lighter, and attractive package when compared with the traditional “brick.” With efficiency of up to 75% and <300 mW no-load consumption, a LinkSwitch solution can save the end user enough energy over a linear design to completely pay for the full power supply cost in less than one year. LinkSwitch integrates a 700 V power MOSFET, PWM control, high voltage start-up, current limit, and thermal shutdown circuitry, onto a monolithic IC.