LinkSwitch-HP Family

Energy Efficient, High-Power Off-Line Switcher with Accurate Primary-Side Regulation (PSR)

Product Highlights

EcoSmart™- Energy Efficient

- Multi-mode control maximizes efficiency over full load range
- No-load consumption below 30 mW at 230 VAC (LNK67xx)
- >75% efficiency with 1 W input at 230 VAC
- >50% efficiency with 0.1 W input at 230 VAC

High Design Flexibility for Low System Cost

- Dramatically simplifies power supply designs
  - Eliminates optocoupler and all secondary control circuitry
  - ±5% or better output voltage tolerance
- 132 kHz operation reduces transformer and power supply size
- Accurate programmable current limit
  - Compensation over line limits overload power
- Frequency jittering reduces EMI filter cost
- Fully integrated soft-start for minimum start-up stress
- 725 V MOSFET simplifies meeting derating requirements (LNK677x)
- 650 V MOSFET for lowest system cost (LNK676x/LNK666x)
- Fast transient response family option (LNK666x)

Extensive Protection Features

- Auto-restart limits power delivery to 3% during overload faults
  - Output short-circuit protection (SCP)
  - Output overload/over-current protection (OPP, OCP)
  - Optional extended shutdown delay time
- Output overvoltage protection (OVP), auto-restart or latching
- Line brown-in/out protection (line UV)
- Line overvoltage (OV) shutdown extends line surge withstand
- Accurate thermal shutdown (OTP), hysteretic or latching

Advanced Green Package Options

- eSIP™-7C package:
  - Vertical orientation for minimum PCB footprint
  - Simple heat sink mounting using clip or adhesive pad
- eSOP™-12B package:
  - Low profile surface mounted for ultra-slim designs
  - Heat transfer to PCB via exposed pad and SOURCE pins
  - Supports either wave or IR reflow soldering
- eDIP™-12B package:
  - Low profile through-hole mounted for ultra-slim designs
  - Heat transfer to PCB via exposed pad or optional metal heat sink
- Extended creepage to DRAIN pin
- Heat sink is connected to SOURCE for low EMI
- Halogen free and RoHS compliant

Typical Applications

- LCD Monitor and TV
- Adapter
- Appliances
- Embedded power supplies (DVD, set-top box)
- Industrial

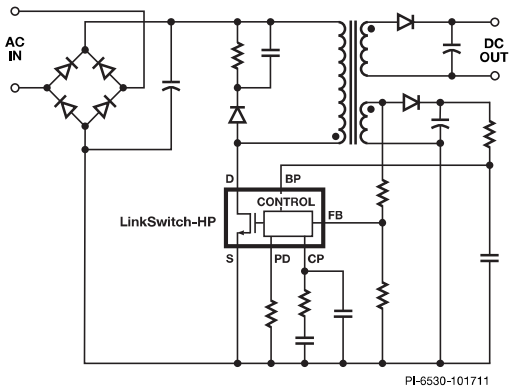
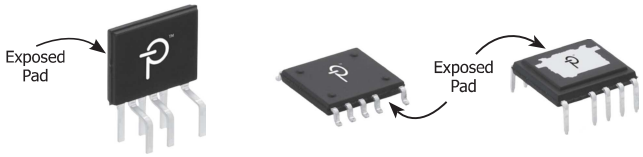


Figure 1. Typical Application Schematic.



eSIP-7C (E Package) eSOP-12B (K Package) eDIP-12B (V Package)

Figure 2. Package Options.

Output Power Table

Product[4]	Heat Sink	230 VAC ±15%		85-265 VAC	
		Adapter	Open Frame	Adapter	Open Frame
LNK6xx3K/V	PCB-W[1]	15 W	25 W	9 W	15 W
LNK6xx3K	PCB-R[2]	21 W	35 W	12 W	21 W
LNK6xx3E	Metal	21 W	35 W	13 W	27 W
LNK6xx4K/V	PCB-W[1]	16 W	28 W	11 W	20 W
LNK6xx4K	PCB-R[2]	22 W	39 W	15 W	28 W
LNK6xx4E	Metal	30 W	47 W	20 W	36 W
LNK6xx5K/V	PCB-W[1]	19 W	30 W	13 W	22 W
LNK6xx5K	PCB-R[2]	26 W	42 W	18 W	31 W
LNK6xx5E	Metal	40 W	59[3] W	26 W	45 W
LNK6xx6K/V	PCB-W[1]	21 W	34 W	15 W	26 W
LNK6xx6K	PCB-R[2]	30 W	48 W	22 W	37 W
LNK6xx6E	Metal	60 W	88[3] W	40 W	68[3] W
LNK6xx7K/V	PCB-W[1]	25 W	41 W	19 W	30 W
LNK6xx7K	PCB-R[2]	36 W	59 W	27 W	43 W
LNK6xx7E	Metal	85[3] W	117[3] W	55 W	90[3] W
LNK6xx8K/V	PCB-W[1]	29 W	47 W	21 W	34 W
LNK6xx8K	PCB-R[2]	41 W	68 W	30 W	48 W
LNK6xx8E	Metal	98[3] W	135[3] W	63[3] W	104[3] W
LNK6xx9K/V	PCB-W[1]	33 W	54 W	25 W	39 W
LNK6xx9K	PCB-R[2]	47 W	77 W	36 W	56 W
LNK6xx9E	Metal	111[3] W	153[3] W	72[3] W	118[3] W

Table 1. Output Power Table.

Notes:
1. PCB heat sink with wave soldering.
2. PCB heat sink with IR reflow soldering (exposed pad thermally connected to PCB).
3. Maximum power specified based on proper thermal dissipation.
4. Packages: E: eSIP-7C, K: eSOP-12B, V: eDIP-12B. See Table 2 for all device options.

This Product is Covered by Patents and/or Pending Patent Applications.

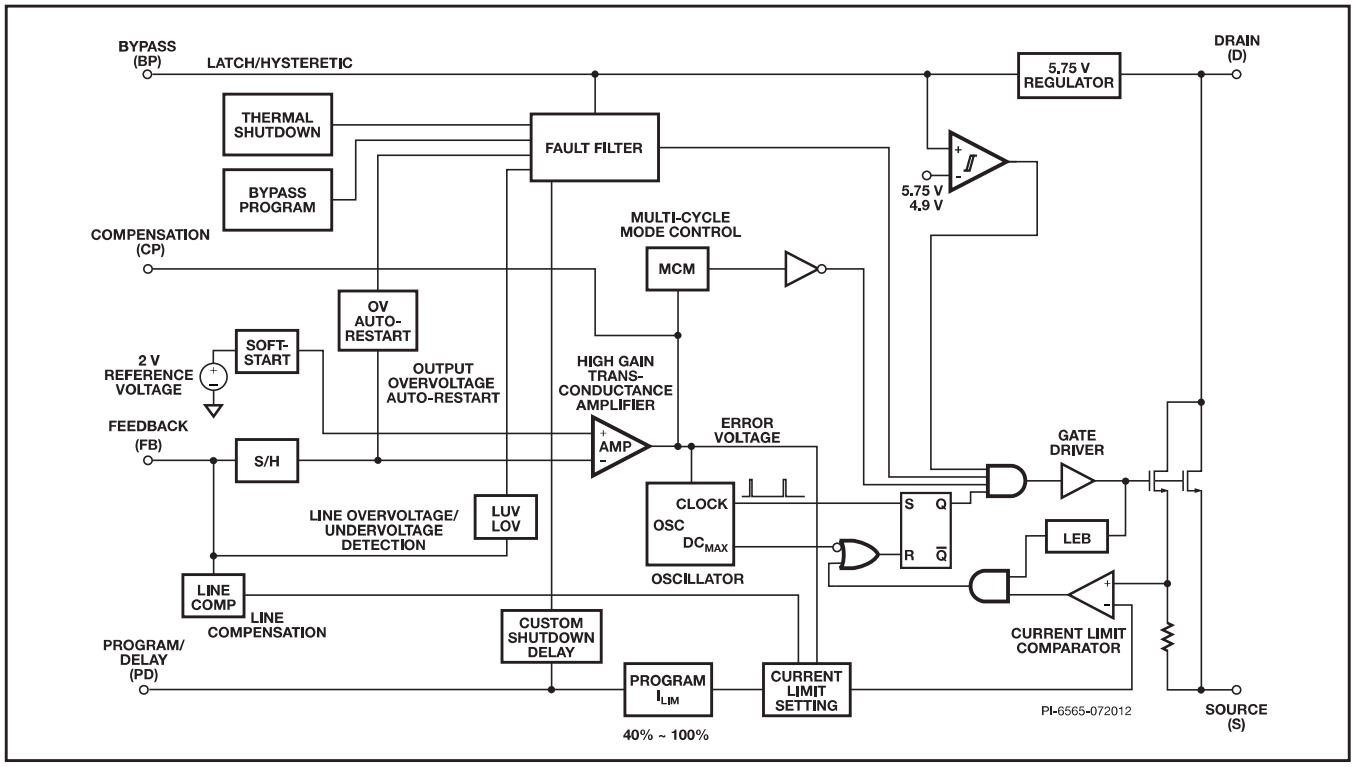


Figure 3. Block Diagram.

LNK	6	X	X	X	E/V/K
Part Number	**Series**	**$T_{MCM(OFF)}$ [2], 6 = 0.5 ms 7 = 4.0 ms**	**BV_{DSS} [1], 6 = 650 V 7 = 725 V**	**Power**	**Packages**
LNK6663E/K/V	6	0.5 ms	650 V	Device Size	eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6664E/K/V		0.5 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6665E/K/V		0.5 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6666E/K/V		0.5 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6667E/K/V		0.5 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6668E/K/V		0.5 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6669E/K/V		0.5 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6763E/K/V		4.0 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6764E/K/V		4.0 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6765E/K/V		4.0 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6766E/K/V		4.0 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6767E/K/V		4.0 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6768E/K/V		4.0 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6769E/K/V		4.0 ms	650 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6773E/K/V		4.0 ms	725 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6774E/K/V		4.0 ms	725 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6775E/K/V		4.0 ms	725 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6776E/K/V		4.0 ms	725 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6777E/K/V		4.0 ms	725 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6778E/K/V		4.0 ms	725 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)
LNK6779E/K/V		4.0 ms	725 V		eSIP-7C (E), eSOP-12B (K), eDIP-12B (V)

Table 2. Device Part Numbers and Options.

Notes:
1. Minimum breakdown voltage at T_J = +25 °C.
2. $T_{MCM(OFF)}$ = 0.5 ms for fastest transient response, $T_{MCM(OFF)}$ = 4 ms for <30 mW no-load input power.