power integrations™

Innovation in power conversion

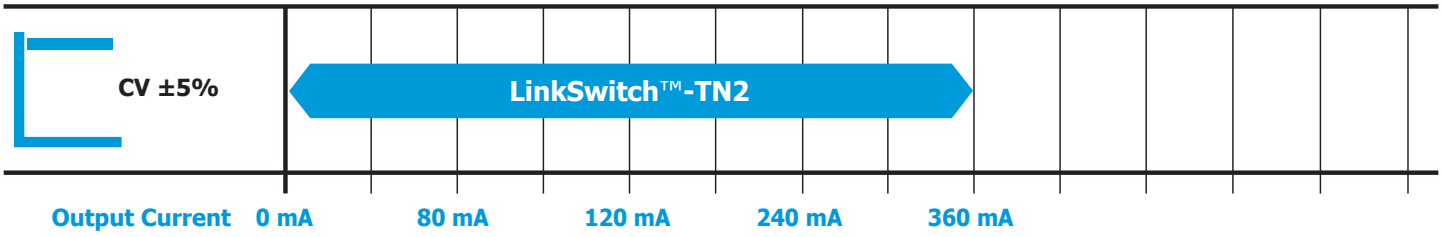
Product Selector Guide
Metering Power Supply ICs

November 2016

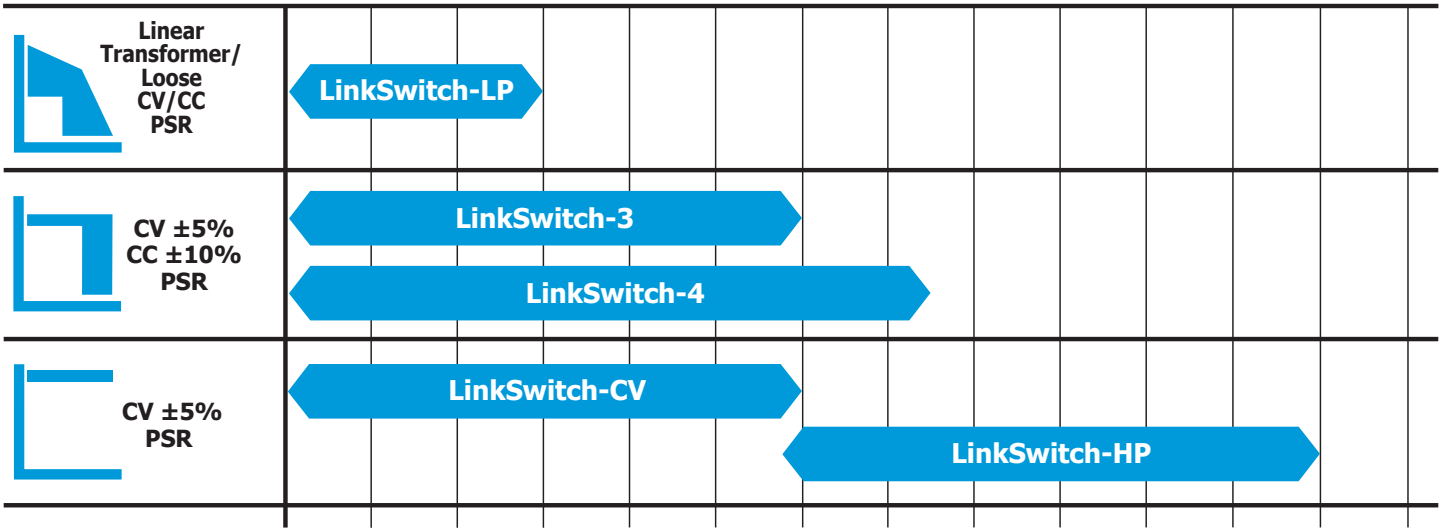
Product Selector Guide

Output Characteristics and Power

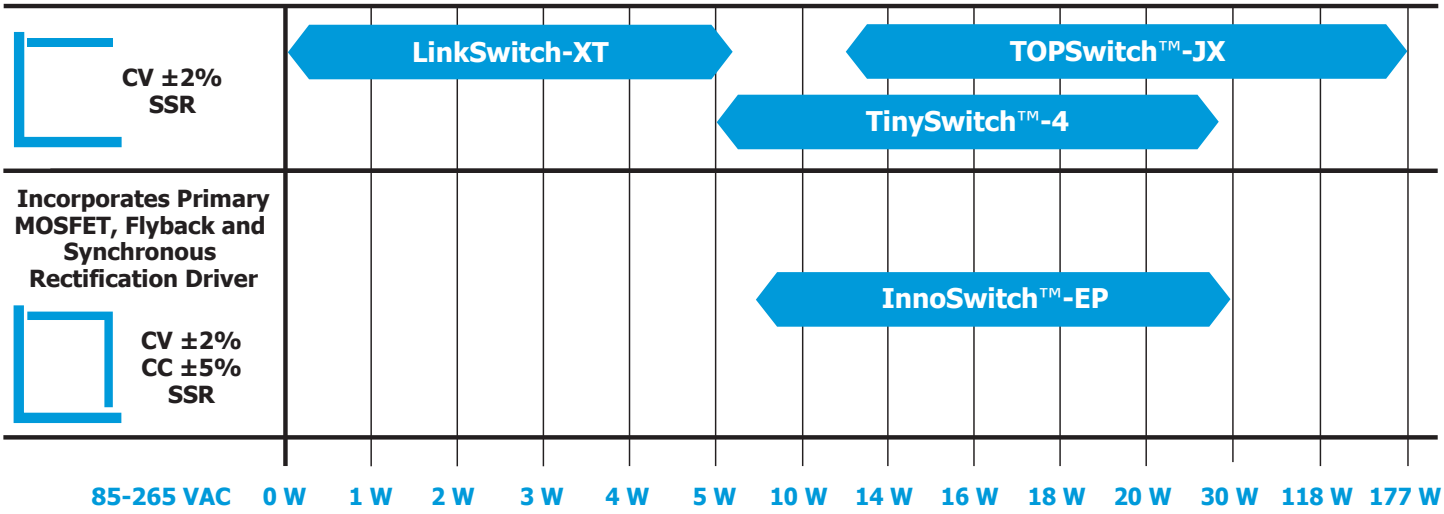
Non-Isolated Buck or Buck-Boost



Primary-Side Regulation Flyback



Secondary-Side Regulation Flyback



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LinkSwitch-TN2 – Highly Energy Efficient Off-line Switcher IC with Integrated System Level Protection for Low Component-Count Power Supplies[1]

Product[4]	230 VAC ± 15%		85-265 VAC	
	MDCM[2] (mA)	CCM[3] (mA)	MDCM[2] (mA)	CCM[3] (mA)
LNK3202P/G/D	63	80	63	80
LNK3204P/G/D	120	170	120	170
LNK3205P/G/D	175	270	175	270
LNK3206P/G/D	225	360	225	360

Additional Features:

- 725 V internal MOSFET rating
- Self-powered
- ON/OFF control
- Hysteretic thermal shutdown
- Power limiting
- Frequency jitter reduces EMI
- EcoSmart™ low standby/no-load power consumption

Notes:

1. *Typical output current in a non-isolated buck converter with devices operating at default current limit and adequate heat sinking. Output power capability depends on respective output voltage and thermal requirements. See Key Applications Considerations Section for complete description of assumptions, including fully discontinuous conduction mode (DCM) operation.*
2. *Mostly discontinuous conduction mode.*
3. *Continuous conduction mode.*
4. *Packages: P: PDIP-8C, G: SMD-8C, D: SO-8C.*

LinkSwitch-CV / LP / XT – Very Low Power AC-DC Power Conversion

Product[3,4]	Continuous Output Power (W)	Continuous Output Power (W)
	Open Frame[2]	Open Frame[2]
LinkSwitch-CV	230 VAC ± 15%	85-265 VAC
LNK623P/D	9	6
LNK624P/D	11	6.5
LNK625P/D	13.5	8
LNK626P/D	17	10
LinkSwitch-LP	230 VAC ± 15%	85-265 VAC
LNK562P/G/D	1.9	1.9
LNK563P/G/D	2.5	2.5
LNK564P/G/D	3	3
LinkSwitch-XT	230 VAC ± 15%	85-265 VAC
LNK362P/G/D	2.8	2.6
LNK363P/G/D	7.5	4.7
LNK364P/G/D	9	6

Additional Features:

- 700 V internal MOSFET rating
- Self-powered
- ON/OFF control
- Hysteretic over-temperature protection
- Power limiting
- Frequency jitter reduces EMI
- EcoSmart low standby/no-load power consumption

Notes:

1. *Minimum continuous power in a typical non-ventilated enclosed adapter measured at 50 °C ambient.*
2. *Minimum practical continuous power in an open frame design with adequate heat sinking, measured at 50 °C ambient.*
3. *Packages: P: DIP-8B, G: SMD-8B, D: SO-8C.*
4. *Packages: P: DIP-8C, G: SMD-8C, D: SO-8C.*

LinkSwitch-3 – Energy-Efficient, Accurate Primary-Side Regulation CV/CC Switcher for Adapters and Chargers[1,2,3,4]

Product[5]	90-264 VAC
	D (SO-8C) Package
	Open Frame (W)
LNK6404D / LNK6424D	4.1
LNK6405D / LNK6415D / LNK6425D	5.1
LNK6406D / LNK6416D / LNK6426D / LNK6436D / LNK6446D	6.1
LNK6407D / LNK6417D / LNK6427D	7.5
Product[5]	**E (eSIP-7C) and K (eSOP-12B) Packages**
	Open Frame (W)
LNK6407K / LNK6417K / LNK6427K	9
LNK6408K / LNK6418K / LNK6428K / LNK6448K	10
LNK6408E / LNK6418E / LNK6428E / LNK6448E	10

Additional Features:

- Compensates for transformer inductance tolerances
- Compensates for input line voltage variations
- Compensates for cable voltage drop
- Compensates for external component temperature variations
- Very accurate IC parameter tolerances using proprietary trimming technology
- Frequency jittering greatly reduces EMI filter cost
- Even tolerances achievable with external resistor selection/trimming
- Programmable switching frequency up to 85 kHz to reduce transformer size
- Minimum operation frequency fixed to improve transient load response

Notes:

1. *Assumes minimum input DC voltage >90 VDC, $K_p \geq 1$ (Recommend $K_p \geq 1.15$ for accurate CC regulation), η >78%, D_{MAX} <55%.*
2. *Output power capability is reduced if a lower input voltage is used.*
3. *Minimum continuous power with adequate heat sink measured at 50 °C ambient with device junction below 110 °C.*
4. *Assumes bias winding is used to supply BYPASS pin.*
5. *Package: D: SO-8C, E: eSIP-7C, K: eSOP-12B.*

IC Product Tables

TinySwitch-4 – Energy-Efficient, Off-Line Switcher with Line Compensated Overload Power

Product[3]	Peak or Open Frame[2] (W)	Peak or Open Frame[2] (W)
	230 VAC ± 15%	85-265 VAC
TNY284P/D/K	11	8.5
TNY285P/D	15	11.5
TNY285K	15	11.5
TNY286P/D	19	15
TNY286K	19	15
TNY287P	23.5	18
TNY287D	23.5	18
TNY287K	23.5	18
TNY288P	28	21.5
TNY288D	26	19.5
TNY288K	28	21.5
TNY289P	32	25
TNY289K	32	25
TNY290P	36.5	28.5
TNY290K	36.5	28.5

Additional Features:

- 725 V internal MOSFET rating
- Self-powered
- Hysteretic thermal shutdown protection
- Frequency jitter reduces EMI
- EcoSmart low standby/no-load power consumption
- On-time extension
- Latching output overvoltage protection
- Line undervoltage lockout
- Selectable current limit

Notes:

1. *Minimum continuous power in a typical non-ventilated enclosed adapter measured at +50 °C ambient. Use of an external heat sink will increase power capability.*
2. *Minimum peak power capability in any design or minimum continuous power in an open frame design.*
3. *Packages: P: DIP-8C, D: SO-8C, K: eSOP-12B.*

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

Product[2]	Heat Sink	230 VAC ±15%	85-265 VAC
		Open Frame (W)	Open Frame (W)
LNK6xx3K/V	PCB-W[1]	25	15
LNK6xx3E	Metal	35	27
LNK6xx4K/V	PCB-W[1]	28	20
LNK6xx4E	Metal	47	36
LNK6xx5K/V	PCB-W[1]	30	22
LNK6xx5E	Metal	59[3]	45
LNK6xx6K/V	PCB-W[1]	34	26
LNK6xx6E	Metal	88[3]	68[3]
LNK6xx7K/V	PCB-W[1]	41	30
LNK6xx7E	Metal	117	90
LNK6xx8K/V	PCB-W[1]	47	34
LNK6xx8E	Metal	135	104
LNK6xx9K/V	PCB-W[1]	54	39
LNK6xx9E	Metal	153	118

Additional Features:

- EcoSmart – energy efficient
  - Multi-mode control maximizes efficiency
  - 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

Notes:

1. *PCB heat sink with wave soldering.*
2. *Packages: E: eSIP-7C, K: eSOP-12B, V: eDIP-12B.*

InnoSwitch-EP – Off-Line CV/CC Flyback Switcher IC with Integrated 725 V / 900 V MOSFET, Sync-Rect Feedback with Advanced Protection

Product[3]	Peak or Open Frame[1,2] (W)	
	725 V MOSFET	
	230 VAC ±15%	85-265 VAC
INN2603K	24	15
INN2604K	27	20
INN2605K	35	25
Product[3]	900 V MOSFET	
	230 VAC ±15%	85-484 VAC
INN2904K	29	20

Notes:
1. *Minimum continuous power in a typical non-ventilated enclosed typical size adapter measured at 40 °C ambient. Max output power is dependent on the design. With condition that package temperature must be < = 125 °C.*
2. *Minimum peak power capability.*
3. *Package: K: eSOP-R16B.*

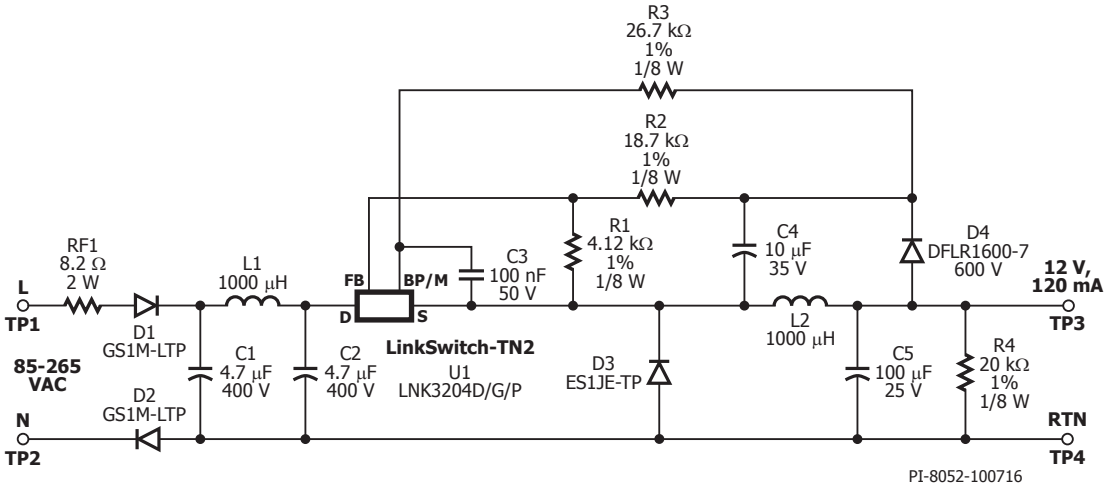
Additional Features:

- A Highly Integrated, Compact Footprint
  - Incorporates flyback controller, 725 V / 900 V MOSFET, secondary-side sensing and synchronous rectification driver
  - FluxLink™ integrated, HIPOT-isolated, feedback link
  - Exceptional CV accuracy, independent of transformer design or external components
  - Excellent multi-output cross regulation with weighted SSR feedback and synch FETs
- EcoSmart – Energy Efficient
  - <10 mW no-load at 230 VAC when supplied by transformer bias winding
  - Easily meets all global energy efficiency regulations
- Advanced Protection / Safety Features
- Primary sensed output OVP
  - Secondary sensed output overshoot clamp
  - Secondary sensed output OCP to zero output voltage
  - Hysteretic thermal shutdown
  - Input voltage monitor with accurate brown-in/brown-out and overvoltage protection
- Full Safety and Regulatory Compliance
  - 100% production HIPOT compliance testing equivalent to 6 kV DC/1 sec
  - Reinforced insulation
  - Isolation voltage >3,500 VAC for INN26xx series, >4,000 VAC for INN2904 series
  - UL1577 and TUV (EN60950) safety approved
  - EN61000-4-8 (100 A/m) and EN61000-4-9 (1000 A/m) compliant
- Green Package
  - Halogen free and RoHS compliant
- Applications
  - Appliance, industrial, and smart lighting

Design Examples

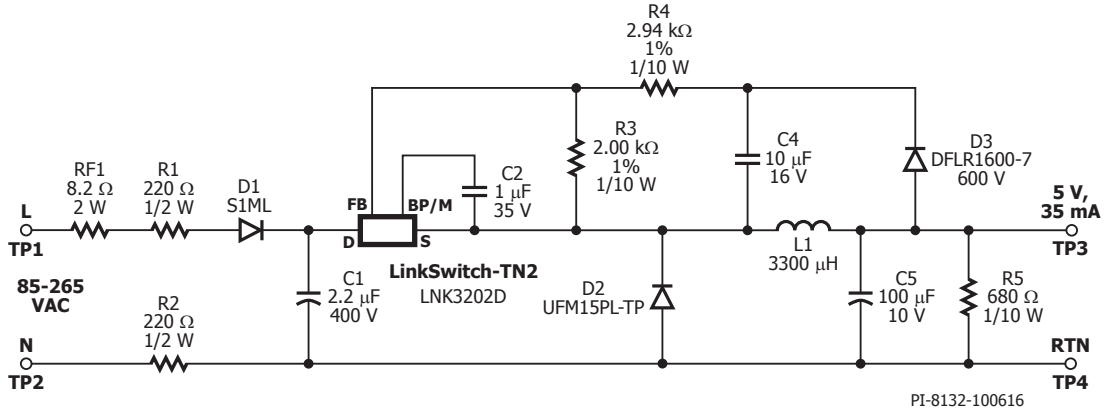
LinkSwitch-TN2 – Non-Isolated Output Buck (RDK-506)

1.44 W, 12 V, 120 mA OUTPUT, 85 – 265 VAC INPUT, NON-ISOLATED BUCK APPLIANCE POWER SUPPLY



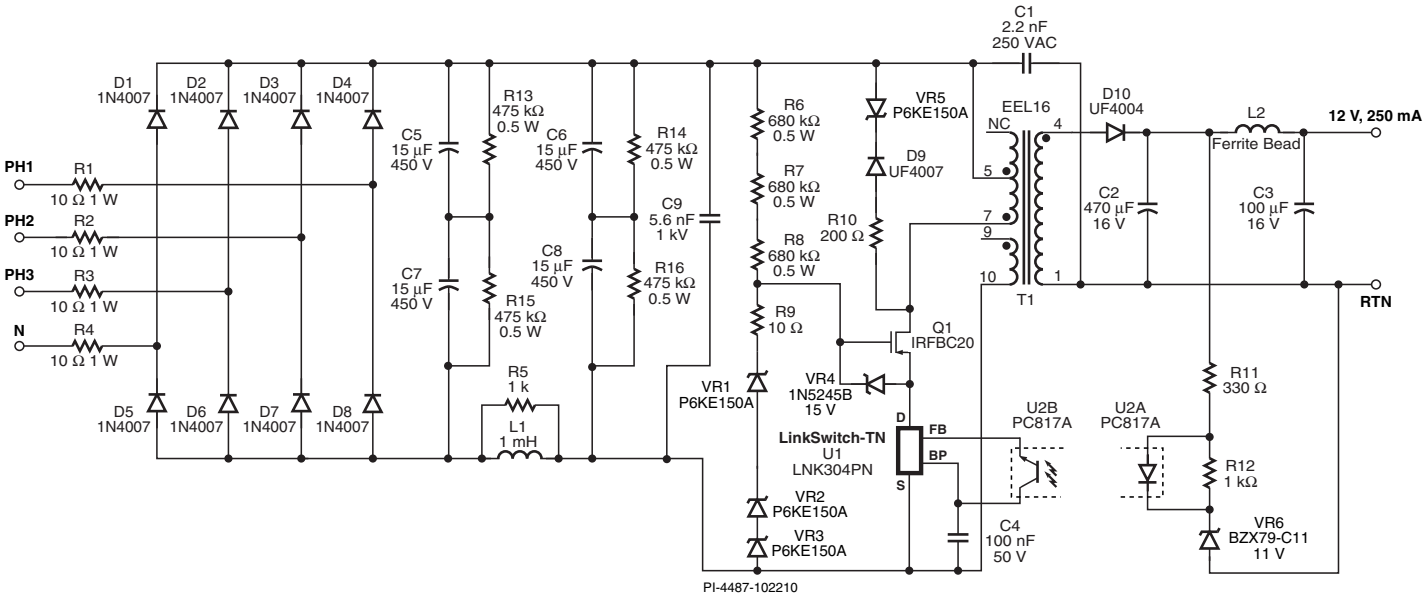
LinkSwitch-TN2 – Non-Isolated Buck (DER-507)

175 mW, 5 V, 35 mA OUTPUT, 85 – 265 VAC INPUT, NON-ISOLATED BUCK APPLIANCE POWER SUPPLY



LinkSwitch-TN – Ultra Wide Input Range Power Supply (DI-124)

3 W, 12 V, 250 mA OUTPUT, 57 – 580 VAC INPUT FLYBACK POWER SUPPLY



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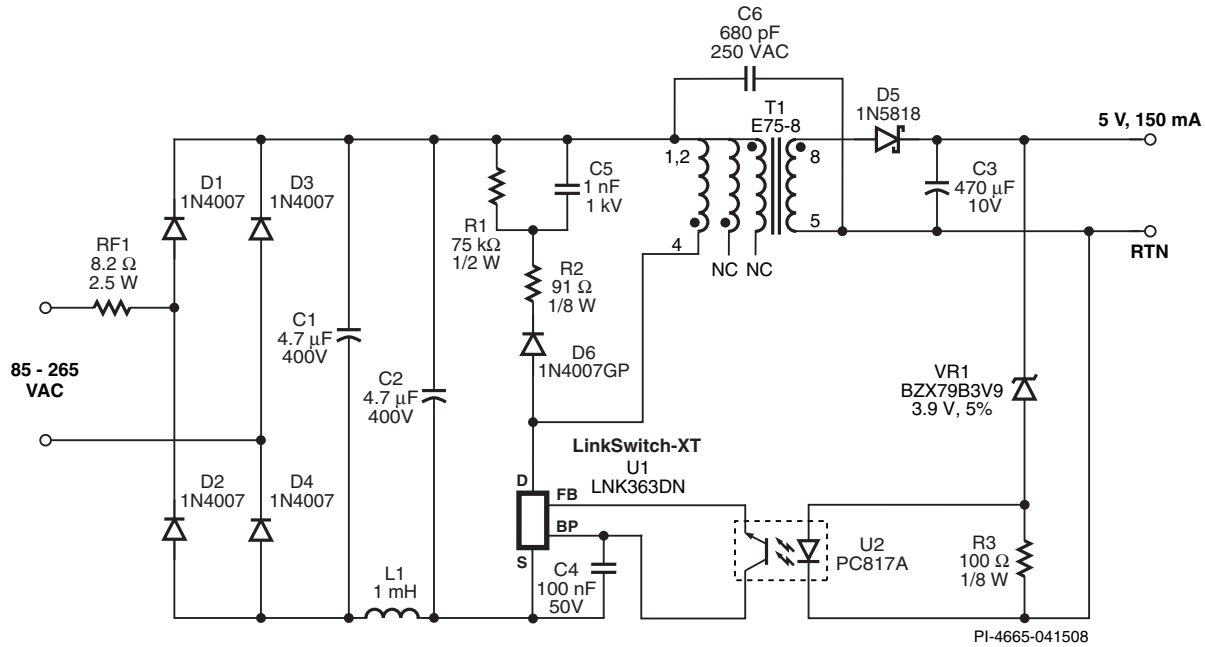
LinkSwitch-XT – Tamper Proof Energy Meter Power Supply (DER-141)

0.75 W, 5 V, 150 mA OUTPUT, 85 – 265 VAC INPUT FLYBACK POWER SUPPLY

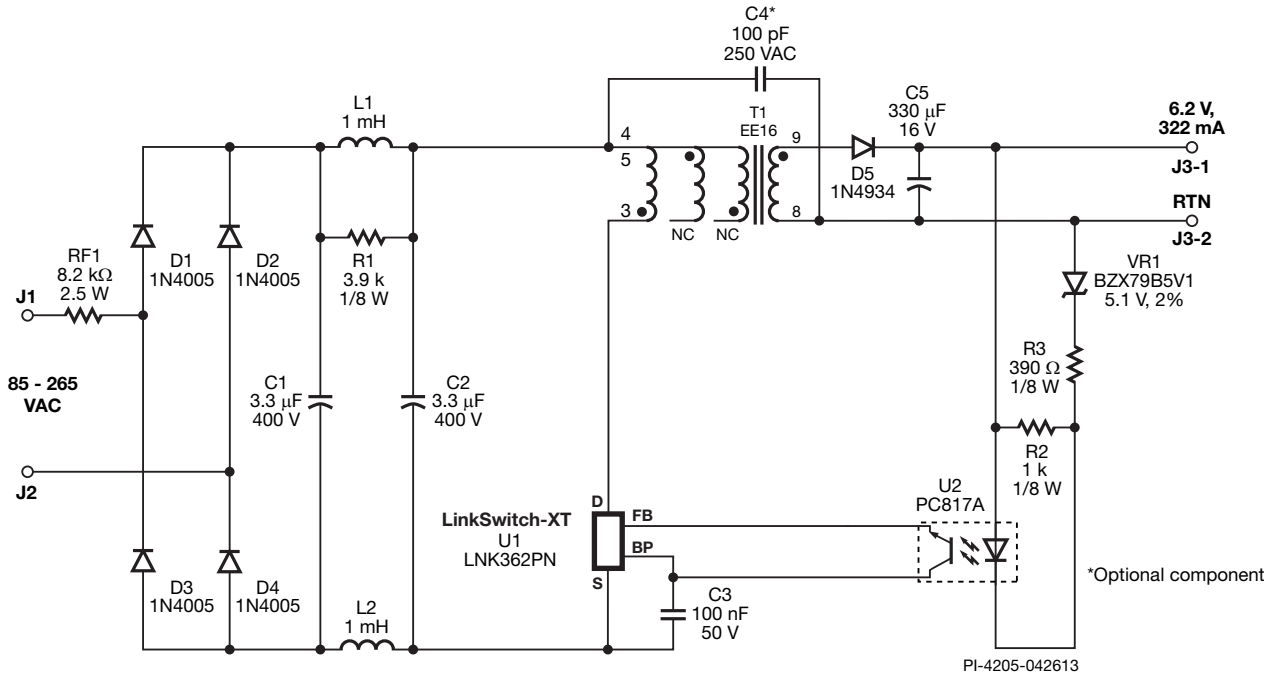


PI-4665-041508

Design Examples

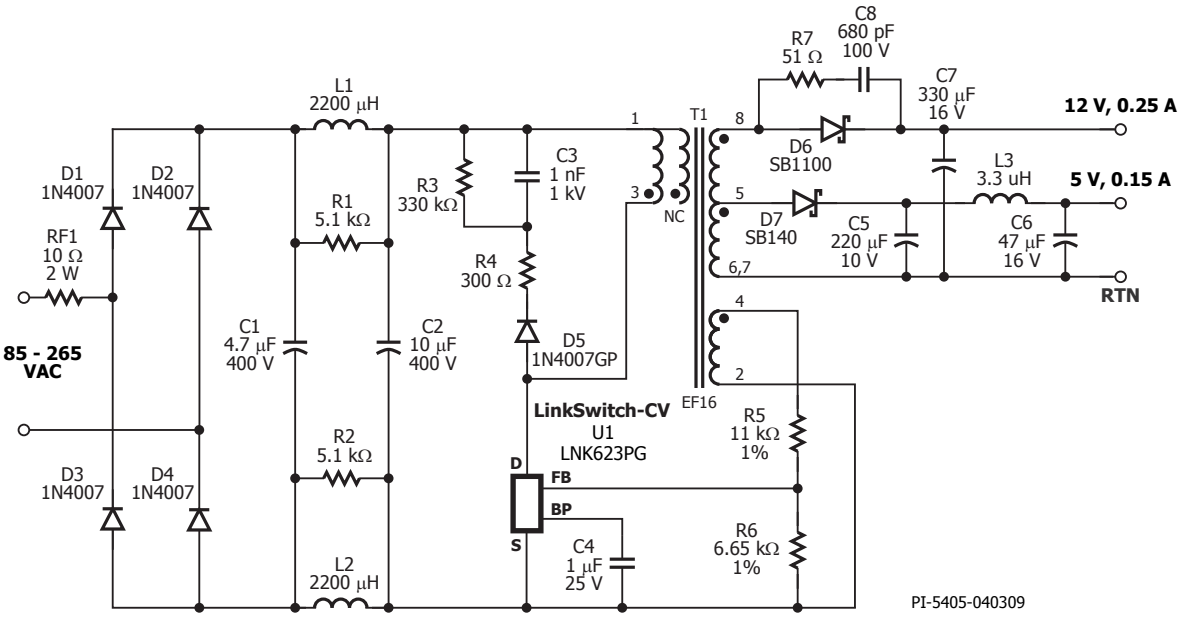
LinkSwitch-XT – High Efficiency Constant Voltage Adapter (EPR-89)

2 W, 6.2 V, 322 mA OUTPUT, 85 – 265 VAC INPUT, FLYBACK POWER SUPPLY



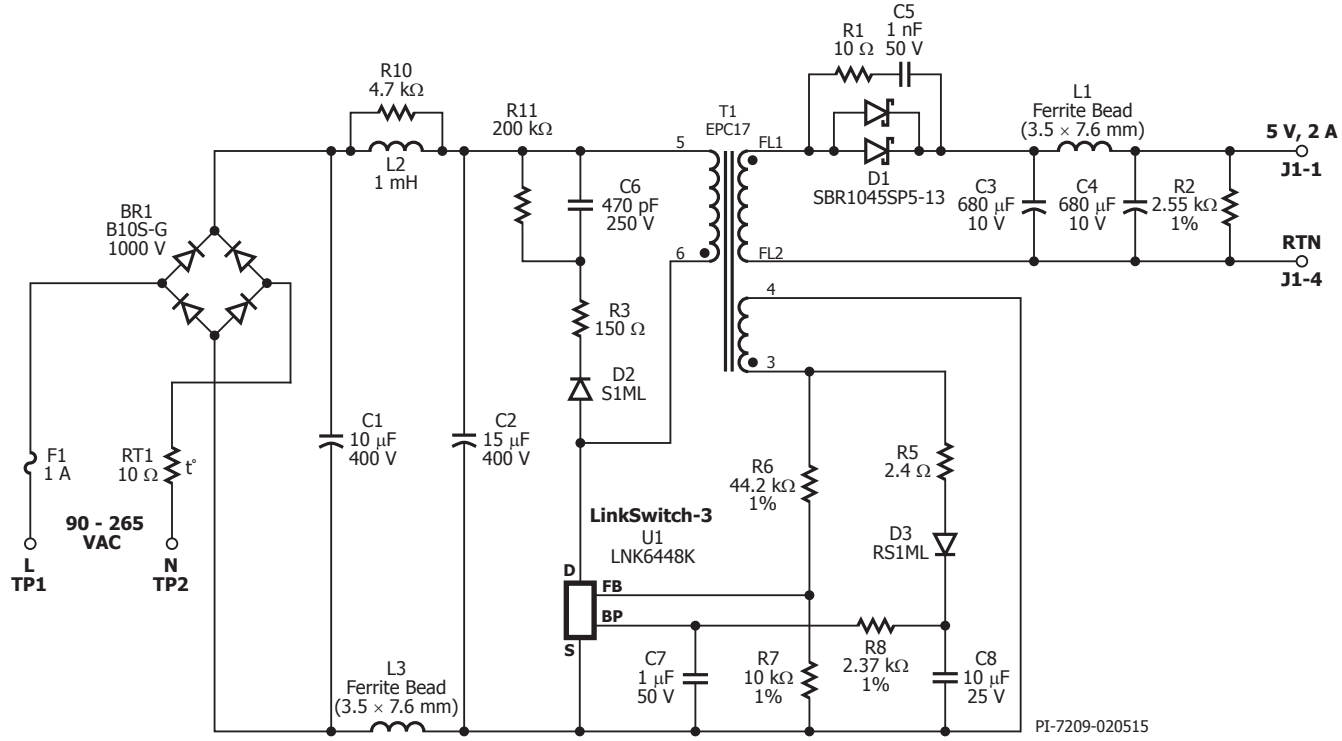
LinkSwitch-CV – 2-Output Constant Voltage Power Supply (DER-213)

3.8 W, 12 V, 0.25 A, and 5 V, 0.15 A DUAL OUTPUT, 85 – 265 VAC INPUT FLYBACK POWER SUPPLY



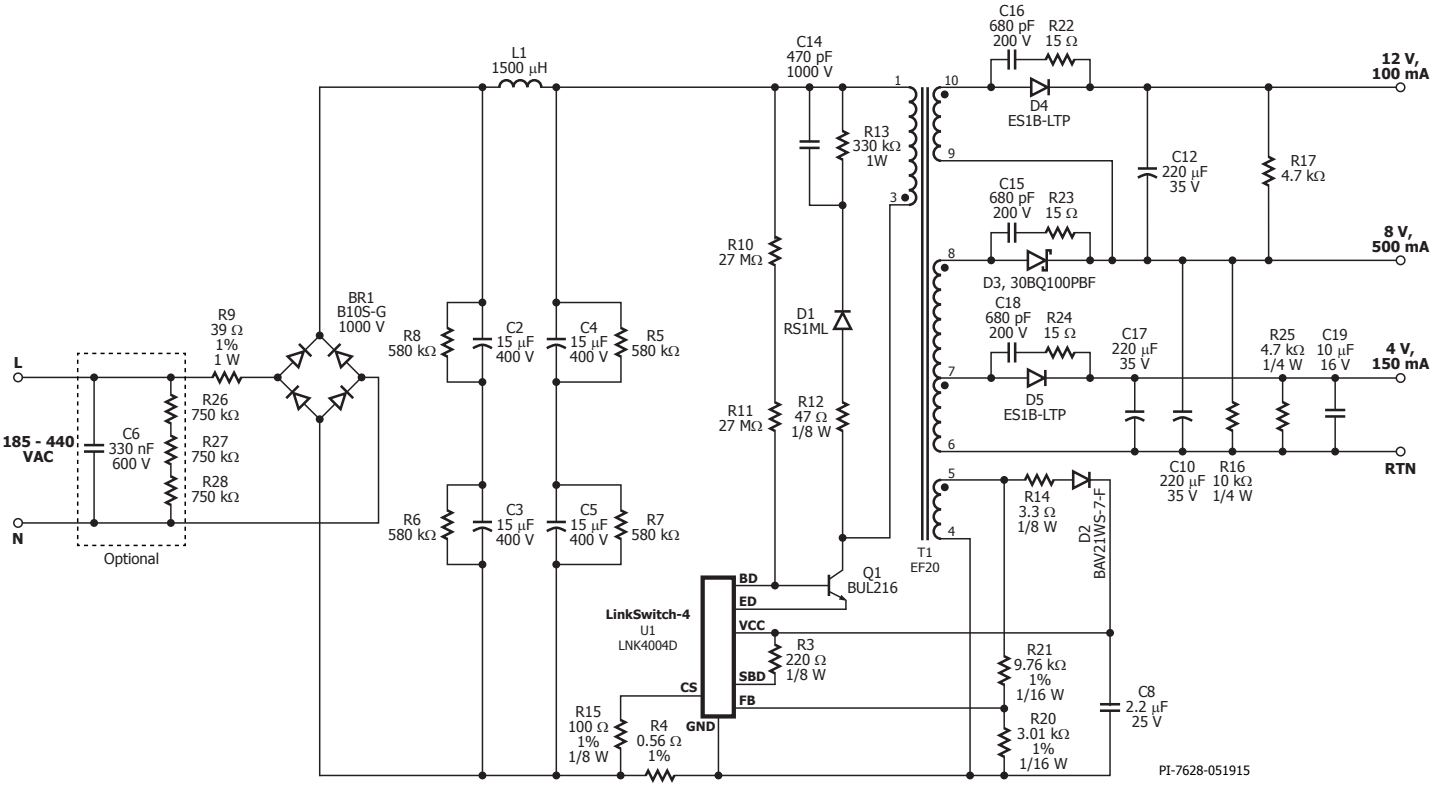
LinkSwitch-3 – Low Power Constant Voltage, Constant Current Charger/Adapter (DER-403)

10 W, 2 V, 1 A OUTPUT, 90 – 265 VAC INPUT FLYBACK POWER SUPPLY



LinkSwitch-4 – 3-Output, Isolated Flyback Power Supply (DER-479)

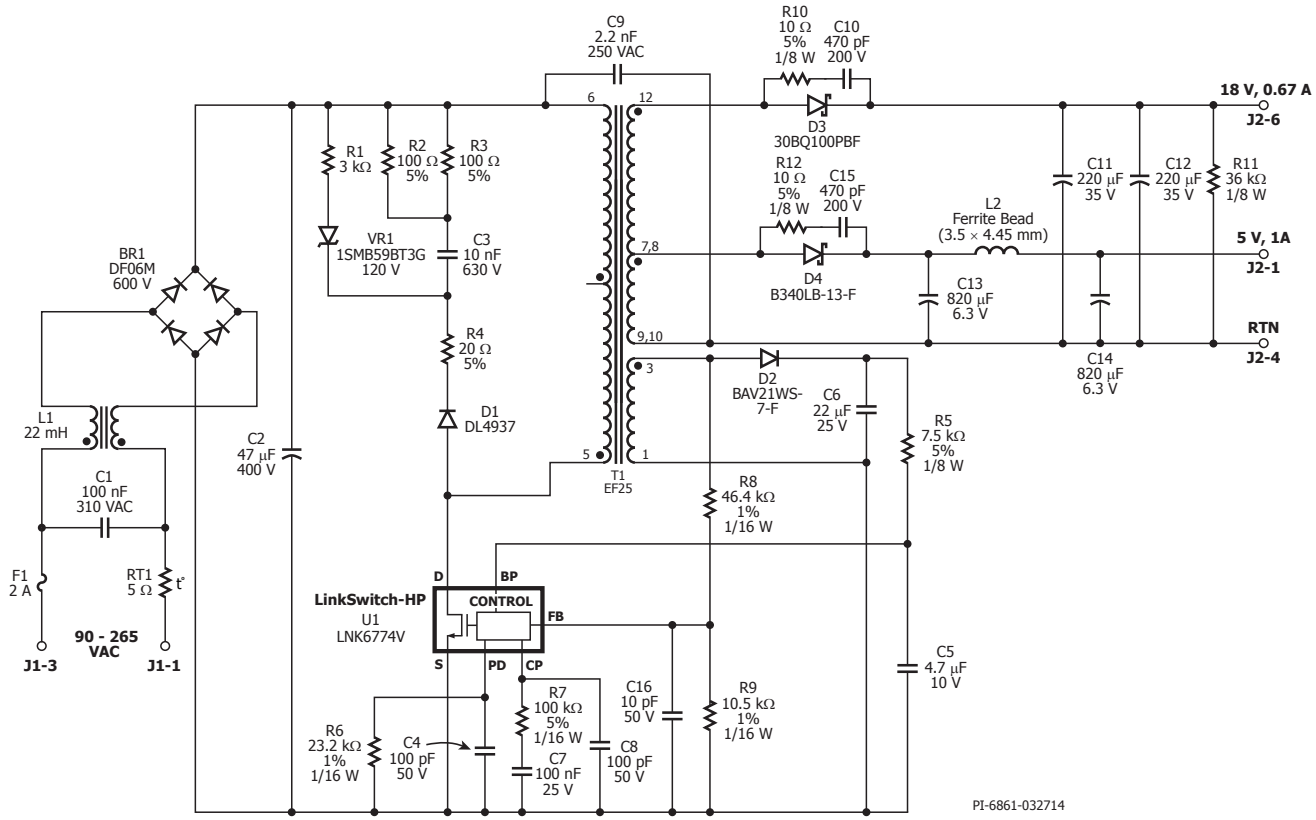
6 W, 11 W PK, 3.3 V, 150 mA, 8 V, 500 mA and 12 V, 1 A OUTPUTS, 185 – 440 VAC INPUT, NON-ISOLATED FLYBACK POWER SUPPLY



Design Examples

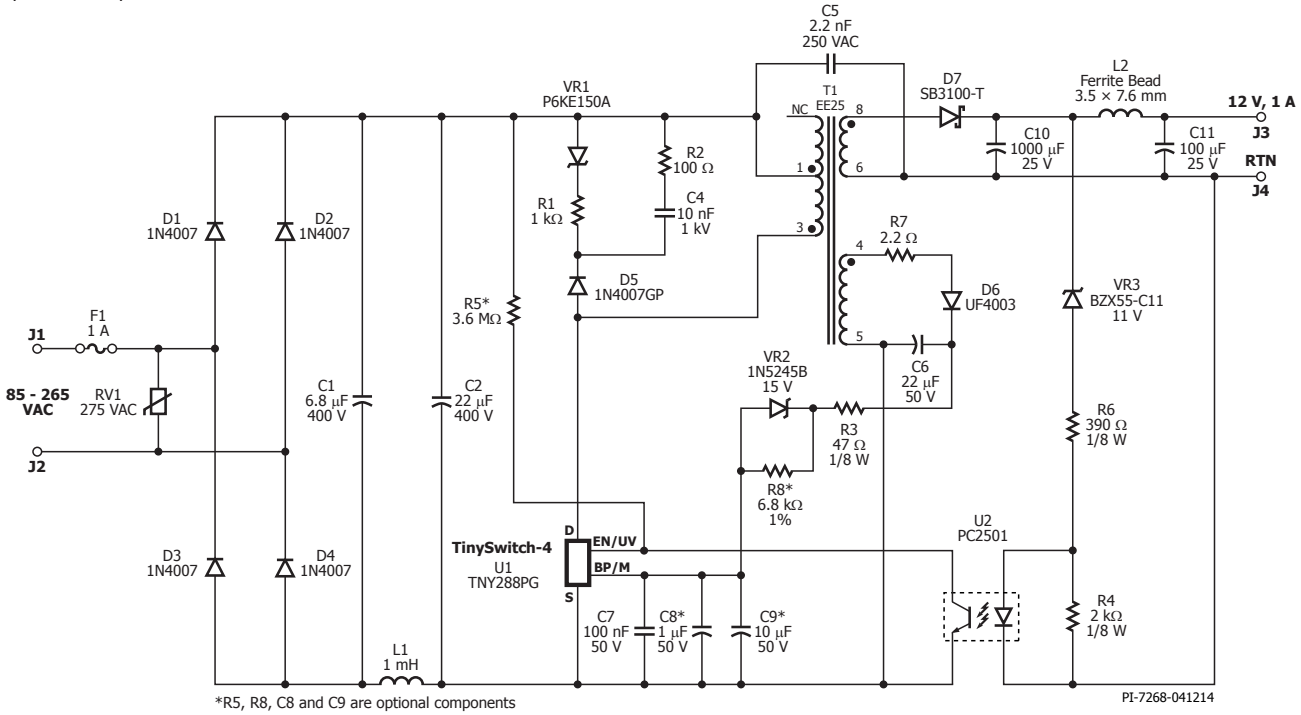
LinkSwitch-HP – 2-Output, Constant Voltage Power Supply (RDK-321)

17 W, 5 V, 1 A and 18 V, 670 mA OUTPUT, 90 – 265 VAC INPUT FLYBACK POWER SUPPLY



TinySwitch-4 – Universal Input Adapter (RDK-399)

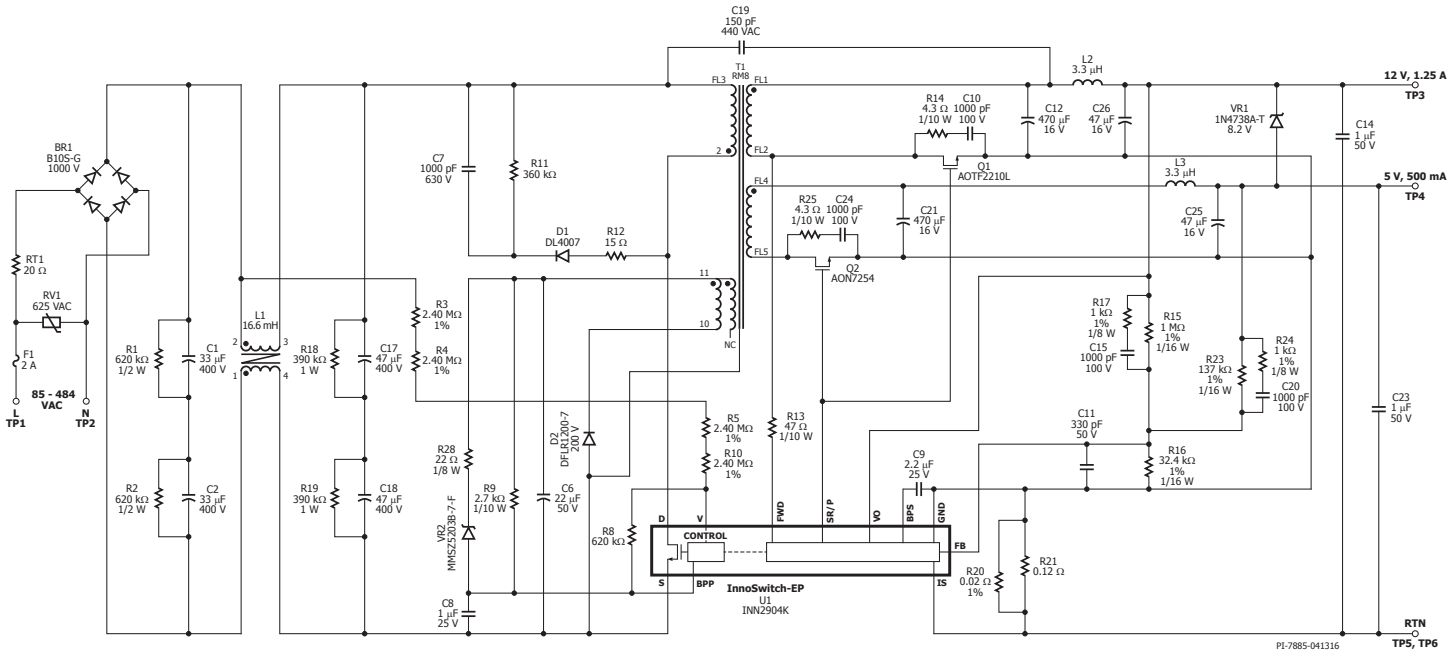
12 W, 12 V, 1 A OUTPUT, 85 – 265 VAC INPUT FLYBACK POWER SUPPLY



Design Examples

InnoSwitch-EP – 2-Output, Isolated, Universal Input Flyback Power Supply with 900 V MOSFET (RDK-531)

17.5 W, 12 V, 1.25 A and 5 V, 500 mA OUTPUTS, 85 – 484 VAC INPUT FLYBACK POWER SUPPLY



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