



PI Power Solutions Overview



Content

- ***PI Solutions Overview***

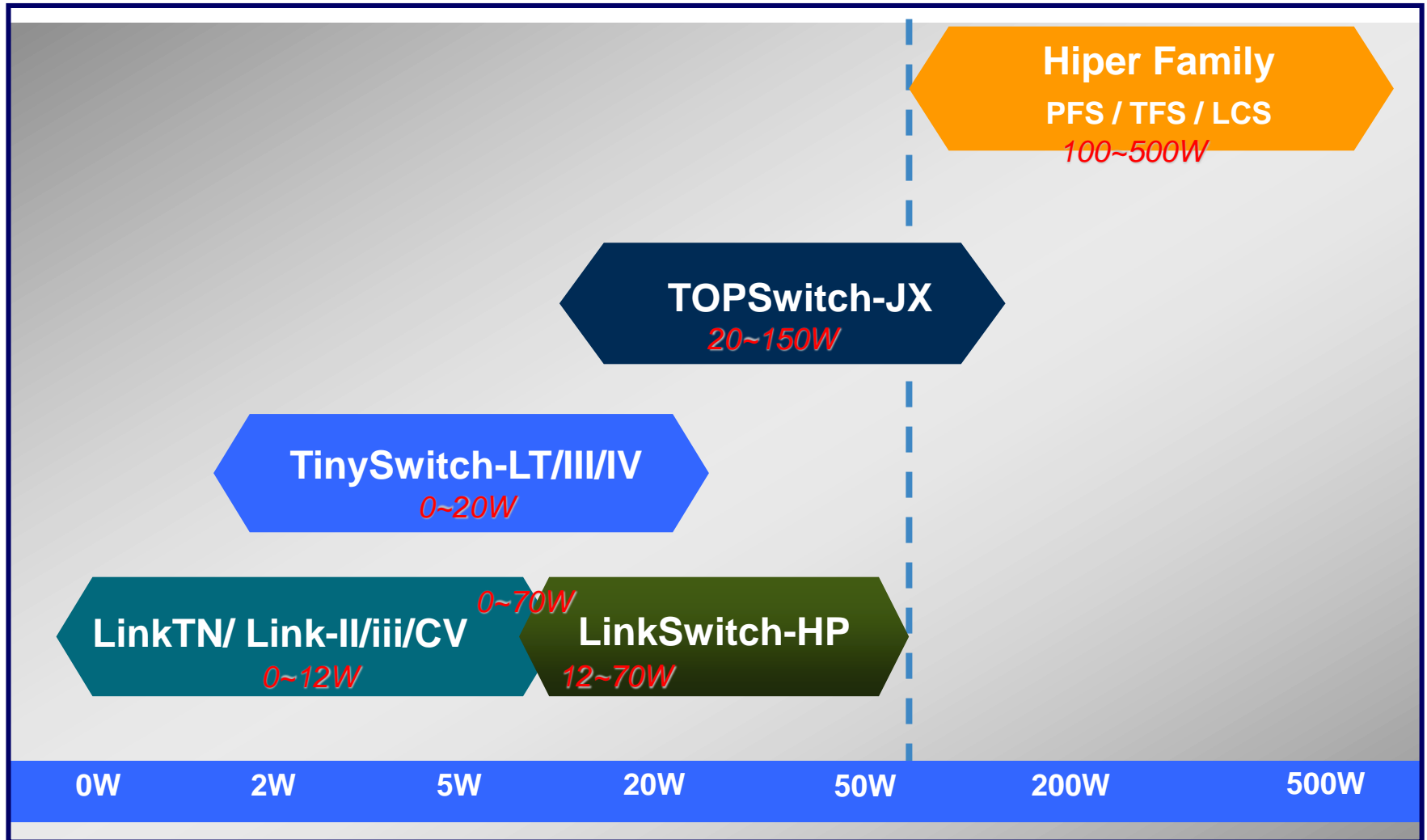
- ***PI Key Product Portfolio***
 1. *LNK-Switch*

 2. *TNY-Switch*

 3. *TOP-Switch*

 4. *Hiper-Switch*

PI Solutions Overview



Content

➤ *PI Solutions Overview*

➤ **PI Key Product portfolio**

1. LNK-Switch---原边反馈方案

LNK-TN---小家电(非隔离)

LNK-II/III---5~12W 充电器 (恒压恒流), 适配器

LNK-CV--- 8W 以下适配器

LNK-HP--- 12W以上适配器 , ≤42”寸LCDTV电源

2. *TNY-Switch*

3. *TOP-Switch*

4. *Hiper-Switch*

Link-TN---小家电应用

OUTPUT CURRENT TABLE ¹				
PRODUCT ⁴	230 VAC $\pm 15\%$		85-265 VAC	
	MDCM ²	CCM ³	MDCM ²	CCM ³
LNK302P/G/D	63 mA	80 mA	63 mA	80 mA
LNK304P/G/D	120 mA	170 mA	120 mA	170 mA
LNK305P/G/D	175 mA	280 mA	175 mA	280 mA
LNK306P/G/D	225 mA	360 mA	225 mA	360 mA

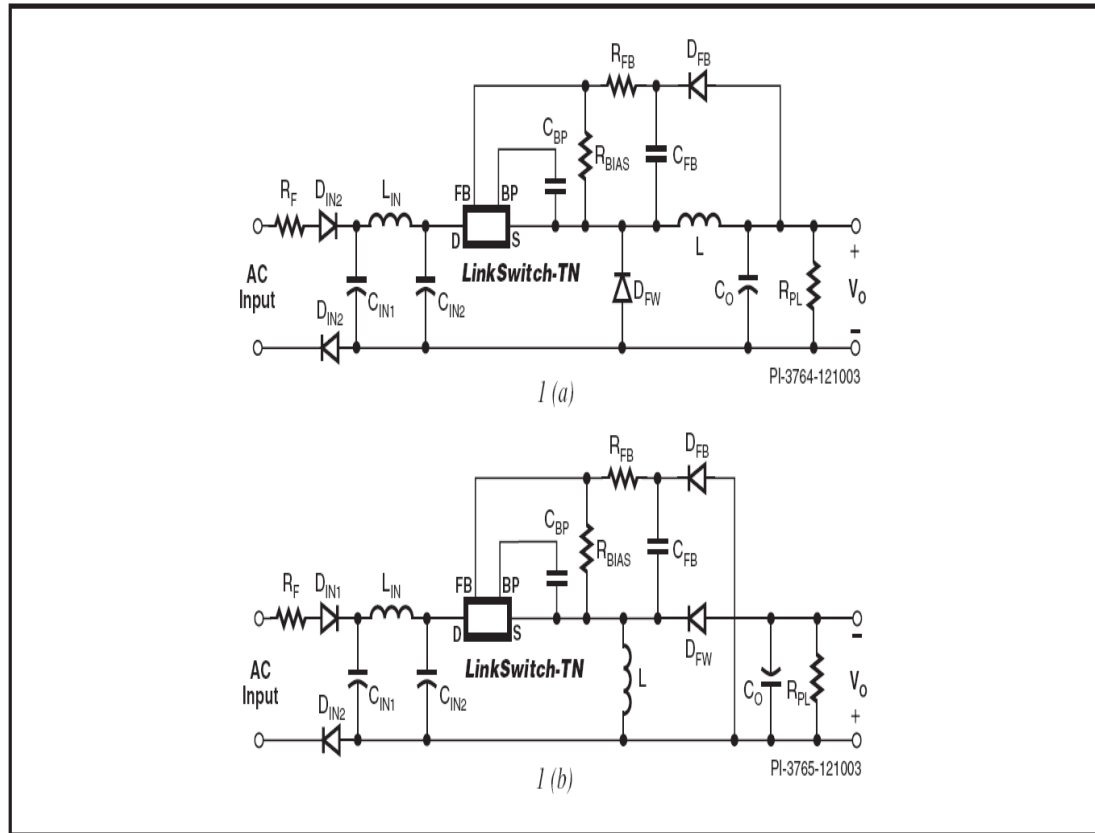
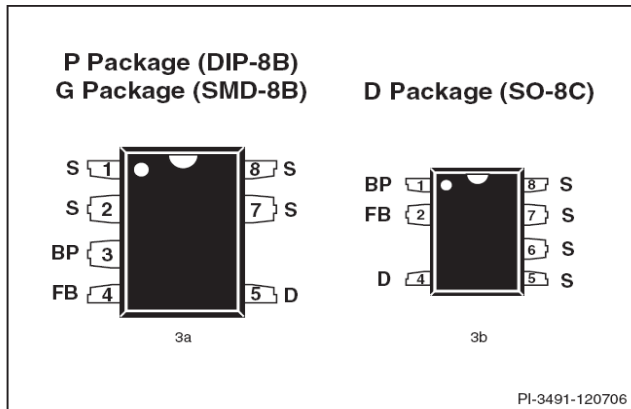
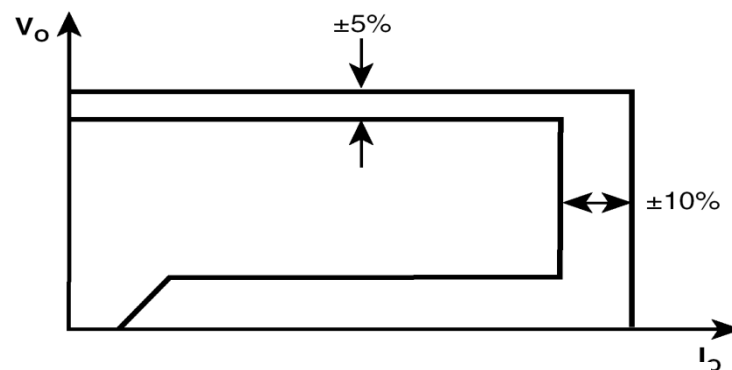
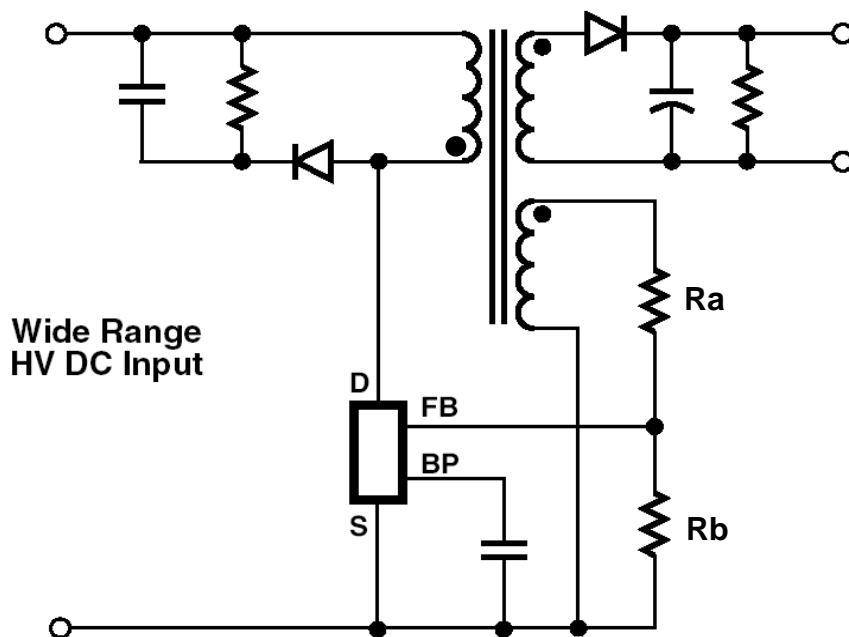


Figure 1 (a). Basic Configuration using LinkSwitch-TN in a Buck Converter. Figure 1 (b) Basic Configuration using LinkSwitch-TN in a Buck-Boost Converter.

Link-II: CC & CV control for Charger/Adapter Application

- Compensates for **cable drop**, transformer **inductance** tolerances, **input line** voltage and external component temperature variations
- Auto-restart protection for output short circuit, all control loop faults (opened and shorted components) and thermal overload



Output Power Table

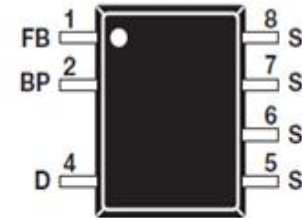
Product ³	85-265 VAC	
	Adapter ¹	Open Frame ²
LNK603/613PG/DG	2.5 W	3.3 W
LNK604/614PG/DG	3.5 W	4.1 W
LNK605/615PG/DG	4.5 W	5.1 W
LNK606/616PG/GG/DG	5.5 W	6.1 W

LNK-3 : SC1142, SC1161/2:

Output Power Table

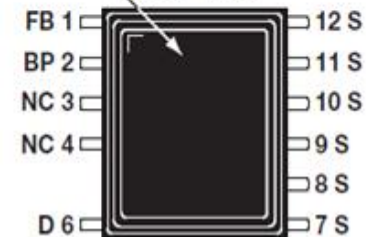
Product	90 - 264 VAC
SC1142DX	5W
SC1161DX	7 W
SC1161KX	10 W
SC1162KX	12 W

D Package (SO-8C)



Exposed Pad (On Bottom)
Internally Connected to
SOURCE Pin

K Package
(eSOP-12B)

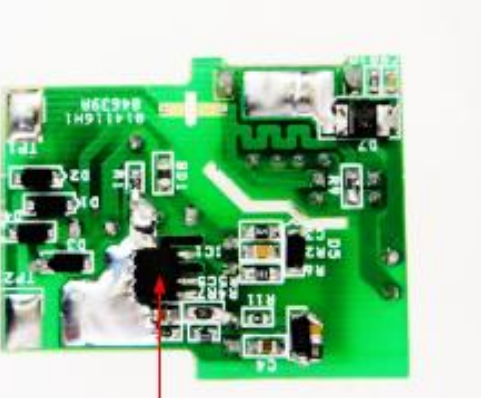
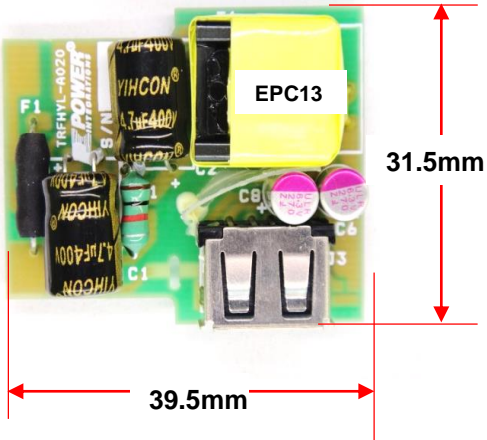


X = Cable drop compensation 0,1,2,3
Power delivery estimated at 50 C ambient



5V adapter reference design

5V 1 A

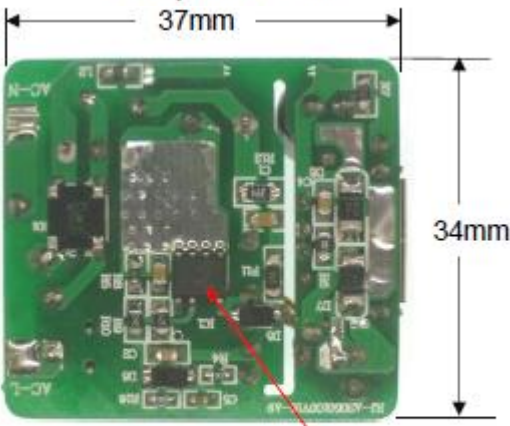


SC1142

5V 1.5 A



Component Side



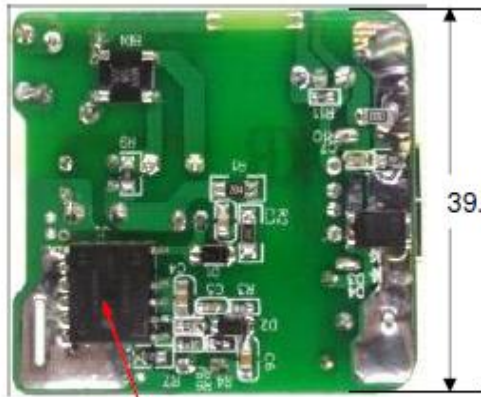
Solder Side

SC1161

5V 2.0 A



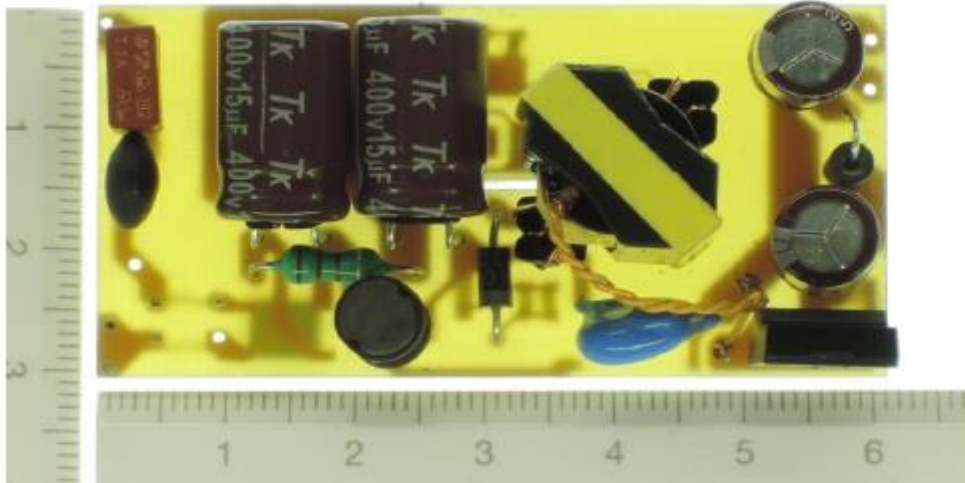
44mm



39.5mm

SC1162

12V/1A adapter with SC1162K



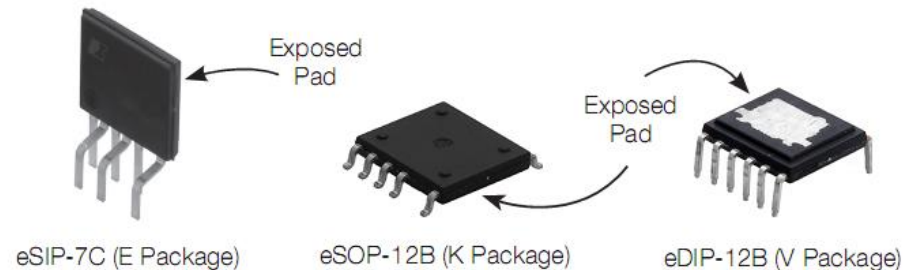
LNK-III (SC1162K2) for 12V@1A Adapter (Rev-2)

Features

- Meet DOE with > 85.5% Efficiency on PCB;
- 85kHz operating frequency for small transformer size;
- Low component counts for easy working;

LinkSwitch-HP: 12W以上的适配器及 open frame应用

- Primary side regulation (PSR) solution addresses between 5W to 55 W application
 - Tablet charger
 - Ultrabook adapter
 - LCD monitor
 - Small size LCD TV
 - Appliance
- PSR eliminates TL431 and Opto for lower system cost compare to SSR.
- Reduced component count
 - Higher reliability
 - Increased production line throughput

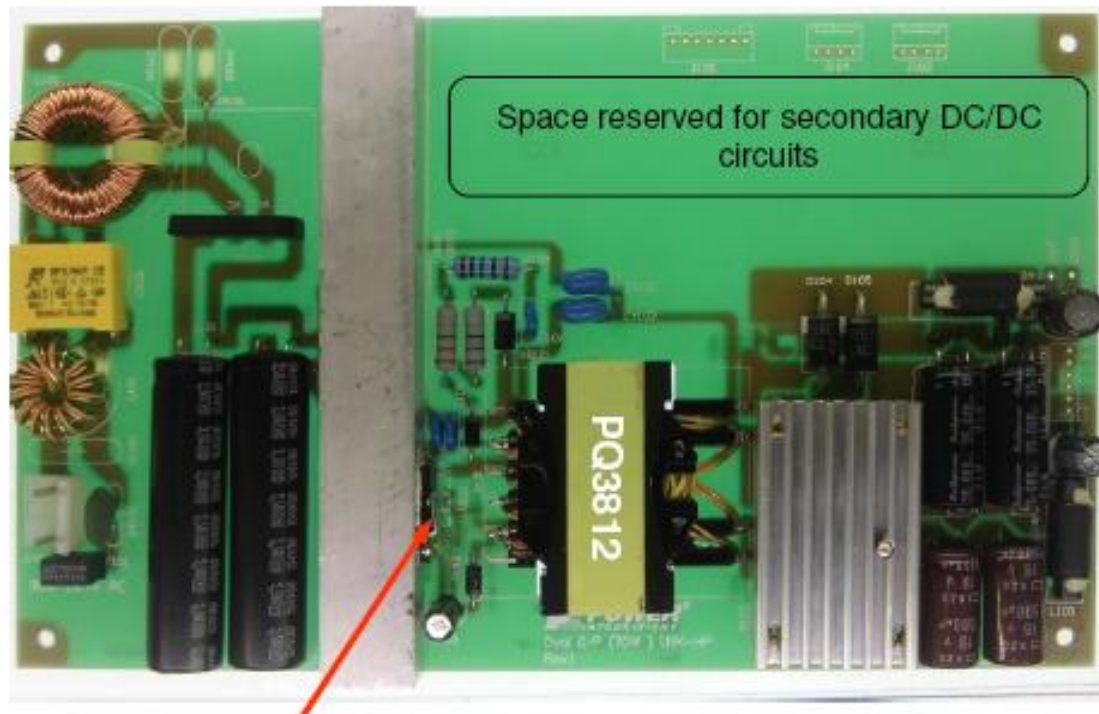


70W LCDTV power reference design

Engineering Test Report Dual Outputs LCD-TV Supply with LNK6777EG (LNK-HP)

Features

- Primary side control;
- Universal AC Input range and dual outputs (90-264Vac, 12V@2.6A & 24V@1.6A)



Content

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PI Key Product portfolio

1. LNK-Switch---原边反馈方案

2. TNY-Switch---光耦反馈，<20W的家电应用

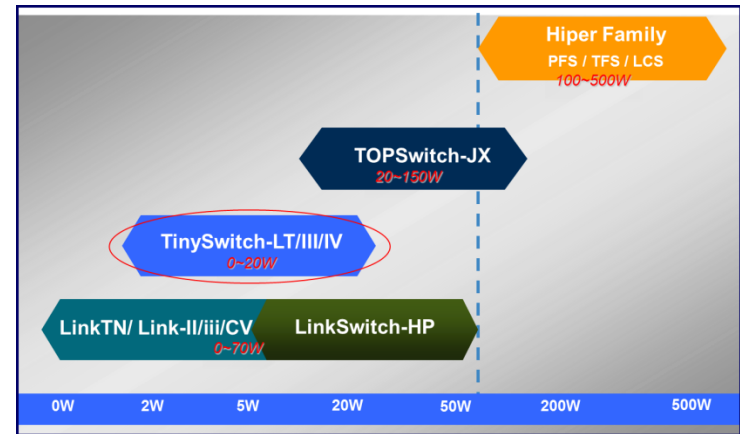
TNY-LT---174~180 (650V Mosfet，low cost)

TNY-III---274~280 (700V Mosfet)

TNY-IV---284~290 (700V Mosfet)

3. TOP-Switch

4. Hiper-Switch



Tiny-III Typical Schematic

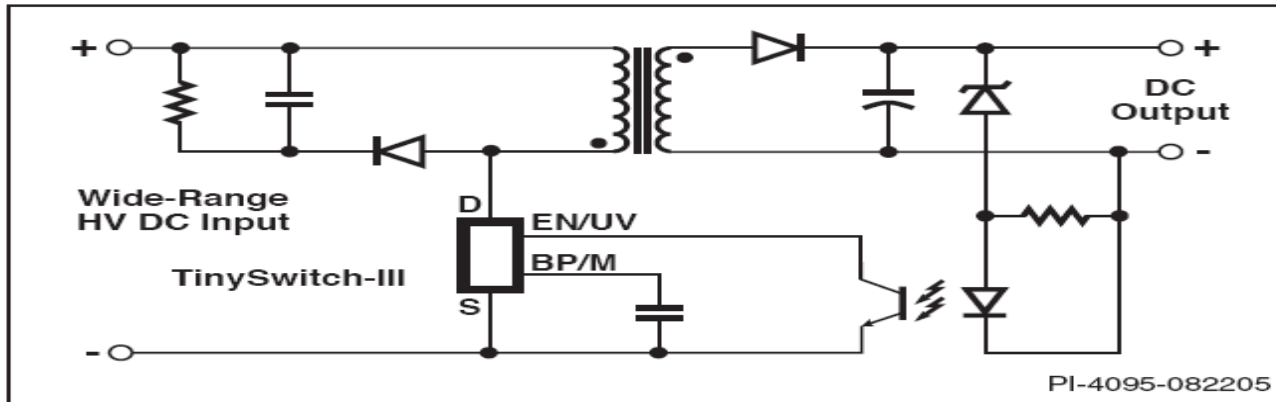
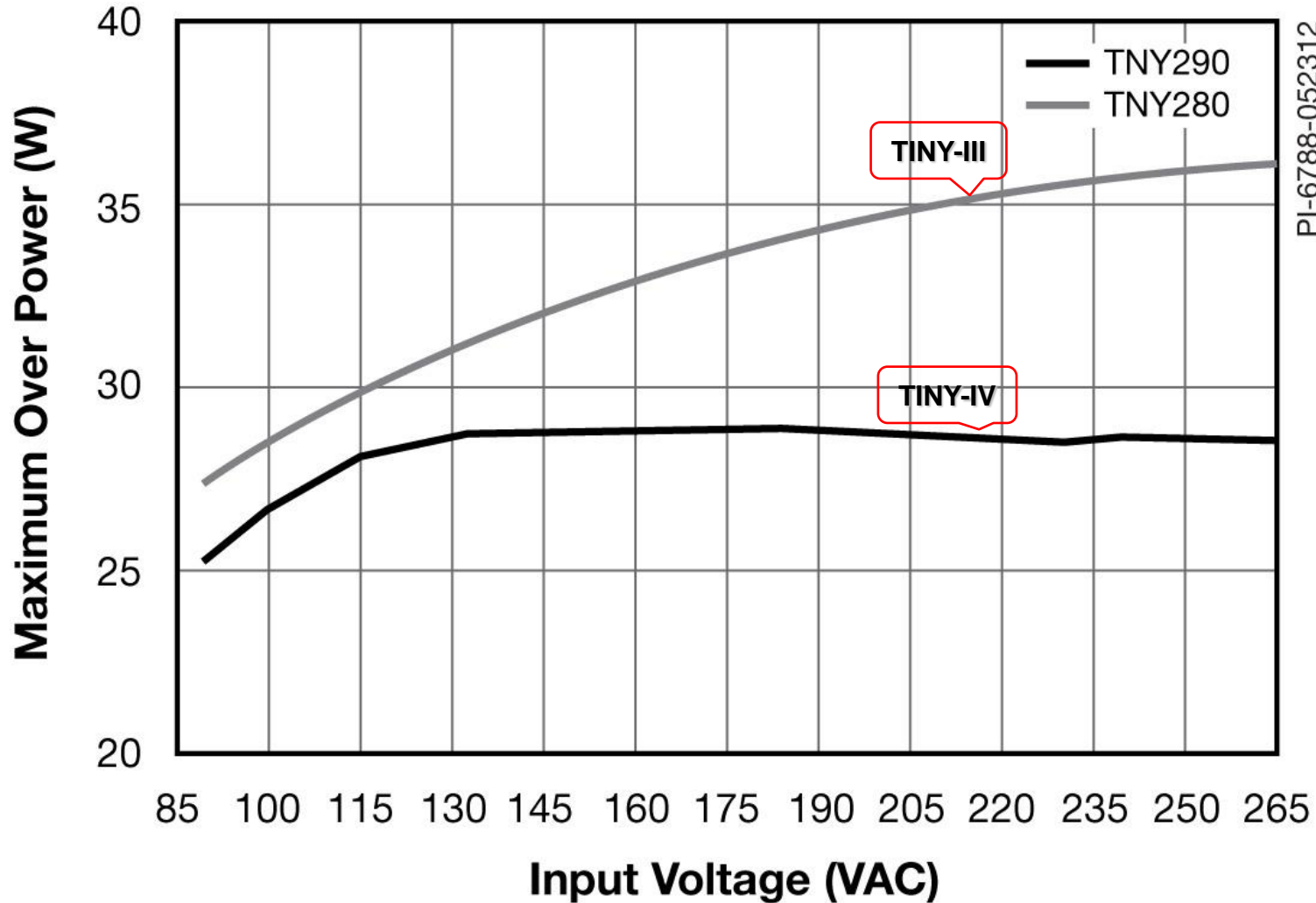


Figure 1. Typical Standby Application.




Output Power Table

Product ³	230 VAC \pm 15%		85-265 VAC	
	Adapter ¹	Peak or Open Frame ²	Adapter ¹	Peak or Open Frame ²
TNY274P/G	6 W	11 W	5 W	8.5 W
TNY275P/G	8.5 W	15 W	6 W	11.5 W
TNY276P/G	10 W	19 W	7 W	15 W
TNY277P/G	13 W	23.5 W	8 W	18 W
TNY278P/G	16 W	28 W	10 W	21.5 W
TNY279P/G	18 W	32 W	12 W	25 W
TNY280P/G	20 W	36.5 W	14 W	28.5 W

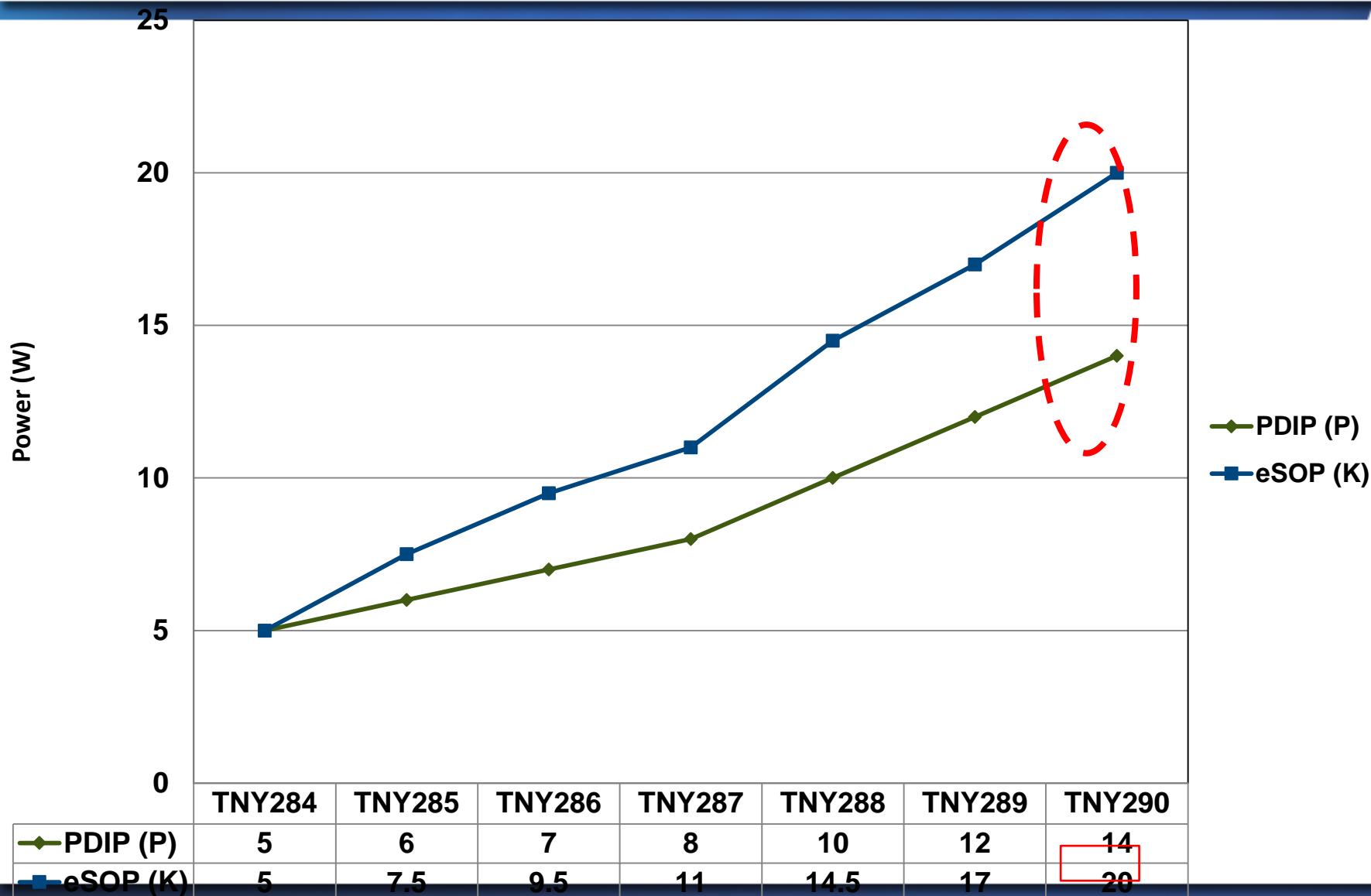
TINY-IV improvement over TINY-III



New Package Options To Meet Varies Design Requirement

Part Number	Package		
	SO8 (D)	PDIP (P)	eSOP (K)
TNY284	√	√	√
TNY285	√	√	√
TNY286	√	√	√
TNY287	√	√	√
TNY288		√	√
TNY289		√	√
TNY290		√	√
			

New eSOP (K) Package Can Deliver Up To 30% More Power



PI Solutions Overview

PI Key Product portfolio

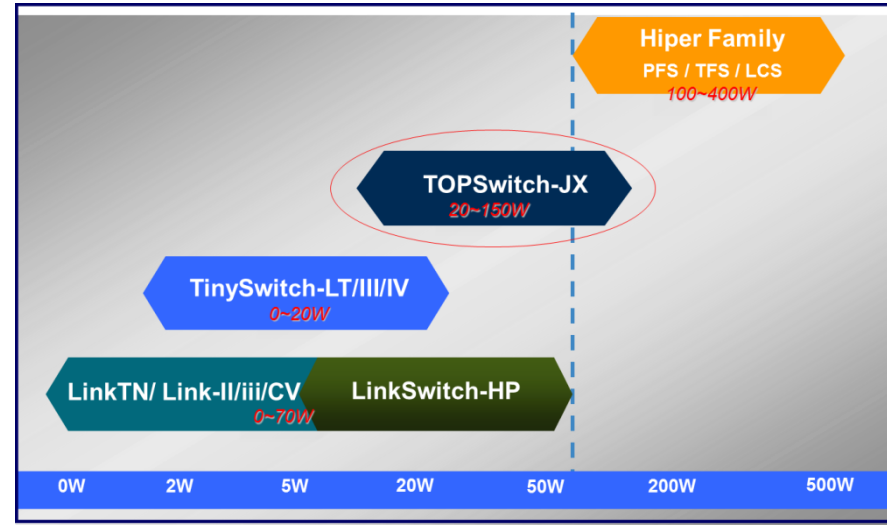
1. LNK-Switch---原边反馈方案

2. TNY-Switch

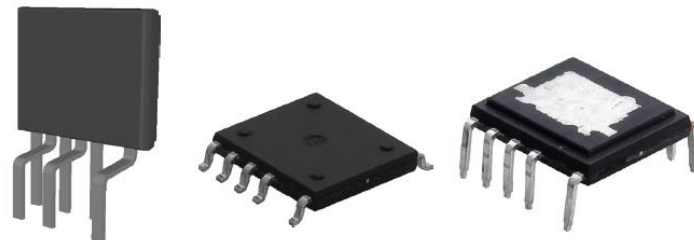
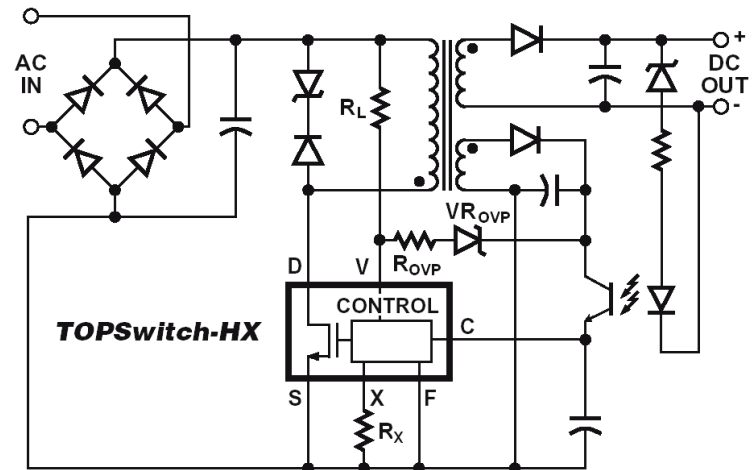
3. TOP-Switch---光耦反馈,PWM控制, 20~150W的反激应用

适用于：工业电源，通信电源，医疗电源，电动工具，家电，音响等

4. Hiper-Switch



- TOPSwitch-JX monolithically combines the key power conversion elements of a flyback converter
 - 700V power MOSFET
 - Multi-mode controller
 - Supervisory circuitry
 - Current limit
 - Temperature limit
 - Overvoltage protection
 - Undervoltage protection
 - Soft start
 - Fault/power limit



eSIP-7C (E Package)

eSOP-12 (K Package)

eDIP-12 (V Package)

Figure 2. Package Options.

TOP26x: output power table

Product ⁵	Metal Heat Sink ¹			
	230 VAC $\pm 15\%$ ⁴		85-265 VAC	
	Adapter ²	Open Frame ³	Adapter ²	Open Frame ³
TOP264EG/VG	30 W	62 W	20 W	43 W
TOP265EG/VG	40 W	81 W	26 W	57 W
TOP266EG/VG	60 W	119 W	40 W	86 W
TOP267EG/VG	85 W	137 W	55 W	103 W
TOP268EG/VG	105 W	148 W	70 W	112 W
TOP269EG/VG	128 W	162 W	80 W	120 W
TOP270EG/VG	147 W	190 W	93 W	140 W
TOP271EG/VG	177 W	244 W	118 W	177 W

PI Solutions Overview

PI Key Product portfolio

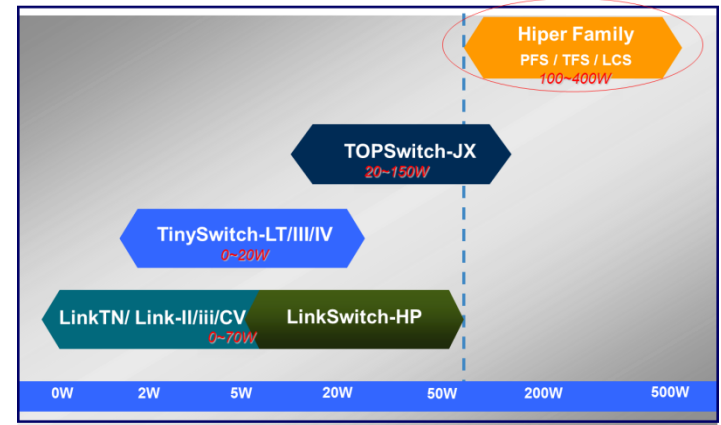
1. LNK-Switch---原边反馈方案
2. TNY-Switch
3. TOP-Switch---光耦反馈,PWM控制
4. Hiper-Switch (<400W的中等功率)

Hiper-PFS---power factor correction (功率因数校正)

Hiper-TFS---two switch forward (双管正激)

Hiper-LCS---LLC Resonant half bridge(LLC谐振半桥)

适用于：大尺寸LCDTV电源,通信电源, PC电源, 定制电源等

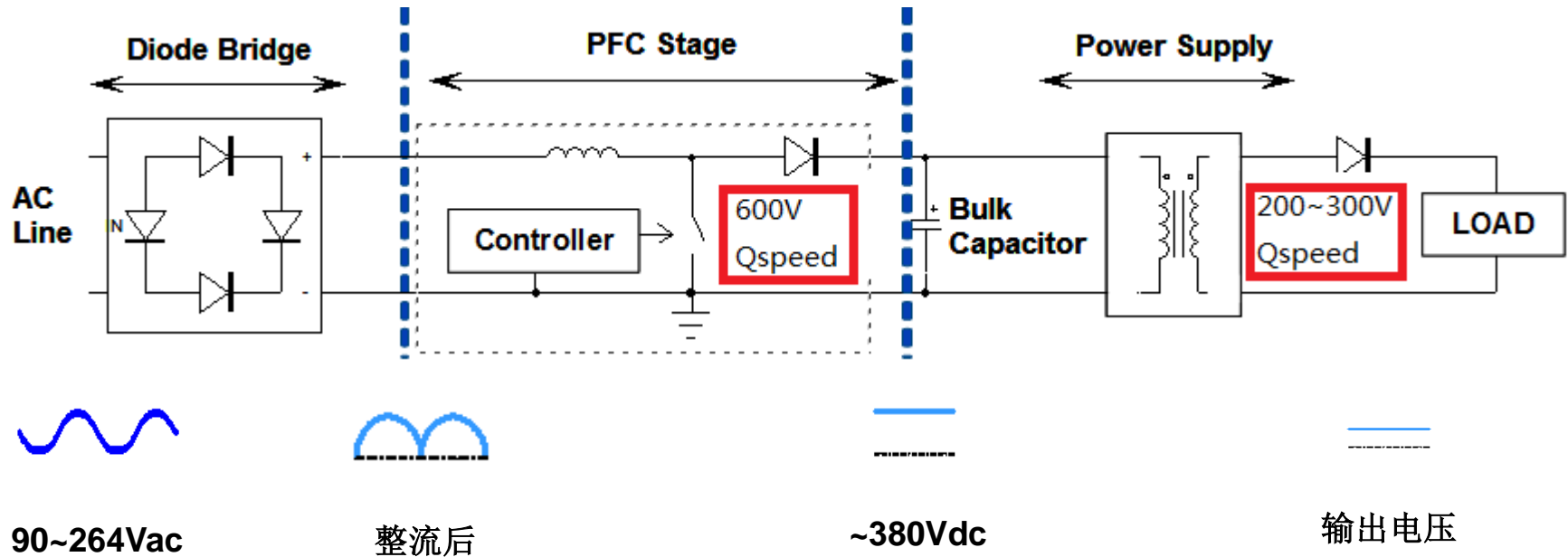
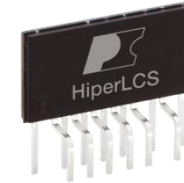
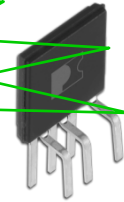


PI Middle Power Solution (100~500W)

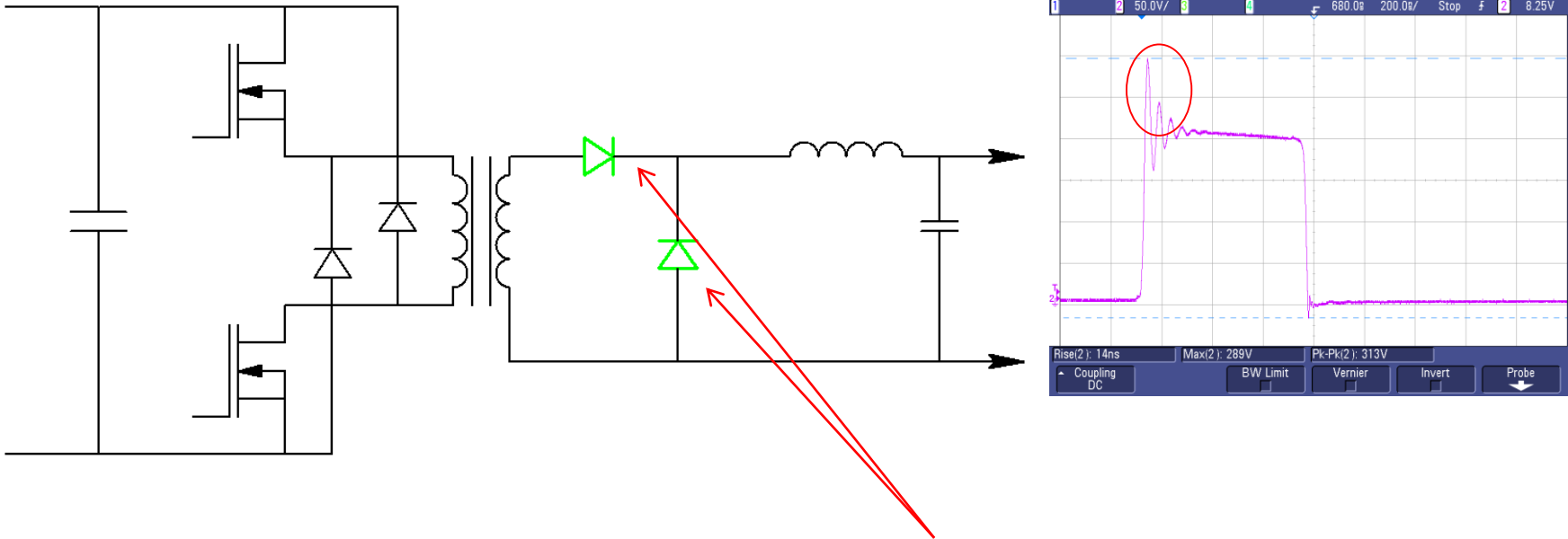
PFC: HiperPFS2™

谐振半桥: HiperLCS™
双管正激: HiperTFS™

264W reference design
PFS7328+LCS708+LNK302



优点1: low spike

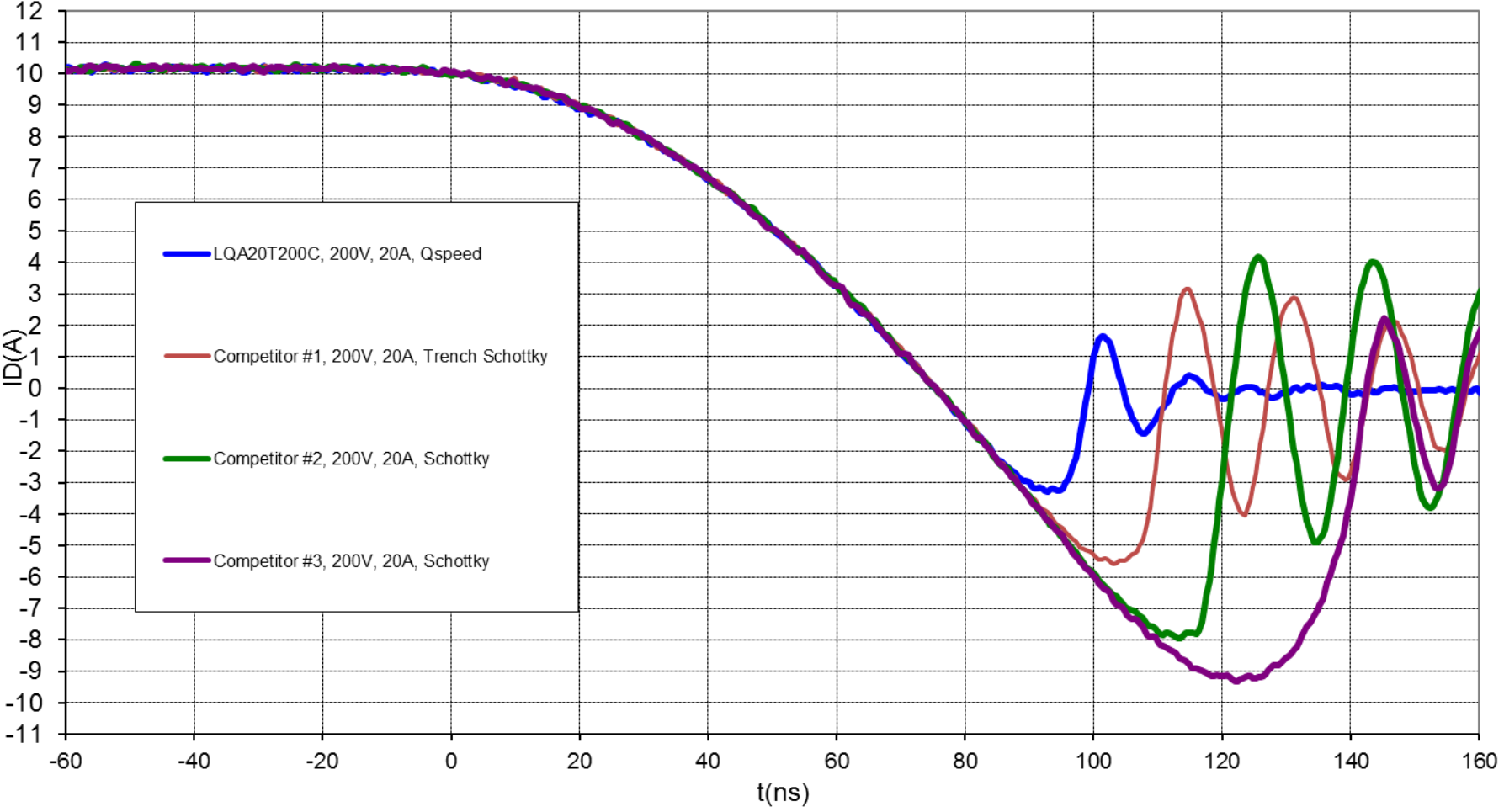


LQA16TC300

- ❖ No Snubbers required
- ❖ Lower voltage spike
- ❖ Efficiency = 84.6%

优点2: soft recovery

Reverse Recovery Condition: 130 V, 10 A, 200 A/μs



200V Q-Series Product Line

- Overview 200 V Q series:
 - 20 A DPAK and 40 A TO220 are a unique Qspeed option

- Space and cost savings

- Applications:

- Output rectifiers for hard switching or soft switching applications

- Look for high frequency (>50kHz)

- Schedule: Fully released

DPAK TO-252	D2PAK TO-263	TO-220	I _f (rated)
LQA10N200C		LQA10T200C	2 X 5 A
LQA20N200C		LQA20T200C	2 X 10 A
	LQA30B200C	LQA30T200C	2 X 15 A
	LQA40B200C	LQA40T200C	2 X 20 A

300V Q-Series Product Line

300V Q-Series (single diode)	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150^{\circ}C$	V_F $T_J=25^{\circ}C$	V_F $T_J=150^{\circ}C$	I_{FSM} 8.3mS	Q_{RR} $T_J=25^{\circ}C$	Q_{RR} $T_J=125^{\circ}C$	Package
LQA06T300	300V	6A	1.60V	1.34V	37A	9nC	27nC	TO-220AC
LQA10T300	300V	10A	1.58V	1.36V	80A	10nC	38nC	TO-220AC
LQA16T300	300V	16A	1.60V	1.40V	100A	12nC	44nC	TO-220AC
LQA30T300	300V	30A	1.66V	1.45V	200A	13nC	53nC	TO-220AC

300V Q-Series (Dual Diode)	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150^{\circ}C$	V_F $T_J=25^{\circ}C$	V_F $T_J=150^{\circ}C$	I_{FSM} 8.3mS	Q_{RR} $T_J=25^{\circ}C$	Q_{RR} $T_J=125^{\circ}C$	Package
LQA12T300C*	300V	6A	1.60V	1.34V	37A	8.5nC	27nC	TO-220AB
LQA20T300C*	300V	10A	1.58V	1.36V	80A	10nC	38nC	TO-220AB
LQA20B300C*	300V	10A	1.58V	1.36V	80A	10nC	38nC	D ² PAK
LQA30A300C*	300V	15A	1.60V	1.40V	100A	12nC	47nC	TO-247
LQA32T300C*	300V	16A	1.60V	1.40V	100A	12nC	44nC	TO-220AB
LQA60A300C*	300V	30A	1.66V	1.45V	200A	13nC	53nC	TO-247

600V PFC Diodes: X, Q, & H Series

高性价比

600V X-Series (Dual Diode)

	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150^{\circ}C$	V_F $T_J=25^{\circ}C$	V_F $T_J=150^{\circ}C$	I_{FSM} 8.3mS	Q_{RR} $T_J=25^{\circ}C$	Q_{RR} $T_J=125^{\circ}C$	Package
LXA08T600C*	600V	4A	2.42V	2.10V	30A	21nC	50nC	TO-220AB
LXA12T600C*	600V	6A	2.27V	2.00V	50A	30nC	71nC	TO-220AB
LXA16T600C*	600V	8A	2.35V	2.10V	60A	31nC	82nC	TO-220AB

Good
EMI

600V Q-Series

	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150^{\circ}C$	V_F $T_J=25^{\circ}C$	V_F $T_J=150^{\circ}C$	I_{FSM} 8.3mS	Q_{RR} $T_J=25^{\circ}C$	Q_{RR} $T_J=125^{\circ}C$	Package (Isolated)
LQA03TC600	600V	3A	2.77V	2.30V	30A	4.8nC	17.5nC	TO-220AC
LQA05TC600	600V	5A	2.83V	2.28V	50A	6nC	27nC	TO-220AC
LQA08TC600	600V	8A	2.85V	2.30V	80A	7nC	36nC	TO-220AC

高工作频率
低损耗

600V H-Series

	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150^{\circ}C$	V_F $T_J=25^{\circ}C$	V_F $T_J=150^{\circ}C$	I_{FSM} 8.3mS	Q_{RR} $T_J=25^{\circ}C$	Q_{RR} $T_J=125^{\circ}C$	Package (Isolated)
QH03TZ600	600V	3A	2.50V	2.10V	30A	5.9nC	14.9nC	TO-220AC
QH05TZ600	600V	5A	2.55V	2.15V	50A	7.1nC	19.4nC	TO-220AC
QH08TZ600	600V	8A	2.56V	2.20V	80A	8.8nC	26nC	TO-220AC
QH12TZ600	600V	12A	2.63V	2.30V	80A	9.8nC	30.5nC	TO-220AC

Thanks for your time!