

# Sine On™

An Analog Product Catalog

1Q 2003

## DC/DC Controllers

- 2** Low-input voltage mode synchronous buck controller  
Enhanced, low-input synchronous buck controller
- 3** Wide-input voltage synchronous buck controller  
Low-input, multi-topology high-frequency PWM controller
- 4** Negative voltage output flyback pulse-width-modulator  
Wide-input voltage buck PWM stepdown voltage regulator
- 5** Dual-channel, PWM control circuit  
Dual-output, low-input voltage DSP power supply controller

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## Low Dropout Regulators (LDOs)

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- 11** 2-A LDO features fast transient response

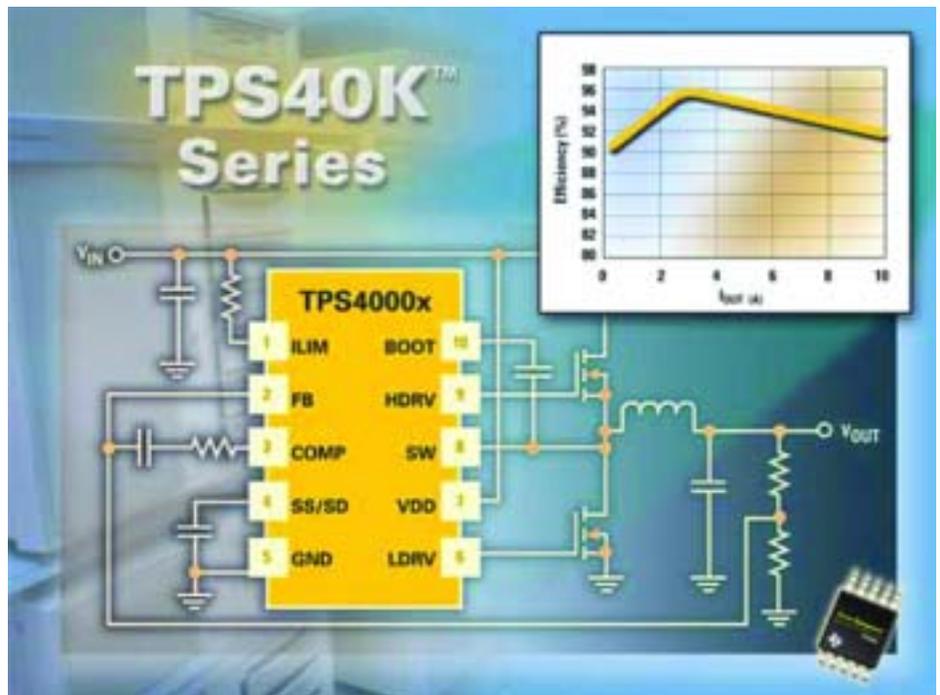
## Resources

- 12** Distributed Power Solutions Selection Guides

# Distributed Power Solutions

**TPS40K™**, low-input voltage mode synchronous buck controller with Predictive Gate Drive™ technology

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▲ **Page 11**

**NEW!** TPS40K™/SWIFT™ software tool available



◀ **Page 7**

**PT5400 SWIFT™ Power Module**—speeds time to market

DC/DC Controllers

### Low-input (2.25 V - 5.5 V) highly efficient voltage mode synchronous buck controller

## TPS40000/1/2/3

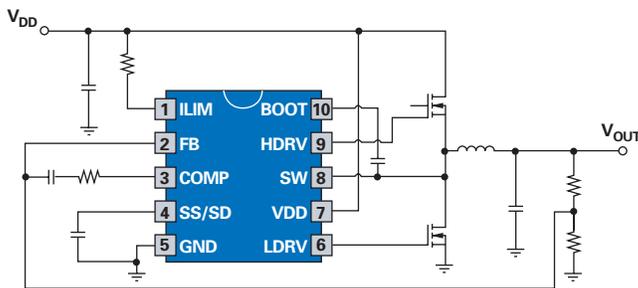


Get samples, datasheets, EVMs, app reports and software tools at: [www.ti.com/sc/device/partnumber](http://www.ti.com/sc/device/partnumber)  
 Replace **partnumber** in URL with tps40000, tps40001, tps40002 or tps40003

- Operating input voltage: 2.25 V to 5.5 V
- Output voltage as low as 0.7 V
- 1% internal 0.7-V reference
- Predictive Gate Drive™ technology N-channel MOSFET drivers for higher efficiency
- Externally adjustable soft-start and overcurrent limit
- Fixed-frequency, 300-kHz or 600-kHz, voltage-mode control
- Source-only current or source/sink current
- Package: 10-lead MSOP PowerPAD™ for higher performance
- Suggested resale price starts at \$0.99 each (quantities of 1,000):

Product	Description
TPS40000	300 kHz, source only
TPS40001	300 kHz, source/sink
TPS40002	600 kHz, source only
TPS40003	600 kHz, source/sink

#### TPS4000x Typical Application



#### Applications include:

- Networking equipment
- Telecom equipment
- Base stations
- Servers
- DSP power

### Enhanced, low-input (2.25 V - 5.5 V) synchronous buck controller

## TPS40020/21/22

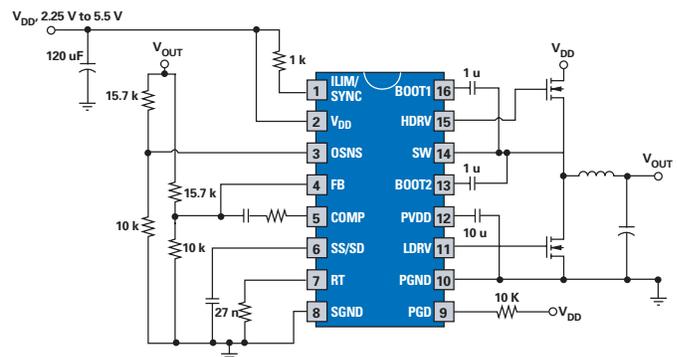


Get samples, datasheets, EVMs and app reports at: [www.ti.com/sc/device/partnumber](http://www.ti.com/sc/device/partnumber)  
 Replace **partnumber** in URL with tps40020, tps40021 or tps40022

- Operating input voltage: 2.25 V to 5.5 V
- Output voltage as low as 0.7 V
- 1% internal 0.7-V reference
- Predictive Gate Drive™ technology N-channel MOSFET drivers for higher efficiency
- Externally adjustable soft-start and overcurrent limit
- Programmable fixed-frequency 100-KHz to 1-MHz voltage-mode control
- Source-only current or source/sink current
- Quick response output transient comparators with Power Good indication provide output status
- Externally synchronizable to 1.5X FOSC
- On-chip charge pump provides enhanced gate drive for higher current requirements
- Low-power shutdown mode
- Package: 16-lead TSSOP PowerPAD™ for higher performance and reliability
- Suggested resale price starts at \$1.13 each (quantities of 1,000):

Product	Description
TPS40020	Source only
TPS40021	Source/sink
TPS40022	Source/sink with V <sub>OUT</sub> prebias

#### TPS4002x Typical Application



#### Applications include:

- Networking equipment
- Telecom equipment
- Base stations
- Servers
- DSP power

**DC/DC Controllers**

## Wide-input voltage (10 V - 40 V) synchronous buck controller

### TPS40050/51/53

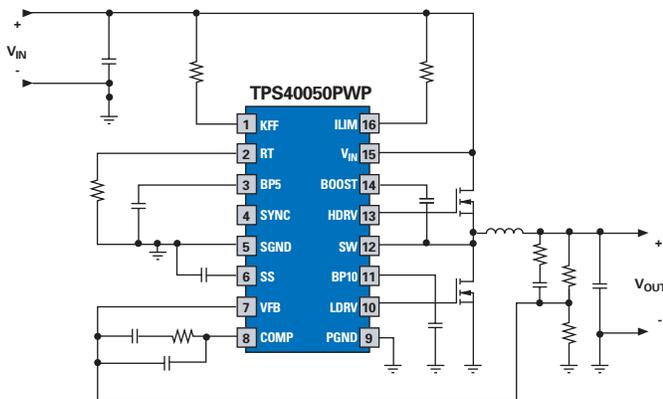


Get samples, datasheets, EVMs and app reports at: [www.ti.com/sc/device/partnumber](http://www.ti.com/sc/device/partnumber)  
 Replace **partnumber** in URL with tps40050, tps40051 or tps40053

- Operating input voltage: 10 V to 40 V
- Input voltage feedforward compensation
- 1% internal 0.7-V reference
- Programmable fixed frequency 100-K to 1-MHz voltage mode controller
- Internal gate drive outputs for high side and synchronous N-channel MOSFETs
- Thermal shutdown
- Externally synchronizable
- Programmable high-side current limit
- Programmable closed-loop soft start
- Internal diode for the high-side gate drive boost voltage
- Package: 16-pin PowerPAD™
- Suggested resale price starts at \$1.32 each (quantities of 1,000)

Product	Description
TPS40050	Source only
TPS40051	Source/sink
TPS40053	Source/sink with V <sub>OUT</sub> prebias

#### TPS40050 Typical Application



#### Applications include:

- Networking equipment
- Telecom equipment
- Base stations
- Servers

## Low-input (1.8 V - 9.0 V), multi-topology high-frequency PWM controller

### TPS43000

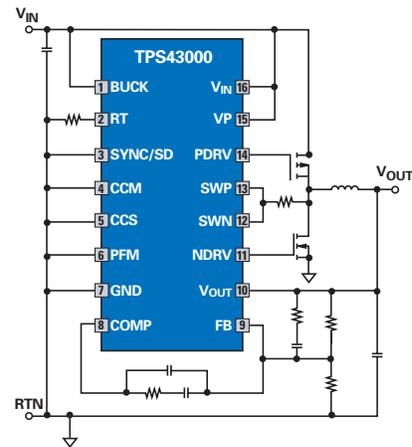


Get samples, datasheets, EVMs and app reports at: [www.ti.com/sc/device/tps43000](http://www.ti.com/sc/device/tps43000)

- High-frequency (2-MHz) voltage mode PWM controller
- Input voltage range: 1.8 V to 9.0 V
- Output voltage range: 0.8 V to 8.0 V (higher in non-synchronous boost topology)
- High-efficiency buck, boost, SEPIC or flyback (buck-boost) topology
- Synchronous rectification for high-efficiency
- Drives external MOSFETs for high-current applications
- Synchronizable fixed-frequency PWM or automatic Pulsed Frequency Modulation (PFM) mode
- Built-in soft start
- User programmable discontinuous or continuous conduction mode
- Selectable pulse-by-pulse current limiting or hiccup mode protection
- Package: 16-pin TSSOP
- Suggested resale price (quantities of 1,000):

Product	Price
TPS43000PW	\$2.00
TPS43000PWR	\$2.00

#### TPS43000 Typical Application



#### Applications include:

- Distributed power and point-of-load regulation
  - Servers
  - Base stations
  - EDP
  - Datacom
  - Networking systems
  - Communications systems
  - Telecom

DC/DC Controllers

## Negative voltage output flyback PWM

### UC3572

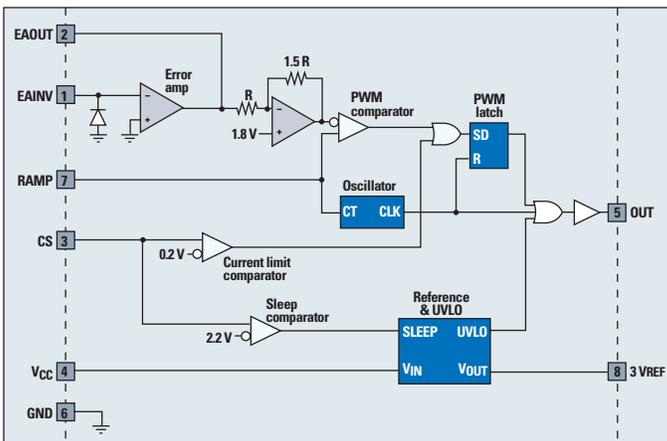


Get samples and datasheets at:  
[www.ti.com/sc/device/uc3572](http://www.ti.com/sc/device/uc3572)

- Simple single inductor flyback PWM for negative voltage generation
- Drives external PMOS switch
- Contains UVLO circuit
- Includes pulse-by-pulse current limit
- Low 50- $\mu$ A sleep mode current
- Available in industrial and commercial operating temperature ranges
- Package: 8-pin SOIC, 8-pin DIL
- Suggested resale price (quantities of 1,000):

Product	Price
UC3572D	\$1.00
UC3572DTR	\$1.10
UC3572N	\$1.00

#### UC3572 Typical Application



#### Applications include:

- Distributed power and point-of-load regulation
  - Servers
  - Networking systems
  - Base stations
  - Communications systems
- Local on-board regulation
  - EDP
  - Telecom
  - Datacom

## Wide-input voltage (4.2 V - 35 V) buck PWM stepdown voltage regulator

### UC3573

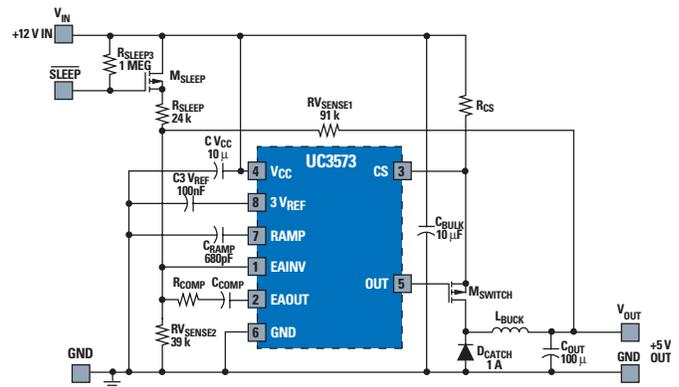


Get samples, datasheets and app reports at:  
[www.ti.com/sc/device/uc3573](http://www.ti.com/sc/device/uc3573)

- Simple single inductor buck PWM stepdown voltage regulation
- Drives external PMOS switch
- Contains UVLO circuit
- Includes pulse-by-pulse current limit
- Low 50- $\mu$ A sleep mode current
- Available in commercial and industrial operating temperature ranges
- Package: 8-pin SOIC, 8-pin DIL
- Suggested resale price (quantities of 1,000):

Product	Price
UC3573D	\$1.00
UC3573DTR	\$1.10
UC3573N	\$1.00

#### UC3573 Typical Application



#### Applications include:

- Distributed power and point-of-load regulation
  - Servers
  - Networking systems
  - Base stations
  - Communications systems
- Local on-board regulation
  - EDP
  - Telecom
  - Datacom

**DC/DC Controllers**

## Dual-channel PWM features two complete control circuits

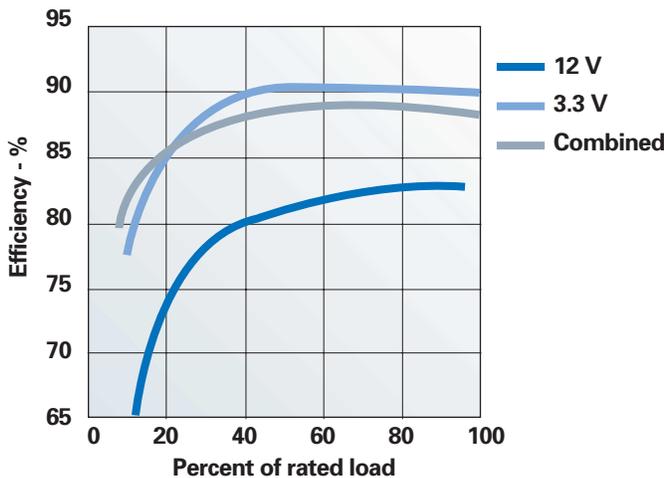
### TL1454A



Get web samples, datasheets and app reports at: [www.ti.com/sc/device/tl1454a](http://www.ti.com/sc/device/tl1454a)

- Two complete PWM control circuits
- Outputs drive MOSFETs directly
- Oscillator frequency: 50 kHz to 2 MHz
- Supply-voltage range: 3.6 V to 20 V
- Low supply current: 3.5 mA (typ)
- Adjustable dead-time control: 0% to 100%
- Reference: 1.26 V
- Package: 16-pin TSSOP, SOIC, SSOP, DIL
- Suggested resale price starts at \$0.98 each (quantities of 1,000)

**TL1454A Efficiency Curve**



**Applications include:**

- Networking equipment
- Telecom equipment
- Base stations
- Servers
- Datacom

## Dual-output, low-input voltage (2.8 V - 5.5 V) DSP power supply controller with sequencing

### TPS56300

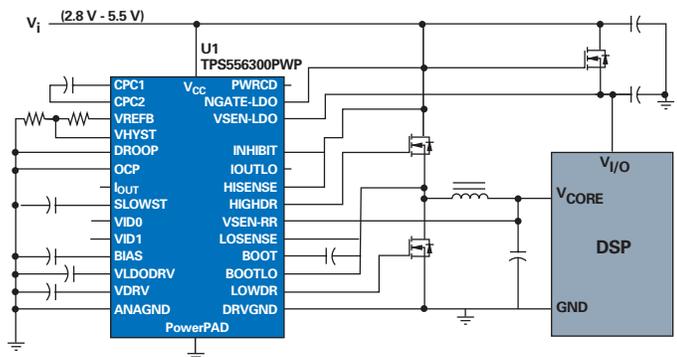


Get samples, datasheets, EVMs and app reports at: [www.ti.com/sc/device/tps56300](http://www.ti.com/sc/device/tps56300)

- Input voltage range: 2.8 V to 5.5 V
- Programmable dual-output controller supports popular DSP and microcontroller core and I/O voltages
- Switching regulator controls core voltage
- Low dropout controller regulates I/O voltage
- Programmable slow-start ensures simultaneous power-up of both outputs
- Power Good output monitors both outputs
- Fast ripple regulator reduces bulk capacitance for lower system costs
- Reference voltage tolerance:  $\pm 1.5\%$
- Efficiencies greater than 90%
- Overvoltage, undervoltage and adjustable overcurrent protection
- Drives low-cost logic level N-channel MOSFETs through entire input voltage range
- Package: 28-pin TSSOP PowerPAD™
- Suggested resale price (quantities of 1,000):

Product	Price
TPS56300PW	\$3.20
TPS56300PWR	\$3.20

**TPS56300 Typical Application**



**Applications include:**

- Dual voltage DSPs, FPGAs and microprocessors
- Broadband access/Internet infrastructure
- Distributed power systems

## SWIFT™ DC/DC Converters

## Synchronous buck DC/DC converters with integrated MOSFETs

## TPS5431x/61x/810/910

TPS40K™/SWIFT™ SOFTWARE TOOL



Get samples, datasheets, EVMs, app reports and software tools at:

[www.power.ti.com/sc/device/partnumber](http://www.power.ti.com/sc/device/partnumber)Replace **partnumber** in URL with tps5431x, tps5461x, tps54810 or tps54910

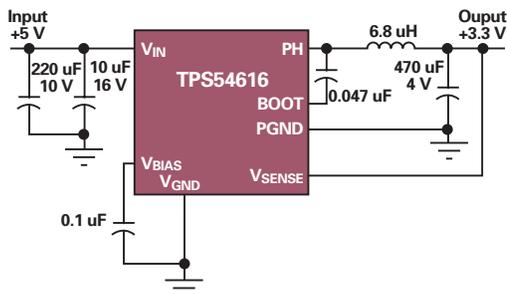
- Input voltage range: 3.0 V to 6.0 V
- Internal MOSFET switches for high-efficiency at full-load output current
- Adjustable output voltage range down to 0.9 V with 1.0% accuracy
- Wide PWM frequency: fixed 350 kHz, 550 kHz or adjustable 280 kHz to 700 kHz
- Load protected by peak current limit and thermal shutdown
- Power Good, enable and slow-start
- Reduces board area and component count
- Package: 28-pin HTSSOP
- Suggested resale price (quantities of 1,000):

## Available Device Options

Part Number	I <sub>OUT</sub>	V <sub>IN</sub>	V <sub>OUT</sub>	Price
TPS54910	9 A	3-4 V	adj. to 0.9 V	\$5.20
TPS54810	8 A	4-6 V	adj. to 0.9 V	\$4.90
	6 A	3-6 V	0.9, 1.2, 1.5	
TPS5461x			1.8, 2.5, 3.3 V, adj.	\$4.65
	3 A	3-6 V	0.9, 1.2, 1.5	
*TPS5431x			1.8, 2.5, 3.3 V, adj.	\$3.45

\*20-pin HTSSOP package

## 5 V to 3.3 V DC/DC Converter with all Required Components



## Applications include:

- Low-voltage, high-density distributed power
- Point-of-load regulation for high performance DSPs, FPGAs, ASICs and microprocessors
- Broadband, networking and optical communications infrastructure

## DC/DC converters for active bus termination

## TPS54372/672/872/972

TPS40K™/SWIFT™ SOFTWARE TOOL



Get samples, datasheets, EVMs, app reports and software tools at:

[www.power.ti.com/sc/device/partnumber](http://www.power.ti.com/sc/device/partnumber)Replace **partnumber** in URL with tps54372, tps54672, tps54872 or tps54972

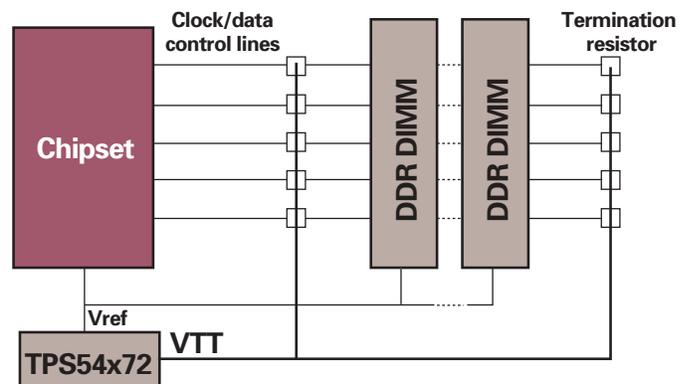
- Tracks externally applied reference voltage
- Internal MOSFET switches for high-efficiency
- Source and sink current
- Output tracking range: 0.2 V to 90% V<sub>IN</sub>
- Wide PWM frequency: 280 kHz to 700 kHz
- Load protected by peak current limit and thermal shutdown
- Integrated solution reduces board area and component count
- Package: 28-pin HTSSOP
- Suggested resale price (quantities of 1,000):

## Available Device Options

Part Number	I <sub>OUT</sub>	V <sub>IN</sub>	Price
TPS54972	9 A	3-4 V	\$5.20
TPS54872	8 A	4-6 V	\$4.90
TPS54672	6 A	3-6 V	\$4.65
*TPS54372	3 A	3-6 V	\$3.45

\*20-pin HTSSOP package

## System Block Diagram for DDR Memory



## Applications include:

- DDR memory termination voltage
- Active termination of high-speed logic families
- DAC-controlled, high-current output stage
- Precision point of load power systems

**SWIFT™ DC/DC Converters**

## Tracking switcher with integrated FETs for sequencing

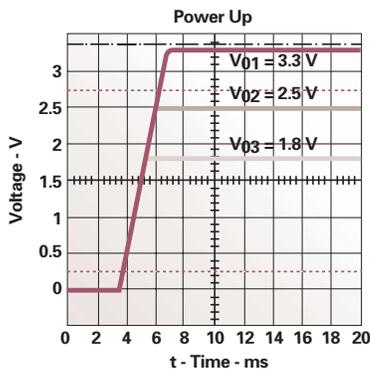
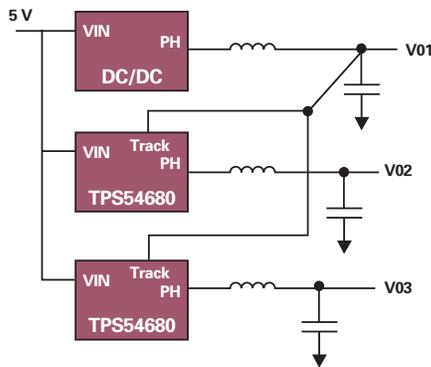
### TPS54680



Get samples, datasheets, EVMs and app reports at: [www.ti.com/sc/device/tps54680](http://www.ti.com/sc/device/tps54680)

- Power-up/down tracking
- 3-V to 6-V input voltage range
- Internal 30-mΩ, 12-A peak MOSFET switches for high-efficiency at 6-A continuous output
- Switching frequency fixed at 350 kHz or adjustable from 280 kHz to 700 kHz
- Power Good and enable functions
- Load protected by peak current limit and thermal shutdown
- Package: 28-pin HTSSOP PowerPAD™
- Suggested resale price starts at \$4.65 each (quantities of 1,000)

#### Start-up Wave Form for Simultaneous Sequencing



- Applications include:**
- DSPs, FPGAs, ASICs and microprocessors that require simultaneous start up
  - Broadband, datacom and optical communications infrastructures
  - Precision point of load regulation

**Plug-In Power Solutions**

## 6-A, SWIFT™ power module speeds time to market

### PT5400



Get samples, datasheets, app reports and software tools at: [www.ti.com/sc/device/pt5400](http://www.ti.com/sc/device/pt5400)

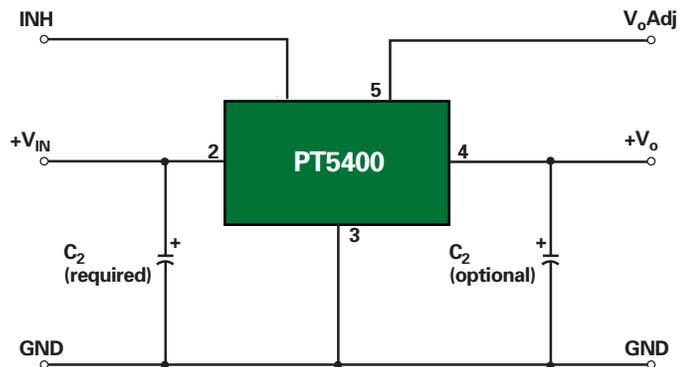
- High-efficiency (93% at 4 A)
- Small footprint (0.36 in<sup>2</sup>)
- Output current: 6 A
- Input: 3.3 V or 5 V
- No output capacitors required
- Adjustable output voltage
- On/off inhibit function
- Short-circuit protection
- Thermal shutdown
- Space-saving solderable copper case
- Package: Horizontal, surface-mount, vertical
- Suggested resale price starts at \$11.82 each (quantities of 1,000)



#### Available Device Options

Product	Description	V <sub>IN</sub>	Available Output Voltages (V)
PT5400	6-A SWIFT™ adjustable power module	5 V	1, 1.2, 1.5, 1.8, 2, 2.5, 3.3
PT5400	6-A SWIFT™ adjustable power module	3.3 V	1, 1.2, 1.5, 1.8, 2

#### Standard Application



- Applications include:**
- DSPs
  - ASICs
  - FPGAs
  - Microprocessors and microcontrollers

Plug-In Power Solutions

### 35-W isolated DC/DC converter offers 8-mm low-profile

#### PT3400



Get samples, datasheets, and app reports at: [www.ti.com/sc/device/pt3400](http://www.ti.com/sc/device/pt3400)

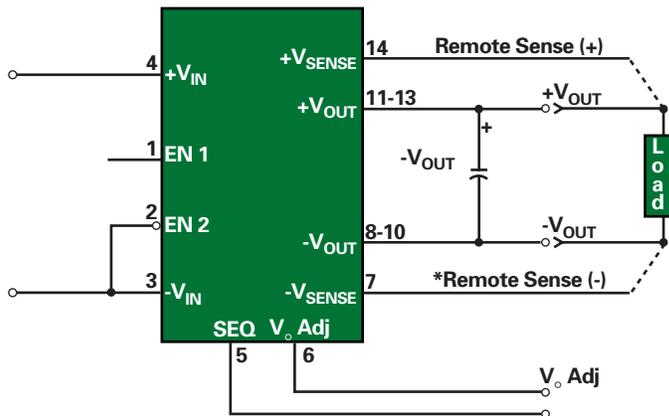
- Low profile (8 mm)
- Efficiency: 90%
- Power-up sequence control
- Output power: 35 W
- Input: 36 V to 75 V
- Isolation: 1500 VDC
- Adjustable output voltage
- Dual-logic on/off enable
- Differential remote sense
- Over-current protection
- Space-saving solderable copper case
- Package: Horizontal, surface-mount, vertical
- Suggested resale price starts at \$42.38 each (quantities of 1,000)



#### Available Device Options

Product	Description	V <sub>IN</sub>	Available Output Voltages (V)
PT3400	35-W isolated DC/DC converter	36 V to 75 V	1, 1.2, 1.4, 1.5, 1.8, 2, 2.5, 3.3, 5

#### Standard Application



#### Applications include:

- Telecom central office (CO)
- Networking

### 75/100-W converters offer 90% efficiency

#### PT4400/10



Get samples, datasheets and app reports at: [www.power.ti.com/sc/device/partnumber](http://www.power.ti.com/sc/device/partnumber)  
Replace **partnumber** in URL with pt4400 or pt4410

- Efficiency: 90%
- Output power: 75 W or 100 W
- Input: 36 V to 75 V
- 5-bit programmable output voltage
- Isolation: 1500 VDC
- On/off control
- Over-current protection
- Differential remote sense
- Output over-voltage protection
- Over-temperature shutdown
- Under-voltage lockout
- Low-profile package (12 mm)
- Space-saving solderable copper case
- Package: Horizontal, surface-mount, vertical
- Suggested resale price (quantities of 1,000):

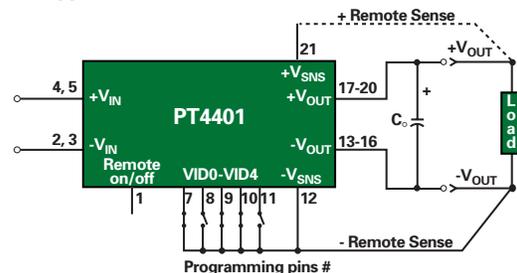


Product	Price
PT4400	\$65.00
PT4410	\$70.20

#### Available Device Options

Product	Description	V <sub>IN</sub>	Available Output Voltages (V)
PT4400	75-W/20-A isolated programmable DC/DC converter	36 V to 75 V	1.3 to 3.5 V 3.4 to 5.7 V 1.05 to 1.75 V
PT4410	100-W/30-A isolated programmable DC/DC converter	36 V to 75 V	1.3 to 3.5 V 1.05 to 1.75 V

#### Standard Application



#### Applications include:

- Telecom CO
- High-end computing
- Networking

**Plug-In Power Solutions**

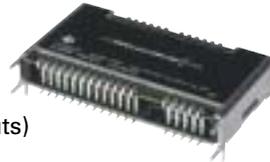
## New triple-output modules feature 50% smaller footprint plus sequencing

### PT4820/50



Get samples, datasheets and app reports at: [www.ti.com/sc/device/partnumber](http://www.ti.com/sc/device/partnumber)  
 Replace **partnumber** in URL with pt4820 or pt5850

- 3 independently regulated outputs
- Internal power-up and power-down sequencing
- Output power: 35 W or 75 W
- Input voltage range: 36 V to 75 V
- Isolation: 1500 VDC
- Dual logic on/off control
- Short-circuit protection (all outputs)
- Over-temperature shutdown
- Under-voltage lockout
- Space-saving solderable copper case
- UL60950, CSA 22.2 950, VDE EN60950 approved
- Package: Horizontal, surface-mount, vertical
- Suggested resale price (quantities of 1,000):

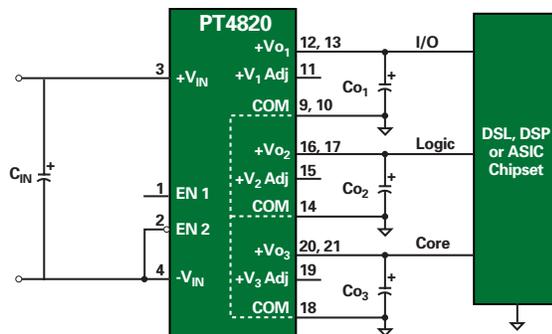


Product	Price
PT4820	\$64.83
PT4850	\$96.64

#### Available Device Options

Product	Description	V <sub>IN</sub>	Available Output Voltages (V)		
PT4820	35-W isolated triple output DC/DC converter	36 V to 75 V	3.3/2.5/1.5	3.3/1.8/1.5	3.3/2.5/1.2
			3.3/1.8/1.2	3.3/1.5/1.2	5.0/3.3/1.8
			3.3/2.5/1.8	5.0/2.5/1.5	5.0/1.8/1.5
PT4850	75-W isolated triple output DC/DC converter	36 V to 75 V	3.3/2.5/1.5	3.3/1.8/1.5	3.3/2.5/1.2
			3.3/1.8/1.2	3.3/1.5/1.2	
			5.0/3/3/1.5	5.0/3.3/2.5	

#### Standard Application



#### Applications include:

- All telecom CO applications using DSPs, ASICs and microprocessors

## Third-generation, 20-A “Big Hammer” features 8-mm low-profile

### PT5800/10/20



Get samples, datasheets, EVMs, app reports and software tools at: [www.ti.com/sc/device/partnumber](http://www.ti.com/sc/device/partnumber)  
 Replace **partnumber** in URL with pt5800, pt5810 or pt5820

- Efficiency: 90+%
- Low-profile (8 mm)
- Input: 3.3 V, 5 V or 12 V
- Output current: 16 A or 20 A
- Output margin control (±5%)
- Adjustable output voltage
- On/off inhibit function
- Over-current protection
- Thermal shutdown
- Space-saving solderable copper case
- Package: Horizontal, surface-mount, vertical
- Suggested resale price (quantities of 1,000):

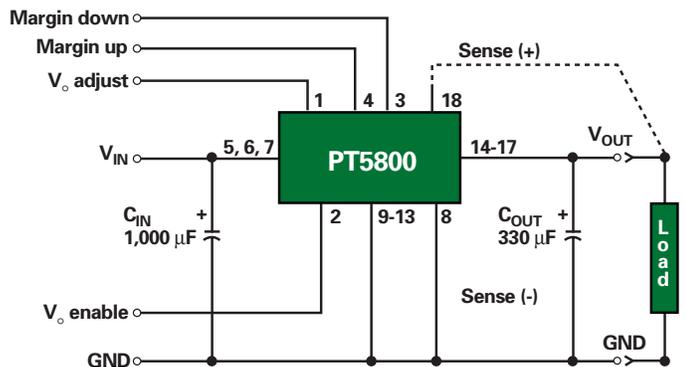


Product	Price
PT5800	22.55
PT5810	22.55
PT5820	22.55

#### Available Device Options

Product	Description	V <sub>IN</sub>	Available Output Voltages (V)
PT5800	20-A adjustable ISR	5 V	1, 1.2, 1.5, 1.8, 2.5, 3.3
PT5810	20-A adjustable ISR	3.3 V	1, 1.2, 1.5, 1.8, 2.5
PT5820	16-A adjustable ISR	12 V	1, 1.2, 1.5, 1.8, 2.5, 3.3, 5

#### Standard Application



#### Applications include:

- Point of load power for high-performance DSPs and microprocessors

**Plug-In Power Solutions**

**High-current, programmable converters power high-end computing equipment**

**PT8100/20**



Get samples, datasheets and app reports at:

[www.ti.com/sc/device/partnumber](http://www.ti.com/sc/device/partnumber)

Replace **partnumber** in URL with pt8100 or pt8120

- Input: 3.3 V, 5 V and 12 V
- Output current: 30 A or 40 A
- High-efficiency: 92% at 3.3 V
- Programmable output voltage: VRM compatible 5-bit codes
- Multiphase topology
- Remote sense
- Over-current protection
- Thermal shutdown
- Standby on/off control
- Space-saving solderable copper case
- Package: Horizontal, surface-mount, vertical
- Suggested resale price (quantities of 1,000):

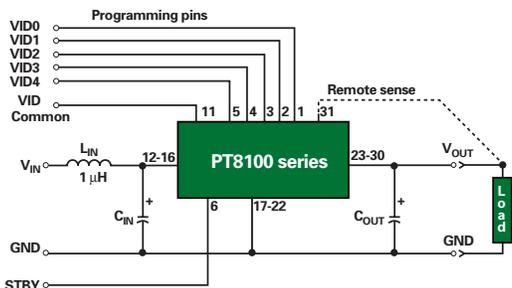


Product	Price
PT8100	\$47.74
PT8120	\$47.74

**Available Device Options**

Product	Description	V <sub>IN</sub>	Available Output Voltages (V)	
PT8100	40-A multi-phase programmable ISR	3.3 V	1.075 to 1.850 V	0.800 to 1.575 V
		5 V	1.075 to 1.850 V	1.300 to 2.70 V
PT8120	40-A multi-phase programmable ISR	12 V	1.050 to 1.825 V	1.3 to 3.5 V
			1.075 to 1.850 V	1.05 to 1.825 V
			4.5 to 7.6 V	

**Standard Application**



**Applications include:**

- Workstations
- Servers
- Other high-end computing applications

**Low Dropout Regulators (LDOs)**

**1-A low dropout regulator features low-input voltage with supervisor**

**TPS72501**



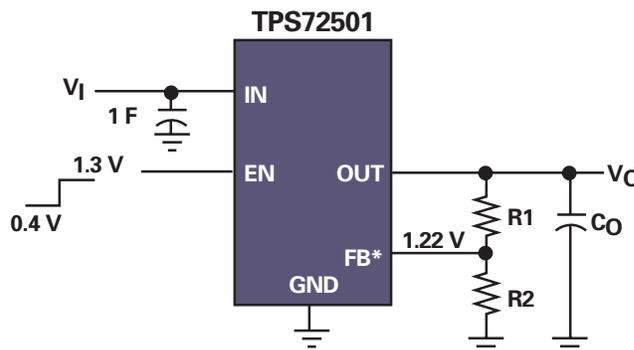
Get samples, datasheets, EVMs and app reports at:

[www.ti.com/sc/device/tps72501](http://www.ti.com/sc/device/tps72501)

- 1-A output current
- Available in 1.5-V, 1.6-V, 1.8-V, 2.5-V fixed-output and adjustable versions (1.2 V to 5 V)
- Input voltage down to 1.8 V
- Low 170-mV dropout voltage at 1 A (TPS72525)
- Stable with any type/value output capacitor
- Integrated supervisor (SVS) with 50-ms RESET/delay time
- Low 210-μA ground current at full load (TPS72525)
- Less than 1-μA standby current
- ±2% output voltage tolerance over line, load, and temperature (-40° C to 125° C)
- Integrated UVLO
- Thermal and overcurrent protection
- Package: 5-lead SOT223-5 or DDPACK surface-mount package
- Suggested resale price (quantities of 1,000):

Product	Price
TPS725xxDCQ, DCQR	\$1.04
TPS725xxKTT, KTTT	\$1.24

**Adjustable Regulator LDO Programming**



\*This pin is used for RESET on fixed-output TPS725xx.

**Applications include:**

- Modem banks
- Telecom boards
- DSP, FPGA, and microprocessor power supplies
- Portable, battery powered applications

## Low Dropout Regulators (LDOs)

### 2-A low dropout regulators feature fast-transient response

#### TPS75201

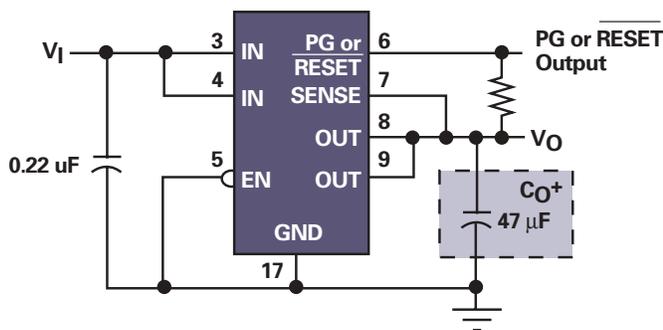


Get samples, datasheets, EVMs and app reports at:  
[www.ti.com/sc/device/tps75201](http://www.ti.com/sc/device/tps75201)

- Available in 1.5-V, 1.8-V, 2.5-V, 3.3-V fixed output and adjustable versions
- Open drain power-on reset with 100-ms delay (TPS752xxQ)
- Dropout voltage typically 210 mV at 2 A (TPS75233Q)
- Ultralow 75- $\mu$ A typical quiescent current
- Fast transient response
- 2% tolerance over specified conditions for fixed-output versions
- Thermal shutdown protection
- Package: 20-pin TSSOP (PWP) PowerPAD™ package
- Suggested resale price (quantities of 1,000):

Product	Price
TPS75201	\$1.70
TPS75215	\$1.70
TPS75218	\$1.70
TPS75225	\$1.70

#### Typical Application (Configuration for Fixed Output Options):



#### Applications include:

- Modem banks
- Telecom boards
- DSP, FPGA, and microprocessor power supplies
- Portable, battery-powered applications

## TI's **NEW** TPS40K™/SWIFT™ Designer Software Tool Now Available on CD ROM!



► Simplify your power management design with the new TPS40K™ series low-input voltage mode synchronous buck controller with Predictive Gate Drive™ technology and the latest version of the SWIFT™ DC/DC Converter Designer Software. Both tools are included on one CD. To receive your copy, check the box on the attached postage-paid business reply card, or call: 1-800-477-8924 and ask for ext. 9202. You may download both software tools from the TI website at: [power.ti.com/swift](http://power.ti.com/swift) or [power.ti.com/tps40k](http://power.ti.com/tps40k).

#### These software tools provide:

- Easy-to-use, step-by-step guidance for designing a high-efficiency, low voltage power supply
- Selected suitable inductors, capacitors and resistors from a database
- A customizable external component database
- Bill of materials and a schematic
- A display of efficiency and loop response plots
- Available help function

## Selection Guide

Switching DC/DC Controllers Selection Guide											
Device	V <sub>IN</sub> (V)	V <sub>O</sub> (max) (V)	V <sub>O</sub> (min) (V)	V <sub>ref</sub> Tol (%)	Driver Current (A)	Output Current (A) <sup>1</sup>	Multiple Outputs	Adaptive Voltage Positioning	Protection <sup>2</sup>	Comments	Price <sup>3</sup>
<b>Performance Processor Power Supply Controllers</b>											
TPS40000	2.25 to 5.5	4	0.7	1.5	1	15	No	No	OC, UVLO	300-kHz low input sync buck, source only	0.99
TPS40001	2.25 to 5.5	4	0.7	1.5	1	15	No	No	OC, UVLO	300-kHz low input sync buck, source/sink	0.99
TPS40002	2.25 to 5.5	4	0.7	1.5	1	15	No	No	OC, UVLO	600-kHz low input sync buck, source only	0.99
TPS40003	2.25 to 5.5	4	0.7	1.5	1	15	No	No	OC, UVLO	600-kHz low input sync buck, source/sink	0.99
TPS40020	2.25 to 5.5	4	0.7	1	1	20	No	No	OC, OVP, UVLO, PG	Low input buck, prog freq, source only	1.13
TPS40021	2.25 to 5.5	4	0.7	1	1	20	No	No	OC, OVP, UVLO, PG	Low input buck, prog freq, source/sink	1.13
TPS40022	2.25 to 5.5	4	0.7	1	1	20	No	No	OC, OVP, UVLO, PG	Low input buck, prog freq, source/sink except SS	1.13
TPS40050	10 to 40	30	0.7	1	1	20	No	No	OC, UVLO	Wide input range sync buck, source only	1.32
TPS40051	10 to 40	30	0.7	1	1	20	No	No	OC, UVLO	Wide input range sync buck, source/sink except SS	1.32
TPS40053	10 to 40	30	0.7	1	1	20	No	No	OC, UVLO	Wide input range sync buck, source/sink	1.32
TPS40060	10 to 55	40	0.7	1	1	10	No	No	OC, UVLO	Wide input range sync buck, source only	1.32
TPS40061	10 to 55	40	0.7	1	1	10	No	No	OC, UVLO	Wide input range sync buck, source/sink	1.32
TPS43000	1.8 to 9	8	0.8	2	1.25	7	No	No	OC, UVLO, PG, OVP	Multi-topology boost, buck, SEPIC	2.00
TPS5210	12	3.5	1.3	1	2.4	40	No	Yes	OC, OVP, UVLO, PG	High current server CPU applications	3.43
TPS5211	12	3.5	1.3	1.5	2.4	40	No	Yes	OC, OVP, UVLO, PG	High current desktop CPU applications	3.31
TPS5300	4.3 to 28	26	0.925	1	2	30	Yes	Yes	OC, UVLO, PG, OVP	DC/DC controller and 2 linear regulators with speedstep for notebook PCs	3.29
TPS5602	4.5 to 25	24	1.2	2	1	15 (each)	Yes	No	OC, UVLO	Powering core and I/O of processors	3.75
TPS56100	5	4.5	1.3	1.5	2	30	No	No	OC, OVP, UVLO, PG	5-V input, high current applications	3.43
TPS5615	12	1.5	1.5	1	2.4	40	No	No	OC, OVP, UVLO, PG	12-V input, high current applications	3.43
TPS5618	12	1.8	1.8	1	2.4	40	No	No	OC, OVP, UVLO, PG	12-V input, high current applications	3.43
TPS5625	12	2.5	2.5	1	2.4	40	No	No	OC, OVP, UVLO, PG	12-V input, high current applications	3.43
TPS5633	12	3.3	3.3	1	2.4	40	No	No	OC, OVP, UVLO, PG	12-V input, high current applications	3.43
TPS56300	2.8 to 5.5	3.3	1.3	1.5	2	30	Yes	Yes	OC, OVP, UVLO, PG	Switcher for core(s), LDO for I/O power	3.20
TPS56302	2.8 to 5.5	3.3	1.3	1.5	2	30	Yes	Yes	OC, OVP, UVLO, PG	LDO for core, switcher for I/O and rest of system power	3.20
UCC3588	5 or 12	3.5	1.3	1	1	10	No	Yes <sup>4</sup>	OC, UVLO, PG, OVP	PWM for Desktop CPUs	1.98
UCC3830-4/5/6	5 or 12	3.5	1.8	1	1.5	20	No	Yes <sup>4</sup>	OC, UVLO, PG, OVP	PWM for Desktop CPUs	2.45
UCC3882	5 or 12	3.5	1.8	1	1.5	20	No	Yes <sup>4</sup>	OC, UVLO, PG, OVP	PWM for Desktop CPUs	3.24
<b>High-Performance Portable and System Power Supply Controllers</b>											
TPS5100	2.7 to 7.0 on FETs	Depends	1.25	1	0.02 FET driver	Depends on	Yes	No	OC, UVLO	Dual PWM boost and one PWM buck/invert	1.44
TPS5102	4.5 to 25	24	1.2	1.5	1.5	15 (each)	Yes	No	OC, UVLO	Dual controller for notebook system power	3.13
TPS5103	4.5 to 25	24	1.2	1.5	1.5	20	No	No	OC, UVLO	Wide input voltage controller	1.60
TPS5120	4.5 to 28	26	0.9	1.5	1.5	15 (each)	Yes	No	OC, UVLO, PG, OVP	Dual 180 degree out-of-phase operation	2.66
TPS5140	4.5 to 28	26	1.2	1.5	0.5	Varies	Yes	No	OC, UVLO, PG, OVP	4 channel (3 buck/1 boost) controller	5.00
<b>General-Purpose Power Supply Controllers</b>											
TL1451A	3.6 to 50	50	2.5	4	0.02 FET driver	Depends on	Yes	No	UVLO, SCP	Dual PWM Buck/Boost	0.90
TL1453	3.6-40	50	2.5	4	0.02 FET driver	Depends on	Yes	No	UVLO, SCP	Dual PWM Buck/Boost	0.90
TL1454A	3.6 to 20	20	1.25	5	0.02 FET driver	Depends on	Yes	No	UVLO, SCP	Step up or flyback converter (ch. 1) and step-down or inverting controller (ch. 2)	0.98
TL5001	3.6 to 40	50	1	5	0.02 FET driver	Depends on	No	No	UVLO, SCP	PWM buck/boost	0.44
TL5001A	3.6 to 40	50	1	3	0.02 FET driver	Depends on	No	No	UVLO, SCP	PWM Buck/Boost	0.52
TL5002	3.6 to 40	50	1	3	0.02 FET driver	Depends on	No	No	UVLO	Voltage tracking termination regulator for Double Data Rate Memory	0.64
UC3572	4.75 to 30	0	-48	2	0.5	5	No	No	OC, UVLO	PWM simple inverting	1.00
UC3573	4.75 to 30	24	1.5	2	0.5	5	No	No	OC, UVLO	PWM simple buck	1.00
UC3585	3 to 6	5	0.9	1	1	7	No	Yes	OC, UVLO	Low output voltage application	1.20
UCC39421/2	1.5 to 8	8	2.5	2.4	0.3	7	No	No	OC, POR, UV	Battery powered and low voltage applications	2.29

<sup>1</sup> Current levels of this magnitude and beyond can be supported.<sup>2</sup> OCP—Over-current protection; UVLO—under-voltage lockout; SCP—short-circuit protection; PG—power good; OVP—over-voltage protection; POR—power-on reset.<sup>3</sup> Suggested resale price in U.S. dollars in quantities of 1,000.

New devices indicated in red.

<sup>4</sup> Through voltage amp programming.

## Selection Guides

### SWIFT™ Selection Guide

Device	V <sub>IN</sub> (V)	Output Current (A)	V <sub>OUT</sub> (V)	Package	Price <sup>1</sup>
TPS54310/1/2/3/4/5/6	3.0 to 6.0	3	Adj., 0.9, 1.2, 1.5, 1.8, 2.5, 3.3	20 HTSSOP	3.45
TPS54372	3.0 to 6.0	3	Adj. (Active Bus Termination)	20 HTSSOP	3.45
TPS54610/1/2/3/4/5/6	3.0 to 6.0	6	Adj., 0.9, 1.2, 1.5, 1.8, 2.5, 3.3	28 HTSSOP	4.65
TPS54672	3.0 to 6.0	6	Adj. (Active Bus Termination)	28 HTSSOP	4.65
<b>TPS54680</b>	3.0 to 6.0	6	Adj. (Sequencing)	28 HTSSOP	4.65
<b>TPS54810</b>	4.0 to 6.0	8	Adj. to 0.9	28 HTSSOP	4.95
<b>TPS54872</b>	4.0 to 6.0	8	Adj. (Active Bus Termination)	28 HTSSOP	4.95
TPS54910	3.0 to 4.0	9	Adj. to 0.9	28 HTSSOP	5.20
<b>TPS54972</b>	3.0 to 4.0	9	Adj. (Active Bus Termination)	28 HTSSOP	5.20

<sup>1</sup>Suggested resale price in U.S. dollars in quantities of 1,000.

*New devices indicated in red.*

### Plug-In Power Solutions Selection Guide

Device	Input Bus Voltage	Description	P <sub>OUT</sub> or I <sub>OUT</sub>	Isolated Outputs	V <sub>O</sub> Range (V)	V <sub>O</sub> Adjustable	Price <sup>1</sup>
<b>Non-Isolated Single Positive Output</b>							
PT5040	5 V	1-A 5-V-Input Step-Up ISR	1 A	No	8 to 18	No	9.50
PT5070	12 V	7- to 16-V-Input 2-A/12-V-Output Step-Up/Down Converter	2 A	No	12	Yes	21.16
PT5100	Wide-Input	1-A Wide-Input Positive Step-Down ISR	1 A	No	3.3 to 15	No	7.33
<b>PT5400</b>	3.3 V/5 V	3.3-V/5-V-Input 6-A SWIFT™ Adjustable ISR	6 A	No	1.0 to 3.3	Yes	11.82
PT5500	3.3 V/5 V	3.3-V/5-V-Input 3-A Adjustable ISR	3 A	No	1.0 to 3.6	Yes	10.80
PT5520	3.3 V/5 V	3.3-V/5-V-Input 1.5-A Adjustable ISR	1.5 A	No	1.0 to 3.6	Yes	9.77
PT6100	Wide-Input	1-A Wide-Input Adjustable Step-Down ISR	1 A	No	1.9 to 22	Yes	7.54
PT6210	Wide-Input	2-A Wide-Input Adjustable Step-Down ISR	2 A	No	1.9 to 22	Yes	10.58
PT6300	Wide-Input	3-A Wide-Input Adjustable Step-Down ISR	3 A	No	1.9 to 22	Yes	11.88
PT6340	12 V	12-V-Input 6-A Adjustable ISR	6 A	No	1.5 to 5	Yes	18.08
PT6440	5 V	3.3-V/5-V-Input 6-A Adjustable ISR	6 A	No	1.0 to 3.6	Yes	18.60
PT6520	3.3 V/5 V	3.3-V/5-V-Input 8-A Adjustable ISR with Short-Circuit Protection	8 A	No	1.5 to 3.7	Yes	18.99
PT6600	3.3 V/5 V	3.3-V/5-V-Input 9-A Adjustable ISR	9 A	No	1.2 to 4.2	Yes	17.47
PT6620	12 V	6-A 12-V-Input Adjustable ISR	6 A	No	1.6 to 10	Yes	18.99
PT6650	24 V	5-A 24-V-Input Adjustable ISR	5 A	No	1.8 to 17	Yes	18.99
PT6670	3.3 V	3.3-V-Input 20-W Boost ISR	20 W	No	3.8 to 12.8	Yes	18.99
PT6700	3.3 V/5 V	1.3- to 3.5-V <sub>OUT</sub> 5-V-Input 13-A Programmable ISR	13 A	No	1.3 to 3.5	5-bit Programmable	21.16
PT6720	12 V	12-V-Input 13-A Programmable ISR	14 A	No	1.3 to 3.5, 5	5-bit Programmable	21.16
PT6880	24 V	5-A 18- to 36-V-Input Adjustable ISR	5 A	No	1.8 to 17	Yes	18.99
PT7710	3.3 V/5 V	1.3- to 3.5-V <sub>OUT</sub> 20-A 5-V-Input Next Generation "Big-Hammer" ISR	20 A	No	1.3 to 3.5	5-bit Programmable	32.01
PT7750	24 V	15-A 24-V-Input "Big-Hammer III" Programmable ISR	15 A	No	2.5 to 12.8	5-bit Programmable	39.61
PT7760	5 V	1.3- to 3.5-V <sub>OUT</sub> 40-A 5-V-Input Programmable ISR	40 A	No	1.3 to 3.5	5-bit Programmable	53.84
PT7770	3.3 V/5 V	1.3- to 2.05-V <sub>OUT</sub> 32-A 3.3-V-Input "Sledge Hammer" ISR	32 A	No	1.3 to 2.05	4-bit Programmable	47.74
PT78HT200	Wide-Input	5-V <sub>OUT</sub> 2-A Wide-Input Positive Step-Down ISR	2 A	No	3.3 to 6.5	No	10.80
PT78ST100	Wide-Input	1.5-A Wide-Input Positive Step-Down ISR	1.5 A	No	3.3 to 15	No	8.63
PT78ST200	Wide-Input	2-A Wide-Input Positive Step-Down ISR	2 A	No	12	No	10.80
PT8000	5 V	1.3- to 3.5-V <sub>OUT</sub> 60-A 5-V-Input Multi-Phase Programmable ISR	60 A	No	1.3 to 3.5	5-bit Programmable	102.82
<b>PT8100</b>	3.3 V/5 V	3.3-V/5-V-Input 40-A Multi-Phase Programmable ISR	40 A	No	1.075 to 2.7	5-bit Programmable	47.74
<b>PT8120</b>	12 V	12-V-Input 30-A Multi-Phase Programmable ISR	30 A	No	0.8 to 7.6	5-bit Programmable	47.74
<b>Non-Isolated Single Negative Output</b>							
PT5020	5 V	1-A 5-V-Input Positive to Negative ISR	-1 A	No	-1.7 to -15	No	9.50
PT6640	12 V	12-V-Input 24-W Adjustable Plus to Minus Voltage Converter	24 W	No	-1.8 to -17	Yes	18.99
PT6910	3.3-V/5-V	3.3-V/5-V-Input 12-W Adjustable Plus to Minus Voltage Converter	12 W	No	-1.2 to -6.5	Yes	26.26
PT78NR100	Wide-Input	1-A Wide-Input Plus to Minus Voltage ISR	-1 A	No	-3.0 to -15	No	8.63
PT78NR200	Wide-Input	2-A Wide-Input Plus to Minus Voltage ISR	-2 A	No	-5.2 to -15	No	16.28
PT79SR100	Wide-Input	1.5-A Wide-Input Negative Step-Down ISR	-1.5 A	No	-5 to -15	No	10.80

<sup>1</sup>Suggested resale price in U.S. dollars in quantities of 1,000.

*New devices indicated in red.*

### Selection Guides

Plug-In Power Solutions Selection Guide (continued)							
Device	Input Bus Voltage	Description	P <sub>OUT</sub> or I <sub>OUT</sub>	Isolated Outputs	V <sub>O</sub> Range (V)	V <sub>O</sub> Adjustable	Price <sup>1</sup>
<b>Non-Isolated Multiple Output</b>							
PT5060	5 V	5- to ±12/15-V <sub>OUT</sub> 9-W Dual-Output Adjustable ISR	9 W	No	±8 to ±20	Yes	10.80
PT6930	5 V	25-W 5-V-Input Adjustable Dual-Output ISR	25 W	No	1.3 to 3.6	Yes	26.26
PT6935	5 V	35-W 5-V-Input Adjustable Dual-Output ISR	35 W	No	1.3 to 3.6	Yes	27.37
PT6940	3.3 V/5 V	6-A 3.3-V/5-V-Input Adjustable Dual-Output ISR	Dual 6 A	No	1.2 to 3.3	Yes	32.37
PT6980	12 V	10-A 12-V-Input Adjustable Dual-Output ISR	10 A	No	1.3 to 3.6	Yes	27.37
<b>Isolated Single Output</b>							
DCP01_B	5, 24	1-W Unregulated Isolated DC/DC Converter with Synchronization	1 W	Yes	5, 12, 15	No	5.01
DCP02	5, 12, 24	2-W Unregulated Isolated DC/DC Converter with Synchronization	2 W	Yes	3.3, 5, 7, 9, 12, 15	No	6.50
DCR01	5, 12, 24	1-W Regulated Isolated DC/DC Converter with Synchronization	1 W	Yes	3.3, 5	No	5.60
DCR02	12, 24	2-W Regulated Isolated DC/DC Converter with Synchronization	2 W	Yes	5	No	6.85
DCV01	5, 24	1-W Unregulated Isolated DC/DC Converter with 1500-V Isolation	1 W	Yes	5, 12, 15	No	8.00
<b>PT3400</b>	48 V	30-W 48-V-Input Isolated DC/DC Converter (8-mm Height)	30 W	Yes	1.0 to 5.0	Yes	42.38
PT4120	48 V	20-W 48-V-Input Isolated DC/DC Converter	20 W	Yes	1.7 to 16.5	Yes	32.45
PT4140	24 V	20-W 24-V-Input Isolated DC/DC Converter	20 W	Yes	1.7 to 16.5	Yes	32.45
PT4210	48 V	3- to 7-W 48-V-Input Isolated DC/DC Converter	3 to 7 W	Yes	3.3 to 12	No	23.25
PT4220	48 V	10-W 48-V-Input Isolated DC/DC Converter	10 W	Yes	1.5 to 12	Yes	26.87
PT4240	24 V	10-W 24-V-Input Isolated DC/DC Converter	10 W	Yes	1.5 to 12	Yes	26.87
<b>PT4400</b>	48 V	75-W 20-A 48-V-Input Isolated Programmable DC/DC Converter	75 W	Yes	1.05 to 5.7	5-Bit Programmable	65.00
PT4470	24 V	100-W 24-V-Input Isolated DC/DC Converter	100 W/30 A	Yes	1.3 to 3.5, 5, 12	5-Bit Programmable	91.97
<b>PT4480</b>	48 V	100-W 48-V-Input Isolated DC/DC Converter	100 W/30 A	Yes	1.3 to 3.5, 5, 12	5-Bit Programmable	91.97
PT4500	24 V	20-W 24-V-Input Isolated DC/DC Converter	20 W	Yes	1.5 to 15	Yes	32.44
<b>PT4520</b>	48 V	20-W 48-V-Input Isolated DC/DC Converter	20 W	Yes	1.5 to 15	Yes	32.44
PT4560	48 V	30-W 48-V-Input Isolated DC/DC Converter	30 W	Yes	1.8 to 15	Yes	38.52
<b>PT4580</b>	24 V	30-W 24-V-Input Isolated DC/DC Converter	30 W	Yes	1.8 to 15	Yes	38.52
<b>Isolated Multiple Output</b>							
DCP01_DB	5, 15, 24	1-W Unregulated Dual Isolated DC/DC Converter with Synchronization	1 W	Yes	±5, ±12, ±15	No	5.51
DCP02_D	5, 12, 24	2-W Unregulated Dual Isolated DC/DC Converter with Synchronization	2 W	Yes	±5, ±12, ±15	No	6.50
DCV01_D	5, 12, 24	1-W Unregulated Dual Isolated DC/DC Converter with 1500-V Isolation	1 W	Yes	±5, ±12, ±15	No	8.50
PT4310	48 V	6-W 48-V-Input Dual Isolated DC/DC Converter	6 W	Yes	±5, ±12	Yes	23.25
PT4660	48 V	20-A 48-V-Input Dual Isolated DC/DC Converter	20 A	Yes	1.5 to 5	Yes	99.20
PT4680	24 V	20-A 24-V-Input Dual Isolated DC/DC Converter	20 A	Yes	1.5 to 5	Yes	99.20
PT4740	48 V	70-W 48-V-Input Quad Output Isolated DC/DC Converter for AC-6 DSL	70 W	Yes	±8, ±3.75	Yes	72.00
PT4800	48 V	25-W 48-V-Input Triple Isolated DC/DC Converter for AC-5 DSL	25 W	Yes	15, 3.3, 1.5	Yes	51.67
PT4820	48 V	35-W 48-V-Input Triple Low-Voltage Isolated DC/DC Converter	35 W	Yes	1.2 to 5.0	Yes	64.83
PT4840	48 V	65-W 48-V-Input Triple Isolated DC/DC Converter for AC-5 DSL	65 W	Yes	15, 3.3, 1.5	Yes	81.81
PT4850	48 V	75-W 48-V-Input Triple Low-Voltage Isolated DC/DC Converter	75 W	Yes	1.2 to 3.3	Yes	96.64

<sup>1</sup>Suggested resale price in U.S. dollars in quantities of 1,000. *New devices indicated in red.*

Low Dropout Regulators (LDOs) Selection Guide																					
Device	I <sub>O</sub> (mA)	V <sub>DO</sub> @ I <sub>O</sub> (mV)	I <sub>q</sub> @ I <sub>O</sub> (µA)	Output Options			Min V <sub>IN</sub>	Max V <sub>IN</sub>	Accuracy (%)	Packages								Features <sup>1</sup>	C <sub>O</sub> <sup>2</sup>	Comments	Price <sup>3</sup>
				Negative Out	Voltage (V)	Adj.				SC70	SOT23	MSOP	S08	SOT23	PWP	TO263	TO220				
<b>TPS725xx</b>	1000	170	210		1.5, 1.6, 1.8, 2.5	✓	1.8	5.5	2				✓	✓	✓		✓	EN, SVS	No Cap	V <sub>IN</sub> down to 1.8 V, Low Noise	1.04
TPS752xx	2000	210	75		1.5, 1.8, 2.5, 3.3	✓	2.7	5.0	2					✓				/EN, SVS	47 µF T	Fast Transient Response	1.71

<sup>1</sup>PG = PowerGood, EN = Active High Enable, /EN = Active Low Enable, SVS = Supply Voltage Supervisor

<sup>2</sup>C = Ceramic, T = Tantalum, No Cap = Capacitor Free LDO

<sup>3</sup>Suggested resale price in U.S. dollars in quantities of 1,000. *New devices indicated in red.*

## Application Reports

### Plug-In Power Solutions

SLTA013	Input/Output Filters
SLTA021	Hot Plug-In In-Rush Current Limiting
SLTA051	Reflow Solder Recommendations

### SWIFT™ DC/DC Converters

SLVA105A	Designing with Internally Compensated SWIFT™ Regulators
SLVA104A	Designing with Externally Compensated SWIFT™ Regulators
SLVA113A	Optimizing the Layout of the TPS5461x for Thermal Performance
SLVA112	Using TPS54672 Tracking/Termination Synchronous PWM Switcher with Integrated FET
SLVA107	Designing for Small-Size, High-Frequency Applications with SWIFT™
SLUA273	Using the TPS54372 Tracking/Termination Synchronous PWM Switcher
SLVA117	Dual-Output Power Supply Sequencing for High Performance Processors

### DC/DC Controllers

SLUA261A	1-MHz, 3.3-V, High-Efficiency Synchronous Buck Converter with TPS43000 PWM Controller
SLMA002	PowerPAD™ Thermally Enhanced Packaging Application Report
SLUA199	UC3573 Buck Regulator PWM Control IC - Typical Application Circuit
SLUA260	Low-Voltage (1.2-V) High-Efficiency Synchronous Buck Converter with TPS43000 PWM
SLUA267	3.3-V to 12-V High-Efficiency Ceramic Only Non-Synchronous Boost Converter
SLUA268	2.5-V - 5.0-V 600 KHz High-Efficiency Synchronous Boost Converter
SLUU120	TPS40000/1 Controller Enables High-Power Synchronous Step-Down Converter for Low-Logic Voltages, (PR071)
SLUU121	Ultra-High Efficiency Buck Converter Using TPS40000/1 Controller Keeps Power Systems Costs Low, (PR073)
SLUU122	TPS40002/3 Controllers Enable BUCK Converter Operating From 2.5 V Supply (PRO72)
SLUU123	TPS40002/3 Controllers Enable Miniature Synchronous Step-Down Converter for Low Logic Voltages, (PR070)

For a complete listing of all of TI's analog application notes, visit [analog.ti.com/appnotes](http://analog.ti.com/appnotes)

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