A decorative graphic on the left side of the slide, consisting of a stylized circuit board pattern in white lines on a blue background. The pattern is composed of various geometric shapes like rectangles and circles, connected by lines, forming a shape that resembles a large letter 'R' or a similar abstract symbol.

Richtek

Wide Input Voltage Range DC/DC Power Solution

Richtek provides comprehensive power conversion solutions for input voltages ranging from 1.4V up to 80V, suitable for a wide range of applications in the industrial, automotive, and professional lighting field.

RICHTEK

Richtek Wide Input Voltage Range DC/DC Power Solutions for Industrial, Automotive and LED lighting applications

Richtek provides comprehensive power conversion solutions for input voltages ranging from 1.4V up to 80V, suitable for a wide range of applications in the industrial, automotive, and professional lighting field. The selected product range in this brochure highlights Richtek linear and switching converters, from low quiescent LDOs to highly efficient step-up and step down converters and controllers, LED lighting drivers, Power Switches and DDR terminators.

- Many parts come with extra features such as **PGOOD** signaling and **programmable Soft-Start**.
- Richtek Buck converters use **robust control architectures like ACOT™** which is compensation free and simple to use.
- The listed parts have **thermally enhanced packages**, allowing higher ambient temperature operation.
- Richtek also offers both **3T parts** (qualified over the full -40°C ~ 85°C industrial temperature range) and Automotive AEC-Q100 qualified parts.
- All parts can be used with **ceramic input and output capacitors** which extends operation life time.

These features make the Richtek parts extremely suitable for demanding applications fields such as:



Industrial

- eMetering
- Embedded Computing
- Industrial control systems
- Portable equipment
- Instrumentation
- Surveillance Cameras



Automotive

- Infotainment
- USB Power



Communications

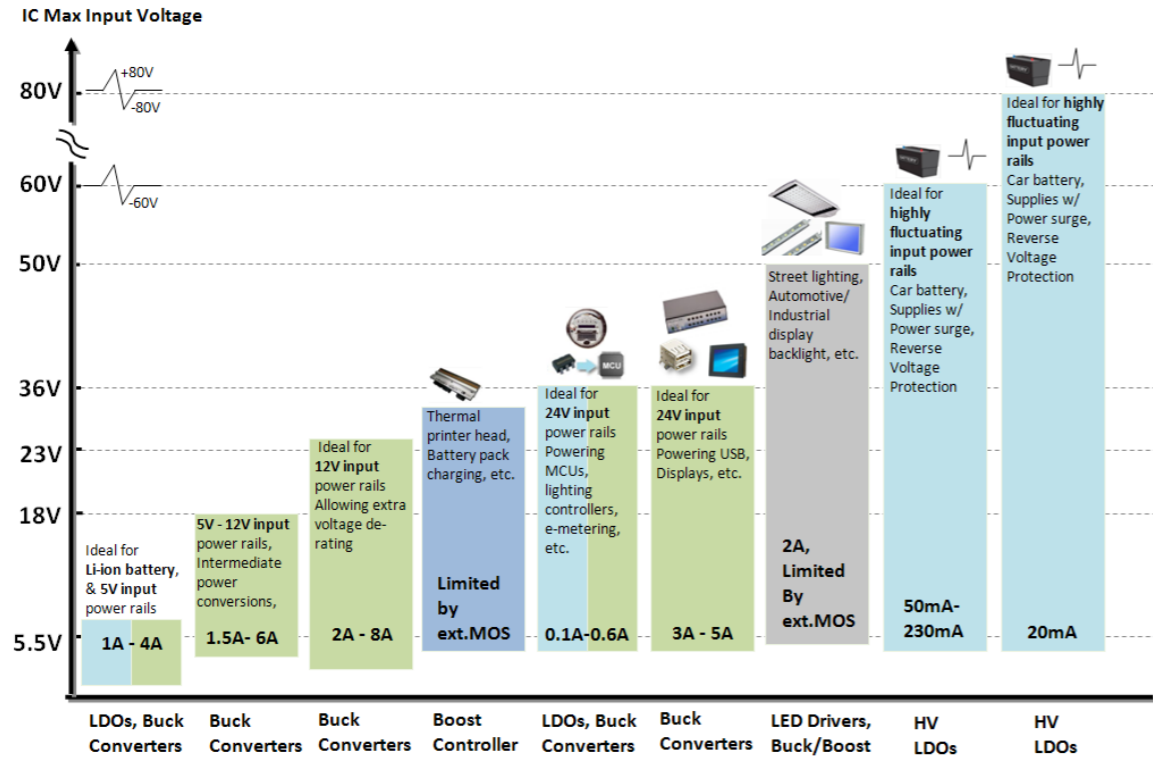
- Networking
- Servers
- Data storage



Professional LED Lighting

- Car lighting
- Street Lighting
- Display lighting
- Lighting controls

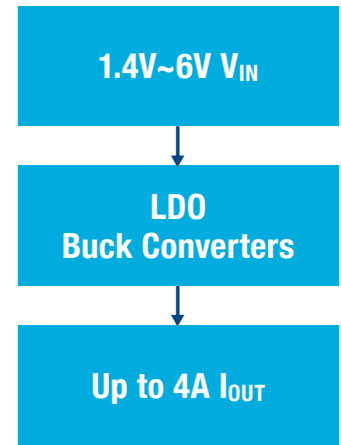
Power conversion IC Portfolio for Industrial, Automotive and LED lighting applications



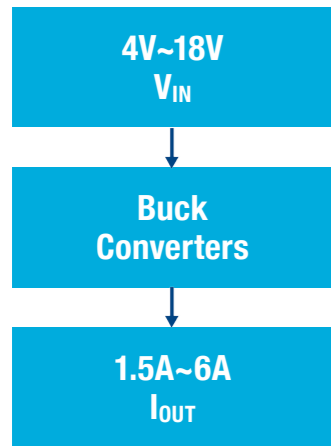
Step down converters and LDOs

| P/N | Description | I _{OUT} | V _{IN} | V _{OUT} | f _{sw} | Key features | Package |
|----------|----------------------------|------------------|-----------------|---------------------------|-----------------|--|-------------------|
| RT2657BQ | Synchronous Buck converter | 0.6A | 2.7V~5.5V | 0.6V~5.5V | 2.25MHz | → AEC-Q100 Compliance → Built-in Soft-Start → 1.5A Current limit peak | WDFN-8L 3x3 |
| RT5712A | | 2A | 2.7V~5.5V | 0.6V~3.4V | 1MHz | → R _{ON} 100mΩ HS / 70mΩ LS → 1.2ms fixed Soft-Start → CMCOT topology: good transient response, stable with MLCC → Hiccup or Latch off UVP | WDFN-6L-2x2 |
| RT8079 | | 3A | 2.95V~6V | V _{REF} : 0.827V | 300kHz-2MHz | → R _{ON} 45mΩ HS / 45mΩ LS → Power Good → Adjustable Soft-Start | WQFN-16L-3x3 |
| RT8086B | | 3.5A | 2.8V~5.5V | 0.6V~3.3V | 1.2MHz | → R _{ON} 50mΩ HS / 40mΩ LS → CMCOT topology: good transient response, stable with MLCC → Power Good → Built-in Soft-Start → Hiccup UVP | UQFN-12L-2x2 (FC) |
| RT8074 | | 4A | 2.7V~5.5V | 0.8V~5V | 200kHz-2MHz | → Built-in Soft-Start | PSOP-8 |

| P/N | Description | I _{OUT} | V _{IN} | V _{OUT} | f _{sw} | Key features | Package |
|---------|-------------|------------------|-----------------|----------------------|-----------------|--|--------------|
| RT2517B | LDO | 1A | 2.2V~6V | 1.2V~V _{IN} | 200mV@1A | → AEC-Q100 Compliance → Low Quiescent 1.5μA in Shutdown Mode | PSOP-8 |
| RT2517C | | 1A | 2.2V~6V | 1.2V~V _{IN} | 150mA@1A | → 3T Grade → Low Quiescent 0.1μA in Shutdown Mode | VDFN-8AL-3x3 |
| RT2518 | LDO with EN | 1A | 1.4V~6V | 0.5V~V _{IN} | 200mV@1A | → 3T Grade → EN control | WDFN-8L-3x3 |
| RT2515H | | 2A | 1.4V~6V | 0.5V~V _{IN} | 400mV@2A | → 3T Grade → EN control | PSOP-8 |



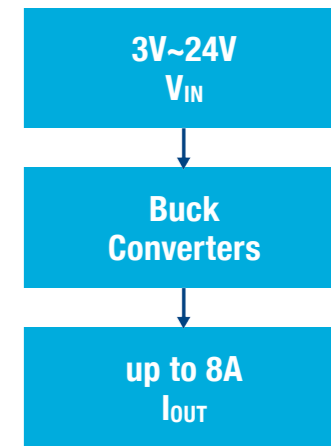
1.4V~6V V_{IN}, up to 4A, Buck converters / LDOs, ideal for Li-ion battery powered applications, 5V input power rails and intermediate power conversions.



4V~18V VIN, up to 6A Buck converters, ideal for applications powered from 5V~12V power rails, intermediate power conversions, etc.

| P/N | Description | I _{OUT} | V _{IN} | V _{OUT} | fsw | Key features | Package |
|---------------------------------|---|------------------|-----------------|-------------------------|---------------|---|---------------------------|
| RT8297B | Current Mode Synchronous Buck converter | 1.5A | 4V~17V | 0.8V~12V | 800kHz | → Power Good | WDFN-8L-2x2 |
| RT6232/33/A/B A:PSM B:PWM | ACOT™ Synchronous Buck converter | 2A/3A | 4.5V~18V | 0.765V~8V | 500kHz | → ACOT™ topology for ultra-fast transient response and MLCC Cout stable → Adjustable Soft-Start → Power Good → Force PWM or PSM (enhanced light load efficiency) | WDFN-8L-2x3 |
| RT7275/76 75:PWM 76:PSM | | 3A | | | 700kHz | | WDFN-10L-3x3 PTSSOP-14 |
| RT7231/32 31:PWM 32:PSM | | 4A | | | 650kHz | | WDFN-10L-3x3 PTSSOP-14 |
| RT6206B PSM | | 5.5A | | | 650kHz | | WDFN-10L-3x3 PSOP-8 |
| RT2859A/B A:PSM B:PWM | ACOT™ Synchronous Buck converter | 3A | 4.5V~18V | 0.765V~7V | 650kHz | → 3T Grade → ACOT™ topology for ultra-fast transient response and MLCC Cout stable → Adjustable Soft-Start → Power Good → Hiccup or Latch off UVP | WDFN-16L-3x3 |
| RT2855A/B A:PSM B:PWM | | 4A | | | | | 650kHz |
| RT2856 | Current Mode Synchronous Buck converter | 6A | 4.5V~18V | V _{REF} : 0.8V | 200kHz-1.6MHz | → 3T Grade → R _{ON} 26mΩ HS / 19mΩ LS → Adjustable Soft-Start → Power Good → V _{REF} : 0.8V ±1% over -40° ~ 85° | WQFN-14AL-3.5x3.5 |

| P/N | Description | I _{OUT} | V _{IN} | V _{OUT} | fsw | Key features | Package |
|--------------|---|------------------|-----------------|---|--------|---|------------------------|
| RT7262/63/64 | Current Mode Synchronous Buck converter | 2A/3A/4A | 4.5V~21V | 0.808V~15V | 500kHz | → Synchronized external clock from 300kHz~2MHz → Adjustable Soft-Start → Low LS R _{ON} ideal for low V _{OUT} | WDFN-14L-4x3 PSOP-8 |
| RT8299 | | 3A | 3V~24V | 0.8V~15V | 500kHz | → Power Good | WDFN-10L-3x3 PSOP-8 |
| RT6220 | ACOT™ Synchronous Buck converter | 6A | 4.5V~23V | 0.6V~5V | 500kHz | → ACOT™ topology for ultra-fast transient response and MLCC COUT stable → R _{ON} 31mΩ HS / 20mΩ LS → Power Good | UQFN-16L-3x3(FC) |
| RT7238 | ACOT™ Synchronous Buck converter with 3.3V/5V LDO | 8A | 8V~23V | 0.9V~5V Adj. 3.35V fixed 5.5V fixed | 500kHz | → ACOT™ topology for ultra-fast transient response and MLCC COUT stable → R _{ON} 27mΩ HS / 10mΩ LS → With fixed 70mA 3.3V/5V LDO | UQFN-10L-3x3(FC) |



3V~24V VIN, up to 8A Buck converters, ideal for applications powered from 12V system power rails requiring extra input voltage de-rating.

Also see:



Application note:
Buck converter selection criteria



Application note:
Comparing Buck converter topologies—
Current mode, CMCOT™ and ACOT™

3.5V~36V
 V_{IN}

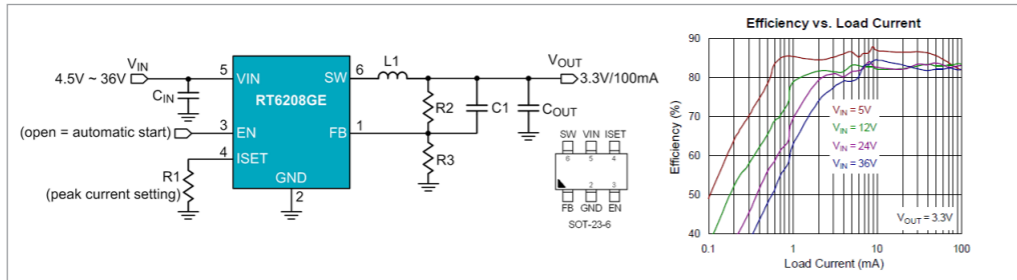
LDOs/Buck
Converters

0.1A~0.6A
 I_{OUT}

3.5V~36V V_{IN} , up to 0.6A Buck converters / low quiescent LDOs, ideal for applications from 24V rails, for powering low power MCUs in e-metering, lighting controls, sensors, etc.

| P/N | Description | I_{OUT} | V_{IN} | V_{OUT} | fsw | Key features | Package |
|--------|----------------|-----------|----------|------------------------------------|--------|---|--|
| RT6208 | Buck converter | 0.1A | 4.5V~36V | Adj. V_{OUT} $V_{REF} = 0.8V$ | | → Synchronous → Adjustable current limit → 25 μ A I_Q → Very high efficiency at low load | SOT-23-6 PSOP-8(w/PG) SOT-23-8(w/PG) |
| RT6200 | | 0.6A | 4.5V~36V | 0.8V~15V \pm 2% | 1.2MHz | → Asynchronous with internal 0.3 Ω HS MOSFET | SOT-23-6 |

| P/N | Description | I_{OUT} | V_{IN} | V_{OUT} | fsw | Key features | Package |
|-------------------|-------------|-----------|----------|---------------------------|------------|---|------------------------------|
| RT9058 RT2560Q | LDO | 100mA | 3.5V~36V | 2.5V, 3.3V, 5V, 12V fixed | 550mV@10mA | → AEC-Q100 Grade (RT2560Q) → 2 μ A ultra low I_Q | SOT-23-3 SOT-89 PSOP-8 |

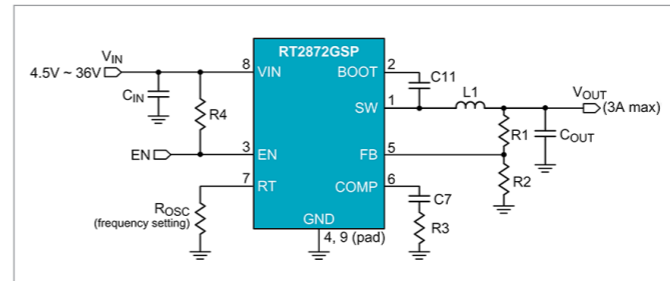


36V low power buck delivering high efficiency from light load to full load conditions.

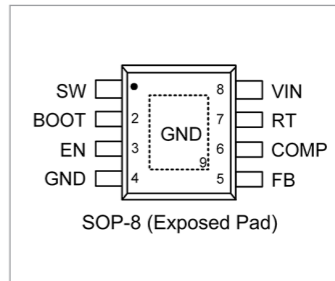


Also see:
Application note:
"How to power small MCU's from industrial supply rails"

| P/N | Description | I_{OUT} | V_{IN} | V_{OUT} | fsw | Key features | Package |
|-----------------------------------|----------------|-----------|----------|------------|---------------|--|-----------|
| RT7272A/B (PWM/PSM) | Buck converter | 3A | 4.5V~36V | 0.8V~30V | 500kHz | → Adjustable current limit: 2.5A~5.5A → Integrated 150/80m Ω HS/LS MOSFET | PSOP-8 |
| RT2872 | | 3A | 4.5V~36V | 0.8V~30V | 300kHz~1MHz | → AEC-Q100 Grade 3 → 105/80m Ω HS/LS MOSFET → Ext. compensation | PSOP-8 |
| RT2875A/B (latch UV/hiccup UV) | | 3A | 4.5V~36V | 0.6V~24V | 300kHz~2.1MHz | → AEC-Q100 Grade 2 → 95/70m Ω HS/LS MOSFET → Ext. compensation → Adjustable current limit: 1.5A~6A | PTSSOP-14 |
| RT8289 RT8279 | | 5A | 5.5V~36V | 1.222V~26V | 500kHz | → Asynchronous with integrated 100m Ω HS MOSFET → Internal compensation & Soft-Start | PSOP-8 |
| RT2805A | | 5A | 5.5V~36V | 1.222V~26V | 500kHz | → 3T Grade → Asynchronous with integrated 110m Ω HS MOSFET → Internal compensation & Soft-Start | PSOP-8 |



36V/3A buck converter for automotive applications.

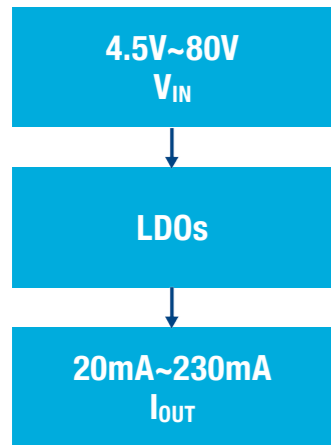


4.5V~36V
 V_{IN}

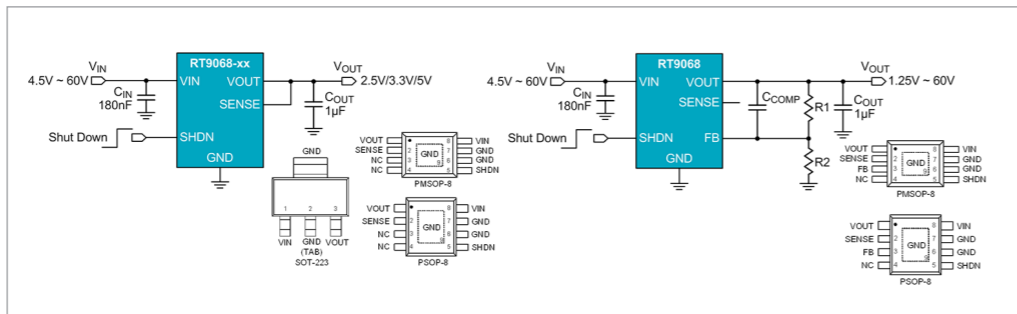
Buck
Converters

3A~5A
 I_{OUT}

4.5V~36V V_{IN} , up to 5A Buck converters, ideal for applications from 24V power rails, such as USB supply, displays, medium power MCUs, Instrumentation, etc.



| P/N | Description | I _{OUT} | V _{IN} | V _{OUT} | V _{Dropout} | Key features | Package |
|-----------|-------------|------------------|-----------------|--------------------------------------|----------------------|--|--------------------------------|
| RT2571 | LDO | 50mA | 4.5V~60V | 2.5V,3.3V,5V Fixed 1.25~60V Adj. | 250mV@50mA | → 30μA low I _O → -60V reverse protection | PSOP-8, PMSOP-8, SOT-223 |
| RT9074 | | 100mA | 4.5V~60V | 2.5V,3.3V,5V Fixed 1.25~60V Adj. | 300mV@100mA | → 30μA low I _O → -60V reverse protection | PSOP-8, PMSOP-8, SOT-223 |
| RT9068 | | 230mA | 4.5V~60V | 2.5V,3.3V,5V fixed 1.25V~60V Adj. | 230mV@50mA | → 30μA low I _O → -60V reverse protection | PSOP-8, PMSOP-8, SOT-223 |
| RT9072A/B | | 20mA | 4.5V~80V | 1.25V~60V Adj. | 180mV@20mA | → 23μA low I _O → -80V reverse protection | SOT-23-5, WDFN-8L 3x3 |

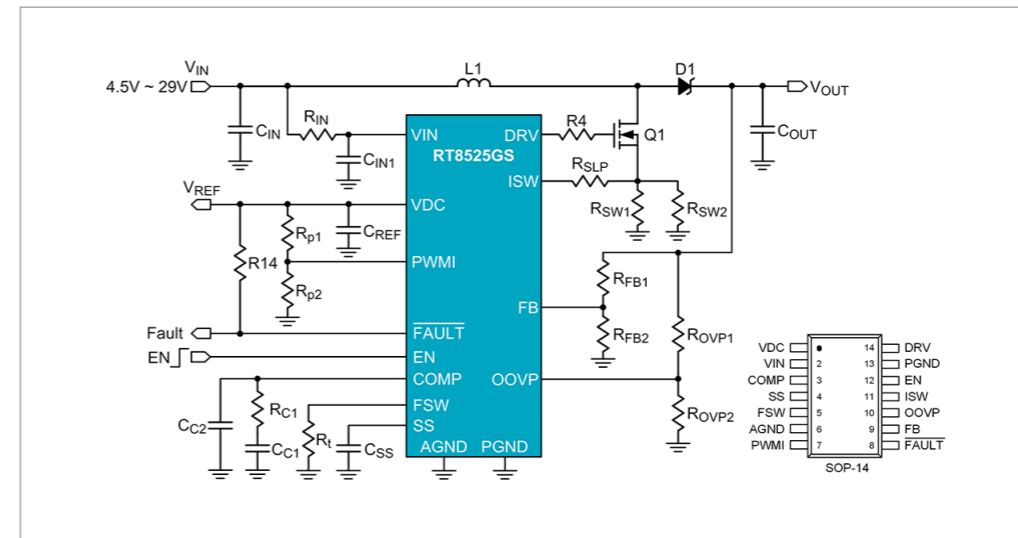


RT9068 high voltage LDO in fixed and adjustable versions.

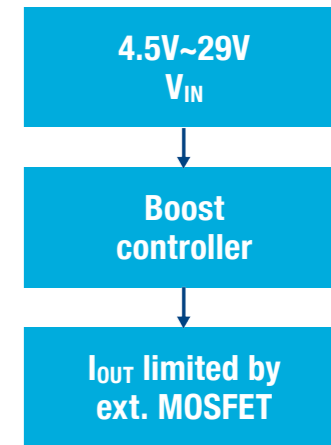
4.5V~80V V_{IN}, up to 230mA.
High voltage LDOs, ideal for applications from highly fluctuating power rails (±60/±80V) such as automotive battery powered applications, for powering sensors, low power MCUs, etc.

Step up controller for high power Boost applications

| P/N | Description | I _{OUT} | V _{IN} | V _{OUT} | f _{sw} | Key features | Package |
|--------|------------------|------------------------|-----------------|-------------------|-----------------|---|---------|
| RT8525 | Boost controller | Limited by ext. MOSFET | 4.5V~29V | Limited by MOSFET | 50K~600kHz | → Programmable Soft-Start Time → Programmable Boost SW Frequency | SOP-14 |

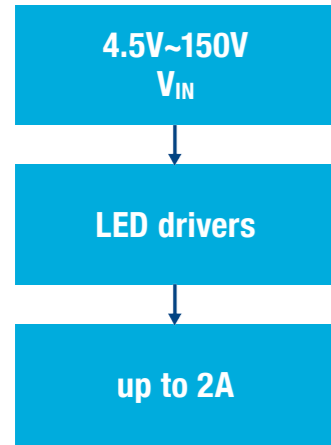


RT8525 Boost controller application for high output powers.



4.5V~29V V_{IN}, Boost controller, ideal for applications in high boost power, such as 24V to 48V conversion, large display backlighting, thermal printers, battery pack charging, etc.

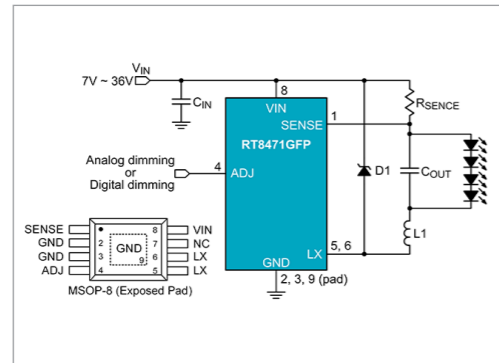
LED Drivers



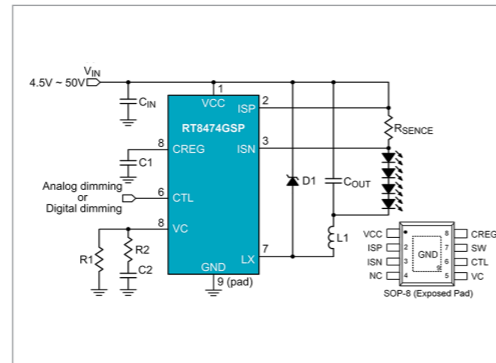
4.5V~150V V_{IN} , Constant Current Buck / Boost / Buck-Boost controllers, ideal for medium power industrial LED lighting applications.

Constant Current Buck converters

| P/N | Description | I_{OUT} | V_{IN} | Key features | Where to use (application examples) | Package |
|--|--|-----------|----------|--|---|--------------------------------|
| RT8471 | Hysteretic control, high brightness LED driver | 1/1.2A | 7V~36V | <ul style="list-style-type: none"> Simple application: no C_{OUT} needed Analog or digital dimming control Ultra-fast response Colour control for single string | <ul style="list-style-type: none"> LED strips, signage, < 15W MR-16 \leq 4W Single string buck with color control via LED gating | TSOT-23-5 PMSOP-8 PSOP-8 |
| RT8474/A (A:OVP for hot swap function) | 50V high voltage LED driver | 2A | 4.5V~50V | <ul style="list-style-type: none"> Analog or digital dimming control Low R_{ON} | <ul style="list-style-type: none"> LED strips, signage, LED engines, POUT < 30W RT8474A with special open string protection is ideal for hot-swap LED string | PSOP-8 |



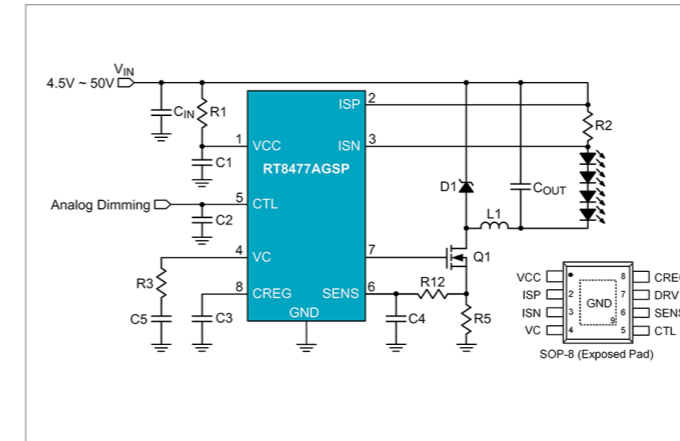
36V / 1A LED driver



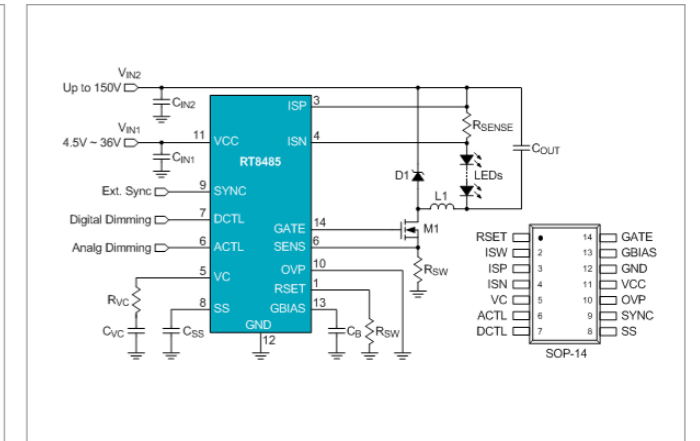
50V / 2A LED driver

Constant Current Buck / Boost / Buck-Boost controllers

| P/N | Description | I_{OUT} | V_{IN} | V_{LED} | Key features | Where to use (application examples) | Package |
|-----------------|--|----------------------------|-------------------------|------------|--|---|-------------------------|
| RT8477A | Buck / Boost controller | Limited by external MOSFET | 4.5V~50V | up to 50V | <ul style="list-style-type: none"> low component count Analog or PWM Dimming control | <ul style="list-style-type: none"> Wide input / output range with medium power: LED modules, down-light, emergency lighting Buck \leq 60W, Boost \leq 40W | PSOP-8 |
| RT8475 / RT8494 | LED Driver Controller for Buck / Boost / Buck-Boost Topologies | | 4.5V~36V (IC V_{IN}) | up to 90V | <ul style="list-style-type: none"> Programmable Fsw 100kHz to 1MHz Analog or Digital to Analog Dimming control | <ul style="list-style-type: none"> Industrial Display Backlight AEC-Q100 Compliance (RT8494) | SOP-14, WQFN-16L 3x3 |
| RT8485 | LED Driver controller for Buck / Boost / Buck-Boost topologies | | 4.5V~36V (IC V_{IN}) | up to 150V | <ul style="list-style-type: none"> Programmable switching frequency Analog, Digital or Digital to Analog Dimming control | <ul style="list-style-type: none"> Street lighting High power, high LED string application Buck \leq 100W, Boost \leq 80W | SOP-14 |



50V high current Buck LED driver



150V High power Buck LED driver

RICHTEK

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