



Power Management
Product Selection Guide
2019

RICHTEK
your power partner.

Introduction

Who We Are:

Founded in 1998, Richtek is one of the global leading analog companies in design and development of comprehensive and cost-competitive power management IC products for consumer electronics, computers, communications equipment, and industrial and automotive products. After the completion of merger with MediaTek in 2016, Richtek has broadened the product range for more diverse applications.

Richtek not only delivers the industry's most cost-competitive power management ICs, but also provides the complete system design-in service and support. With Richtek as "Your Power Partner" you can spend less time trouble-shooting issues with power management and more time working on your next big product.

What We Offer:

Richtek offers comprehensive power solutions which range from DC/DC regulators to power management multi-channel ICs. Richtek aims to accelerate your design with the variety of design support, such as *Richtek Designer™* the powerful online design generator and simulation tool, application notes, technical documents, and more. Additionally, you can sign up for 'My Richtek' for free samples, a selection of evaluation boards (EVBs) and the latest Richtek *technical and product newsletters*.

Quality and Reliability Commitment:

Richtek has established an innovative and dynamic quality management system. As a result of this system, we have attained and continued to maintain ISO 9000 and ISO 14000 certification. Richtek is committed to protecting the environment and conforming to the regulation requirements with the declaration of RoHS, the declaration of REACH and more green product files for *download*.

Table of Contents

Linear Regulators	04	AC-DC	32
General Purpose LDOs with Fixed Output Voltage	04	PFC Controller	32
General Purpose LDOs with Adjustable Output Voltage	05	Multi-Mode Flyback Controllers	32
Low Vin Low Vout LDOs	06		
LDOs with Low Quiescent Current	07	Power Switches	33
LDOs with Input Voltage Higher than 6.5V	08	High Side Power Switches	33
Automotive Graded LDOs	09		
DDR Memory Terminator LDOs	09	Reset ICs and Hot Swap Controller	34
		Reset ICs	34
DC-DC Switching Regulators	10	Hot Swap Controller	34
Buck Converters	10		
Low Voltage Buck Converters	11	Audio	35
Medium Voltage Buck Converters	14	Class-D Audio Power Amplifiers	35
High Voltage Buck Converters	20		
Buck Controllers	21	Sensors	36
Buck-Boost Converters	22	AFE for Heart-Rate Monitoring and Measurements	36
Boost Controllers	22	3-Axis Digital Accelerometer	36
Boost Converters	23		
		Power Management Multi-Channel ICs	37
LED Drivers	24	PMICs	37
DC Input LED Drivers	24	LNB Step-Up Converter	38
AC Input LED Drivers	25		
White LED Drivers for Display Backlighting	26	Operational Amplifiers	39
AMOLED Display Drivers	26	High Speed Operational Amplifiers	39
Battery Management	27	Gate Drivers	40
Single Cell Li-Ion Linear Battery Chargers	27	Single Phase Synchronous Rectified Buck MOSFET Drivers	40
Monitoring and Protection	27		
Single Cell Li-Ion Switching Battery Chargers	28	Power Discrete	41
Battery Fuel Gauge	28	N-Channel High Voltage Power MOSFET	41
USB Interface and PD Controllers	29		
USB Type-C and Power Delivery Controllers	29		
Flyback Controllers for USB Type-C Power Delivery	30		
AC/DC Synchronous Rectifier Controller	31		
USB Type-C Cable E-Marker ICs	31		

Linear Regulators

Low dropout linear regulators (LDOs) can be used in applications which require to drop a higher input voltage to a lower output voltage at relatively moderate power levels. Richtek has developed a broad portfolio of LDOs which feature high power supply ripple rejection (PSRR) to keep the output voltage free of noise and ripple, low quiescent current (Iq) to extend battery life and different packaging for various power dissipation. Our wide input-voltage LDOs can be applied in industrial applications. The high-performance AEC-Q100 qualified LDOs are ideal for automotive applications.

Richtek LDO's are grouped as following:

- General Purpose LDOs with Fixed Output Voltage
- General Purpose LDOs with Adjustable Output Voltage
- Low Vin Low Vout LDOs with Input Voltage Lower than 6.5V
- LDOs with Low Quiescent Current
- LDOs with Input Voltage Higher than 6.5V
- Automotive Graded LDOs
- DDR Memory Terminator LDOs

General Purpose LDOs with Fixed Output Voltage

Vin max ≤ 6.5V : This selection table is suitable for general linear regulator building blocks requiring minimal external components.

Part Number	Vin		Vout		Iout max (mA)	Iq typ (uA)	Vdropout@ rated current typ (mV)	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)					
RT9073A	1.2	5.5	0.9	3.3	250	1	450 @ 0.25A	Enable Input; Low Dropout; Low Iq; Tiny Package	ZQFN1x1-4
RT9078	1.2	5.5	0.8	3.45	300	2	150 @ 0.3A	Enable Input; Low Iq; Low Dropout	TSOT-23-5
RT9166	2.8	5.5	1.2	4.5	300	220	230 @ 0.3A	3 Terminal Part; No Enable	SOT-223; SOT-23; SOT-89
RT9193	2.5	5.5	1.5	5	300	90	220 @ 0.3A	Enable Input; Extra Low Noise; High PSRR; Low Dropout	SOT-23-5
RT9013	2.2	5.5	1.2	2.85	500	25	250 @ 0.5A	Enable Input; Extra Low Noise; Low Dropout	SOT-23-5
RT9080	1.2	5.5	0.8	3.3	600	2	310 @ 0.6A	Enable Input; Low Iq; Low Dropout	TSOT-23-5
RT9166A	2.8	5.5	1.2	4.5	600	220	580 @ 0.6A	3 Terminal Part; No Enable	SOT-223; SOT-23; SOT-89

General Purpose LDOs with Adjustable Output Voltage

Adjustable output voltage via resistor divider and $V_{in\ max} \leq 6.5V$: This selection table is suitable for general linear regulator building blocks with extra flexibility of adjustable output voltage and other features such as low noise or high PSRR.

Part Number	Vin		Vout		Iout max (mA)	Iq typ (µA)	Vdropout@ rated current typ (mV)	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)					
RT9043	2.2	5.5	1.2	5	400	35	230 @ 0.4A	Enable Input; Extra Low Noise; Low Dropout	SOT-23-5
RT9053A	2.2	5.5	0.8	5.15	400	35	230 @ 0.4A	Enable Input; Low Dropout	SOT-23-5; WDFN2x2-6
RT9186A	2.5	5.5	0.8	4.5	500	190	160 @ 0.5A	Enable Input; Low Dropout; Power Good	MSOP-8; VDFN3x3-8
RT2517A	2.2	6	1.2	5	1000	400	150 @ 1A	Enable Input; Low Dropout; Industrial Grade	VDFN3x3-8A
RT2519W	2.2	6	0.8	5.5	1000	190	170 @ 1A	Enable Input; Extra Low Noise; Ultra High PSRR; High BW; Low Dropout; Industrial Grade	VDFN3x3-8A
RT9187	2.5	5.5	0.8	4.5	1000	380	240 @ 1A	Enable Input; Extra Low Noise; Low Dropout	VDFN3x3-8; PSOP-8
RT2517B	2.2	6	1.2	5	1000	700	200 @ 1A	Enable input; Low Dropout; AEC-Q100 Qualified	PSOP-8
RTQ2510-QA	2.2	6	0.8	5.5	1000	190	370 @ 1A	Enable Input; Extra Low Noise; High PSRR; AEC-Q100 Qualified	VDFN3x3-8
RT2518	1.4	6	0.5	5.5	1200	700	120 @ 1.2A	High PSRR; Low Dropout; Industrial Grade	WDFN3x3-8
RTQ2532W	1.1	6.5	0.8	5.5	2000	3700	125 @ 2A	Ultra-low Noise 10µV; Ultra High PSRR 40dB @ 500kHz; Adj. Soft-Start; Industrial Grade	VQFN5x5-20
RT9048	1.4	6	0.5	5	2000	700	240 @ 2A	Enable Input; Low Dropout;	PSOP-8
RTQ2516-QT	1.4	6	0.5	5.5	2000	700	240 @ 2A	Enable Input; Low Dropout; AEC-Q100 Qualified	PSOP-8
RTQ2533W	1.1	6.5	0.8	5.5	3000	4300	110 @ 3A	Ultra-low Noise 10µV; Ultra High PSRR 40dB @ 500kHz; Adj. Soft-Start; Industrial Grade	VQFN3.5x3.5-20

* Newly released parts are marked in red.

Low Vin Low Vout LDOs

Low Vin Low Vout LDOs are specially designed for low drop-out voltage in applications with relatively low input voltage. Some of these LDOs require an external low power bias voltage which needs to be at least 1.5V higher than the output voltage and thereby limits the maximum output voltage for these parts. LDOs with internal Charge Pump don't need the external bias voltage and have a wider output voltage range.

Part Number	Vin		Vout		Iout max (mA)	Iq typ (uA)	Vdropout@ rated current typ (mV)	Features	Vbias	Package(s)
	min (V)	max (V)	min (V)	max (V)						
RT9081A	0.8	5.5	0.8	3.6	500	80	140 @ 0.5A	Enable Input; Low Dropout	Needs Ext.2.4 ~ 5.5V Bias Voltage	ZADFN1.2x1.2-6
RT9085A	0.8	5.5	0.5	3	1000	35	60 @ 1A	Enable Input; Low Noise; High PSRR; Tiny Package	Needs Ext. 3 ~ 5.5V Bias Voltage	WL-CSP0.8x1.2-6(BSC)
RT2518	1.4	6	0.5	5.5	1200	700	120 @ 1.2A	High PSRR; Low Dropout; Industrial Grade	Int. Charge Pump	WDFN3x3-8
RTQ2522A	0.8	5.5	0.8	3.6	2000	1000	135 @ 2A	Adj. Soft-Start; Low Dropout; Power Good; AEC-Q100 Qualified	Needs Ext.2.7 ~ 5.5V Bias Voltage	WDFN3x3-10
RTQ2532W	1.1	6.5	0.8	5.5	2000	3700	125 @ 2A	Ultra-low Noise 10µV; Ultra High PSRR 40dB @ 500kHz; Adj. Soft-Start; Industrial Grade	Int. Charge Pump	VQFN5x5-20
RT9048	1.4	6	0.5	5	2000	700	240 @ 2A	Enable Input; Low Dropout	Int. Charge Pump	PSOP-8
RTQ2516-QT	1.4	6	0.5	5.5	2000	700	240 @ 2A	Enable Input; Low Dropout; AEC-Q100 Qualified	Int. Charge Pump	PSOP-8
RTQ2533W	1.1	6.5	0.8	5.5	3000	4300	110 @ 3A	Ultra-low Noise 10µV; Ultra-high PSRR 40dB @ 500kHz; Adj. Soft-Start; Industrial Grade	Int. Charge Pump	VQFN3.5x3.5-20
RT9059	1	5.5	0.8	2.5	3000	600	350 @ 3A	Enable Input; Low Dropout; Power Good	Needs Ext.3 ~ 5.5V Bias Voltage	PSOP-8; WDFN3x3-10

* Newly released parts are marked in red.

LDOs with Low Quiescent Current

LDOs with low quiescent current have an important feature that reduces LDO ground current at light load and helps extend battery life in portable applications. Richtek's low Iq products also have dynamic ground current that will quickly increase ground current when load increases. This helps improve load transient response and is ideal for applications that run in burst mode conditions. All low Iq LDOs are fixed output voltage versions.

Part Number	Vin		Vout		Iout max (mA)	Iq typ (uA)	Vdropout@ rated current typ (mV)	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)					
RTQ2569-QA	3.5	36	2.5	12	100	2	200 @ 0.01A	Low Iq; Enable Input; AEC-Q100 Qualified	WDFN3x3-8
RT9058	3.5	36	2.5	12	100	2	300 @ 0.01A	Extra Low Noise; High PSRR; Low Iq	SOT-23; SOT-89
RT9067	3.5	14	2.5	9	200	2	400 @ 0.1A	Enable Input; Low Iq	SOT-89-5; SOT-23-5
RT9069	3.5	36	2.5	12	200	2	200 @ 0.01A	Enable Input; Low Dropout; Low Iq	PSOP-8; SOT-23-5; SOT-89-5; UDFN1.6x1.6-6
RT9073A	1.2	5.5	0.9	3.3	250	1	450 @ 0.25A	Enable Input; Low Dropout; Low Iq; Tiny Package	ZQFN1x1-4
RT9078	1.2	5.5	0.8	3.45	300	2	150 @ 0.3A	Enable Input; Low Iq; Low Dropout	TSOT-23-5
RT9080	1.2	5.5	0.8	3.3	600	2	310 @ 0.6A	Enable Input; Low Iq; Low Dropout	TSOT-23-5

LDOs with Input Voltage Higher than 6.5V

LDOs with input voltage higher than 6.5V can be used in applications with wider input voltage range up to 80V. Please note that the LDO power dissipation is $(V_{in}-V_{out}) * I_{load}$ so a high $(V_{in}-V_{out})$ drop will quickly lead to high LDO dissipation at moderate load currents.

Part Number	Vin		Vout		Iout max (mA)	Iq typ (µA)	Vdropout@ rated current typ (mV)	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)					
RT9072A	4.5	80	1.25	60	20	23	180 @ 0.02A	Very Wide Input Voltage Range; Enable Input (A: Low Shutdown)	SOT-23-5
RT9072B	4.5	80	1.25	60	20	23	180 @ 0.02A	Very Wide Input Voltage Range; Enable Input (B: High Shutdown)	SOT-23-5
RT9068	4.5	60	1.25	60	50	30	150 @ 0.05A	Very Wide Input Voltage Range; Enable Input	MSOP-8(PP); PSOP-8
RT9022	5	20	1.25	-	60	40	200 @ 0.03A	Adj. Soft-Start; Enable Input	SOT-23-6
RTQ2569-QA	3.5	36	2.5	12	100	2	200 @ 0.01A	Low Iq; Enable Input; AEC-Q100 Qualified	WDFN3x3-8
RT9058	3.5	36	2.5	12	100	2	300 @ 0.01A	Extra Low Noise; High PSRR; Low Iq	SOT-23; SOT-89
RT9074	4.5	60	1.23	60	100	30	240 @ 0.1A	Very Wide Input Voltage Range; Enable Input	PSOP-8; SOT-223
RT9067	3.5	14	2.5	9	200	2	400 @ 0.1A	Enable Input; Low Iq	SOT-89-5; SOT-23-5
RT9069	3.5	36	2.5	12	200	2	200 @ 0.01A	Enable Input; Low Dropout; Low Iq	PSOP-8; SOT-23-5; SOT-89-5; UDFN1.6x1.6-6
RT9077	3.5	14	2.5	9	200	70	400 @ 0.1A	Enable Input	TSOT-23-5
RT9194	4.5	13.5	0.8	12	Ext. MOSFET	450	Ext. MOSFET	LDO Controller with Ext. MOSFET; Power Good	SOT-23-6
RT9008	4.5	13.5	0.8	12	Ext. MOSFET	300	Ext. MOSFET	LDO Controller with Ext. MOSFET; Adj. Soft-Start	SOT-23-6

Automotive Graded LDOs

Automotive graded LDOs are fully AEC-Q100 qualified, specifically designed to meet automotive requirements such as low quiescent current for always on systems, or low noise and high PSRR for noise sensitive applications.

Part Number	Vin		Vout		Iout max (mA)	Iq typ (uA)	Vdropout@ rated current typ (mV)	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)					
RTQ2569-QA	3.5	36	2.5	12	100	2	200 @ 0.01A	Low Iq; Enable Input; AEC-Q100 Qualified	WDFN3x3-8
RT2517B	2.2	6	1.2	5	1000	700	200 @ 1A	Enable input; Low Dropout; AEC-Q100 Qualified	PSOP-8
RTQ2510-QA	2.2	6	0.8	5.5	1000	190	370 @ 1A	Enable Input; Extra Low Noise; High PSRR; AEC-Q100 Qualified	WDFN3x3-8
RTQ2516-QT	1.4	6	0.5	5.5	2000	700	240 @ 2A	Enable Input; Low Dropout; AEC-Q100 Qualified	PSOP-8
RTQ2522A	0.8	5.5	0.8	3.6	2000	1000	135 @ 2A	Adj. Soft-Start; Low Dropout; Power Good; AEC-Q100 Qualified	WDFN3x3-10

DDR Memory Terminator LDOs

DDR memory terminator LDOs have both source and sink functionality and require very tight output voltage regulation. These parts can be used with many types of DDR memory from DDR1 to DDR4 as well as Low Power(LP) DDR3/4. The low Vin LDOs require an external low power bias voltage. Selecting a suitable product for your applications should be based on DDR type, current rating and features such as output voltage sensing, REFOUT and different power state settings via S3 / S5 pins.

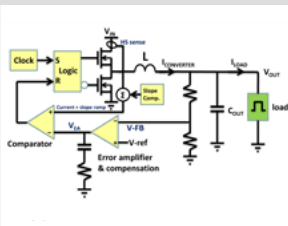
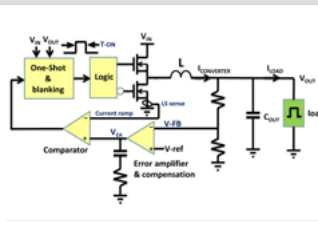
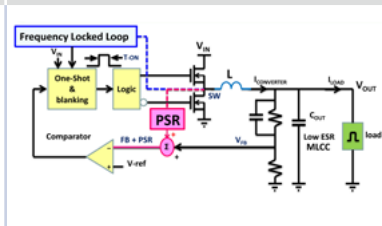
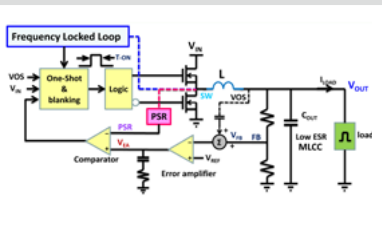
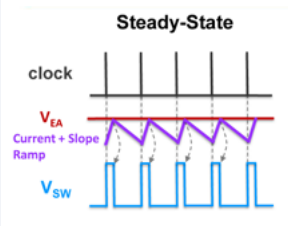
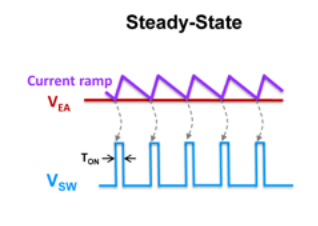
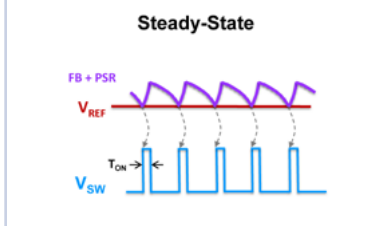
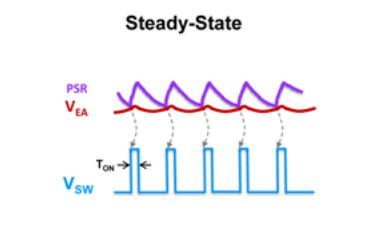
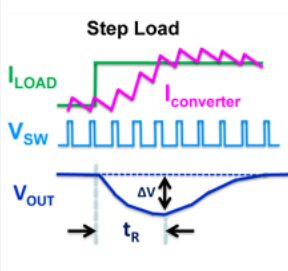
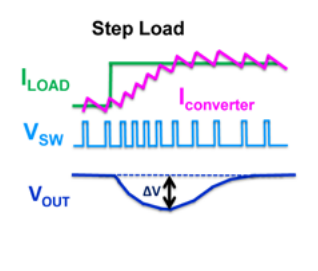
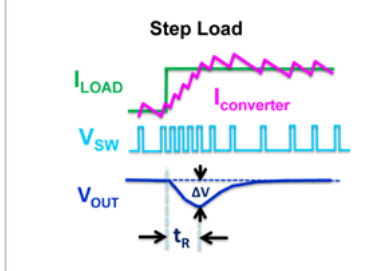
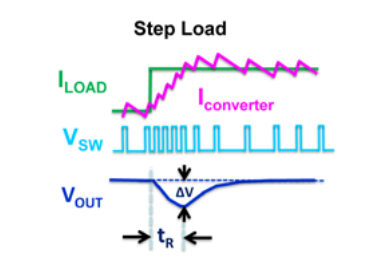
Part Number	Supported DDR type	Vin	Vout	Vcntl	VTT Output Tolerance	Isource/ Isink	Standby Current	Current Limit	Features	Package(s)
		max (V)	min (V)	(V)	max (+/- mV)	max (A)	typ (mA)	typ (A)		
RT9045	DDR1/2/3/4; LP3	1	5.5	5	13	±1.8	0.02	1.8	REFIN; MLCC Stable	PSOP-8
RT9089A	DDR1/2/3; LP3/4	1.1	3.5	2.9~5.5	25	±2	0.7	2	S3; S5; VDDQ Sense; REFOUT; VTT Sense; MLCC Stable	WDFN2x2-10
RT9040	DDR1/2/3; LP3	1.1	3.5	2.4~5.5	15	±2	0.065	3.5	Enable Input; REFIN; REFOUT; VTT Sense; PGOOD; MLCC Stable	WDFN3x3-10
RT2568	DDR1/2/3; LP3/4	1.1	3.5	2.9~5.5	25	±2	0.7	4.5	S3; S5; VDDQ Sense; REFOUT; VTT Sense; MLCC Stable; Industrial Grade	WDFN3x3-10
RT9026	DDR1/2/3; LP3/4	1.2	3.3	3.15~5.5	20	±3	0.3	4	S3; S5; VDDQ Sense; REFOUT; VTT Sense; MLCC Stable	MSOP-10(PP); PSOP-8; WDFN3x3-10
RTQ2536-QA	DDR1/2/3/4; LP3/4	1	3.5	2.9~5.5	30	±2	0.5	2	S3; S5; VDDQ Sense; REFOUT; VTT Sense; MLCC Stable; AEC-Q100 Qualified	WDFN3x3-10S

* Newly released parts are marked in red.

DC-DC Switching Regulators

Buck Converters

Buck converter control loop topology has great impact on the converter transient behavior, stability criteria and switching frequency behavior. Below overview shows different Buck converter control topologies in the Richtek portfolio and their advantages/disadvantages:

Current Mode Buck	Current Mode COT	High Voltage ACOT™ Buck	Low Voltage ACOT™ Buck
			
Steady-State 	Steady-State 	Steady-State 	Steady-State 
Step Load 	Step Load 	Step Load 	Step Load 
Current mode Buck topology takes several switch cycles to react on load transient. A larger output capacitor (C _{out}) is required for small ΔV.	Current mode COT Buck topology is faster than pure current mode, but still takes several switch cycles to react on load transient. A larger C _{out} is required for small ΔV.	ACOT™ reaction speed is almost instantly. C _{out} can be small for the same ΔV.	ACOT™ reaction speed is almost instantly. C _{out} can be small for the same ΔV.

Topology	Switching Frequency	Transient Response	Stability	PSM Pulse Skip Ripple	Duty-Cycle Range	Over-Current Protection	Ext Sync Possibility	External Component Selection
Current Mode	Fixed	Poor	Difficult	Low	Low-High	Peak Current	Yes	Critical
Current Mode-COT (CM-COT)	Variable	Medium	Medium	Medium	Low-Medium	Valley Current	No	Medium
Advanced-COT HV ACOT™	Variable	Excellent (Incl. PSM transition)	Simple	Medium	Very Low-Medium	Valley or Peak & Valley Current	No	Not Critical
Advanced-COT LV ACOT™	Variable	Excellent (Incl. PSM transition)	Medium	Medium	Low-High	Valley or Peak & Valley Current	No	Medium

General Buck converter features and function description:

- PSM parts will automatically skip pulses at light load thereby enhancing light load efficiency, at the expense of higher ripple and worse transient response in light load range.
- Force PWM parts will maintain their nominal switching frequency also at light load, which gives lowest ripple and best transient response.
- 100% Duty-Cycle parts can maintain regulation even at very low Vin-Vout difference, and the part can operate in drop-out mode which can be useful in battery-powered applications.
- External Sync. parts can have their internal switching frequency clock synchronized to an external clock, making it possible to run several Buck converters at the same frequency and controlling the frequency precisely to avoid noise in certain sensitive frequency bands.
- External Soft-Start makes it possible to adjust the converter rise time during start-up via an external capacitor, to reduce inrush currents when using large output capacitors.
- External Comp. allows the users to tune the converter control-loop response. This adds extra flexibility in the choice of output capacitors in current mode converters.
- Power Good signal can be used to signal other devices that the voltage rail is within specification. It can also be used to drive the enable pin of another converter, thereby giving a specific power sequence during start-up.

Low Voltage Buck Converters

Input voltage range up to 7V

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq typ (uA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	AEC- Q100	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)								
RT5707A	2.2	5.5	0.7	3.1	0.4	1200	350	250	0.46	PSM	HCOT*				Ultra-low Iq; 100% Duty Cycle; Tiny Package	WL- CSP0.9x1.6- 8(BSC)
RT8008	2.5	5.5	0.6	5.5	0.6	1500	300	250	50	PSM	CM				100% Duty Cycle	SOT-23-5; TSOT-23-5
RT5707	2.2	5.5	1.2	3.3	0.6	1200	350	250	0.46	PSM	HCOT*				Ultra-low Iq; 100% Duty Cycle; Tiny Package	WL- CSP0.9x1.6- 8(BSC)
RT8035	2.5	5.5	0.6	5.5	0.8	1250	250	260	70	Force PWM	CM				Dual Buck; 100% Duty Cycle	WDFN3x3-10
RT8059	2.8	5.5	0.6	5.5	1	1500	280	250	78	PSM	CM				100% Duty Cycle	TSOT-23-5
RT8020	2.5	5.5	0.6	5.5	1	1500	280	250	50	PSM/ Force PWM	CM				Dual Buck; 100% Duty Cycle	WDFN3x3-12
RT8010	2.5	5.5	0.6	5.5	1	1500	280	250	50	PSM/ Force PWM	CM				100% Duty Cycle	WDFN2x2-6
RT8096C	2.5	6	0.6	3.4	1	1500	160	110	22	PSM	CMCOT		Y		Medium Speed	TSOT-23-5; TSOT-23-6
RT8096B	2.5	6	0.6	3.4	1	1500	160	110	300	Force PWM	CMCOT		Y		Fast Speed	SOT-23-5; TSOT-23-6
RT8096A	2.5	6	0.6	3.4	1	1500	160	110	22	PSM	CMCOT		Y		Fast Speed	TSOT-23-5

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq typ (uA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	AEC- Q100	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)								
RT5710B	2.5	6	0.6	3.4	1	1500	160	110	300	Force PWM	CMCOT				Fast Speed; Small Size Package	WDFN2x2-6
RT5710A	2.5	6	0.6	3.4	1	1500	160	110	22	PSM	CMCOT				Fast Speed; Small Size Package	WDFN2x2-6
RT5760A	2.5	6	0.6	3.8	1	2200	120	80	25	PSM	ACOT		Y		Low Iq; 100% Duty Cycle	SOT-563 (FC)
RT5760B	2.5	6	0.6	3.8	1	2200	120	80	300	Force PWM	ACOT		Y		100% Duty Cycle	SOT-563 (FC)
RTQ2102A- QA	3	6	0.45	5.5	1.5	2700	110	90	30	PSM	ACOT		Y	Y	Low Iq; High Freq.; 100% Duty Cycle	WDFN3x3-8
RT5796C	2.5	6	0.6	3.4	1.5	1000	160	110	22	PSM	CMCOT				Medium Speed	TSOT-23-5
RT8064	2.7	5.5	0.8	5	2	200~ 2000	180	120	460	PSM	CM	Y	Y		100% Duty Cycle; Adj. Freq.	WDFN3x3-8; PSOP-8
RT8058	2.6	5.5	0.6	5	2	1000	142	96	340	Force PWM	CM				100% Duty Cycle	WQFN3x3-16
RT5795A	2.5	5.5	0.5	3.3	2	2700	100	80	30	PSM	ACOT		Y		Low Iq; High Freq.; 100% Duty Cycle	WDFN2x2-8S
RT5715	2.5	5.5	0.45	3.3	2	2700	100	80	30	PSM	ACOT		Y		Low Iq; 1% Vref Accuracy; 100% Duty Cycle	WDFN2x2-8S
RT2101B	2.95	6	0.827	3.6	2	700~ 2200	45	42	550	Force PWM	CM	Y		Y	Current mode; Adj. Freq.; Ext. Comp.; Ext. Sync.	WQFN3x3-16
RTQ2103A- QA	3	6	0.45	5.5	2	2700	130	105	30	PSM	ACOT		Y	Y	Low Iq; High Freq.; 100% Duty Cycle	PSOP-8
RT8097C	2.7	6	0.6	3.4	2	1000	100	70	22	PSM	CMCOT		Y		Medium speed	SOT-23-5; SOT-23-6
RT8097B	2.7	6	0.6	3.4	2	1000	100	70	300	Force PWM	CMCOT		Y		Fast Speed	SOT-23-6
RT8097A	2.7	6	0.6	3.4	2	1000	100	70	22	PSM	CMCOT		Y		Fast Speed	SOT-23-6
RT5785A	2.5	6	0.6	5	2	1500	100	60	25	PSM	ACOT		Y		Low Iq; 100% Duty Cycle	TSOT-23-8(FC)
RT5784A	2.5	6	0.6	5	2	1500	100	60	25	PSM	ACOT		Y		Low Iq; 100% Duty Cycle Small Package	WDFN2x1.5- 8J(FC)
RT8098D	2.7	6	0.6	3.4	2.5	1000	100	70	300	Force PWM	CMCOT		Y		Medium Speed	SOT-23-6
RT8068A	2.7	5.5	0.6	5.5	3	1000	69	49	110	PSM	CM		Y		100% Duty Cycle	WDFN3x3-10; PSOP-8
RT8065	2.7	5.5	0.8	5	3	200~ 2000	120	80	460	PSM	CM	Y	Y		100% Duty Cycle; Adj. Freq.	PSOP-8; WDFN3x3-8

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq typ (uA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	AEC- Q100	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)								
RT8088A	2.5	5.5	0.6	1.4	3	2000	48	22	75	PSM/ Force PWM	CMCOT				Fast Speed; I ² C Control for Vout; Selectable PSM/Force PWM; OCP; OTP; Tiny Package	WL-CSP 1.31x2.11-15
RT8079A	2.95	6	0.827	3.6	3	300~ 2000	45	42	550	Force PWM	CM	Y	Y		Adj. Freq.; Ext. Comp.; Ext. Sync.	WQFN3x3-16
RT8079	2.95	6	0.827	3.6	3	300~ 2000	45	42	550	PSM	CM	Y	Y		Adj. Freq.; Ext. Comp.; Ext. Sync.	WQFN3x3-16
RT2101A	2.95	6	0.827	3.6	3	700~ 2000	45	42	550	PSM	CM	Y		Y	Current mode; Adj. Freq.; Ext. Comp.; Ext. Sync.	WQFN3x3-16
RT5797B	2.7	6	0.6	3.4	3	1000	100	70	300	Force PWM	CMCOT		Y		Fast Speed; Small Package	WDFN2x2-8
RT5797A	2.7	6	0.6	3.4	3	1000	100	70	22	PSM	CMCOT		Y		Fast Speed; Small Package	WDFN2x2-8; WDFN2x2-8S
RT8086B	2.8	5.5	0.6	3.3	3.5	1200	50	40	60	PSM	CMCOT		Y		Fast Speed; Small Package	UQFN2x2- 12(FC)
RT8078A	2.7	5.5	0.6	5.5	4	1000	69	49	110	PSM	CM		Y		100% Duty Cycle	WDFN3x3-10
RT8070	2.7	5.5	0.8	5	4	1000	110	70	460	PSM	CM	Y	Y		100% Duty Cycle; Adj. Freq.	PSOP-8; WDFN3x3-8
RT5788B	2.5	6	0.6	6	4	1500	22	20	600	Force PWM	ACOT		Y		100% Duty Cycle	TSOT-23-8(FC)
RT5788A	2.5	6	0.6	6	4	1500	22	20	35	PSM	ACOT		Y		100% Duty Cycle	TSOT-23-8(FC)
RT5789B	2.5	6	0.6	6	6	1500	18	16	600	Force PWM	ACOT		Y		100% Duty Cycle	TSOT-23-8(FC)
RT5789A	2.5	6	0.6	6	6	1500	18	16	35	PSM	ACOT		Y		100% Duty Cycle	TSOT-23-8(FC)
RT2659H	1	6	0.6	2	6	600; 1000	20	10	1100	PSM/ Force PWM	CMCOT		Y		Fast Speed; DDR Supply with Mode Selectable for Freq., PSM or Force PWM; OCP; REF and REFIN	VQFN3.5x4-20
RT5758	3	6	0.6	3.3	9	1000	12	8	100	PSM	ACOT	Y	Y		-	UQFN3x3- 13(FC)
RT5759	3	6.5	0.6	1.5	9	600; 1500	12	8	100	PSM/ Force PWM	ACOT	Y			I ² C Control for Vout, OCP, OTP	UQFN3x3- 13(FC)

* Newly released parts are marked in red.

* HCOT control is a hysteretic control mode for ultra-low Iq parts.

Medium Voltage Buck Converters

Input voltage range up to 24V

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq (mA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)							
RT8259	4.5	24	0.8	15	1.2	1400	300		0.55	Force PWM	CM			Asynchronous	SOT-23-6; TSOT-23-6
RT8258	4.5	24	0.8	15	1.2	700	300		0.55	Force PWM	CM			Asynchronous	SOT-23-6; TSOT-23-6
RT8297B	4	17	0.8	12	1.5	800	145	140	0.6	Force PWM	CM		Y	Int. Comp.; Small Size Package	WDFN2x2-8
RT8297A	4	17	0.8	12	1.5	340	145	140	0.6	Force PWM	CM		Y	Int. Comp.; Small Size Package	WDFN2x2-8
RT7251B	4	17	0.8	12	1.5	800	145	140	0.6	PSM	CM		Y	Int. Comp.; Small Size Package	WDFN2x2-8
RT7285C	4.3	18	0.6	8	1.5	500	230	130	0.5	Force PWM	ACOT			Fast Transient Response; Valley OCP	SOT-23-6; TSOT-23-6
RT7285A	4.3	18	0.6	8	1.5	500	230	130	0.5	PSM	ACOT			Fast Transient Response; Valley OCP	SOT-23-6; TSOT-23-6
RT7250B	4	17	0.8	12	2	800	155	150	0.6	Force PWM	CM		Y	Int. Comp.	PSOP-8
RT6296D	4.5	17	0.807	14	2	800	100	40	0.8	PSM	CM	Y		Int. Comp.; Ext. Sync.	TSOT-23-8(FC)
RT6296C	4.5	17	0.807	12	2	1400	100	40	0.8	Force PWM	CM	Y		Int. Comp.; Ext. Sync.	TSOT-23-8(FC)
RT6296B	4.5	17	0.807	15	2	500	100	40	0.8	Force PWM	CM	Y		Int. Comp.; Ext. Sync.	TSOT-23-8(FC)
RT6296A	4.5	17	0.807	15	2	500	100	40	0.8	PSM/Force PWM	CM			Int. Comp.; Ext. Sync.	TSOT-23-8(FC)
RT7247C	4.5	18	0.8	12	2	800	150	130	0.8	Force PWM	CM	Y		Ext. Comp.	PSOP-8
RT7247B	4.5	18	0.8	12	2	1200	150	130	0.8	Force PWM	CM	Y		Ext. Comp.	PSOP-8
RT7247A	4.5	18	0.8	15	2	340	150	130	0.8	Force PWM	CM	Y		Ext. Comp.	PSOP-8
RT7237C	4.5	18	0.8	12	2	800	150	130	0.8	PSM	CM	Y		Ext. Comp.	PSOP-8
RT7237B	4.5	18	0.8	12	2	1200	150	130	0.8	PSM	CM	Y		Ext. Comp.	PSOP-8
RT7237A	4.5	18	0.8	15	2	340	150	130	0.8	PSM	CM	Y		Ext. Comp.	PSOP-8
RT6222D	4.3	18	0.6	8	2	1400	150	90	0.5	Force PWM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC)
RT6218B	4.5	18	0.765	6.5	2	650	120	65	0.5	Force PWM	ACOT	Y	Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-8(FC)

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq (mA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)							
RT6218A	4.5	18	0.765	6.5	2	650	120	65	0.5	PSM	ACOT	Y	Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-8(FC)
RT6212B	4.5	18	0.765; 0.8	6.5	2	500	163	86	0.5	Force PWM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC)
RT7274	4.5	18	0.765	8	2	700	150	105	0.7	PSM	ACOT	Y	Y	Fast Transient Response	PSOP-8
RT6212A	4.5	18	0.765; 0.8	6.5	2	500	163	86	0.5	PSM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC)
RT6215B	4.5	24	0.791	5	2	500	100	85	0.17	Force PWM	ACOT	Y	Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-8(FC)
RT6215A	4.5	24	0.791	5	2	500	100	85	0.17	PSM	ACOT	Y	Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-8(FC)
RT7294C	4.3	18	0.6	8	2.5	500	150	90	0.5	Force PWM	ACOT			Fast Transient Response; Valley OCP	TSOT-23-6(FC)
RT7294A	4.3	18	0.6	8	2.5	500	150	90	0.5	PSM	ACOT			Fast Transient Response; Valley OCP	TSOT-23-6(FC)
RT6222B	4.3	18	0.6	8	2.5	500	150	90	0.5	Force PWM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC)
RT6222A	4.3	18	0.6	8	2.5	500	150	90	0.5	PSM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC)
RT7296F	4.5	17	0.807	15	3	500	80	30	0.8	PSM	CM		Y	Int. Comp.; Ext. Sync.	TSOT-23-8(FC)
RT7296C	4.5	17	0.807	12	3	1400	80	30	0.8	Force PWM	CM	Y		Int. Comp.; Ext. Sync.	TSOT-23-8(FC)
RT7296B	4.5	17	0.807	15	3	500	80	30	0.8	Force PWM	CM	Y		Int. Comp.; Ext. Sync.	TSOT-23-8(FC)
RT7296A	4.5	17	0.807	15	3	500	80	30	0.8	PSM/Force PWM	CM			Selectable PSM/ Force PWM; Int. Comp.; Ext. Sync.	TSOT-23-8(FC)
RT6253A	4.5	17	0.765; 0.807	7	3	580	95	50	0.295	PSM	ACOT			Fast Transient Response; Valley & Peak OCP; Reduced PSM Ripple	TSOT-23-6(FC); SOT-563(FC)
RT6253B	4.5	17	0.765; 0.807	7	3	580	95	50	0.295	Force PWM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC); SOT-563(FC)

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq (mA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)							
RT7278	4.5	18	0.765	8	3	700	90	60	0.7	PSM	ACOT	Y		Fast Transient Response	PSOP-8
RT7277	4.5	18	0.765	8	3	700	90	60	0.7	Force PWM	ACOT	Y		Fast Transient Response	PSOP-8
RT7276	4.5	18	0.765	8	3	700	100; 90	60	0.7	PSM	ACOT	Y	Y	Fast Transient Response	WDFN3x3-10
RT7275	4.5	18	0.765	8	3	700	100; 90	60	0.7	Force PWM	ACOT	Y	Y	Fast Transient Response	WDFN3x3-10
RT7257G	4.5	18	0.8	12	3	800	110	90	0.8	PSM	CM	Y		Ext. Comp.	PSOP-8
RT7257A	4.5	18	0.8	15	3	340	110	90	0.8	PSM	CM	Y		Ext. Comp.	PSOP-8
RT2853B	4.5	18	0.765	7	3	650	110	30	1	Force PWM	ACOT	Y	Y	ACOT Fast Transient Response; Industrial Grade	WQFN3x3-16
RT6224D	4.3	18	0.6	5	3	1400	90	45	0.5	Force PWM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC)
RT6214B	4.5	18	0.765; 0.8	6.5	3	500; 650	100	50	0.5	Force PWM	ACOT	Y	Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC); TSOT-23-8(FC)
RT6214A	4.5	18	0.765; 0.8	6.5	3	500; 650	100	50	0.5	PSM	ACOT	Y	Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC); TSOT-23-8(FC)
RT7263A	4.5	21	0.808	15	3	500	120	40	0.7	Force PWM	CM	Y	Y	Enable Input; Ext. Sync.; OCP; UVP	WDFN4x3-14; PSOP-8
RT8296A	4.5	23	0.8	20	3	340	85	85	0.8	PSM	CM	Y		Ext. Comp.	PSOP-8
RT8293B	4.5	23	0.8	15	3	1200	85	85	0.8	Force PWM	CM	Y		Ext. Comp.	PSOP-8
RT8293A	4.5	23	0.8	20	3	340	85	85	0.8	Force PWM	CM	Y		Ext. Comp.	PSOP-8
RT8290A	4.5	23	0.925	20	3	340	100	85	0.8	PSM/PWM	CM	Y		Ext. Comp.	PSOP-8
RT8290	4.5	23	0.925	20	3	340	100	85	0.8	Force PWM	CM	Y		Ext. Comp.	PSOP-8
RT8299A	3	24	0.8	15	3	500	100	100	1	PSM	CM		Y	Extra Wide Input Range	WDFN3x3-10; PSOP-8
RT8299	3	24	0.8	15	3	500	100	100	1	Force PWM	CM		Y	Extra Wide Input Range	PSOP-8; WDFN3x3-10
RT6217E	4.5	24	0.791	6	3	500	85	40	0.15	PSM/Force PWM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-8(FC)
RT7295C	4.3	18	0.6	8	3.5	500	90	45	0.5	Force PWM	ACOT			Fast Transient Response; Valley OCP	TSOT-23-6(FC)

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq (mA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)							
RT7295A	4.3	18	0.6	8	3.5	500	90	45	0.5	PSM	ACOT			Fast Transient Response; Valley OCP	TSOT-23-6(FC)
RT7234	4.5	18	0.765	8	4	650	120	50	1	PSM	ACOT	Y		Fast Transient Response	PSOP-8
RT7233	4.5	18	0.765	8	4	650	120	50	1	Force PWM	ACOT	Y		Fast Transient Response	PSOP-8
RT7231	4.5	18	0.765	8	4	650	120	50	1	Force PWM	ACOT	Y	Y	Fast Transient Response	TSSOP-14(PP); WDFN3x3-10
RT6254B	4.5	18	0.6	5	4	500	48	25	0.115	Force PWM	ACOT		Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC); TSOT-23-8(FC)
RT6264A	4.5	18	0.765	7	4	650	66	36	0.18	PSM	ACOT			Fast Transient Response; Valley & Peak OCP; Reduced PSM Ripple	TSOT-23-6(FC)
RT6264B	4.5	18	0.765	7	4	650	66	36	0.18	Force PWM	ACOT			Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC)
RT7264E	4.5	21	0.808	15	4	500	120	40	0.7	PSM	CM	Y	Y	Enable Input; Ext. Sync.; OCP; UVP	PSOP-8; WDFN4x3-14
RT7240	4.5	18	0.765	8	5	650	120	35	1	PSM	ACOT	Y		Fast Transient Response	PSOP-8
RT7235	4.5	18	0.765	8	5	650	120	35	1	Force PWM	ACOT	Y	Y	Fast Transient Response	TSSOP-14(PP); WDFN3x3-10
RT6255B	4.5	18	0.6	5	5	500	45	23	0.115	Force PWM	ACOT		Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC); TSOT-23-8(FC)
RT6255A	4.5	18	0.6	5	5	500	45	23	0.115	PSM	ACOT		Y	Fast Transient Response; Valley & Peak OCP	TSOT-23-6(FC); TSOT-23-8(FC)
RT6203B	4.5	18	0.72	8	5	700	60	30	0.55	Force PWM	ACOT	Y	Y	Fast Transient Response; I ² C Adj. VID 072V~1.48V; I ² C Adj. OCP	WQFN4x4-20
RT6206A	4.5	18	0.765	7	5.5	650	80	35	1	Force PWM	ACOT	Y		Fast Transient Response	PSOP-8
RT6206B	4.5	18	0.765	7	5.5	650	80	35	1	PSM	ACOT	Y		Fast Transient Response	PSOP-8
RT7298B	4.5	18	0.6	5	6	200~ 1600	26	19	0.6	Force PWM	CM	Y	Y	Adj. Freq.; Ext. Comp.; Ext. Sync.; 100% Duty Cycle	WQFN3.5x3.5- 14A

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq (mA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)							
RT7298A	4.5	18	0.6	5	6	200~ 1600	26	19	0.6	PSM	CM	Y	Y	Adj. Freq.; Ext. Comp.; Ext. Sync.	WQFN3.5x3.5- 14A
RT7243	4.5	18	0.8	16	6	200~ 1600	26	19	0.6	Force PWM	CM	Y	Y	Adj. Freq.; Ext. Comp.; Ext. Sync.; 100% Duty Cycle	WQFN3.5x3.5- 14A
RT2856	4.5	18	0.8	16	6	200~ 1600	26	19	0.6	Force PWM	CM	Y	Y	Adj. Freq.; Ext. Comp.; Ext. Sync.	WQFN3.5x3.5- 14A
RT6203F	4.5	18	0.6	1.62	6	700	48	25	0.55	PSM	ACOT			Fast Transient Response; I ² C Adj. VID; I ² C Adj. OCP	PSOP-8
RT6276B	4.5	23	0.6	6	6	500	30	15	0.13	Force PWM	ACOT		Y	Fast Transient Response; Adj. Current Limit; Bypass Pin Option	UQFN3x3- 12H(FC)
RT6276A	4.5	23	0.6	6	6	500	30	15	0.13	PSM/USM (Ultrasonic)	ACOT		Y	Fast Transient Response; Adj. Current Limit; Bypass Pin Option	UQFN3x3- 12H(FC)
RT6256C	5.5	23	5.049	5.151	6	750	30	15	0.1	PSM/USM	ACOT		Y	Fast Transient Response; 5V LDO Output	UQFN3x3- 12H(FC)
RT6256B	4.5	23	3.267	3.333	6	500	30	15	0.1	PSM/USM	ACOT		Y	Fast Transient Response; 3.3V LDO Output	UQFN3x3- 12H(FC)
RT6238B	4.5	18	0.7	8	8	500	35	14	0.6	Force PWM	ACOT	Y	Y	ACOT Fast Transient Response; Adj. Current Limit	UQFN2x3- 14(FC)
RT7299B	4.5	18	1	5	8	200~ 1600	26	19	0.6	Force PWM	CM	Y	Y	Adj. Freq.; Ext. Comp.; Ext. Sync.	WQFN3.5x3.5- 14A
RT6238A	4.5	18	0.7	8	8	500	35	14	0.6	PSM	ACOT	Y	Y	Adj. Current Limit	UQFN2x3- 14(FC)
RT6278B	4.5	23	0.6	6	8	500	24	12	0.13	Force PWM	ACOT		Y	Fast Transient Response; Adj. Current Limit; Bypass Pin Option	UQFN3x3- 12H(FC)
RT6278A	4.5	23	0.6	6	8	500	24	12	0.13	PSM/USM	ACOT		Y	Fast Transient Response; Adj. Current Limit; Bypass Pin Option	UQFN3x3- 12H(FC)
RT6258C	5.1	23	5.049	5.151	8	750	20	10	0.1	PSM/USM	ACOT		Y	Fast Transient Response; 5V LDO output	UQFN3x3- 12H(FC)

* Newly released parts are marked in red.

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq (mA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)							
RT6258B	4.5	23	3.267	3.333	8	500	20	10	0.1	PSM/USM	ACOT		Y	Fast Transient Response; 3.3V LDO output	UQFN3x3-12H(FC)
RT7258	4.5	24	0.808	15	8	600	45	-	0.9	Force PWM	CM		Y	Gate Drive for Ext. Low Side MOSFET	PSOP-8; WDFN4x3-14
RT2810B	4.5	18	0.7	8	10	300~700	12	5.4	0.8	Force PWM	ACOT	Y	Y	Adj. Freq.; Adj. Current Limit	UQFN3x3-16J(FC)
RT6243B	4.5	17	0.6	5.5	12	400; 800; 1200	9.8	4.5	0.6	PSM/Force PWM	ACOT	Y	Y	Adj. Freq.; Adj. Current Limit	VQFN3.5x3.5-18(FC)
RT6243A	4.5	17	0.6	5.5	12	400; 800; 1200	9.8	4.5	0.6	PSM/Force PWM	ACOT	Y	Y	Fast Transient Response; Adj. Freq.; Adj. Current Limit	VQFN3.5x3.5-18(FC)
RTQ2822A	4.5	17	0.6	5.5	12	400; 800; 1200	9.8	4.5	0.6	PSM/Force PWM	ACOT	Y	Y	Fast Transient Response; Adj. Freq.; Adj. Current Limit	VQFN3.5x3.5-18(FC)
RT6242B	4.5	18	0.7	8	12	500	12	5.4	0.8	Force PWM	ACOT	Y	Y	Fast Transient Response; Adj. Freq.; Adj. Current Limit	UQFN3x3-16J(FC)

* Newly released parts are marked in red.

High Voltage Buck Converters

Input voltage range up to 80V

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq (mA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	AEC- Q100	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)								
RT6208	4.75	36	0.8	-	0.1	-	3000	1500	0.16	-	Hysteretic Mode		Y		Enable Input; OCP; OVP; PSM	SOT-23-6; SOT-23-8
RT6204	5.2	60	0.8	50	0.5	350	660; 890	330	0.6	PSM	CM	Y			Enable Input; OCP; SCP; UVP	PSOP-8
RT6210	5.2	80	0.8	72	0.5	350	660	330	0.6	PSM	CM	Y			Wide Input Range	PSOP-8
RT6200	4.5	36	0.8	15	0.6	1200	350	-	0.55	Force PWM	CM				Asynchronous	SOT-23-6
RTQ2130B-QT	3	36	0.8	28	0.7	2100	200	160	1.1	Force PWM	CM			Y	Ext. Comp.; 99% Duty-Cycle	WDFN2x3-8S
RTQ2131B-QA	3	36	0.8	28	1	2100	200	160	1.1	Force PWM	CM		Y	Y	Ext. Comp.; Spread-Spectrum for Low EMI; 100% Duty-Cycle	WDFN3x3-10S
RTQ2132B-QT	3	36	0.8	-	1.2	2100	200	160	1.1	Force PWM	CM	Y	Y	Y	Ext. Comp.; Spread-Spectrum for Low EMI; 100% Duty-Cycle	TSSOP-14 (PP)
RTQ2106-QA	3	36	0.8	28	3	2100	90	90	0.04	PSM/Force PWM	CM	Y	Y	Y	Ext. Comp.; Spread-Spectrum; 100% Duty-Cycle; Adj. I-lim; Ext. Sync.	TSSOP-14 (PP)
RTQ2105-QA	3	36	0.8	28	3	300~2200	70	70	0.04	PSM/Force PWM	CM	Y	Y	Y	Ext. Comp.; Adj. Freq.; Spread-Spectrum Option; 100% Duty-Cycle; Adj. I-lim; Ext. Sync.	WET-WQFN4x4-24S
RTQ2104-QA	3	36	0.8	28	3	2100	80	80	0.04	PSM	CM		Y	Y	Spread-Spectrum for Low EMI; 100% Duty-Cycle	PSOP-8
RTQ2104B-QA	3	36	0.8	28	3	2100	80	80	1.2	Force PWM	CM		Y	Y	Spread-Spectrum for Low EMI; 100% Duty-Cycle	PSOP-8
RT7272B	4.5	36	0.8	30	3	500	150	80	0.9	PSM	CM				Adj. Current Limit	PSOP-8
RT7272A	4.5	36	0.8	30	3	500	150	80	0.9	Force PWM	CM				Adj. Current Limit	PSOP-8
RT2875BQ	4.5	36	0.6	24	3	300~2100	95	70	-	Force PWM	CM	Y	Y	Y	Adj. Current Limit; Adj. Freq.; Ext. Sync.; 100% Duty-Cycle	TSSOP-14 (PP)
RT2872	4.5	36	0.8	30	3	300~1000	105	80	1	Force PWM	CM			Y	Adj. Freq.; Ext. Comp.	PSOP-8
RT2862A	4.5	36	0.8	30	3	500	105	80	1	PSM	CM				Adj. Freq.; Ext. Comp.	PSOP-8

* Newly released parts are marked in red.

Part Number	Vin		Vout		Iout max (A)	Freq (kHz)	Ron		Iq (mA)	PSM / Force PWM	Control Mode	Adj. Soft- Start	Power Good	AEC- Q100	Features	Package(s)
	min (V)	max (V)	min (V)	max (V)			HS typ (mΩ)	LS typ (mΩ)								
RT2862	4.5	36	0.8	30	3	500	105	80	1	Force PWM	CM				Adj. Freq.; Ext. Comp.	PSOP-8
RT8279	5.5	36	1.222	26	5	500	110	-	0.6	Force PWM	CM				Asynchronous	PSOP-8

Buck Controllers

Buck controllers will step down the input voltage to lower output voltage with external switches. The output current is limited by external MOSFETs which gives designers the flexibility to optimize performance.

Part Number	Vin		Vout		Freq typ (kHz)	Gate Drive (V)	Iq typ (mA)	PSM / Force PWM	Control Mode	Int. Bootstrap Diode	Power Good	Features	Package
	min (V)	max (V)	min (V)	max (V)									
RT6575A	5	25	2	4/5.5	300/ 355	5	0.015	PSM	CCRCOT	Y	Y	Dual Low Iq Buck Controller; 3.3V LDO Always On; Adj. OCP; OVP; Bypass Function; Charge Pump Drive	WQFN3x3-20
RT6575B	5	25	2	4/5.5	300/ 355	5	0.015	PSM	CCRCOT	Y	Y	Dual Low Iq Buck Controller; 3.3V & 5V LDO Always On; Adj. OCP; OVP; Bypass Function; Charge Pump Drive	WQFN3x3-20
RT8129A	2.5	25	0.8	3.3	300	4.5~ 13.2(VCC)	-	PSM (USM)	COT	N	Y	Adj. OCP; OVP; Ultrasonic PSM Mode	WDFN3x3-10
RT8131B	5.5	26.5	4.5	22	300	5	2	Force- PWM	Voltage Mode	N	Y	Wide Vout; Adj. OVP Window; Adj. OCP; Ext. Comp.; Int. 17msec Soft-Start	WDFN3x3-10

Buck-Boost Converters

Buck-Boost converters are used in applications where input voltage can vary, either below or above the output voltage. The four internal MOSFET switches will be automatically configured to form a Buck when V_{IN} exceeds V_{OUT} and change to Boost operation when V_{IN} falls below V_{OUT} . This makes Buck-Boost ideal for battery-powered applications to extend battery life when the battery voltage falls below the regulated output voltage. The efficiency of the Buck-Boost converter is very good because of the fully synchronous operation. The output current capability in Buck mode is normally higher than in Boost mode. This is because the Boost mode requires higher switching current at the same load conditions compared to the Buck mode. The MOSFET voltage ratings will determine the maximum input and output voltage range.

Part Number	Vin		Vout		Iout max (A)	Current Limit min (A)	Freq typ (kHz)	Ron		Iq (uA)	Features	Package
	min (V)	max (V)	min (V)	max (V)				HS typ (mOhm)	LS typ (mOhm)			
RT6150B	1.8	5.5	2.5	5.5	0.8	1.6	1000	150	150	60	PSM/Force PWM Mode Switch; Load Disconnect	WDFN2.5x2.5-10
RT6150A	1.8	5.5	2.5	5.5	0.8	1.6	1000	150	150	60	PSM/Force PWM Mode Switch; Load Disconnect	WDFN3x3-10
RT6158A	2.5	5	2.1	5.2	2	4.3	2000	20	20	8	Low Iq; PSM/Force PWM Mode Switch; Load Disconnect; Ext. Sync.	WL-CSP2.07x2.33-25 (BSC)
RT6158H	2.5	5.5	2.1	5.2	3	6	2000	20	20	8	Low Iq; PSM/Force PWM Mode Switch; Load Disconnect; Ext. Sync.	WL-CSP2.07x2.33-25 (BSC)
RT1741A	1.8	5.5	1.8	5.5	3	3.5	2400	50	50	20	PSM/Force PWM Mode Switch; Load Disconnect; Ext. Sync.	WDFN4x3-14A
RT6154B	1.8	5.5	3.3	3.3	4	1.7;3.9	2400	50	50	20	PSM/Force PWM Mode Switch; Load Disconnect; Ext. Sync.	WDFN4x3-14A
RT6154A	1.8	5.5	1.8	5.5	4	1.7;3.9	2400	50	50	20	PSM/Force-PWM Mode Switch; Load Disconnect; Ext. Sync.	WDFN4x3-14A

Boost Controllers

Boost controllers will step up the input voltage to a higher output voltage with external switches. The output current is limited by external MOSFETs which gives designers the flexibility to optimize performance. With Boost controllers, designers can achieve higher levels of output power and operating temperature range that might be not possible with boost converters.

Part Number	Vin		Iq typ (mA)	VFB typ (V)	Freq typ (kHz)	Gate Drive			PSM / Force PWM	Duty max (%)	Features	Package
	min (V)	max (V)				(V)	sink Ron (Ω)	typ (kHz)				
RT9288A	3	13.5	2	0.5	1000	Vin	20	30	Force PWM	90	Ext. Comp.; Use Small MOSFETs or Use Ext. Gate Drive Buffer	SOT-23-6
RT8525D	4.5	25	1.3	1.25	50~600	12V	1	1.5	Force PWM	90	High Power Boost or SEPIC; Adj. Current Limit; Adj. Freq.; Adj. Soft-Start; Adj. OVP; FAULT Output	WDFN3x3-12

Boost Converters

Boost converters will step up the input voltage to a higher output voltage. This is accomplished by charging an inductor via an internal MOSFET switch and discharging the inductor via a rectifier to the load when the MOSFET switch is off. The current rating of the MOSFET switch together with step-up ratio will determine the maximum load current, and the MOSFET voltage rating will determine the maximum output voltage capability. In some boost converters, the rectifier is integrated as a MOSFET to provide synchronous rectification.

Part Number	Vin		Vout		SW Current Limit	Output Current Limit	Iq	Freq	Switch Ron	Rectifier Ron	PSM / Force PWM	Features	Package
	min (V)	max (V)	min (V)	max (V)	typ (A)	(A)	typ (mA)	typ (kHz)	typ (Ohm)	typ (ohm)			
RT9266	2	6	2.6	6	2	-	0.55	500	0.3	-	PSM	Asynchronous; Low 1V Start-Up	SOT-23-6
RT9284A	2.7	5.5	6	20	0.75	-	0.3	1200	0.75	-	PSM	Asynchronous; Int. OVP	TSOT-23-5; TSOT-23-6
RT9277B	2.5	5.5	3	16	1.6	-	2	1200; 640	0.2	-	PSM	Asynchronous; Adj. Soft-Start; Ext. Comp.; Selectable Freq.	MSOP-8
RT4812	1.8	5.5	1.8	5.5	3.5	2.1;1	0.09	500	0.03	0.045	PSM	Synchronous; Selectable I-lim; Load Disconnect	TSOT-23-8(FC)
RT8509	2.8	14	3.5	24	3.5	-	1	1200	0.1	-	PSM	Asynchronous; Adj. Soft-Start; Ext. Comp.; Int. OVP	WDFN3x3-10
RT9297	2.6	5.5	2.6	24	3.8	-	4	1240; 640	0.125	-	Force PWM	Asynchronous; Adj. Soft-Start; Ext. Comp.; Selectable Freq.	WDFN3x3-10
RT8509A	2.8	14	3.5	24	5	-	5	1200	0.1	-	PSM	Asynchronous; Adj. Soft-Start; Ext. Comp.; Int. OVP	WDFN5x5-12
RT4803	1.8	5.0	2.85	4.4	5	-	0.065	2500	0.06	0.04	PSM/ Force PWM	Synchronous; I ² C Control; Adj. Current Limit; Power Good; Low Iq Force-Bypass; Load Disconnect	WL-CSP1.67x1.67-16(BSC)
RT4813	1.8	5.5	1.8	5.5	6	3.1	0.12	500; 1000; 2000	0.026	0.043	PSM	Synchronous; Adj. Current Limit; Adj. Freq.; Spread Spectrum; Load Disconnect	UQFN2x2-9(FC)

LED Drivers

Richtek’s LED lighting drivers provide stable constant current control over varying input and output voltage conditions. DC input LED drivers have various options such as Analog, PWM and True PWM dimming, and several devices can be configured into Buck, Boost or Buck-Boost topology. AC input LED drivers all have resonant switching, providing high efficiency and low EMI. They also include high power factor and low total harmonic distortion (THDi). Richtek’s LED driver solutions are ideal for various LED light fixtures as well as smart lighting applications.

DC Input LED Drivers

Richtek’s DC input LED driver converters and controllers are suitable for battery-powered systems or industrial input voltage range applications requiring precise dimming performance.

Part Number	Vin		Vout	Iswitch	Topology	SW Freq	Vcs	Rdson	Dimming Control	Features	Package(s)
	min (V)	max (V)	max (V)	min (A)		(kHz)	typ (mV)	(Ω)			
RT9285B	2.7	5.5	20	0.35	Boost	1000	0.25	0.75	PWM to Analog	Built-in Rectifier Diode; Tiny Size; OCP; OVP	TSOT-23-6; WDFN2x2-8
RT8420	7	50	50	1.5	Buck	100~1500	100	0.35	Analog; PWM	Hysteretic Mode Control; Ultrafast PWM Dimming; Analog + PWM Dimming; 100% Duty-Cycle	PSOP-8
RT8498	3	18	18	2	Boost; Buck; Buck-Boost	350	100	0.1	Analog; PWM; PWM-to-Analog	Multi-Topology; Current Mode Control; Cycle-by-Cycle Current Limit; OVP; UVP	SOT-23-6
RT8462	6	36	60	Ext. MOS	Boost; Buck	100~1000	190	Ext. MOS	Analog; PWM; PWM-to-Analog	Multi-Topology; Current Mode Control; Adj. Frequency; Adj. Soft-Start; Adj. OCP; Adj. OVP; 8.5V Gate Drive	SOP-14
RT8475	6	36	90	Ext. MOS	Boost; Buck	100~1000	190	Ext. MOS	Analog; PWM	Multi-Topology; Adj. Freq.; Adj. Soft-Start; Enable Input; OCP; OVP	SOP-14
RT8480	6	36	Ext. MOS limit	Ext. MOS	Boost	380	190	Ext. MOS	Analog; PWM; PWM-to-Analog	High Power Boost; Adj. Freq.; Adj. Soft-Start; Adj. OCP; Adj. OVP; 8.2V Gate Drive	SOP-16
RT8406	12	65	65	Ext. MOS	Buck	65; 130	100	Ext. MOS	Analog; PWM	High Voltage Buck; Current Mode Control; Selectable Frequency; Auto PWM Dim at Low Dimming; 10.2V Gate Drive	SOP-8

AC Input LED Drivers

AC input LED drivers can support designs for retrofit and high-power offline applications. Richtek’s LED driver solutions help engineers simplify designs by using primary (PSR) or secondary side (SSR) control while maintaining tight current regulation. Our products feature resonant switching, high power factor, fast start up, and dimming functions.

Part Number	Description	AC Supply Voltage	Output Power max (W)	Switch Method	Topology	Output	MOSFET Integrated	PFC	Dimming Control	Features	Package(s)
RT8497A	Offline PFC Buck Converter with Integrated MOSFET	Full-Range	10	BCM	Buck BCM	C.C.	Y	Y	-	Floating Buck; LED Open & Short Protection; Thermal Protection	SOP-8
RT7331	Offline PFC Flyback Controller PSR with Dimming	Full-Range	Ext. MOS	BCM	Buck-Boost; Flyback	C.C.	N	Y	Analog; PWM	Smart CC/CV Mode; Wide Dimming Range; Low THD; LED Open & Short Protection	SOP-8
RT7304A	Offline PFC Flyback Controller PSR	Full-Range	Ext. MOS	BCM	Buck-Boost; Flyback	C.C.	N	Y	-	Low THD; LED Open & Short Protection	SOT-23-6
RT8487	Offline PFC Buck Controller	Full-Range	Ext. MOS	BCM	Buck; Buck-Boost	C.C.	N	Y	-	Floating Buck; LED Open & Short Protection	TSOT-23-6
RT8458A	Second Stage High Voltage Buck Controller for LED Lighting	50~200Vdc	Ext. MOS	CCM	Buck	C.C.	N	N	Analog	Floating Buck; LED Open & Short Protection	TSOT-23-6
RT7313	Offline PFC Flyback Controller PSR or SSR	Full-Range	Ext. MOS	BCM	Flyback BCM	C.V.	N	Y	-	Input Feed-Forward; Low I-Start; Max Freq. Clamping with Valley Hopping; Dynamic OVP & UVP	SOP-8
RT7339P	Offline PFC Flyback Controller PSR	Full-Range	Ext. MOS	BCM	Flyback; PSR	C.V.	N	Y	-	Fast Start-Up; Ultra-Low P-Standby; Max. Freq. Clamping with Valley Hopping; Dynamic OVP & UVP	SOT-23-6
RT7300AD	Active PFC Controller with Critical Conduction Mode	Full-Range	Ext. MOS	BCM	Boost	C.V.	N	Y	-	Input Feed-Forward; Low I-Start; Max. Freq. Clamping with Valley Hopping; Dynamic OVP & UVP	SOP-8
RT7331S	Second-Stage Flyback Controller PSR with Dimming	400Vdc	Ext. MOS	BCM	Buck-Boost; Flyback	C.C/ C.V.	N	N	Analog	Analog Dimming in 1%~100% Range; LED Open & Short Protection; Smart CV mode in Low Dim %	SOP-8

White LED Drivers for Display Backlighting

Single string or multi-string LED drivers are suitable for small battery-powered devices or large LCD panel backlighting applications with accurate dimming.

Part Number	Vin		Vout	Iswitch	LED Channels	Topology	SW Freq	LEDs per String	Iout per Channel	Rdson	Dimming Control	Features	Package(s)
	min (V)	max (V)	max (V)	min (A)			(kHz)	max (pcs)	max (mA)	(Ω)			
RT9361A	2.8	5	5	0.35	1	Charge Pump	1000	1	110	-	PWM	Regulated Charge-Pump; OCP & Short Circuit Protection	SOT-23-6; TSOT26; WDFN2x2-6
RT9365	2.8	5	5	0.7	5	Charge Pump	250	1	20	-	Pulse	5-CH Current Source; Enable Input; OVP	WQFN3x3-16
RT4533	2.5	5.5	33	1	1	Boost	1100	10	-	0.4	PWM	Build-in OVP & OCP	TSOT-23-6
RT8511B	2.7	24	43	1.66	1	Boost	500	12	-	0.4	PWM	Adj. OVP; Ext. Dim Filter; OCP	WDFN2x2-8
RT8532	2.5	24	43	2.2	6	Boost	300~1500	12	50	0.2	True PWM	6-CH Current Source; Adj. Freq.; Adj. String Current; OCP; Adj. OVP	WQFN3x3-20
RT8575	4.2	24	60	2.8	4	Boost	150~500	18	150	0.15	PWM	4-CH Current Source; Adj. Freq.; Adj. String Current; OCP; Adj. OVP	WDFN5x5-16
RT8577A	5.5	40	45	Ext. MOS	4	Boost	200~2100	15	120	Ext. MOS	True PWM	AEC-Q100 Qualified; 4-CH Current Source; Adj. Freq.; Current Mode Control; Adj. OCP; Adj. OVP; 5V Gate Drive	WQFN5x5-20

AMOLED Display Drivers

Fully integrated AMOLED drivers with small footprints are ideal for wearable AMOLED panels with symmetrical or asymmetrical drive voltage.

Part Number	Vin		Vout		Iout		AVDD		Interface	Features	Package(s)
	min (V)	max (V)	pos (V)	neg (V)	pos (A)	neg (A)	supply (V)	current (A)			
RT4722C	2.9	4.5	4.6	-1.4~-5.4	0.3	0.3	5.8~7.9	0.055	S-Wire	Boost for AVDD & Vpositive; Inverter for Vnegative	WQFN3x3-16
RT4723	2.5	4.6	4.6	-0.6~-2.4	0.03	0.03	-	-	S-Wire	Boost for Vpositive; -0.33/-0.5x Charge Pump for Vnegative	WL-CSP1.39x2.07-15 (BSC)
RT4730	2.9	4.8	2.8~4	-0.6~-4	0.05	0.05	3.3	0.15	S-Wire	Buck-Boost for AVDD & Vpositive; 1x Charge Pump for Vnegative	WL-CSP2.34x2.34-16 (BSC)

Battery Management

Richtek's battery management products and supporting tools accelerate the design of high efficient and high performance battery-powered applications. Richtek offers a wide range of battery chargers as well as battery gauges and protection devices.

Single Cell Li-Ion Linear Battery Chargers

Single cell Li-Ion battery charger ICs can be used to provide the correct charge current and voltage in battery-powered applications. The battery charger will measure battery charge current and battery voltage and will control the pass MOSFET in such a way that the charge current follows the required battery charge operation modes: pre-conditioning - constant current - constant voltage - current cut-off. The maximum charge current can be programmed by an external resistor, and an NTC coupled to the battery will send the battery temperature information to the charger. Charging status pins will signal the charging condition. Most linear chargers for single cell Li-Ion batteries are fed by 5V supply and are normally used for charge currents up to 1A, suitable for battery cells up to 1Ah.

Part Number	Vin		Battery CV Charge Voltage (V)	Battery Charge Current		Power Good	Charger Status	Input Source	Features	Package(s)
	min (V)	max (V)		min (A)	max (A)					
RT9527	4.4	6	4.2	0.01	0.6	Y	Y	5V AC Adapter; USB	Low Power; Adj. I-charge; NTC Input; Safety Timer; OVP	WDFN2x2-8
RT9532	4.3	6.2	4.2	0.2	1.2	Y	Y	5V AC Adapter; USB	Adj. I-Charge and I-End-of-Charge; Iset/USB500/USB100 Modes; 4.2V Factory Mode; 4.9V LDO; OVP	WDFN3x2-10
RT9525	4.2	6	4.2	0.11	1.2	Y	Y	5V AC Adapter; USB	Auto Power Path; Adj. I-Charge; NTC input; Safety Timer; 1.5A/USB500/USB100 Modes; System Disconnect; OVP	WQFN3x3-16

Monitoring and Protection

The overvoltage protection devices monitor the input power supply and system conditions to protect smart phones and handheld devices.

Part Number	Description	Vin		Vin_ovp	Delay Time	locp	Ron	Features	Package(s)
		range (V)	max (V)	typ (V)	max (us)	typ (A)	typ (mOhm)		
RT9746H	VBUS OVP with a PTVS Diode	3 ~ 6.7	28	6.8	0.25	-	35	Int. Fixer or Ext. Adj. Input OVP	WL-CSP1.92x1.27-12 (BSC)
RT9746	VBUS OVP with a PTVS Diode	3 ~ 6.7	28	6.8	0.25	4.5	35	Int. Fixer or Ext. Adj. Input OVP; OCP	WL-CSP1.92x1.27-12 (BSC)

Single Cell Li-Ion Switching Battery Chargers

The single cell switching chargers provide higher charge current for high capacity batteries in smart phones and portable devices, featuring I²C control, input detection, Boost (OTG) function and complete protection functions.

Part Number	Vin		Battery CV Charge		OTG Boost		SW Freq	Power Good Signal	Charge Status Signal	Interface	Features	Package(s)
	min (V)	max (V)	Voltage (V)	Current (A)	Voltage (V)	Current (A)	(MHz)					
RT9466	4	14	3.9~4.71	0.1~5	4.425~5.825	0.5~2.4	0.75; 1.5	Y	Y	I ² C	OTG; Power Select; I-Charge Reporting; IR Compensation; Shipping Mode; NTC Input	WQFN4x4-24
RT9467	4	14	3.9~4.71	0.1~5	4.425~5.825	0.5~2.4	0.75; 1.5	N	Y	I ² C	OTG; USB Device Detection; I-Charge Reporting; IR Compensation; Shipping Mode; NTC Input	WQFN4x4-24
RT9471D	3.9	13.5	3.9~4.7	0.05~3.15	4.85~5.3	0.5; 1.2	1.5	Y	Y	I ² C	OTG; USB Device Detection; Shipping Mode; NTC Input with JEITA settings; AICR, MIVR	WQFN4x4-24

* Newly released parts are marked in red.

Battery Fuel Gauge

Richtek's battery gauges use Voltaic Gauge with current sensing (VGCS) to determine the State of Charge, State of Health, Full Charge Capacity, Time to Empty and Cycle Count of Li-Ion cells. They use an internal algorithm to calculate these parameters and communicate it back to the host microcontroller via I²C.

Part Number	Description	Vin		Voltage Error	Current Error	Active Current	Sleep Current	Shut-Down Current	Interface	Features	Package(s)
		min (V)	max (V)	(mV)	(%)	(uA)	(uA)	(uA)			
RT9422	Battery Pack Side Single Li-Ion Cell Fuel Gauge	2.5	5.5	±7.5	±1	14	5	0.5	I ² C	SOC via Voltaic Gauge with Current Sensing; SOC, SOH, FCC, TTE and Cycle Count Report; Alert for Voltage, Temperature; NVM for Life Time, Battery Characterize, Manufacturer Info.	WDFN2.5x4-12L
RT9426	System Side Single Li-Ion Cell Fuel Gauge	2.5	5.5	±7.5	±1	14	5	0.5	I ² C	SOC via Voltaic Gauge with Current Sensing; SOC, SOH, FCC, TTE and Cycle Count Report; Alert for Voltage, Current, Temperature; Battery Presence	WL-CSP-9B 2.29x1.74

USB Interface and PD Controllers

As a member of the USB Implementers Forum (USB-IF), Richtek has been developing innovative USB Type-C and PD compliant products to meet the latest standard for a wide range of applications, from USB-PD power adapters, mobile chargers, car chargers, Type-C cable e-Mark ICs to Type-C Dual Role Power PD port controllers which use the latest USB3.0 PD PPS protocol to support Direct Charging systems.

USB Type-C and Power Delivery Controllers

Part Number	Description	Policy Manager	Alternate Mode	USB Protocols	Legacy Device Support	MCU Integrated	Power Role
RTQ2115A	USB Charging Port and 36V/3A Buck Converter AEC-Q100 Qualified	--	N	USB 2.0 BC1.2	Y	N	Provider
RT1711H	Programmable USB Type-C PD Controller	TCPC	Y	Type-C PD2.0	--	N	DRP
RT1711P	Programmable USB PD Port and Power Controller	TCPC	Y	Type-C PD2.0; PD3.0	--	N	DRP
RT1715	Programmable USB Type-C PD Controller	TCPC	Y	Type-C PD2.0; PD3.0	--	N	DRP
RT1716	Programmable USB Type-C PD Controller	TCPC	Y	Type-C PD2.0; PD3.0	--	N	DRP
RT7202KE	Highly Integrated USB PD Type-C Controller for SMPS	Integrated	N	Type-C PD2.0; PD3.0; PPS	N	Y	Provider
RT7202KF	Highly Integrated USB PD Type-C Controller for SMPS	Integrated	N	Type-C PD2.0; PD3.0	N	Y	Provider
RT7202KJ	USB PD3.0 (PPS) Controller for SMPS	Integrated	N	Type-C PD2.0; PD3.0; PPS	Y	Y	DRP
RT7205A	Protocol Controller with SR Driver	Integrated	N	Type-C	Y	Y	Provider
RT7207KB	Highly Integrated USB PD Controller with SR Driver	Integrated	N	PD2.0; PD3.0; PPS	Y	Y	Provider
RT7880	USB PD and 36V Buck-Boost Controller	Integrated	Y	PD2.0; PD3.0; PPS	Y	Y	Provider
RTQ7880	USB PD and 36V Buck-Boost Controller AEC-Q100 Qualified	Integrated	Y	PD2.0; PD3.0; PPS	Y	Y	Provider
RT7885A	USB PD and Bi-Directional Buck Boost Controller	Integrated	Y	PD2.0; PD3.0; PPS	Y	Y	DRP

Part Number	Ext. Power Path Control	VCONN Support	Dead Battery Support	PWM Section	Input Voltage (V)	USB Output Voltage (V)	Sync. Rectifier Driver	Package(s)
RTQ2115A	--	--	--	Buck Converter	3 ~ 36	3 ~ 22	--	WET-WQFN 5x5-32L
RT1711H	No	Y	Y	--	3 ~ 5.5	5 ~ 20	--	WL-CSP 1.38x1.34-9 (BSC)

Part Number	Ext. Power Path Control	VCONN Support	Dead Battery Support	PWM Section	Input Voltage (V)	USB Output Voltage (V)	Sync. Rectifier Driver	Package(s)
RT1711P	GPIO; N-MOS Driver; P-MOS Driver	Y	Y	--	3 ~ 5.5	4 ~ 22	--	WQFN 3.5x3.5-24
RT1715	No	Y	Y	--	3 ~ 5.5	3 ~ 22	--	WL-CSP 1.38x1.34-9 (BSC)
RT1716	No	Y	Y	--	3 ~ 5.5	3 ~ 22	--	WL-CSP 1.38x1.34-8 (BSC)
RT7202KE	N-MOS Driver	N	--	--	3 ~ 22	3 ~ 22	N	SOP-10
RT7202KF	N-MOS Driver	N	--	--	3 ~ 22	3 ~ 22	N	SOP-10
RT7202KJ	N-MOS Driver	N	N	--	3 ~ 22	3 ~ 22	N	WQFN 4x4-16
RT7205A	N-MOS Driver	N	--	--	3 ~ 13	3 ~ 12	Y	WQFN 4x4-24
RT7207KB	N-MOS Driver	N	--	--	3.3 ~ 22	3 ~ 22	Y	WQFN 4x4-24
RT7880	N-MOS Driver	Y	--	Buck-Boost Controller	4 ~ 36	3 ~ 22	Y	WQFN 5x5-40
RTQ7880	N-MOS Driver	Y	--	Buck-Boost Controller	4 ~ 36	3 ~ 22	Y	WET-WQFN 6x6-48L
RT7885A	N-MOS Driver	Y	Y	Buck-Boost Controller	3 ~ 22	3 ~ 22	Y	WQFN7x7-60L

* Newly released parts are marked in red.

Flyback Controllers for USB Type-C Power Delivery

Specifically designed for USB PD adapter applications with wide output voltage capability, these controllers are normally paired with secondary side USB PD controllers.

Part Number	AC Input Range	Feedback Regulation Mode	SW Freq (kHz)	VDD Range (V)	Output Voltage max (V)	HV Start-up	Brown-in/out	Low Power Standby	Features	Package(s)
RT7752GCN	Full-Range	SSR	83	10 ~ 40	20	No	Yes	<50mW	Paired with RT7205A or RT7207K USB-PD Controllers; Adaptive Gain & OCP; Wide Output Range	SOT-23-6
RT7753GCS	Full-Range	SSR	84	9 ~ 42	12	No	Yes	<50mW	Paired with RT7202x USB-PD and RT7220B SR Controllers; Adaptive Gain & OCP; Wide Output Range	SOT-23-6
RT7786LC	Full-Range	SSR	85	10 ~ 32	12	Yes	Yes	<30mW	Paired with RT7205A or RT7207K USB-PD Controllers; Hiccup OVP; Adaptive Gain & OCP	SOP-8
RT7786GE	Full-Range	SSR	85	10 ~ 32	20	Yes	Yes	<30mW	Paired with RT7205A or RT7207K USB-PD Controllers; Hiccup OVP; Adaptive Gain & OCP; Wide Output Range	SOP-8
RT7786AE	Full-Range	SSR	85	10 ~ 32	20	Yes	Yes	<30mW	Paired with RT7205A or RT7207K USB-PD Controllers; Latch OVP; Adaptive Gain & OCP; Wide Output Range	SOP-8

AC/DC Synchronous Rectifier Controller

Specifically designed for high power USB PD applications to reduce secondary rectifier losses.

Part Number	Description	Supply Voltage		Quiescent Current	Features	Package(s)
		min (V)	max (V)	typ (mA)		
RT7220B	Synchronous Rectifier Controller for RT7753 USB-PD Flyback Controller	3.3	13	0.16	Only for Pairing with RT7753x Controllers; Supporting CCM, DCM, QR and Green Mode	SOT-23-6

USB Type-C Cable E-Marker ICs

Cables that support Superspeed USB3.1 data transfer or cables that can carry currents higher than 3A must be electronically marked, to inform the Host about cable characteristics such as current capability, the presence of re-driver for signal conditioning, etc. The presence of an e-marked cable is detected by the CC logic which then connects VCONN power to the cable electronics.

Part Number	Description	Vin		Features	Package(s)
		min (V)	max (V)		
RT1710S	Cable ID for USB Type-C Cables	4	5.5	SOP ^I Communication; Embedded MTP, RA Resistor and ISO Diode	WDFN2x2-8
RT1731	Cable ID for USB Type-C Cables	3	5.5	SOP ^I & SOP ^{II} Communication; PD 3.0 Compliant, 22V Rated VCONN & CCIN; Embedded MTP, RA Resistor and ISO Diode	WDFN2x2-8

* Newly released parts are marked in red.

AC-DC

PFC Controller

Boost Pre-conditioner for multi-stage AC/DC power supplies.

Part Number	Description	AC Supply Voltage	Output Power max (W)	Switch Method	Topology	Output	PFC	Features	Package(s)
RT7300AD	Active PFC Controller with Critical Conduction Mode	Full-Range	Ext. MOS	BCM	Boost	C.V.	Y	Input Feed-Forward; Low I-Start; Max. Freq. Clamping with Valley Hopping; Dynamic OVP & UVP	SOP-8

Multi-Mode Flyback Controllers

Easy-to-use flyback controllers with sophisticated power save modes for ultra-low standby power.

Part Number	AC Input Range	Feedback Regulation Mode	SW Freq (kHz)	VDD Range (V)	HV Start-up	Brown-in/out	Low Power Standby	Features	Package(s)
RT7713G	Full-Range	PSR	80	9 ~ 24	No	Yes	<75mW	CV & CC Regulation; Cable Drop & Line Compensation; Smart Jitter	SOT-23-6
R7731A	Full-Range	SSR	50 ~ 130	12 ~ 25	No	No	<200mW	Adjustable Frequency	SOT-23-6
RT7738G	Full-Range	SSR	65	12 ~ 25	No	Yes	<75mW	Smart Jitter; High Noise Immunity	SOT-23-6
RT7740GA	Full-Range	SSR	65	10 ~ 25	No	Yes	<75mW	Smart Jitter; High Noise Immunity; OCP with 63msec Delay	SOT-23-6

* Newly released parts are marked in red.

Power Switches

Power switches are used to enable or disable a certain supply rail, often used as protection devices for USB ports. These devices have a slew-rate controlled switch-on action to eliminate inrush currents. They also include protection functions such as OVP, OTP and reverse current protection.

High Side Power Switches

Part Number	Number of Outputs	Vin		Current Limit	Ron	Iq	FLAG Indicator	Adj. Iocp	Safety	Features	Package(s)
		min (V)	max (V)	typ (A)	typ (mOhm)	typ (mA)					
RT9728B	1	2.5	5.5	0.075 ~1.8	120	0.12	Y	Y	-	Adj. Current Limit; Enable Active High Input; OCP; SCP; OTP	SOT-23-6; WDFN2x2-6
RT9728A	1	2.5	5.5	0.075 ~1.3	120	0.12	Y	Y	-	Adj. Current Limit; Enable Active Low Input; OCP; SCP; OTP	SOT-23-6; WDFN2x2-6
RT2528	1	2.5	5.5	0.5 ~2.5	120	0.12	Y	Y	--	AEC-Q100 Qualified; Adj. Current Limit; OCP; SCP; OTP	PSOP-8
RT9731A	2	2.5	5.5	0.56 ~2.8	44	0.13	Y	Y	Nemko; UL	Common Adj. Current Limit; Enable Input; OCP; SCP; OTP	WDFN3x3-10
RT9742Q	1	2.7	6	0.7	70	0.03	Y	N	Nemko; UL	Accurate Current Limit; Enable Input; OCP; SCP; OTP; Soft-Start	TSOT-23-5
RT9742G	1	2.7	6	1.1	55;70	0.03	Y	N	Nemko; UL	Accurate Current Limit; Enable Input; OCP; SCP; OTP; Soft-Start	TSOT-23-5
RT9742E	1	2.7	6	1.65	55;70	0.03	Y	N	Nemko; UL	Accurate Current Limit; Enable Input; OCP; SCP; OTP; Soft-Start	TSOT-23-5
RT9742C	1	2.7	6	2.2	55;70	0.03	Y	N	Nemko; UL	Accurate Current Limit; Enable Input; OCP; SCP; OTP; Soft-Start	TSOT-23-5
RT9742A	1	2.7	6	3.3	55	0.03	Y	N	Nemko; UL	Accurate Current Limit; Enable Input; OCP; SCP; OTP; Soft-Start	TSOT-23-5(FC) / TSOT23-5
RTQ9740A	2	0.8	5.5	-	22	0.055; 0.075	N	N	-	6A Current Per Channel; Enable Input; Adj. Soft-Start; Low Dropout	WDFN3x2-14T
RT9740A	2	0.8	5.5	-	18	0.055; 0.075	N	N	-	6A Current Per Channel; Enable Input; Adj. Soft-Start; Low Dropout	WDFN3x2-14T

Reset ICs and Hot Swap Controller

Reset ICs

Supply voltage monitors with accurate voltage detection and flexible output configuration.

Part Number	Number of Outputs	Vin		VTH		Accuracy	Reset Active Type	Reset Time-out Period	Output Type	Package(s)
		min (V)	max (V)	min (V)	max (V)	(±%)		typ (ms)		
RT9818C	Micro-Power Voltage Detector	0.9	6	1.2	5	1.5	Low	220	Push-Pull	SOT-23
RT9819C	Micro-Power Voltage Detector	0.9	6	1.2	5	1.5	Low	220	Open Drain	SOT-23

Hot Swap Controller

Wide input voltage range with robust over current and over voltage protection, suitable for a wide range of industrial applications.

Part Number	Description	Vin		Vin_ovp	Delay Time	locp	Ron	Features	Package(s)
		min (V)	max (V)	typ (V)	max (us)	typ (A)	typ (mOhm)		
RT1720	60V Hot Swap Controller with Fault Timer	5	80	Adj.	Ext. cap	Adj.	Ext. MOSFET	Adj. Current Limit; Adj. OVP; Power Good & Fault	MSOP-10

Audio

Class-D Audio Power Amplifiers

The high efficiency BTL configuration delivers high power without the need of heatsink. The audio amplifiers have either analog input system or digital input system with elaborate EQ and frequency DRC control.

Part Number	Description	Output Channels	Vin		Output Power	Efficiency	Signal Input	Features	Package(s)
			min (V)	max (V)		(%)			
RT9114B	2x20W Digital Audio Amplifier System with EQ and DRC Control	2	8	26.4	20W (2x)	90	I ² S	Filterless; >24 Biquads EQ; 3-Band DRC; Anti-Pop	VQFN4x5-28
RT9118	2x10W Class-D Amplifier with Headphone Amplifier	2	8	17	10W (2x)	90	Analog	Filterless; Power Limit Setting; GainSetting; 4Ω and 8Ω	WQFN4x5-28

Sensors

AFE for Heart-Rate Monitoring and Measurements

Fully integrated ECG and PPG sensor suitable for medical and sports heart-rate monitoring applications.

Part Number	ECG Channel				PPG Channel			
	ECG Electrode	Input Impedance (MOhm)	Dynamic Range (dB)	Noise Level (uV)	TX CHA	TX LED Current (mA)	RX LED Current (uA)	Rx Noise (pA)
RT1025	2-Electrode & RLD	125~1000	110	0.67	2	10 ~105	0.5~50	50

Part Number	Supply Voltages				Current Consumption		Features	Package(s)
	DVDDIO (V)	DVDD18 (V)	AVDD2 (V)	AVDDHV min (V)	ECG&PPG Active (uA)	Idle Mode (uA)		
RT1025	1.62~3.3	1.8	2.8	3.4~4.5	780	7	I ² C & ISP Interface; Flexible Low Noise Sensor Inputs; Low Power Consumption and Dynamic Power Down; On-Chip SRAM	WL-CSP 3.10x3.48-41

3-Axis Digital Accelerometer

Low power motion acceleration sensor with glance, tap and free-fall sensing, suitable for wearable applications.

Part Number	Sensing Axes	Range (g)	Supply Voltage VDD		Output Type	Digital Output	RMS Noise	Measure Mode	Wake Up Mode	Power Down Mode	Features	Package(s)
			min (V)	max (V)		(bits)	(mg)	(uA)	(uA)	(uA)		
RT3020	X;Y;Z	16;2; 32;4;8	1.8	3.3	Digital (I ² C)	8 or 12	0.65	9.1	1.4	0.11	Low Power Consumption; Low Noise; 120 Frame FIFO; Glance/Tap/Freefall Interrupt	LGA2x2-12

Power Management Multi-Channel ICs

PMICs

Richtek's PMICs are developed for various applications including automotive PoC camera, industrial SoC power, hand-held devices, Intel VCORE platforms and SSD, TV SoC and general power management.

Part Number	Description	Vin Range (V)	Regulator Blocks	Interface	Features	Package(s)
RT2070	4-Regulator PMIC for Power over Coax Automotive Digital Camera Module	4.5~15 & 2.7~5.5	1x 2A HV Buck; 2x 1A LV Buck; 1x 0.5A LDO; 1x 0.5A Power Switch	I ² C	AEC-Q100 Qualified; POC Step-Down and Secondary Regulators; High PSRR LDO for Analog Supply; Power Sequence Programming	WQFN4x4-24
RTQ2077S-QT	2-Regulator PMIC for Power over Coax Automotive Analog Camera Module	4.5~15 & 2.7~5.5	1x 0.4A HV Buck; 1x 0.2A LDO	--	AEC-Q100 Qualified; POC Step-Down; High PSRR LDO for Analog Supply	WQFN3x3-16
RT5028A	12-Regulator PMIC with MTP Non-Volatile Memory for Industrial and Automotive Applications	3.3~5.5 & 2.5~5.5	1x 2.4A, 2x 2A, 1x 1.6A LV Buck; 8x 0.3A LDO	I ² C	AEC-Q100 Qualified; MTP Memory for Parameter Pre-Set; Power Sequence Programming	WQFN7x7-56
RT5028F	12-Regulator PMIC with MTP Non-Volatile Memory for MT2712C Car Infotainment Chip-Set	3.15~5.5	1x 2.4A, 2x 2A, 1x 1.6A LV Buck; 8x 0.3A LDO	I ² C	MTP Memory for Parameter Pre-Set; Power Sequence Programming	WQFN7x7-56
RTQ5115-QA	12-Regulator PMIC with MTP Non-Volatile Memory for MT2712 car infotainment chipset	3.15~5.5	1x 2.4A, 2x 2A, 1x 1.6A LV Buck; 8x 0.3A LDO	I ² C	AEC-Q100 Qualified; MTP Memory for Parameter Pre-Set; Power Sequence Programming	WQFN7x7-56
RT5035C	10-Regulator PMIC with LED driver and RTC for Li-ion Battery Powered Applications	2.6 ~ 5.5	1x 3.5A Boost; 1x 3A Buck-Boost; 1x 3A, 3x 1.5A LV Buck; 1x 0.8A LED Boost; 1x 0.3A, 1x 0.2A, 1x 0.05A LDO; 1x VNEG Charge Pump	I ² C	Dimmable LED Driver; Keep Alive Low Iq LDO; Highly Suitable for Digital Camera Applications	WQFN5x5-40
RT5067A	9-Regulator PMIC for INTEL BSW PLUS Platform	6~20 & 4.5 ~ 5.5	3x Buck Controller; 1x 4A, 2x 3A LV Buck; 2x 1A LDO; 1x 1A VTT LDO; 1x 0.6A, 2x 0.3A Switch	I ² C	Low Iq for Connected Standby; 1% References; SoiX State for WIN8 Connected Standby	WQFN6x6-52
RT5074A	7-Regulator PMIC for INTEL APL Platform	5~23 & 4.5 ~ 5.5	3x Buck Controller; 1x 3A, 2x 1.5A LV Buck; 1x 0.5A VTT LDO; 1x 0.5A switch	I ² C	Integrated Power Sequence for APL; SoiX state for WIN8 Connected Standby; LPDDR3/DDR3L & LPDDR4 Support	WQFN6x6-52
RT5077A	7-Regulator PMIC for INTEL GLK Platform	5~23 & 4.5 ~ 5.5	2x Buck Controller; 1x 5A, 1x 4.5A, 1x 4A, 1x 2.5A LV Buck; 1x 1A VTT LDO; 1x 1A Switch	I ² C	Integrated Power Sequence for APL; 1% References; SoiX State for WIN8 Connected Standby	WQFN6x6-52
RT5090C	5-Regulator PMIC for TV System	8~27 & 4.5 ~ 5.5	1x Buck Controller; 1x 6A, 2x 3A LV Buck; 1x 0.6A LDO	I ² C	12~24V Input Systems or 12~24V Input + 3.3V Systems; Power-Up SOC Reset	WQFN5x5-40

Part Number	Description	Vin Range (V)	Regulator Blocks	Interface	Features	Package(s)
RT5090E	5-Regulator PMIC for TV System	8~27 & 2.7 ~ 6	1x Buck Controller; 1x 6A, 2x 3A LV Buck, 1x 0.6A LDO	I ² C	12~24V Input Systems or 12~24V Input + 3.3V Systems; Power-Up SOC Reset	WQFN5x5-40
RT5091C	3-Regulator PMIC for SSD	2.8 ~ 5.5	1x 4A, 2x 2A LV Buck; 1x 0.3A LDO	I ² C	Inrush Control with Ext. MOSFET Drive; Power Sequence; PS3.5 and PS4 Power State Control; Power Good	WQFN4x4-32
RT5091D	3-Regulator PMIC for SSD	2.8 ~ 5.5	1x 4A, 2x 2A LV Buck or 1x 2A LV Buck ; 1x 4A Power Switch; 1x 0.3A LDO	I ² C	1x Buck with Bypass Mode; Power Sequence; PS3.5 and PS4 Power State Control; Power Good	WQFN4x4-32
RT5112A	6-Regulator PMIC for Camera Module Applications	2.5 ~ 5.5	2x 1.2A LV Buck; 4x 0.3A LDO	I ² C	Low Iq; HCOT Buck Control; High PSRR LDO; Interrupt Output	WL-CSP2.2x2.3-25 (BSC)
RT5112H	6-Regulator PMIC for Camera Module Applications	2.5 ~ 5.5	1x 1.2A LV Buck; 1x 1A Boost; 4x 0.3A LDO	I ² C	Low Iq; HCOT Buck Control; ACOT Boost Control; High PSRR LDO; Interrupt Output	WL-CSP2.2x2.3-25 (BSC)
RT7273	3-Channel Buck Converter	4.5 ~ 18V	1x 3.5A, 2x 2.5A HV Buck	--	Current Mode; Adj. Freq.; Adj. Soft-Start; Adj. Power Sequence; Adj. Current Limit; Global Hiccup Mode	WQFN6x6-40L

LNB Step-Up Converter

Integrated Boost and tracking LDO for DiSEqC 1.x LNB applications.

Part Number	Description	Vin		Output Voltage	Output Current	Features	Package(s)
		min (V)	max (V)	(V)	max (A)		
RT5047BF	Single Output LNB Supply and Control Voltage Regulator	8	16	13.3 / 18.3	0.55	LNB Boost Converter; 22kHz Tone Input; DiSEqC 1.x Compliant; Low Noise LDO; Low Power Short-Circuit Protection	PSOP-8

Operational Amplifiers

High Speed Operational Amplifiers

Specifically designed for TFT LCD Gamma and Vcom buffer, with high slew-rate, high current and rail to rail swing.

Part Number	Vs		Number of Outputs	Voffset	Iout	IPeak	Slew Rate	-3dB Band Width	AVOL	CMRR	PSRR	Features	Package(s)
	min (V)	max (V)		typ (mV)	typ (mA)	typ (mA)	(V/us)	(MHz)	typ (dB)	typ (dB)	typ (dB)		
RT9136	4.5	16.5	4	2	35	120	12	12	95	80	70	Quad Opamp; Rail to Rail swing; High Speed	MSOP-10
RT9133A	4.5	15	1	2	35	120	12	12	95	80	70	Rail to Rail Swing; High Speed	WDFN2x2-6
RT9148	6	20	1	2	50	350	35	16	118	95	96	Rail to Rail Swing; High Speed; High Peak Current	TSOT-23-5
RT9146	6	20	1	2	80	1000	35	16	118	95	96	Rail to Rail Swing; High Speed; High Peak Current	WDFN3x3-8

Gate Drivers

Single Phase Synchronous Rectified Buck MOSFET Drivers

MOSFET gate drivers highly suitable for a wide range of PC VCORE and Notebook power applications.

Part Number	Number of Channels	Vcc	V-switch	UGATE		LGATE	
		range (V)	max (V)	Source Resistance typ (Ohm)	Sink Resistance typ (Ohm)	Source Resistance typ (Ohm)	Sink Resistance typ (Ohm)
RT9610B	1	4.5 ~ 5.5	26	1	1	1	0.5
RT9610C	1	4.5 ~ 5.5	26	1	1	1	0.5
RT9624A	1	4.5 ~ 13.2	28	1.7	1.4	1.6	1.1
RT9624B	1	4.5 ~ 13.2	28	1.7	1.4	1.6	1.1

Part Number	Enable Pin	Built-in Bootstrap Diode	Features	Package(s)
RT9610B	Yes	Yes	Tri-State Input with Hold-Off Time; Adaptive Shoot-Through Protection	WDFN2x2-8
RT9610C	Yes	Yes	Tri-State Input; Adaptive Shoot-Through Protection	WDFN2x2-8
RT9624A	Yes	Yes	Tri-State Input; Adaptive Shoot-Through Protection	WDFN3x3-8
RT9624B	No	Yes	Tri-State Input; Adaptive Shoot-Through Protection	WDFN3x3-8

Power Discrete

N-Channel High Voltage Power MOSFET

High voltage MOSFETs specifically designed for hard-switching applications.

Part Number	Description	BVDSS	VGS		RDS_ON	Qg	Body Diode Qrr	Features	Package(s)
		max (V)	max (V)	typ (V)	max (ohm)	typ (nC)	typ (nC)		
RM02N60A1	N-Channel 600V 2A Power MOSFET	600	±20	10	5.4	20	120	Low Qg; Fast Body Diode Recovery; Hard-Switching Applications	TO-252



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