



New Product Announcement

AP61204Q

5.5V, 2A, Low I_Q , Synchronous Buck Converter in Tiny SOT563 for Protected Point-of-Load Automotive Rails

The AP61204Q is a 2A, automotive-compliant, synchronous buck converter with a wide input voltage range of 2.4V to 5.5V.

It integrates a 70m Ω high-side power MOSFET and a 50m Ω low-side power MOSFET to provide high-efficiency stepdown DC-DC conversion.

The AP61204Q has a power-good output that warns the system of irregular conditions, and can be used in sequencing control applications.

The device minimizes external component count due to its adoption of constant on-time (COT) control to achieve fast transient response, easy loop stabilization, and low output voltage ripple.

The AP61204Q uses an enable (EN) pin to select whether it works in a forced-PWM mode for all loads, or switches to PFM at lighter loads.

It is available in a SOT563 package, and is pin compatible with its 600mA, 1A, and 3A counterparts.

Automotive-compliant - AEC qualified, manufactured in facilities certified to IATF 16949, supporting PPAP documents.

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The DIODES Advantage

The AP61204Q provides a high-efficiency, small foot-print DC-DC buck converter solution for automotive applications.

- **2.4V to 5.5V Operating Voltage Range**
Covers both 3.3V and 5V rail conversion to core voltage
- **Low (19 μ A) Quiescent Current (I_Q)**
Maximizes light-load efficiency
- **PWM/PFM Adjustable Mode Control via EN Pin**
Supports fixed f_{SW} and light-load high-efficiency (LLHE) PFM mode
- **Accurate $\pm 5\%$ PG with Internal 5M Ω Pull-Up Option**
Provides over- and undervoltage warning with reduced BOM
- **1k Ω Soft Output Discharge**
Ensures that there is no residue charge on output
- **High Operating Frequency of 2.4MHz**
Reduces external inductor/capacitor size and above medium wave band

Applications

Automotive 3.3V and 5V point-of-load in:

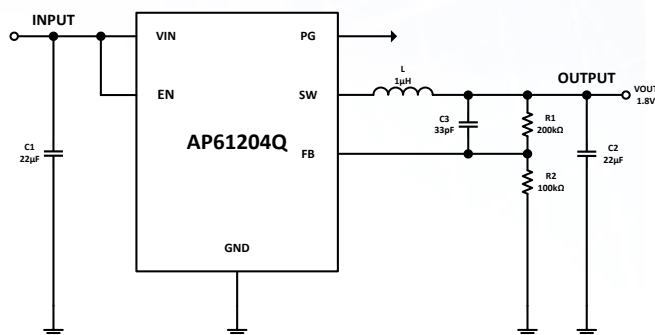
- Automotive infotainment
- Automotive telematics
- Automotive clusters
- Advanced driver assistance systems (ADAS)



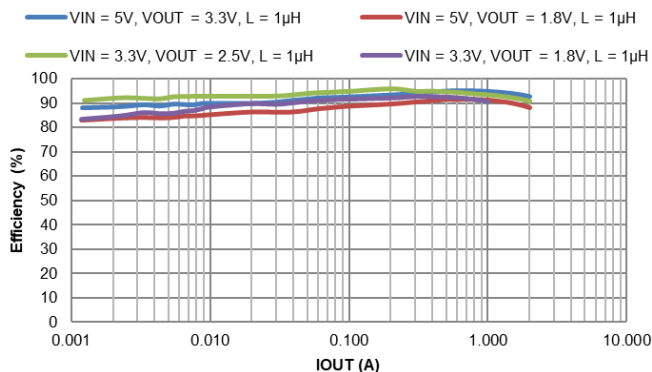
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Typical Application Schematic



Efficiency vs. Output Current



5.5V Automotive-Compliant DC-DC Buck Converter Portfolio

Part Number	VIN Range	VOUT Range	Output Current	HS/LS $R_{DS(ON)}$	Adj. PFM/PWM	Switching Frequency	I_q	Ambient Temperature	PG	Package
	V	V	A	mΩ		MHz	µA	°C		
AP61204Q	2.4 to 5.5	0.6 to VIN	2	70 / 50	Yes	2.4	19	-40 to +125	Yes	SOT563
AP61302Q	2.4 to 5.5	0.6 to VIN	3	70 / 50	Yes	2.2	19	-40 to +125	Yes	SOT563
AP61300Q	2.4 to 5.5	0.6 to VIN	3	70 / 50	Yes	2.2	19	-40 to +125	No	SOT563
AP61102Q	2.3 to 5.5	0.6 to 3.6	1	110 / 80	Yes	2.2	15	-40 to +125	Yes	SOT563
AP61100Q	2.3 to 5.5	0.6 to 3.6	1	110 / 80	Yes	2.2	15	-40 to +125	No	SOT563
AP61062Q	2.4 to 5.5	0.6 to 3.6	0.6	110 / 80	Yes	2.2	19	-40 to +125	Yes	SOT563

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package	Identification Code	Moisture Sensitivity	Tape Width	Packing	
						Quantity	Carrier
AP61204QZ6-7	Automotive	SOT563	GSQ	MSL-1	8mm	3,000	7" Tape & Reel