



# New Product Announcement

## AP6320xQ AP6330xQ

### 32V, Low $I_Q$ , 2A and 3A Synchronous Buck Converters in TSOT26 for Automotive Point-of-Load Applications

The automotive-compliant\* AP6320xQ and AP6330xQ are 2A and 3A respectively, synchronous buck converters with a wide input voltage range of 3.8V to 32V, and are AEC-Q100 Grade 1 qualified.

The AP6320xQ and AP6330xQ integrate low resistance high- and low-side power MOSFETs to provide high-efficiency step-down DC-DC conversion.

The devices minimize external component count due to their adoption of peak current mode control and an integrated loop compensation network. This low component count provides ease of design.

They have been optimized for electromagnetic interference (EMI) reduction, which includes a proprietary gate driver scheme that resists switching node ringing without sacrificing MOSFET turn-on and turn-off times.

The AP63200Q, AP63203Q, AP63205Q, and AP63300Q also feature frequency spread spectrum (FSS) which further reduces EMI by preventing emitted energy from staying in any one frequency for a significant period of time.

The devices are available in a low-profile TSOT26 package.

**Automotive compliant** – AEC-Q100 grade 1 qualified in IATF 16949 certified manufacturing sites and supports PPAP documentation

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#### The Diodes Advantage

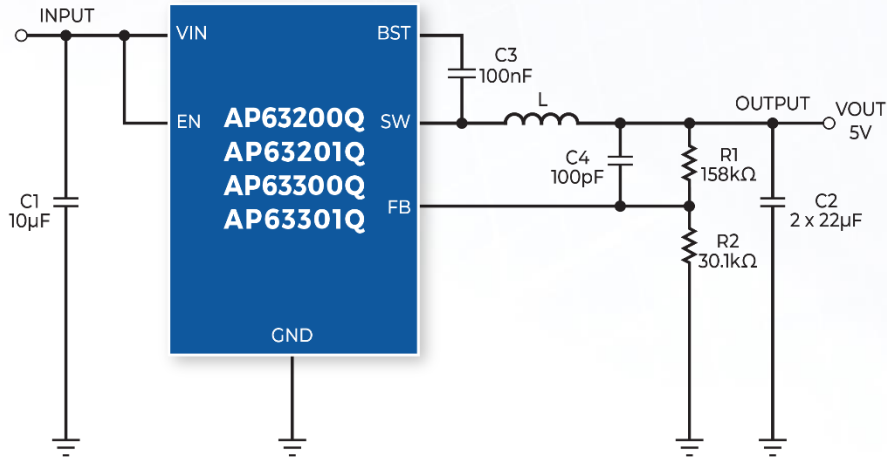
**The AP6320xQ/AP6330xQ provide high-efficiency DC-DC conversion for automotive POL applications.**

- **VIN of 3.8V to 32V withstands 40V, 400ms Input Surges**  
Works across the standard automotive voltage range
- **Wide Output Voltage Range: 0.8V to Near 100% of VIN**  
Duty cycle extends to 100% supporting LDO-like functionality
- **AP63200Q/03Q/05Q and AP63300Q with PFM-Mode at Light-Loads with Low 22 $\mu$ A Quiescent Current**  
Supports standby operation in permanently-on systems with high light-load efficiency
- **Designed for Best-in-Class EMI Performance**  
Ringing-resistant SW node at 4ns rise time;  
frequency spread spectrum  
(AP63200Q/AP63203Q/AP63205Q/ AP63300Q)
- **Simple PCB Layout Design Supports Single-Layer PCBs**  
Minimal number of external components;  
short current loops on PCB further ease EMI issues

#### Automotive Applications

- Power systems
- Infotainment devices
- Instrument clusters
- Lighting ECUs
- Telematics
- Body control electronics
- Advanced Driver Assistance Systems (ADAS)

### Typical Application Circuit



### 32V DC-DC Automotive Buck Converter Portfolio

Part Number	VIN Range (V)	VOUT Range (V)	IOUT (A)	HS / LS R <sub>DS(on)</sub> (mΩ)	Operation Mode	I <sub>Q</sub> (µA)	f <sub>sw</sub> (kHz)	FSS	Ambient Temperature (°C)	AEC-Q100 Grade	Package
<a href="#">AP63300Q</a>	3.8 to 32	0.8 to VIN	3	75 / 40	PFM/PWM	22	500	Yes	-40 to +125	1	TSOT26
<a href="#">AP63301Q</a>					PWM Only	280		No			
<a href="#">AP63200Q</a>	3.8 to 32	0.8 to VIN	2	125 / 68	PFM/PWM	22	500	Yes	-40 to +125	1	TSOT26
<a href="#">AP63201Q</a>					PWM Only	370		No			
<a href="#">AP63203Q</a>	3.8 to 32	3.3	2	125 / 68	PFM/PWM	22	1100	Yes	-40 to +125	1	TSOT26
<a href="#">AP63205Q</a>		5									

### Ordering Information

Orderable Device	Compliance	Package Code	Package	Identification Code	Moisture Sensitivity	Reel Size	Tape Width	Quantity
<a href="#">AP63200QWU-7</a>	Automotive	WU	TSOT26	T2Q	MSL-1	7 inches	8 mm	3,000
<a href="#">AP63201QWU-7</a>	Automotive	WU	TSOT26	T3Q	MSL-1	7 inches	8 mm	3,000
<a href="#">AP63203QWU-7</a>	Automotive	WU	TSOT26	T4Q	MSL-1	7 inches	8 mm	3,000
<a href="#">AP63205QWU-7</a>	Automotive	WU	TSOT26	T5Q	MSL-1	7 inches	8 mm	3,000
<a href="#">AP63300QWU-7</a>	Automotive	WU	TSOT26	T6Q	MSL-1	7 inches	8 mm	3,000
<a href="#">AP63301QWU-7</a>	Automotive	WU	TSOT26	T7Q	MSL-1	7 inches	8 mm	3,000