



# New Product Announcement

## AP64203Q

## AP64303Q

## 40V, 2A/3A, Synchronous Buck Converters Deliver High Efficiency in Automotive Point-of-Load Applications

The automotive-compliant AP64203Q and AP64303Q are 2A and 3A synchronous buck converters with a wide input voltage range of 3.8V to 40V. Their wide operating voltage and small footprint make them suitable for a wide range of automotive point-of-load (POL) applications.

Their integrated power MOSFET switches (120mΩ high-side and 55mΩ low-side) provide high-efficiency step-down conversion. Efficiency is further enhanced using their BIAS feature, which helps reduce internal power consumption.

The AP64203Q and AP64303Q minimize the external component count by adopting peak current mode control coupled with integrated loop compensation network, making it easy to use. Their output stages are optimized for electromagnetic interference (EMI) reduction.

Both devices have adjustable switching frequencies, up to 2.5MHz, which can be synchronized to an external clock. Their multifunction synchronization pins set the devices to operate in pulse frequency modulation (PFM), high light load efficiency or pulse width modulation (PWM), for low output ripple. Both devices offer tracking for power sequencing and an adjustable soft-start to reduce inrush current.

The AP64203Q and AP64303Q's high level of integration simplifies board layout and reduces space requirements with minimal need for external components, making them ideal for distributed power architectures.

The devices are available in the wettable flank U-QFN4040-16/SWP (Type UXB) package, supporting automatic optical inspection (AOI). They are pin compatible to 60V AP66200Q and AP66300Q.

*Automotive compliant – AEC qualified, manufactured in IATF certified facilities supporting PPAP documents.*

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### The DIODES Advantage

**The AP64203Q and AP64303Q provide high-efficiency DC-DC conversion for automotive 12V-battery POL applications.**

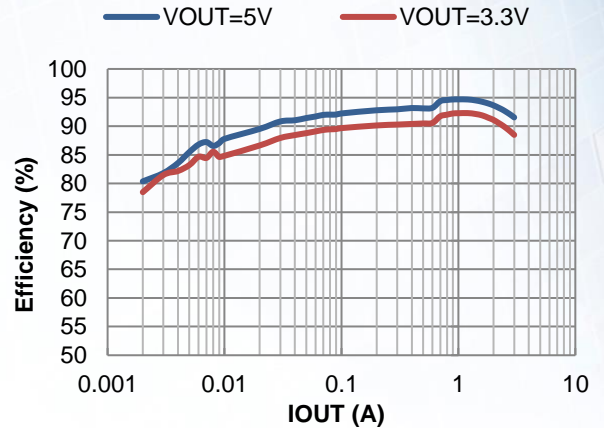
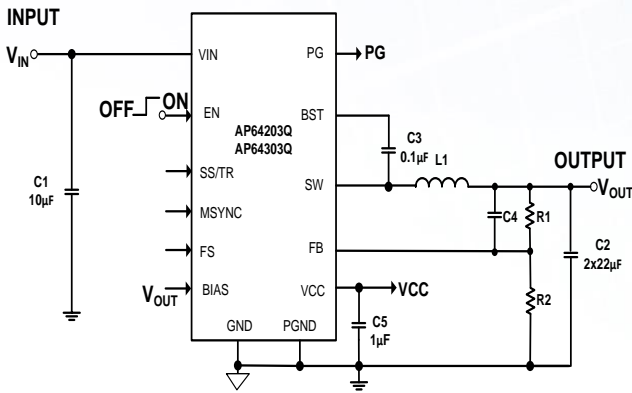
- **Wide 3.8V to 40V Input Voltage Range**  
Works across the full ICE automotive voltage range including load dump
- **High Switching Frequency of 2.5MHz**  
Delivers reduced solution footprint beyond MW band frequency
- **AP64203Q and AP64303Q :Low (40/43μA) Quiescent Current (I<sub>Q</sub>) and 1.5/2.2μA Shutdown Current**
- Enables systems to meet <100μA standby requirements of many automotive applications
- **Selectable PFM/PWM Operation with BIAS Pin**  
Allows designers to optimize overall performance to meet system needs with reduced internal power dissipation
- **Small Footprint U-QFN4040-16/SWP (Type UXB)**  
Includes high-power-density power conversion supporting AOI assembly

### Applications

Automotive POL conversion in:

- Body control electronics
- Infotainment
- Instrument clusters
- Telematics
- Interior and exterior lighting
- Advanced driver assistance systems (ADAS)

### Typical Application



### 40V Automotive-Compliant Buck Converter Portfolio

Part Number	V <sub>IN</sub> Range	V <sub>OUT</sub> Range	Output Current	HS/LS R <sub>DS(ON)</sub>	f <sub>sw</sub>	I <sub>Q</sub>	Key Features						Ambient Temp.	Package
	V	V					A	mΩ	kHz	µA	Adj. f <sub>sw</sub>	Ext. Sync	Ext. Comp	
<a href="#">AP64203Q</a>	3.8 – 40	0.8 - 36	2.0	185 / 80	300 to 2500	40	Y	Y	Y	Y	Y*	Y	-40 to +125	U-QFN4040-16/SWP (Type UXB)
<a href="#">AP64303Q</a>			3.0	120 / 55		43	Y	Y	Y	Y	Y*	Y		
<a href="#">AP64060Q</a>	4.5 – 40	0.8 - 24	0.60	600/300	2200	90	-	-	-	N	Y	-	-40 to +125	TSOT26
<a href="#">AP64100Q</a>	3.8 – 40	0.8 - V <sub>IN</sub>	1.0	150 / 80	100 to 2200	25	Y	Y	Y	N	Y	-	-40 to +125	SO-8EP
<a href="#">AP64102Q</a>							Y	Y	-	N	Y	Y		
<a href="#">AP64200Q</a>	3.8 – 40	0.8 - V <sub>IN</sub>	2.0	150 / 80	100 to 2200	25	Y	Y	Y	N	Y	-	-40 to +125	SO-8EP
<a href="#">AP64202Q</a>							Y	Y	-	N	Y	Y		
<a href="#">AP64350Q</a>	3.8 – 40	0.8 - V <sub>IN</sub>	3.5	75 / 45	100 to 2200	22	Y	Y	Y	N	Y	-	-40 to +125	SO-8EP
<a href="#">AP64351Q</a>							-	-	Y	N	Y	Y		
<a href="#">AP64352Q</a>	3.8 – 40	0.8 - V <sub>IN</sub>	5.0	45 / 20	100 to 2200	25	Y	Y	Y	N	Y	-	-40 to +125	SO-8EP
<a href="#">AP64500Q</a>							Y	Y	Y	N	Y	-		
<a href="#">AP64501Q</a>	3.8 – 40	0.8 - V <sub>IN</sub>	5.0	45 / 20	100 to 2200	25	-	-	Y	N	Y	Y	-40 to +125	SO-8EP
<a href="#">AP64502Q</a>							Y	Y	-	N	Y	Y		

\* PFM/LLHE mode is selectable via the BIAS pin

### Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package Code	Package	Moisture Sensitivity	Packing	
					Quantity	Carrier
<a href="#">AP64203QFVBW-13</a>	<a href="#">Automotive</a>	FVBW	U-QFN4040-16/SWP (Type UXB)	MSL-1	3,000	13" Tape & Reel
<a href="#">AP64303QFVBW-13</a>	<a href="#">Automotive</a>	FVBW	U-QFN4040-16/SWP (Type UXB)	MSL-1	3,000	13" Tape & Reel