

AP64350Q

AP64351Q

AP64352Q

## Automotive-compliant 3.5A 2.2MHz, Synchronous Buck Converters Deliver High Efficiency

The AP64350Q, AP64351Q, and AP64352Q are 40V, high-efficiency, synchronous DC-DC buck converters qualified to AEC-Q100 grade 1.

AP6435xQs' special design of the gate drive/bootstrap enables them to operate in LDO mode, allowing near 100% duty cycle.

To increase efficiency as the load current approaches zero, the devices enter pulse frequency modulation (PFM).

The AP6435xQ feature frequency spread spectrum (FSS) ( $\pm 6\%$  switching frequency jitter) to reduce EMI by not allowing emitted energy to stay at any one frequency for any significant period of time.

The AP64350Q and AP64352Q have programmable switching frequencies, up to 2.2MHz, that can also be synchronized to an external clock. AP64351Q has a nominal 570kHz switching frequency.

The AP64351Q and AP64352Q have programmable soft-start that reduces in-rush currents while the AP64350Q and AP64351Q have external compensation to optimize the loop response.

All devices are available in the SO-8EP package.

5A automotive versions (AP6450xQ) are expected in Q3 2020 - Check [Diodes.com](http://Diodes.com) for the latest status.



### The Diodes Advantage

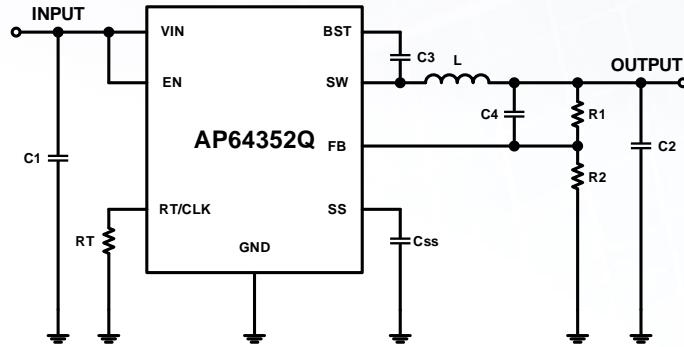
Automotive-compliant AP64350Q/AP64351Q/AP64352Q support ambient temperatures up to +125°C

- **$V_{IN}$  3.8V to 40V**  
Works across wide automotive battery voltage range including load dump
- **Synchronous Rectified Output**  
Improves the efficiency and saves the external Schottky Diode
- **Wide Output Voltage Range: 0.8V to near 100% of  $V_{IN}$  (LDO Mode)**  
Maintains regulation even as  $V_{IN}$  approaches  $V_{OUT}$
- **Low (22 $\mu$ A) Quiescent Current ( $I_Q$ ) and 1 $\mu$ A Shutdown Current**  
Enables the system to meet <100 $\mu$ A standby requirements of some automotive applications
- **Programmable and Synchronizable  $f_{SW}$  (AP64350Q/AP64352Q)**  
Low frequency from 100kHz – high-efficiency solution  
High frequency up to 2.2MHz – small-form factor solution
- **Programmable Soft-Start Time (AP64351/AP64352Q)**  
Reduces inrush current at power-up or enable of device

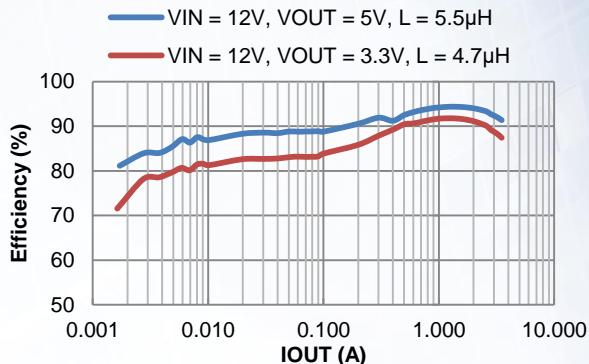
### Applications

- Automotive Infotainment Power Supply
- Automotive Forward Lighting POL

### Typical Application Circuit



### Efficiency Chart (3.5A)



### 40V Automotive-compliant DC-DC Buck Converter Portfolio

Part Number	V <sub>IN</sub> Range (V)	V <sub>OUT</sub> Range (V)	Output Current (A)	R <sub>DS(ON)</sub> (mΩ)	Switching Frequency (kHz)	I <sub>Q</sub> (μA)	Key Features				Ambient Temperature (°C)	Package
							Prog. f <sub>SW</sub>	Ext. Sync	Ext. Comp	Prog. SS		
AP64350Q	3.8 – 40	0.8 - V <sub>IN</sub>	3.5	75/45	100 - 2200	22	Y	Y	Y	-	-40 to +125	SO-8EP
AP64351Q					570		-	-	Y	Y		
AP64352Q					100 - 2200		Y	Y	-	Y		

To find out more information:

Product Pages:

<https://www.diodes.com/part/AP64350Q>  
<https://www.diodes.com/part/AP64351Q>  
<https://www.diodes.com/part/AP64352Q>

### Ordering Information

Orderable Device	Package Code	Package	Reel Size	Quantity
AP64350QSP-13	SP	SO-8EP	13-inch	4000
AP64351QSP-13	SP	SO-8EP	13-inch	4000
AP64352QSP-13	SP	SO-8EP	13-inch	4000