



## New Product Announcement

### AP68255Q/355Q AP6A255Q/355Q

## 80V/100V, 2.5A/3.5A, Asynchronous Buck Converters Deliver High Efficiency in Automotive Point-of-Load Applications

The AP68255Q, AP68355Q, AP6A255Q, and AP6A355Q are high-voltage, internally compensated, DC-DC buck converters with a default switching frequency of 300kHz.

They utilize constant on-time (COT) control to achieve fast transient response, easy loop stabilization, and low output voltage ripple, all of which minimizes the external component count. An integrated 500mΩ high-side power MOSFET provides high-efficiency step-down conversion.

The AP68255Q, AP68355Q, AP6A255Q, and AP6A355Q designs have been optimized for electromagnetic interference (EMI) reduction. Each device has a proprietary gate-driver scheme to improve switching node ringing, which reduces high-frequency radiated EMI noise caused by MOSFET switching. It does this without sacrificing the turn-on and turn-off times of the N-MOSFET switch.

The devices have been qualified to AEC-Q100 Grade 1, operating across the -40°C to +125°C ambient temperature range, and are available in the thermally enhanced SO-8EP package.

Standard-compliance versions—AP68255, AP68355, AP6A255, and AP6A355—are available and suitable for industrial and commercial applications.

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

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### The DIODES Advantage

**The AP68255Q, AP68355Q, AP6A255Q, and AP6A355Q provide high-efficiency DC-DC conversion for automotive 48V rail point-of-load (PoL) applications.**

- **Wide 5.5V to 80V/100V Input Voltage Range**  
Operates across the full automotive battery voltage range, including load dump and 48V
- **Continuous Output Currents up to 3.5A**  
Supports low input voltage and high output-current operating conditions, including ultra-low  $I_Q$  operation for high light-load efficiency
- **Built-in Overcurrent Protection (OCP) with Frequency Foldback**  
Ensures high load-current support while reducing junction temperature under fault conditions
- **Industry-Standard Low Thermal Impedance SO-8EP Package**  
Reduces junction temperature rise

### Applications

Automotive PoL conversion in:

- Body control electronics
- Infotainment
- Instrument clusters
- 48V motor control
- Telematics
- Interior and exterior lighting
- Advanced driver assistance systems (ADAS)

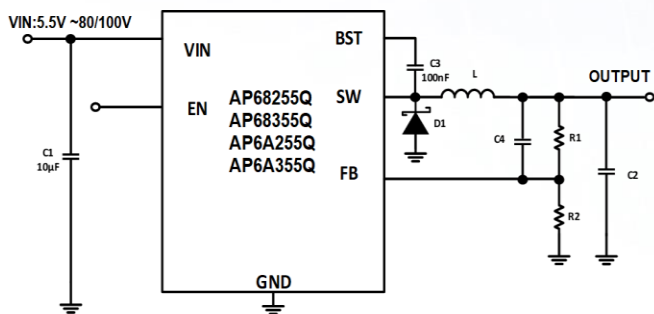


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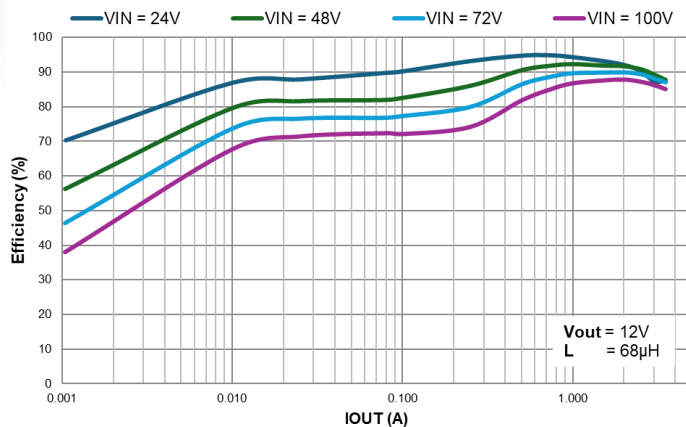
## AP68255Q/355Q

## AP6A255Q/355Q

### Typical Application Circuit



### Efficiency Chart



### 80V/100V Automotive-Compliant Buck Converter Portfolio

Part Number	V <sub>IN</sub> Range V	V <sub>OUT</sub> Range V	Output Current A	HS R <sub>DS(ON)</sub> mΩ	f <sub>sw</sub> kHz	I <sub>Q</sub> µA	Ambient Temperature °C	Package
<a href="#">AP68255Q</a>	5.5 to 80	1.2 to 50	2.5	500	300	140	-40 to +125	SO-8EP
<a href="#">AP68355Q</a>	5.5 to 80	1.2 to 50	3.5	500	300	140	-40 to +125	SO-8EP
<a href="#">AP6A255Q</a>	5.5 to 100	1.2 to 50	2.5	500	300	140	-40 to +125	SO-8EP
<a href="#">AP6A355Q</a>	5.5 to 100	1.2 to 50	3.5	500	300	140	-40 to +125	SO-8EP

### Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package Code	Package	Moisture Sensitivity	Packing	
					Quantity	Carrier
<a href="#">AP68255QSP-13</a>	<a href="#">Automotive</a>	SP	SO-8EP	MSL-1	4,000	13" Tape & Reel
<a href="#">AP68355QSP-13</a>	<a href="#">Automotive</a>	SP	SO-8EP	MSL-1	4,000	13" Tape & Reel
<a href="#">AP6A255QSP-13</a>	<a href="#">Automotive</a>	SP	SO-8EP	MSL-1	4,000	13" Tape & Reel
<a href="#">AP6A355QSP-13</a>	<a href="#">Automotive</a>	SP	SO-8EP	MSL-1	4,000	13" Tape & Reel