



New Product Announcement

AP66200Q

AP66300Q

60V, 2A/3A, Synchronous Buck Converters Deliver High Efficiency in Automotive Point-of-Load Applications

The automotive-compliant DIODES AP66200Q and DIODES AP66300Q are 2A and 3A synchronous buck converters, each with a wide input voltage range of 3.8V to 60V. Their wide operating voltage range and small footprint make them suitable for a large selection of automotive point-of-load (PoL) applications.

These integrated power MOSFET switches (120mΩ high-side and 55mΩ low-side for AP66300Q, 185mΩ high-side and 80mΩ low-side for AP66200Q) provide high-efficiency step-down conversion. Their BIAS feature further enhances device efficiency, helping reduce internal power consumption.

Both parts minimize external component count by adopting peak current mode control coupled with integrated loop compensation network, making them easier to use. Their output stages are optimized for electromagnetic interference (EMI) reduction.

The 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 adjustable soft-start to reduce inrush current and tracking for power sequencing.

Their high level of integration simplifies board layout and reduces space requirements with minimal need for external components, making it ideal for distributed power architectures.

The AP66200Q/300Q are available in the wettable flank U-QFN4040-16/SWP (Type UXB) package supporting automatic optical inspection (AOI).

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

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The DIODES Advantage

The AP66200Q and AP66300Q provide high-efficiency DC-DC conversion for automotive 24V and 12V PoL applications.

- Wide 3.8V to 60V Input Voltage Range**
 Works across the full ICE (internal combustion engine) automotive voltage range including load dump
- High Switching Frequency up to 2.5MHz**
 Beyond MW (medium wave) band frequency delivers a reduced solution footprint
- Low (43μA) Quiescent Current (I_Q) and 2.2μA Shutdown Current (I_{SHDN})**
 Enables systems to meet <100μA standby requirements of many automotive applications
- Adjustable PFM/PWM Operation and BIAS Features**
 Allows designers to optimize overall performance to meet system needs with reduced internal power dissipation
- Small Footprint U-QFN4040-16/SWP (Type UXB)**
 High-power-density power conversion supports AOI assembly

Applications

Automotive PoL conversion in:

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

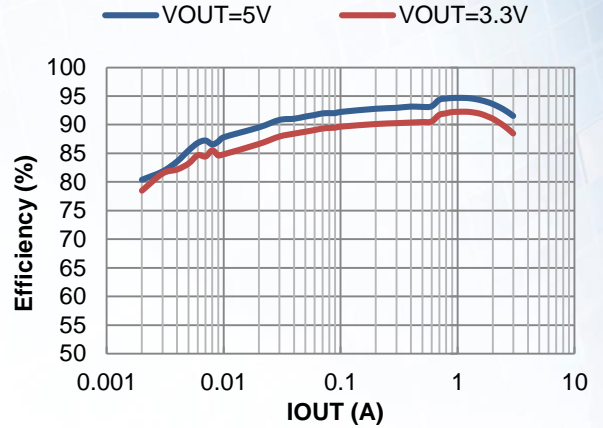
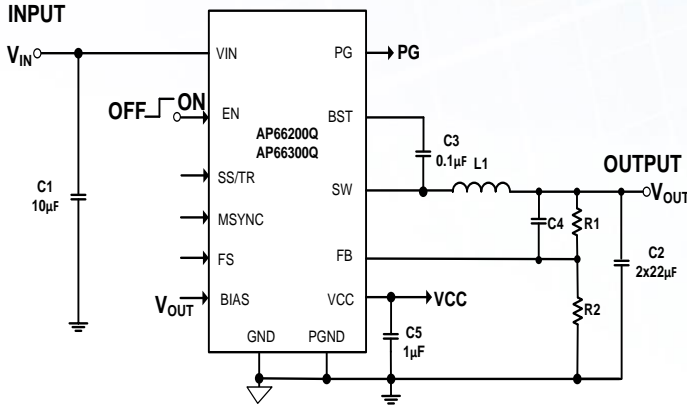


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AP66300Q

Typical Application



40V and 60V Automotive-Compliant Buck Converter Portfolio

Part Number	V _{IN} Range	V _{OUT} Range	Output Current	HS/LS R _{DS(ON)}	f _{sw}	I _Q	Key Features						Ambient Temp.	Package
	V	V					Adj. f _{sw}	Ext. Sync	Ext. Comp	PG	LLHE	Adj. SS	°C	
AP66200Q	3.8 - 60	0.8 - V _{IN}	2.0	180 / 80	300 to 2,500	40	Y	Y	Y	Y	Prog	Y	-40 to +125	U-QFN4040-16/SWP (Type UXB)
AP66300Q			3.0	120 / 55		43	Y	Y	Y	Y	Prog	Y		
AP64060Q	4.5 - 40	0.8 - 24	0.60	600/300	2,200	90	-	-	-	N	N	-	-40 to +125	TSOT26
AP64100Q	3.8 - 40	0.8 - V _{IN}	1.0	150 / 80	100 to 2,200	25	Y	Y	Y	N	Y	-	-40 to +125	SO-8EP
AP64102Q							Y	Y	-	N	Y	Y		
AP64200Q	3.8 - 40	0.8 - V _{IN}	2.0	150 / 80	100 to 2,200	25	Y	Y	Y	N	Y	-	-40 to +125	SO-8EP
AP64202Q							Y	Y	-	N	Y	Y		
AP64350Q	3.8 - 40	0.8 - V _{IN}	3.5	75 / 45	100 to 2,200	22	-	-	Y	N	Y	Y	-40 to +125	SO-8EP
AP64351Q							Y	Y	-	N	Y	Y		
AP64352Q					100 to 2,200		Y	Y	-	N	Y	Y		
AP64500Q	3.8 - 40	0.8 - V _{IN}	5.0	45 / 20	100 to 2,200	25	Y	Y	Y	N	Y	-	-40 to +125	SO-8EP
AP64501Q							-	-	Y	N	Y	Y		
AP64502Q					100 to 2,200		Y	Y	-	N	Y	Y		

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package Code	Package	Moisture Sensitivity	Packing	
					Quantity	Carrier
AP66200QFVBW-13	Automotive	FVBW	U-QFN4040-16/SWP (Type UXB)	MSL-1	3,000	13" Tape and Reel
AP66300QFVBW-13	Automotive	FVBW	U-QFN4040-16/SWP (Type UXB)	MSL-1	3,000	13" Tape and Reel