



New Product Announcement

AP64350/351/352
AP64500/501

40V, 2.2MHz, Synchronous Buck Converters Deliver High Efficiency Across All Loads

The AP64350, AP64351, AP64352, AP64500, and AP64501 are 40V, high-efficiency, synchronous DC-DC buck converters. The special design of the gate drive/bootstrap enables them to operate in LDO mode, enabling near 100% duty cycle.

As the load current approaches zero, the devices enter pulse frequency modulation (PFM) mode to increase the converter power efficiency.

The AP64350, AP64351, AP64352, AP64500, and AP64501 devices 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 AP64350, AP64352, and AP64500 have programmable switching frequencies, up to 2.2MHz, that can also be synchronized to an external clock. AP64351 and AP64501 have a nominal 570kHz switching frequency.

The AP64351, AP64352, and AP64501 have a programmable soft-start that reduces in-rush currents, while the AP64350, AP64351, AP64500, and AP64501 have external compensation to optimize the loop response.

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



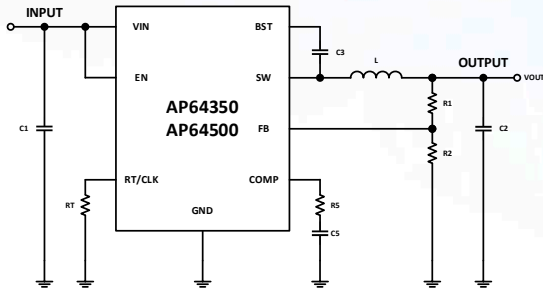
DIODES Advantage

- **V_{IN} 3.8V to 40V**
 - ✓ Works across the full supply rails of commercial and industrial applications
- **Programmable F_{SW} (AP64350/AP64352/AP64500) with Synchronization**
 - ✓ Low frequency from 100kHz – high-efficiency solution
 - ✓ High frequency to 2.2MHz – small-form factor solution
- **Wide Output Voltage Range: 0.8V to Near 100% of V_{IN} (LDO Mode)**
 - ✓ Duty cycle can extend to 100% for several switching cycles, acts like an LDO
- **Low Quiescent Current (I_Q) and Shutdown Current**
 - ✓ 22 μ A I_Q for 3.5A Device; 25 μ A I_Q for 5A device
 - ✓ 1 μ A shutdown current
- **Programmable Soft-Start Time (AP64351/AP64501)**
 - ✓ Reduces in-rush current
- **Designed for Best-in-Class EMI Performance**
 - ✓ Ringing resistant switching node at 4ns rise time
 - ✓ Frequency spread spectrum

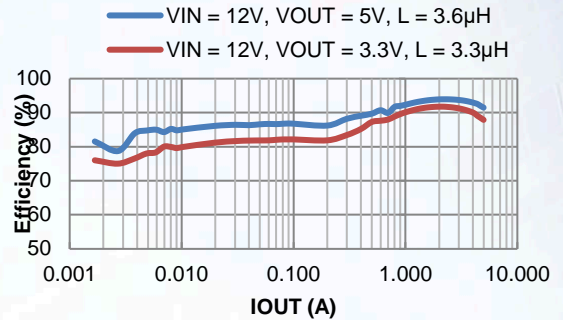
Applications

- 12V and 24V Industrial Distributed Power Bus
- White Goods and Small Home Appliances
- Home Audio & Network Systems
- Cordless Power Tools

Typical Application Circuit



Efficiency Chart (5A)



40V DC-DC Buck Converter Portfolio

Part Number	V _{IN} Range (V)	V _{OUT} Range (V)	Output Current (A)	R _{DS(ON)} (mΩ)	Switching Frequency (kHz)	I _Q (µA)	Key Features	Ambient Temperature (°C)	Package
AP64350	3.8 – 40	0.8 - V _{IN}	3.5	75/45	100 - 2200	22	Prog. F _{SW} , Ext. Sync, Ext. Comp	-40 to +85	SO-8EP
AP64351	3.8 – 40	0.8 - V _{IN}	3.5	75/45	570	22	Prog. SS, Ext. Comp	-40 to +85	SO-8EP
AP64352	3.8 – 40	0.8 - V _{IN}	3.5	75/45	100 - 2200	22	Prog. F _{SW} , Ext. Sync, Prog. SS	-40 to +85	SO-8EP
AP64500	3.8 – 40	0.8 - V _{IN}	5.0	45/20	100 - 2200	25	Prog. F _{SW} , Ext. Sync, Ext. Comp	-40 to +85	SO-8EP
AP64501	3.8 – 40	0.8 - V _{IN}	5.0	45/20	570	25	Prog. SS, Ext. Comp	-40 to +85	SO-8EP

To find out more information:

Product Pages:

<https://www.diodes.com/part/AP64350>

<https://www.diodes.com/part/AP64351>

<https://www.diodes.com/part/AP64352>

<https://www.diodes.com/part/AP64500>

<https://www.diodes.com/part/AP64501>

Ordering Information

Orderable Device	Package Code	Package	Reel Size	Quantity
AP64350SP-13	SP	SO-8EP	13-inch	4000
AP64351SP-13	SP	SO-8EP	13-inch	4000
AP64352SP-13	SP	SO-8EP	13-inch	4000
AP64500SP-13	SP	SO-8EP	13-inch	4000
AP64501SP-13	SP	SO-8EP	13-inch	4000