

TPS65320D vs TPS65321A Comparison

Both devices have very similar specifications and complement each other to address the specific requirements of different application profiles.

	TPS65320D-Q1	TPS65321A-Q1
Description	Automotive 3.6V to 36V, 3.2A Buck Converter with Auto-Sourced 280mA LDO Regulator	Automotive 3.6V to 36V, 3.2A Buck Converter with Wide Vin 280mA LDO Regulator
Differentiation	<ul style="list-style-type: none"> Auto-source feature reduces LDO power dissipation by automatically selecting V_{in} (Battery) or Buck output 	<ul style="list-style-type: none"> The flexible LDO input source allows $V_{LDO} > V_{DC/DC}$
Value Proposition	<ul style="list-style-type: none"> The LDO input auto source improves efficiency and reduces power dissipation Suitable for “always-on application” 	<ul style="list-style-type: none"> Suitable for low-power standby application, as the LDO can stay on while DC/DC converted is powered off. Direct connection to battery for DCDC and LDO LDO may be used as a noise filter for high voltage rails
Application example	Application with 5V at the DCDC and 3.3V at the LDO: The TPS65320D would be a better fit, due to the auto source feature of the LDO and the resulting lower power dissipation. $V_{DC/DC} > V_{LDO}$	Application with 3.3V at the DCDC and 5V at the LDO: The TPS65321A is ideal here, as it allows $V_{LDO} > V_{DC/DC}$ (the TPS65320D is not capable of this)
Note / Boundary condition:	<ul style="list-style-type: none"> The auto source feature helps to improve efficiency, however note that: $V_{DC/DC} > V_{LDO}$ 	<ul style="list-style-type: none"> TPS65321A LDO voltage needs external input voltage, potentially leading to higher power dissipation (no auto-sourcing).
Typical Application Schematic		