

LDOs Operate Up To 40-V Input, Offer Multiple Output Options And Low I_Q

[STMicroelectronics](#)’ LDH40 and LDQ40 linear regulators for automotive and industrial applications start up from an input as low as 3.3 V, operate with up to 40 V applied, and have low quiescent current. The LDH40 delivers up to 200 mA and is available in one version only, having adjustable output voltage from 1.2 V to 22 V. The 250-mA LDQ40 is available with a 1.2-V to 12-V adjustable output and a choice of 1.8-V, 2.5-V, 3.3-V, and 5.0-V fixed output voltages (Fig. 1).

These low-dropout regulators (LDOs) ensure efficient power conversion for energy-conscious applications. The quiescent current of 2 μ A at zero load and 300-nA logic-controlled shutdown mode help preserve battery energy in always-on standby systems. The devices are stabilized with a small ceramic capacitor on the output.

The automotive devices are AEC-Q100 qualified and packaged as 2-mm x 2-mm DFN6L devices with wettable flanks that ease PCB design and facilitate automated optical inspection. Their wide input-voltage range allows connection to a vehicle’s 12-V bus, that can reach up to 40-V transient, to power infotainment systems, instrument clusters, and advanced driver-assistance systems (ADASs). With their low quiescent and standby current, they are especially suited to use in electric vehicles.

All the LDOs have system protection and management features including internal current limiting, thermal protection, soft-start, and output active discharge. There is an enable pin for shutdown control and a power-good pin for diagnostic monitoring. The LDQ40 devices also have short-circuit protection.

The LDH40 automotive-grade regulator is in production now in a DFN6L wettable-flank package. The adjustable-output LDQ40 regulators, in industrial and automotive grade, are in production as well, in the standard DFN6L package and wettable-flank package for automotive applications (Fig. 2).

The fixed-output LDQ40 automotive parts with 1.8 V, 2.5 V, 3.3 V and 5.0 V will be available within Q2. Industrial LDQ40 3.3 V and 5.0 V will be available by Q3. Pricing for both automotive products starts from \$0.47 for 1000 units. The LDQ40 industrial-grade price starts from \$0.40 for 1000 units. Free samples for both LDH40 and LDQ40 are available at the ST eStore.

For more information, see the [LDH40](#) and [LDQ40](#) pages or visit www.st.com/lido-for-automotive.

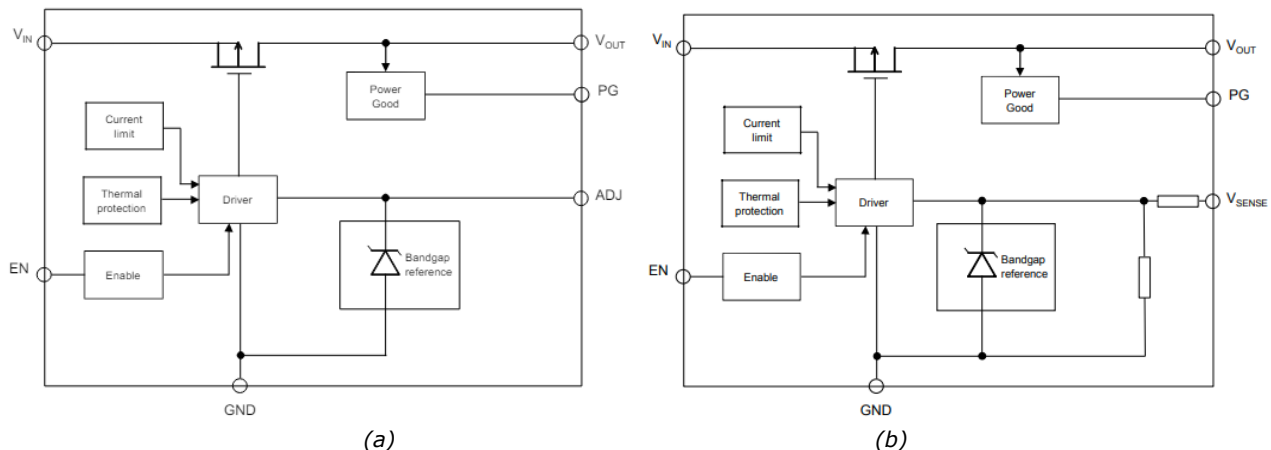
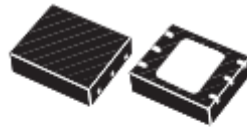


Fig. 1. Internal block diagram (a) for the adjustable 200-mA LDH40 LDO and 250-mA LDQ40 LDO. An internal block diagram for the fixed version of the LDQ40 is shown in (b).



DFN 2x2 6L
Wettable Flanks



SOT23 5L

Fig. 2. The LDH40 and LDO will be available in the DFN package with wettable flanks for automotive applications and in the SOT-23 for industrial applications.