

NEXT GENERATION OF LOW QUIESCENT CURRENT LDOs



Powering automotive and industrial innovation



With ultra-low power consumption and a wide input range, our robust LDO regulators are tailored for demanding industrial and automotive applications

A versatile suite of high-performance LDO regulators, our LDH40, LDL40, and LDQ40 series are designed to meet the strict demands of both automotive and industrial applications. These robust devices are AEC-Q100 grade 1 qualified, ensuring top-tier reliability.

Their ultra-low quiescent current at light load helps extend battery lifetime and reduces overall power consumption.

Compact wettable flank packages enhance automated optical inspection and ensure robust connections for reliable soldering.

KEY FEATURES AND BENEFITS

- Quiescent current as low as 2 μA at no load
- 300 nA in standby mode
- Wide input range
 - Operates from 3.3 to 40 V, accommodating various power systems
- Different output options
 - Adjustable output from 1.2 to 12 V for LDL40 and LDQ40; from 1.2 to 22 V for LDH40
- Fixed voltages: 1.8 V, 2.5 V, 3.3 V, 5 V for LDL40 and LDQ40
- Compact package
 - Available in DFN packages with wettable flanks for automotive applications

Built-in protections

- Current limit, thermal and short-circuit (LDQ40 only) protection
- Power-good output for output voltage monitoring

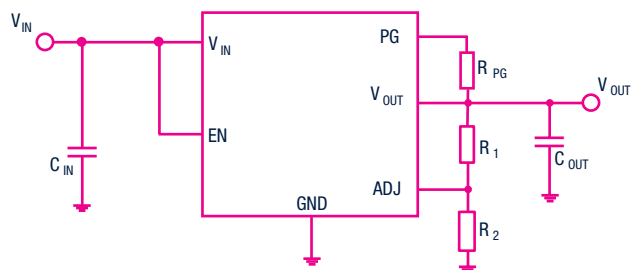
KEY APPLICATIONS

- Advanced driver-assistance systems (ADAS)
- Body control modules (BCM)
- Electric vehicle (EV)
- Battery management systems (BMS)
- Powertrain, infotainment, and instrumentation clusters
- Always-on battery connected applications

With a very low quiescent current, these high-accuracy voltage regulators are specifically designed to improve energy efficiency to ensure an increased battery lifetime and a better overall application use experience. Their wide input range makes them suitable for applications where large input voltage variations can occur (such as with a 12 V car battery) while keeping a very stable output voltage with low dropout performance.

- LDH40 is ideal for high voltage output up to 22 V adjustable
- 200 mA output current for LDH40 and LDL40, 250 mA for LDQ40
- Stable with low ESR capacitors
- Enhanced thermal and current limit protection
- Power Good pin to ensure a stable power supply is available
- Small footprint packages for space-constrained designs

Typical application diagram



Quiescent current performance

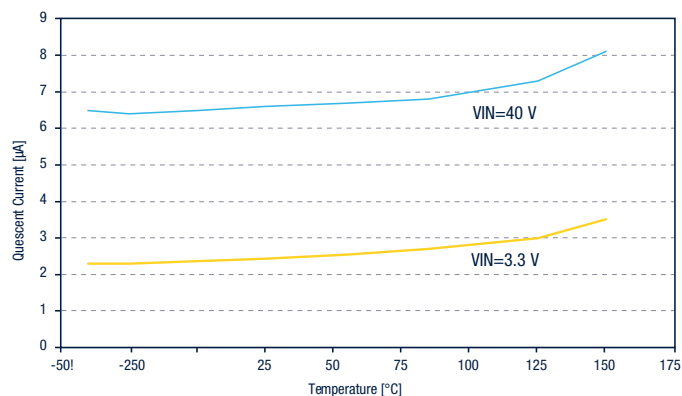


Table of the product parameters

Order code	V_{IN} (V)	I_{OUT} (mA)	V_{OUT-FM} (V)	$V_{OUT-ADJ}$ (V)	Accuracy @full operating conditioning (%)	Foldback	Current limit	Soft-start, Power good, Enable	I_a @ONmode no load (µA)	I_a @OFFmode no load (µA)
 LDH40	3.3 to 40	200	-	1.2 to 22	2.5	No	Yes	Yes	2	0.3
 LDL40	3.3 to 40	200	3.3, 5	1.2 to 12	2.5	No	Yes	Yes	2	0.3
 LDQ40	3.3 to 40	250	1.8, 2.5, 3.3, 5	1.2 to 12	1.5	Yes	Yes	Yes	2	0.3

Note: In **bold** key differences



© STMicroelectronics - June 2024 - Printed in the United Kingdom - All rights reserved
ST and the ST logo are registered and/or unregistered trademarks of STMicroelectronics International NV or its affiliates in the EU and/or elsewhere. In particular, ST and the ST logo are Registered in the US Patent and Trademark Office.
For additional information about ST trademarks, please refer to www.st.com/trademarks.
All other product or service names are the property of their respective owners.

