

STMicroelectronics' automotive linear voltage regulator preserves battery energy in challenging conditions

Auto-adaptive quiescent current, wide input-voltage and operating-temperature ranges, powering circuitry in body control, telematics and head units

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STMicroelectronics' [L99VR03](#) 300mA low-dropout (LDO) regulator provides resilient and efficient power, with a wide input-voltage range and very low quiescent current consumption, only 3.5µA at no load. The IC has an enable pin for turning the regulator off, which reduces the idle current to 800nA, and integrates soft-start circuitry to limit current during power-up and fault recovery.



Qualified to AEC-Q100, the L99VR03 powers circuitry such as automotive microcontroller systems, logic ICs, and sensors in body-control modules, telematics controllers, lighting controllers, and head units. Additional applications include providing sustaining power for slow ramp-up systems. The device has a wide operating temperature range, from -40°C to 175°C, allowing deployment under the hood in combustion engine vehicles and in the power modules of EV drivetrains.

ST's L99VR03 LDOs are available with a fixed 3.3V or 5V output and operate with up to 40V at the input. The output is accurate to within ±2% in all operating conditions and the wide input-voltage range ensures the output remains stable throughout events such as cold cranking and load dump. Switching noise rejection is greater than 60dB at 1kHz and the regulator requires only 2.2µF output capacitance to ensure stability.

The L99VR03 is in production now in a choice of two thermally enhanced package options, including a 3mm x 2mm bottom-terminated VFDFN8L with wettable flanks that facilitate quality inspection. There is also a leaded PowerSSO12 package with a 4.9mm x 3.9mm body that contains a large heat spreader to maximize dissipation.

Pricing starts from \$0.39 in the VFDFN8L package and \$0.51 in the PowerSSO12, from the eStore and distributors.

Please visit <https://www.st.com/ldo-for-automotive>

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