AUTOMOTIVE USB CHARGING

MAX16984 lets you quickly and reliably charge any portable device over USB

Until now, reliably charging portable devices over USB has been challenging. The long embedded USB cables used in vehicles cause a voltage drop, thereby reducing charging current. When coupled with the tightening VBUS specification of consumer devices (4.75V to 5.25V; > 4.9V for some modes), this characteristic makes it difficult to maintain a compliant VBUS voltage at the device with static 5V regulators.

The MAX16984 elegantly solves this problem using built-in voltage drop compensation. The device senses the output current and uses a feedback network to increase its output voltage in proportion to the voltage drop across the captive cables. This ensures that the voltage at the consumer device is within specification.

Maxim's solution integrates the functions of three chips into one to streamline your circuitry and BOM. It combines a low-EMI, automotive-grade 5V DC-DC converter with voltage compensation, a smart USB charge emulator, and protection switches to guarantee fast, reliable charging over cables up to 3m long.

Key Advantages

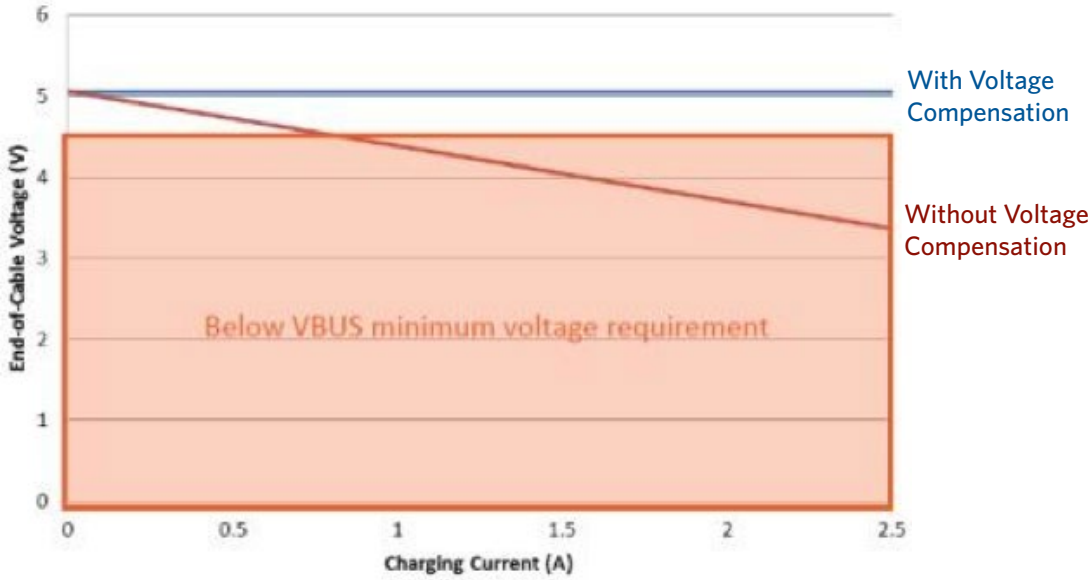
High integration. The MAX16984 combines the functions of the standard three-chip solution: a 5V automotive-grade DC-DC converter capable of driving up to 2.5A, a USB BC1.2 charge adapter emulator, and USB protection switches for automotive USB host applications.

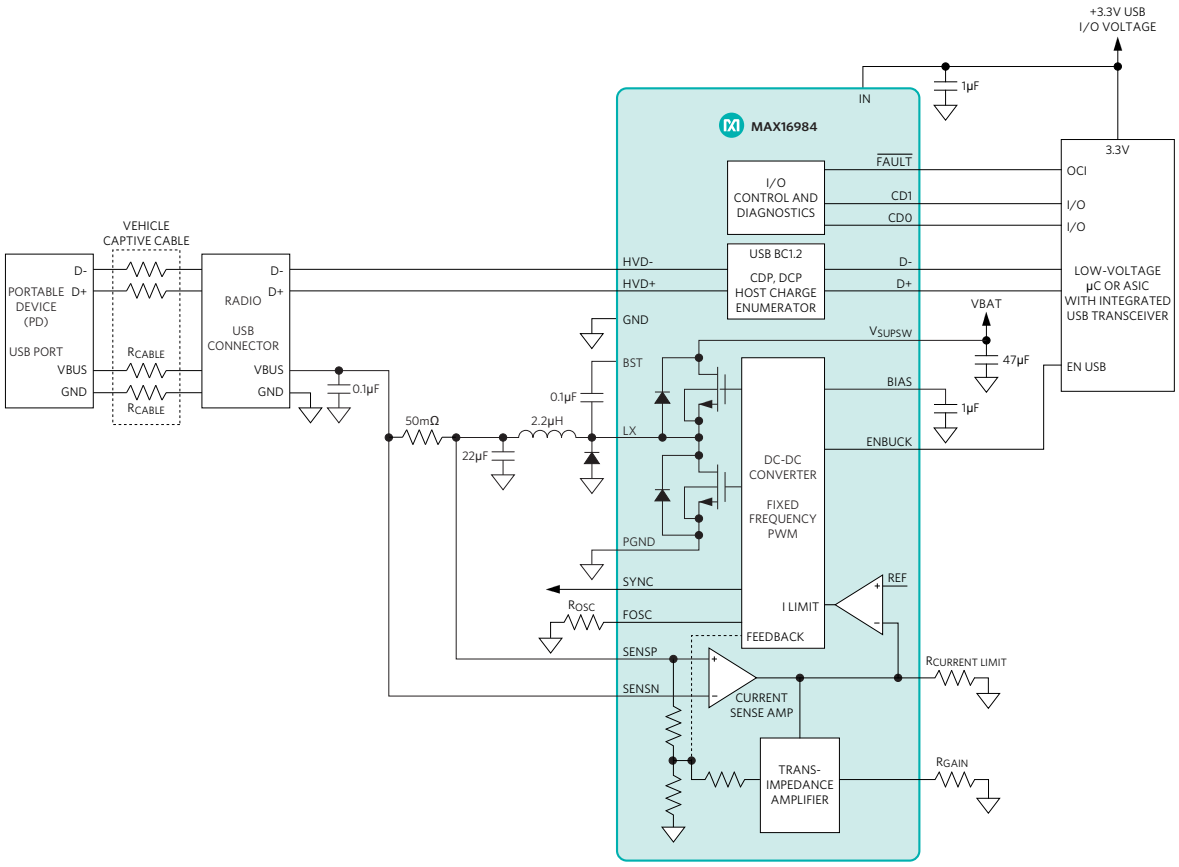
Higher performance. It operates from a voltage up to 28V and is protected from load-dump transients up to 42V; integrated output adjustment eliminates cable voltage drop.

Reduced power. The IC's automotive USB function communicates with a connected device and switches to low-power mode when not in use, thus reducing power consumption.

Safe charging. The MAX16984 is the only USB protection IC that can tolerate a short to battery on the USB data lines. This robust overvoltage protection coupled with the device's integrated ESD diodes prevents damage to the vehicle's radio and peripheral components.

Voltage Compensation Ensures VBUS Compliance at End of 3m Cable





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