Stand-Alone Automotive USB Supply with Data-Line Protection E522.43

Preliminary Information - Jan 26, 2016

RoHS compliant

Features

- Input voltage range from 6V to 32V (tran. 42V)
- Fixed frequency Step-Down converter with selectable center frequency 250kHz, 500kHz or 2MHz
- Advanced PWM voltage regulation loop with 100% duty cycle capability
- Fixed 5V±3% USB BUS voltage, with seven programmable negative resistance adjustments
- Programmable USB corresponding output currents of 0.6/1.8A/2.5A/3.5A with fixed limits or regulation
- +/-25% synchronizable to center frequency via PLL
- Exclusively pin-configurable
- USB 2.0 high speed compatible data line switches with protection function
- Wake-on USB functionality
- Adjustable coding network for SDP or BC1.2 CDP downstream loads and DCP or individual USB chargers
- Short to GND and VBAT protection for BUS and data lines, overvoltage and temperature protection
- Full automotive qualification AEC-Q100

Applications

- Automotive Infotainment, Navigation and Radio Units.
- USB Chargers

General Description

The E522.43 is a USB 2.0 compatible Stand-Alone power supply with protection features for the automotive environment. Protection includes ISO7637 pulses on the input, as well as short to battery/ground on the USB bus and data lines.

The system setup and device configuration is done via hard wired resistor divider to the VDD line with parity check for coding safety.

An internal DC-DC converter provides efficient USB 5V supply from either vehicle battery or a lower voltage bus rail. Selectable soft power-up sequence protects the external parts from overload and reduces inrush currents. It is possible to program a current dependent output voltage gain up to -400mΩ for current induced wire losses along the USB cable. The switching frequency can be synchronized in Master-Slave configurations with other devices via PLL input. In addition the switchable spread spectrum option reduces EMI.

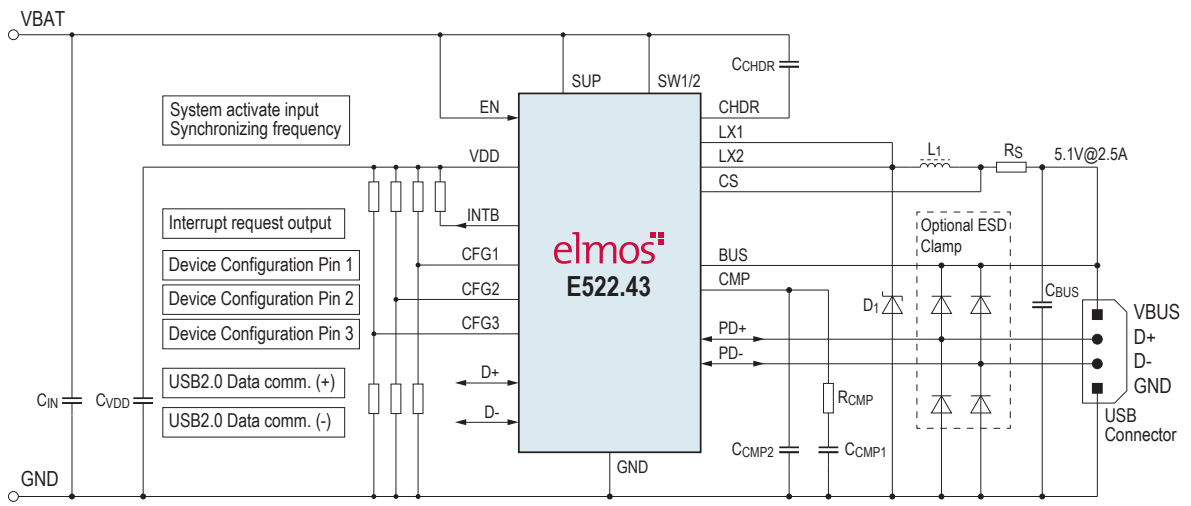
The E522.43 supports USB charging downstream loads according to the Battery Charging Specification Revision 1.2 and various other specific USB charger emulations.

Ordering Information

Ordering-No.:	T_{AMB} Range	Package
E52243B62C	-40°C to +105°C	QFN20L5
E52243B62CXX1 [1)]	-40°C to +105°C	QFN20L5

1) Wettable flanks

Typical Application Circuit



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