

## Product brief

# TLS850FxTA

## OPTIREG™ linear high performance voltage regulator

OPTIREG™ linear high performance TLS850FxTA is a family of very low dropout voltage regulators. With an input voltage range of 3 V to 40 V and very low quiescent of only 40  $\mu$ A, these regulators are perfectly suitable for automotive or any other supply systems connected to the battery permanently. The TLS850FxTA family provides an output voltage accuracy of 2 percent and a maximum output current up to 500 mA.

The new loop concept combines fast regulation and very good stability while requiring only one small ceramic capacitor of 1  $\mu$ F at the output. At currents below 100 mA the device will have a very low typical dropout voltage of only 70 mV. The operating range starts already at input voltages of only 3 V (extended operating range). This makes the TLS850FxTA also suitable to supply automotive systems that need to operate during cranking condition.

The devices can be switched on and off by the enable feature. The output voltage is supervised by the reset feature, including undervoltage reset, delayed reset at power-on and an adjustable lower reset threshold. In addition, a watchdog circuit with fixed timing is integrated to monitor the microcontroller's operation. Internal protection features like output current limitation and overtemperature shutdown are implemented to protect the device against immediate damage due to failures like output short circuit to GND, over-current and over-temperatures.

### External components

An input capacitor CI is recommended to compensate line influences. The output capacitor CQ is necessary for the stability of the regulating circuit. TLS850FxTA family is designed to be also stable with low ESR ceramic capacitors.

### Key features

- > Voltage range from 3.0 ... 40 V
- > Output voltage 5 V  $\pm$ 2 percent
- > Output current up to 500 mA
- > Stable with small output capacitor of 1  $\mu$ F
- > Quiescent current typ. 40  $\mu$ A
- > Very low dropout voltage typ. 70 mV @ 100 mA
- > Stable with ceramic output capacitor of 1  $\mu$ F
- > Reset at power-on: refer to table
- > Adjustable reset threshold down to 2.50 V
- > Fixed watchdog timing: 96 ms

### Key benefits

- > Suitable for automotive environment
- > Performance optimized
- > Improved cranking operation
- > Excellent thermal performance
- > MSL1

### Key applications

- > Automotive general ECUs
- > Dashboard and cluster supplies
- > Powertrain and EPS applications
- > Microcontroller supply for safety application

[www.infineon.com/TLS850F2TAV50](http://www.infineon.com/TLS850F2TAV50)

[www.infineon.com/TLS850F1TAV50](http://www.infineon.com/TLS850F1TAV50)

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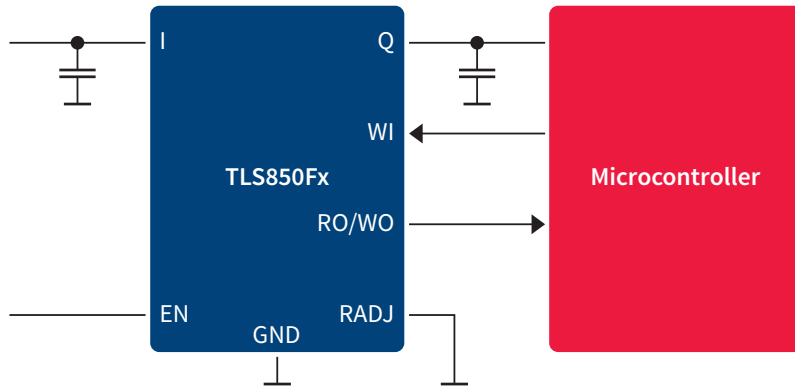
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### Block diagram



### OPTIREG™ linear high performance 500 mA (watchdog, reset, enable)

Product name	OPN code	Package (same pinning)	Output current [mA]	Output voltage [V]	Dropout voltage [mV]	Quiescent current [µA]	Enable	Power on reset delay time [ms]	Adjustable reset	Watchdog timing [ms]	Load depended watchdog
TLS850F0TA V33	TLS850F0TAV33ATMA1	TO263-7	500	3.3	80	40	Yes	16.5	Yes	96	Yes
TLS850F0TA V50	TLS850F0TAV50ATMA1	TO263-7	500	5.0	70	40	Yes	16.5	Yes	96	Yes
TLS850F1TA V50	TLS850F1TAV50ATMA1	TO263-7	500	5.0	70	40	Yes	8.5	Yes	48	No
TLS850F2TA V50	TLS850F2TAV50ATMA1	TO263-7	500	5.0	70	40	Yes	16.5	Yes	96	No

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