

## Product Brief

# TLF80511

## High performance linear voltage regulator



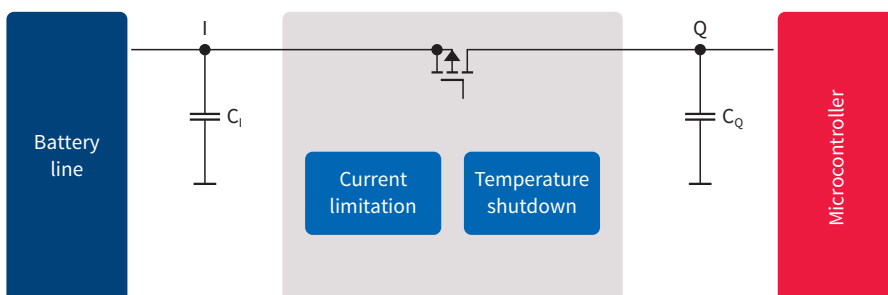
The TLF80511EJ is a linear low dropout voltage regulator for load currents up to 400 mA. An input voltage of up to 40 V is regulated to 5 V or 3.3 V output voltage with  $\pm 2\%$  precision. The TLF80511 with a typical quiescent current of 38  $\mu\text{A}$ , is the ideal solution for systems requiring very low operating currents, such as those permanently connected to a battery. It features a very low dropout voltage of 100 mV, when the output current is less than 100 mA. In addition, the dropout region begins at input voltages of 3.3 V (extended operating range). This makes the TLF80511EJ suitable to supply automotive systems with advanced cranking conditions. In addition, the TLF80511's new fast regulation concept requires only a single, 1  $\mu\text{F}$  output capacitor to maintain stable regulation.

The device is designed for the harsh environment of automotive applications. Therefore standard features like output current limitation and over temperature shutdown are implemented and protect the device against failures like output short circuit to GND, over-current and over-temperatures. The TLF80511 can be also used in all other automotive applications requiring a stabilized 5 V or 3.3 V supply voltage.

### Applications

- > 2 wheeler
- > Automotive general ECU
- > Automotive dashboard
- > Clima control (HVAC)
- > Start-stop control unit

### Application schematic



### Key features

- >  $V_{IN}$ : from 3.3 V to 40 V
- >  $V_O$ : 3.3 V & 5 V ( $\pm 2\%$ )
- >  $I_Q$  (max): 400 mA
- >  $I_q$ : 38  $\mu\text{A}$
- >  $C_Q$ : 1  $\mu\text{F}$
- >  $V_{drop}$ : 100 mV @ 100 mA
- > Temp. range:  $-40\text{ }^\circ\text{C} \leq T_j \leq 150\text{ }^\circ\text{C}$

### Key benefits

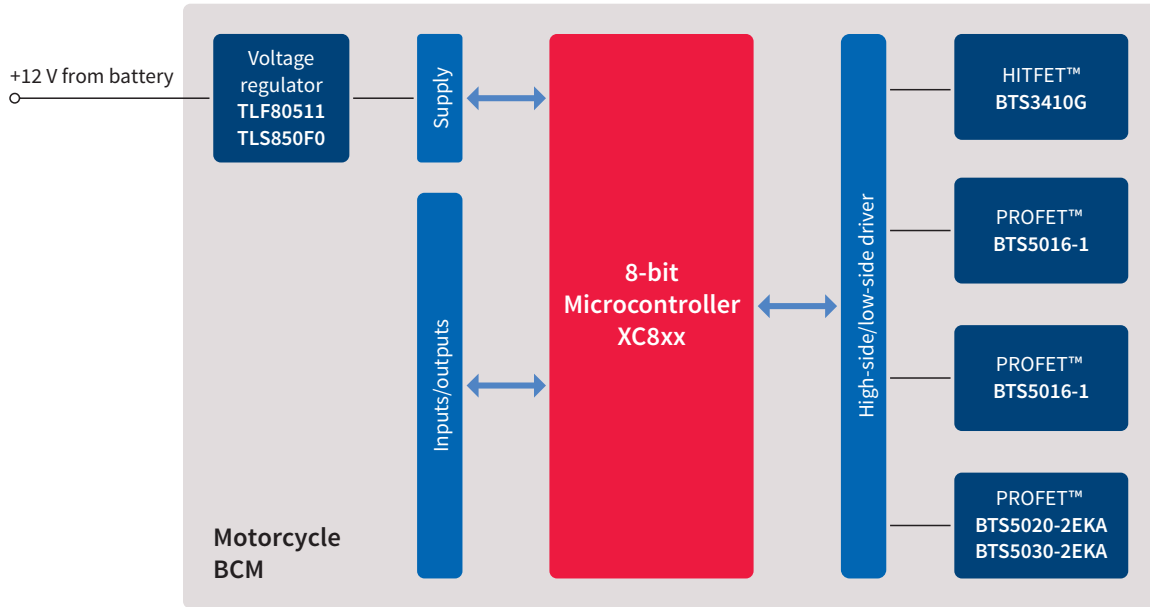
- > Excellent transient robustness – lower input filtering cost
- > Excellent load step response – smaller ceramic output cap
- > Very low cranking – 3.3 V input & very low dropout
- > Suitable for stop & start system

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### Application 2-wheeler



| Sales name           | OPN                       | V <sub>output</sub> [V] | V <sub>input</sub> [V] | I <sub>output</sub> (max) [mA] | C <sub>out</sub> [μF] | Package             |
|----------------------|---------------------------|-------------------------|------------------------|--------------------------------|-----------------------|---------------------|
| TLF80511EJ V33       | TLF80511EJV33XUMA1        | 3.3                     | 3.3-40                 | 400                            | 1                     | DSO-8 (exposed pad) |
| TLF80511EJ V50       | TLF80511EJV50XUMA1        | 5.0                     | 3.3-40                 | 400                            | 1                     | DSO-8 (exposed pad) |
| TLF80511TF V33       | TLF80511TFV33ATMA1        | 3.3                     | 3.3-40                 | 400                            | 1                     | TO252-3             |
| TLF80511TF V33 BOARD | TLF80511TFV33 BOARDTOBO1  | 3.3                     | 3.3-40                 | 400                            | 1                     | Demoboard           |
| TLF80511TF V50       | TLF80511TFV50ATMA1        | 5.0                     | 3.3-40                 | 400                            | 1                     | TO252-3             |
| TLF80511TF V50 BOARD | TLF80511TFV50 BOARDTOBO1  | 5.0                     | 3.3-40                 | 400                            | 1                     | Demoboard           |
| TLF80511TC           | TLF80511TCATMA1           | 3.3                     | 3.3-40                 | 400                            | 1                     | TO263-3             |
| DEMOBOARD TLF80511TC | DEMOBOARD TLF80511TCTOBO1 | 5.0                     | 3.3-40                 | 400                            | 1                     | Demoboard           |

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