EVKT-MP2790-0000/0002 Product Brief

MP2790 Evaluation Kit

7-Cell to 10-Cell, High-Accuracy Battery Monitor and Protector with Coulomb Counting

EVKT-MP2790-0002 END OF LIFE, REFER TO EVKT-MP2790-0000

The MP2790 is a robust battery management device that provides a complete analog front-end (AFE) monitoring and protection solution. It is designed for 7-cell to 10-cell series battery packs, with an absolute maximum voltage exceeding 80V on particular pins.

The MP2790DFP-0000 supports I²C communication, and the MP2790DFP-0002 supports SPI communication.

The MP2790 integrates two separate analog-to-digital converters (ADCs). The first ADC measures each channel's differential cell voltage (up to 10 channels), die temperature, and 4-channel temperature via an external NTC thermistor. The second ADC measures the charge and discharge currents via an external current-sense resistor. The MP2790 also features high-side MOSFETs (HS-FETs).

Full protection features include OCP, SCP, battery UVP, battery OVP, and high/low-temperature protection. All the protections have configurable thresholds.

The MP2790 also integrates balancing MOSFETs to equalize mismatched cells, with the option to drive the external transistors.

The MP2790 has an optimized baseline current consumption that is determined by the operating mode.

Kit Contents

- MP2790 evaluation board (EV2790-0000-FP-00A or EV2790-0002-FP-00A)
- Communication Interface with Accessories (EVKT-USBI2C-02 or EVKT-USBSPI-00)
  - USB to I²C/SPI Communication Interface
  - Ribbon Cable
  - USB cable

Note: The GUI installation file and supplemental documents can be downloaded from the MPS website.

*Laptop not included

Feature	Specifications
Battery Pack Voltage	18V to 55V
Cell Voltage	0V to 5V
Operating Systems Supported	Windows 7 or later
System Requirements	Minimum 25.6MB free
GUI Software	Programming tool MP2790 V1.0
EVB Size (LxW)	14cmx9.6cm

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Quick Start (Refer to the user guide for more details.) (1) (2)

1. Install the GUI software.
2. Connect the communication interface to the evaluation board with a ribbon cable and ensure that they are connected.
3. Connect the communication interface to the computer.
4. Turn on the power supply of the evaluation board, then start up the GUI software. It should check the connection automatically. If the connection is not successful, “Disconnected” appears at the bottom of the screen. Otherwise, “Connected” appears at the bottom of the screen.
5. The monitor and control register information can be seen in the Monitor and Control bar.

Notes:

1) It is important to adhere to the order of steps 1 and 2. Failing to do so may cause damage to the communication pins (SCL, SDA, SDO, and nCS) during a hot plug event.
2) The kit offers rapid application assessment and requires minimal external components.

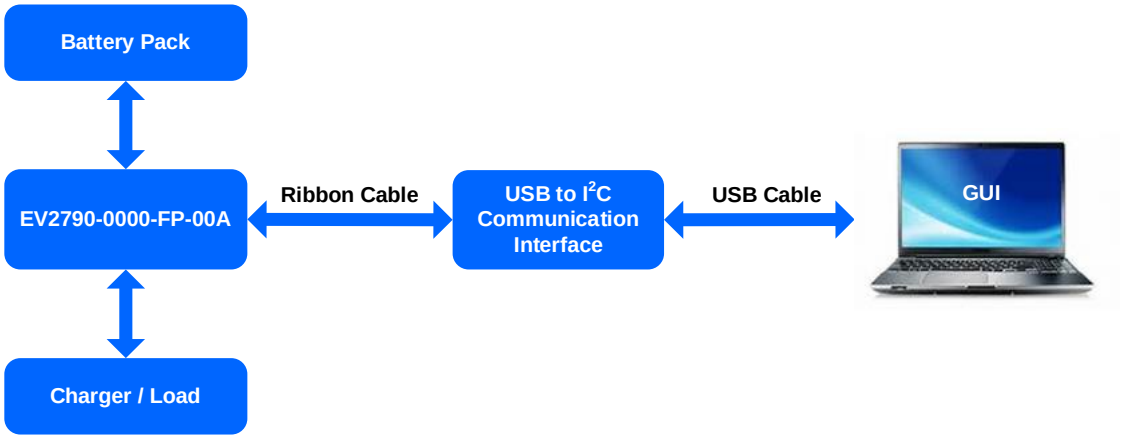

Figure 1: EVKT-MP2790-0000 Evaluation Kit Set-Up

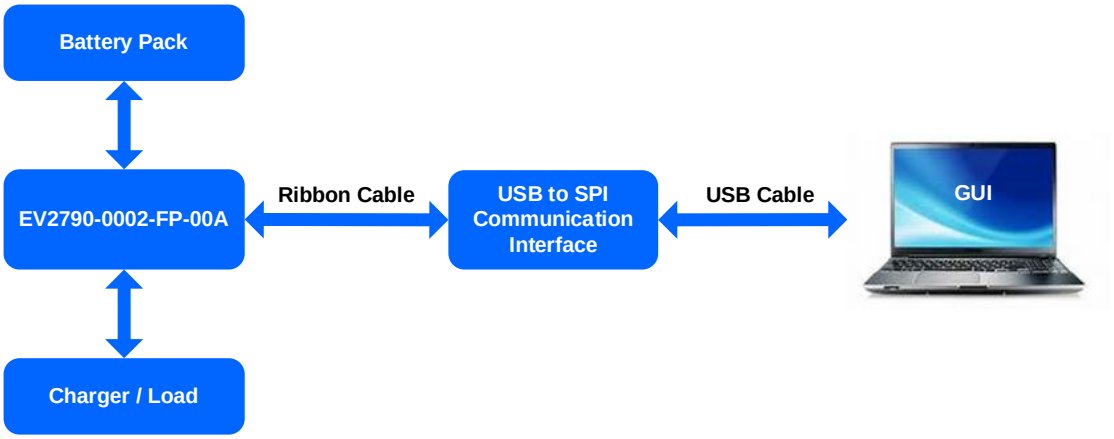

Figure 2: EVKT-MP2790-0002 Evaluation Kit Set-Up
(End of Life, Refer to EVKT-MP2790-0000)

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REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	7/27/2023	Initial Release	-

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