WÜRTH ELEKTRONIK
MORE THAN YOU EXPECT

# QUICK START GUIDE

**MagI³C Power Module Evaluation Board for** 1710X0560 LGA-9

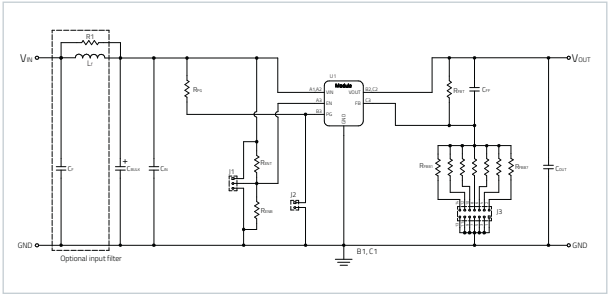
**Evaluation Board** 1780X0560

**Version 1.0**

# SCHEMATIC

### Features 1710X0560

- Compliant to EN 55032 class B (CISPR 32) with filter
- Fixed Soft Start
- Fixed switching Frequency
- Power good indicator
- Programmable UVLO
- Overcurrent Protection
- Overtemp. Protection
- Ambient temp. range: -40 °C – 105 °C




The additional aluminum electrolytic capacitor $C_{BULK}$ is only for evaluation board protection purposes. It is mounted at the termination of the supply line and provides slight damping of possible oscillations of the series resonance circuit represented by the inductance of the supply line and the input capacitance. It is not essential for operation.

For accurate $V_{IN}$ and $V_{OUT}$ voltage measurements it is recommended to measure directly at the test pins placed beside the input and output capacitors $C_{IN}$ and $C_{OUT}$. It is **not** recommended to use this evaluation board with input and output wire lengths longer than 1 m.

For the datasheet of the power module visit us at: **we-online.com/magic-vdmm**

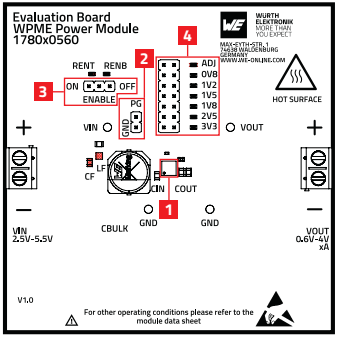
This product is highly sensitive to electrostatic discharge (ESD). As such, always use proper ESD precautions when handling. Failing to follow the aforementioned recommendations can result in severe damage to the part.

**WARNING! – Read the included TERMS OF USE FOR EVALUATION BOARDS, KITS OT MODULES before operation!**

| Ref. Des. | Description | Order Code |
|---|---|---|
| **U1** | 1x WPME-VDMM Power Module LGA-9 | **1710X0560** |
| **$C_{BULK}$** | 1x WCAP-AS5H Aluminum Electrolytic Capacitor 6.3 V 1000 µF | **865230157008** |
| **$C_{IN}$** | 1x WCAP-CSGP MLCC 10 V, X7R, 0805, 10 µF | **885012207026** |
| **$C_{FF}$** | 1x WCAP-CSGP MLCC 16 V, NP0, 0402, 150 pF | **885012005032** |
| **$C_{OUT}$** | 2x WCAP-CSGP MLCC 10 V, X7R, 0805, 10 µF | **885012207026** |
| **$C_F$** | 1x WCAP-CSGP MLCC 10 V, X7R, 0805, 10 µF (optional) | **885012207026** |
| **$L_F$** | 1x WE-MAPI Power Inductor 1610, 0.33 µH (optional) | **744383130033** |
| **$R_{ENT}$** | Not mounted. For, UVLO calculation see data sheet | |
| **$R_{ENB}$** | Not mounted. For, UVLO calculation see data sheet | |
| **$R_{PG}$** | WRIS-RSKS Thick Film Resistor 100 mW, 0402, 100 kΩ | **560112110019** |
| **$R_{FBT}$** | WRIS-RSKS Thick Film Resistor 100 mW, 0402, 100 kΩ | **560112110019** |
| **$R_{FBB}$** | Set by jumper: 22 kΩ 0603 for $V_{OUT}$ = 3.3 V; 30 kΩ 0603 for $V_{OUT}$ = 2.5 V; 49.9 kΩ 0603 for $V_{OUT}$ = 1.8 V; 68 kΩ 0603 for $V_{OUT}$ = 1.5 V; 100 kΩ 0603 for $V_{OUT}$ = 1.2V; 301 kΩ 0603 for $V_{OUT}$ = 0.8V. To be soldered for adjustable output voltage $V_{OUT} = V_{REF}\left(\frac{R_{FBT}}{R_{FBB}}+1\right)$ | **560112116022**<br>**560112116107**<br>**560112116112**<br>**560112116064**<br>**560112116004**<br>**560112116079** |
| **J1** | WR-PHD Jumper for ENABLE (EN) connection to either $V_{IN}$ (device enabled) or GND (device disabled) | **61300311121** |
| **J2** | WR-PHD Jumper for Power Good (PG) signal connection | **61300211121** |
| **J3** | WR-PHD Jumper for output voltage selection. Only one resistor should be selected at a time | **61301421121** |

**For Layout, Gerber and Step files visit us on we-online.com/magic-vdmm**

# OVERVIEW




**Description**
$V_{IN}$ 2.5 – 5.5 V
$V_{OUT}$ 0.6 – 4 V
$I_{OUT}$ 1 A / 2 A / 3 A

1. VDMM Variable Step Down MicroModule LGA-9
2. Connection pin for power good signal
3. Jumpers (J1) for ENABLE & shut off the Module
4. Jumpers to set predefined output voltage $V_{OUT}$
5. Terminal block screw connectors for $V_{IN}$ and $V_{OUT}$

**Absolute maximum ratings Caution:**
Exceeding the abs. max. values given in the datasheet may affect the device negatively and may cause permanent damage.

This evaluation board is intended to be operated in a research and development environment under the supervision of qualified technicians and engineers who are trained and experienced in the safe use of electronics. This evaluation board was designed and tested according to CISPR32 Class B standards under Würth Elektronik laboratory test conditions, as indicated in the data sheet of the corresponding power module.

Operation in other test setups may cause unintended electrical behavior and exceed the stated performance and limits imposed by the CISPR32 Class B standards. This evaluation board is not intended for usage in final applications. This evaluation board is not intended for resale.

**Würth Elektronik eiSos GmbH & Co. KG**
Max-Eyth-Straße 1 · 74638 Waldenburg