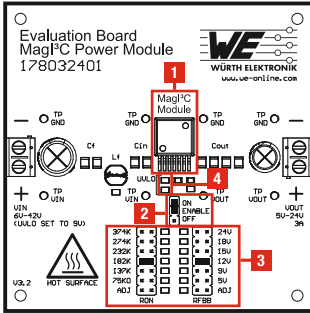




# Overview



### Description

**V<sub>IN</sub>** 6–42 V

**V<sub>OUT</sub>** 5–24 V

**I<sub>OUT</sub>** 3 A

- 1 VDRM Variable Step Down Regulator Module T0263-7EP
  - 2 Jumpers (J1) for ENABLE & shut off the module
  - 3 Jumpers to set predefined output voltage V<sub>OUT</sub>
  - 4 Resistors to set UVLO level
  - 5 Terminal block screw connectors for V<sub>IN</sub> and V<sub>OUT</sub>
- Default jumper position

### Absolute maximum ratings

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



**Warning!** Hot surface, please don't touch. Unit is capable to produce temperatures above 85 °C. Still hot for several minutes after shut down.



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.



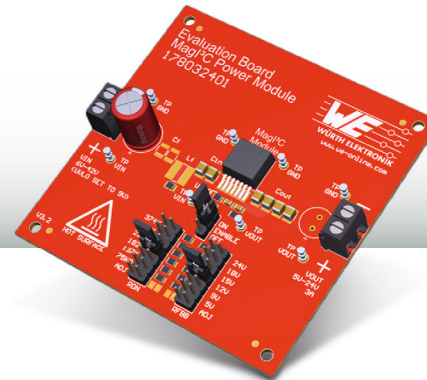
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# Quick Start Guide

Magi<sup>3</sup>C Power Module Evaluation Board for 171032401 T0263-7EP

Evaluation Board  
178032401

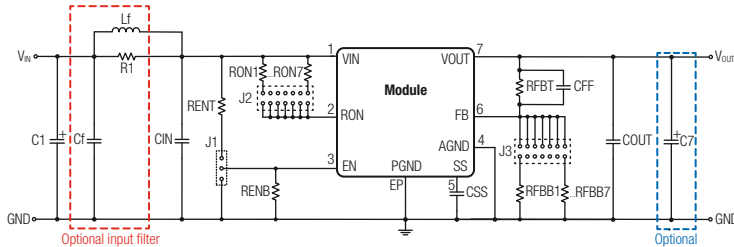
Version 3.2



**WARNING!** – Before operating read the attached IMPORTANT NOTICE document!

# Schematic

## Features



According to the 12V industrial rail standard, the UVLO level is set to 9V using the resistors highlighted with UVLO on the EVB. The additional aluminum electrolytic capacitor C1 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 input and output capacitors CIN and COUT. 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: <https://www.we-online.de/katalog/de/MAGIC-VDRM>



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!** – Before operating read the attached IMPORTANT NOTICE document!

| Ref.Des. | Description (Order Code)  |
|----------|---|
| U1       | MagPc VDRM (171032401)  |
| C1       | Aluminum electrolytic capacitor 220 µF/50V (860160675026)   |
| CIN      | 2 x Ceramic chip capacitor 4.7 µF/50V (885012209048)  |
| CSS      | Ceramic chip capacitor 4.7 nF/50V (885012007067)  |
| CFF      | Ceramic chip capacitor 22 nF/50V (885012207094)   |
| COUT     | 2 x Ceramic chip capacitor 4.7 µF/50V (885012209048)  |
| C7       | Through hole electrolytic capacitor (optional)  |
| Cf       | 2 x Ceramic chip capacitor 4.7 µF/50V (optional) (885012209048)                                     |
| Lf       | Filter inductor, 6.8 µH, PD2 (optional) (744774068)   |
| R1       | 0 Ω resistor bridge   |
| RENT     | 124 kΩ  |
| RENB     | 18.7 kΩ   |
| RFBT     | 10 kΩ   |
| J1       | Jumper for EN connection to either $V_{IN}$ (device enabled) or GND (device disabled) (61300311121) |
| J2       | Jumper for output voltage selection. Only one resistor should be selected at a time (61301621121)   |
| J3       | Jumper for output voltage selection. Only one resistor should be selected at a time (61301621121)   |

| Ref.Des.  | Description (Order Code)                     |
|---|--|
| RFBB  | 384 Ω for $V_{OUT} = 24V$                    |
|   | 464 Ω for $V_{OUT} = 18V$                    |
|   | 562 Ω for $V_{OUT} = 15V$                    |
|   | 715 Ω for $V_{OUT} = 12V$ (default setting)  |
|   | 976 Ω for $V_{OUT} = 9V$                     |
| RFBB  | 1.91 kΩ for $V_{OUT} = 5V$                   |
|   | To be soldered for adjustable output voltage |
| $R_{FBB} = \frac{R_{FBT}}{0.8V} - 1$                            |  |
| RON   | 374 kΩ for $V_{OUT} = 24V$                   |
|   | 274 kΩ for $V_{OUT} = 18V$                   |
|   | 232 kΩ for $V_{OUT} = 15V$                   |
|   | 182 kΩ for $V_{OUT} = 12V$ (default setting) |
|   | 137 kΩ for $V_{OUT} = 9V$                    |
| RON   | 75 kΩ for $V_{OUT} = 5V$                     |
|   | To be soldered for adjustable frequency      |
| $R_{ON} = \frac{V_{OUT}}{1.3 \cdot 10^{-10} \cdot f_{SW(2cm)}}$ |  |

\*Switching frequency in continuous conduction mode



For Layout, Gerber and STP files visit us on: [www.we-online.de/katalog/de/magic-vdrm](http://www.we-online.de/katalog/de/magic-vdrm)