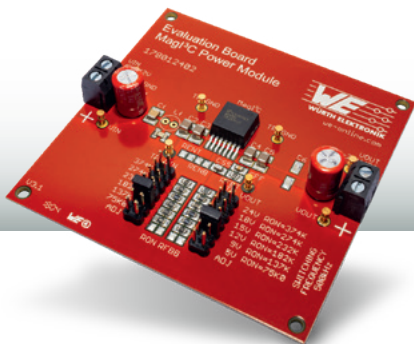




# Quick Start Guide

MagI<sup>3</sup>C Power Module Evaluation Board  
for 171012402 T0263-7EP



Evaluation Board  
178012402

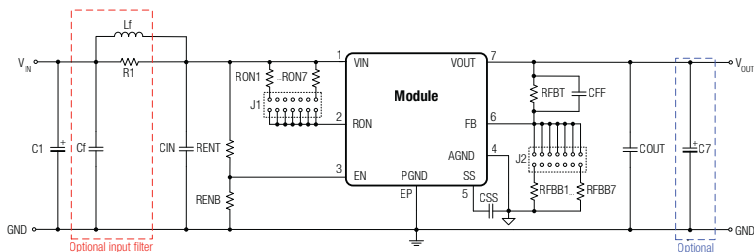
Version 3.1



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

# Schematic

## Features



The additional aluminium 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. The switching frequency of the module can be adjusted by changing the position of jumper J1.

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	Mag <sup>3</sup> C VDRM (171012402)
C1	Aluminum electrolytic capacitor 100 µF/50V (860010674014)
CIN	2 x Ceramic chip capacitor 10 µF/50V
CSS	Ceramic chip capacitor 4.7 nF/50V (885012007067)
CFF	Ceramic chip capacitor 22 nF/50V (885012207094)
COUT	2 x Ceramic chip capacitor 10 µF/50V
C7	Through hole electrolytic capacitor (optional)
Cf	Ceramic chip capacitor 1 µF/50V (885012209047)
Lf	Filter inductor (optional)
R1	0 Ω resistor bridge
RENT	not mounted
RENB	not mounted
RFBT	10 kΩ
J1	Jumper for switching frequency selection. Only one resistor should be selected at a time (61301421121)
J2	Jumper for output voltage selection. Only one resistor should be selected at a time (61301421121)

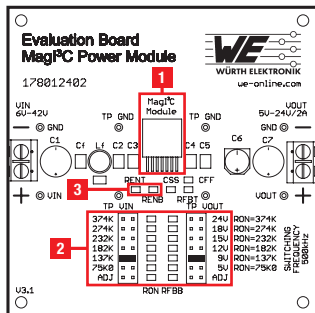
Ref.Des.	Description (Order Code)
RFBB	Set by jumper
	340 Ω for V <sub>OUT</sub> = 24V
	464 Ω for V <sub>OUT</sub> = 18V
	562 Ω for V <sub>OUT</sub> = 15V
	715 Ω for V <sub>OUT</sub> = 12V
	976 Ω for V <sub>OUT</sub> = 9V (default setting)
	1.91 kΩ for V <sub>OUT</sub> = 5V
RON	Set by jumper
	374 kΩ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

\*Switching frequency in continuous conduction mode



For Layout, Gerber and STP files  
visit us on: [www.we-online.com/  
catalog/en/magic-vdrn](http://www.we-online.com/catalog/en/magic-vdrn)

# Overview



## Description

$V_{IN}$  6–42V

$V_{OUT}$  5–24V

$I_{OUT}$  2A

- 1 VDRM Variable Step Down Regulator Module T0263-7EP
  - 2 Jumpers to set predefined output voltage  $V_{OUT}$  and  $f_{SW}$
  - 3 Resistors to set  $UVLO$  level
  - 4 Terminal block screw connectors for  $V_{IN}$  and  $V_{OUT}$
- 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.



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 CISPR22 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 CISPR22 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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