

All inclusive.



#MAGICPOWERMODULES

*WE speed up
the future*

MagI³C Power Modules are easy to use DC/DC converters with integrated regulator IC, power inductor and capacitors. Design and layout reviews as well as support with EMI filter design are offered as a service for all customers. Datasheets contain detailed specifications and application information.

- Simple design-in process
- Design and layout support
- EMI filter design for EN55022 class B compliance
- Evaluation Boards for all products

For more information please visit:

www.we-online.com/powermodules



LGA-6



LGA-16



QFN



T0263



SIP-3



SIP-4



SIP-7

Product Overview

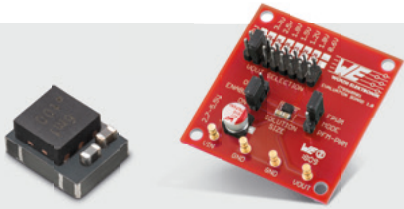
VDMM / VDRM Portfolio (Low Voltage)

MicroModule / VDRM MagI³C Power Modules

Type	Input Rail (V)	V _{IN} (V)	V _{OUT} (V)	I _{OUT} max (A)	Package	Order Code Module	Order Code EVAL Board
Variable Step Down MicroModule (VDMM)	3.3, 5	2.7 – 5.5	0.6 – 5.5	0.6	LGA-6EP	171 960 501	178 960 501
Variable Step Down Regulator Module (VDRM)	3.3, 5	2.95 – 6	0.8 – 3.6	2	BQFN-39	171 020 302	178 020 302
		2.95 – 6	0.8 – 3.6	4	BQFN-39	171 040 302	178 040 302
		2.95 – 6	0.8 – 3.6	6	BQFN-39	171 060 302	178 060 302
	5, 9, 12	4 – 18	0.8 – 17	1	LGA-16EP	171 011 801	178 011 801
		4 – 18	0.8 – 17	2	LGA-16EP	171 021 801	178 021 801
		4 – 18	0.8 – 17	3	LGA-16EP	171 031 801	178 031 801

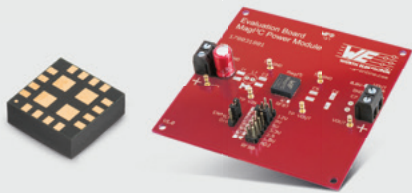
LGA-6 MagI³C MicroModules

- Very low profile micro package
- Ideal for space constrained applications
- Small C_{IN} and C_{OUT} integrated
- 3 solder cycles supported



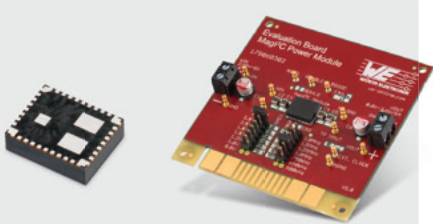
LGA-16 MagI³C Power Modules

- Low profile LGA package
- Stand alone solution (C_{IN} and C_{OUT} integrated, 2 external components to set V_{OUT})
- Ideal for space constrained applications
- 2 solder cycles supported



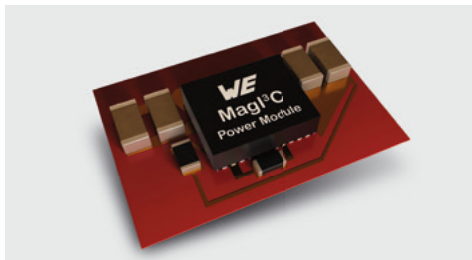
BQFN MagI³C Power Modules

- Low profile package
- Simple application circuit (only 4 external components required)
- Optional multiple features (adj.frequency, adj.soft-start, power good,sequencing, tracking, synchronization to external clock, adjustable undervoltage lockout)
- 3 solder cycles supported

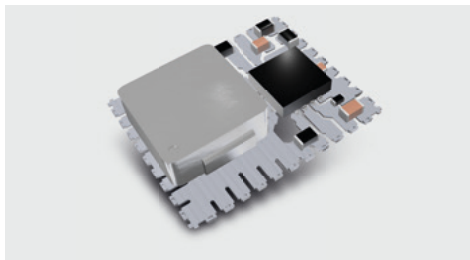


Advantages & Design-In Support

Advantages



Fewer external components (reduce overall footprint)



IC and inductor combined into a single package (smaller PCB size)



Simple design-in process & fast time to market

Low conducted & radiated EMI complaint to EN55022 class B / CISPR-22

Individual Design-in Support

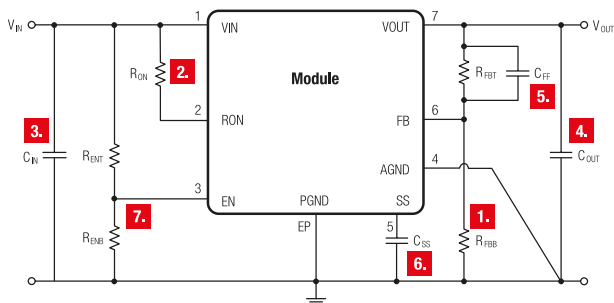
Design Steps (e.g. VDRM T0263)

6 design steps

1. Set the output voltage
2. Set the operating frequency with R_{ON}
3. Select the input capacitor
4. Select the output capacitor
5. Select the feed forward capacitor
6. Select the soft-start capacitor

1 optional design step:

- 7.** Select under-voltage lockout divider

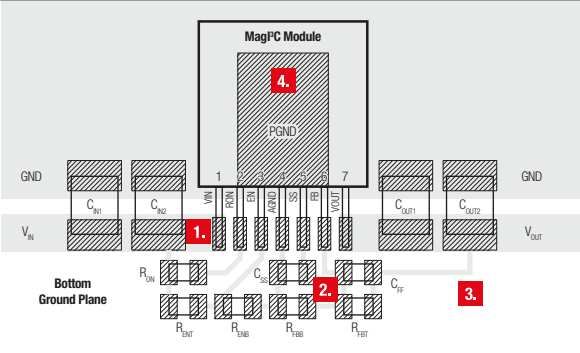


Layout Review of your PCB Files

Design Steps (e.g. VDRM T0263)

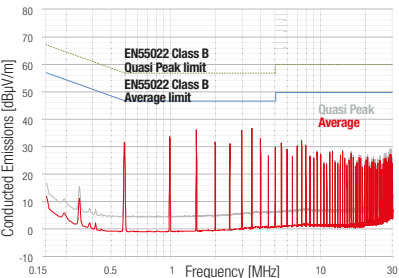
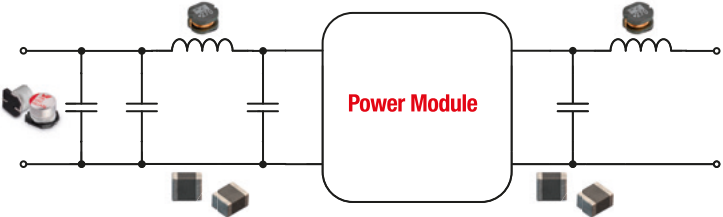
4 design steps

- 1. Place the input capacitors close to V_{IN} and PGND
- 2. Place C_{SS} , R_{FBT} and R_{FBB} close to their respective pins and analog ground (AGND)
- 3. Place the resistor divider (R_{FBT} and R_{FBB}) close to the FB pin and trace at the positive terminal of the last output capacitor (C_{OUT2})
- 4. Design the thermal vias

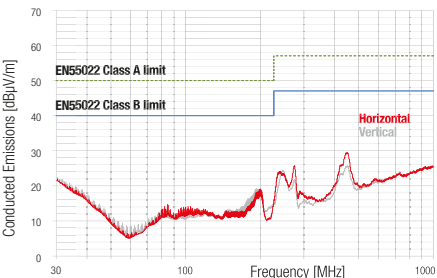


EMI Filter Design Support

Tested filter configuration with inductor and capacitor order codes



Conducted Emissions 171 021 501. Measured on evaluation board with input filter $C_f = 2.2 \mu\text{F}$ and $L_f = 22 \mu\text{H}$.
 $V_{IN} = 24 \text{ V}$, $V_{OUT} = 5 \text{ V}$, $f_{SW} = 500 \text{ kHz}$, $I_{LOAD} = 2 \text{ A}$



Radiated Emissions 171 021 501. Measured on evaluation board with input filter $C_f = 2.2 \mu\text{F}$ and $L_f = 22 \mu\text{H}$.
 $V_{IN} = 24 \text{ V}$, $V_{OUT} = 5 \text{ V}$, $f_{SW} = 500 \text{ kHz}$, $I_{LOAD} = 2 \text{ A}$

Product Overview

LDHM / VDRM Portfolio (High Voltage)

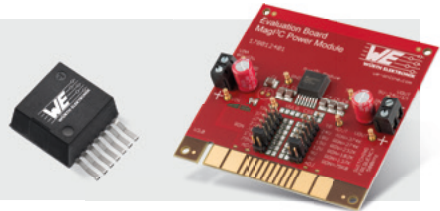


LDHM / VDRM MagI³C Power Modules

Type	Input Rail (V)	V _{IN} (V)	V _{OUT} (V)	I _{OUT} max (V)	Package	Order Code Module	Order Code EVAL Board
LED Step Down High Current Module (LDHM)	12, 24, 48	4.5 – 60	4.5 – 60	0.45	T0263-7EP	172 946 001	178 946 001
Variable Step Down Regulator Module (VDRM)	9, 12, 18, 24, 36*	6 – 42	0.8 – 6	1	T0263-7EP	171 010 601	178 010 601
		6 – 42	0.8 – 6	2	T0263-7EP	171 020 601	178 020 601
		6 – 42	0.8 – 6	3	T0263-7EP	171 030 601	178 030 601
		6 – 36	0.8 – 6	5	T0263-7EP	171 050 601	178 050 601
		6 – 42	5 – 24	1	T0263-7EP	171 012 401	178 012 401
		6 – 42	5 – 24	2	T0263-7EP	171 012 402	178 012 402
		6 – 42	5 – 24	3	T0263-7EP	171 032 401	178 032 401
		7 – 50*	2.5 – 15	2.5	BQFN-41	171 021 501	178 021 501

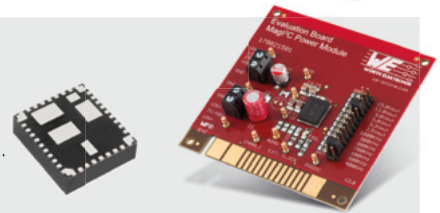
T0263 MagI³C Power Modules

- Leaded package for easy manufacturing and prototyping
- Simple layout
- Wide input voltage range for input transient capability
- Support ambient temperatures up to 105 °C
- 2 solder cycles supported



BQFN MagI³C Power Modules

- Low profile package
- Simple application circuit (only 4 external components required)
- Optional multiple features (adj.frequency, adj.soft-start, power good, sequencing, tracking, synchronization to external clock, adj. undervoltage lockout)
- Wide input voltage range
- 3 solder cycles supported



More information on:

www.we-online.com/powermodules

Product Overview

FDSM / FISM Portfolio (Through-Hole Packaging)

FDSM MagI³C Power Modules

Type	Input Rail (V)	V _{IN} (V)	V _{OUT} (V)	I _{OUT} max (A)	Package	Order Code Module	Order Code EVAL Board
Fixed Step Down Regulator Module (FDSM)	9, 12, 18	6 – 28	3.3	0.5	SIP-3	173 950 378	17800FDSM
		7 – 28	5.0	0.5		173 950 578	
		7 – 28	3.3	1		173 010 378	
		8 – 28	5.0	1		173 010 578	
	9, 12, 18, 24	7 – 42	3.3	1		173 010 342	
		8 – 42	5.0	1		173 010 542	

SIP-3 MagI³C Power Modules

- Simplest design (no power supply knowledge required)
- Leaded through-hole package for easy manufacturing and prototyping
- Stand alone solution (C_{IN} and C_{OUT} integrated, no external components)
- L78x series linear regulator replacement (no heatsink required)



FISM MagI³C Power Modules

Type	Input Rail (V)	V _{IN} (V)	V _{OUT} (V)	P _{OUT} max (W)	V _{isolation} (V) functional	Package	Order Code Module
Fixed Isolated SIP Module (FISM)	±10% from nominal V _{IN}	3.3	5.0	1	1000	SIP-4	177 920 501
		5.0	5.0	1	1000		177 920 511
		12	5.0	1	1000		177 920 521
		24	5.0	1	1000		177 920 531
		5.0	5.0	1	4000	SIP-7	177 920 514
		12	5.0	1	4000		177 920 524
		24	5.0	1	4000		177 920 534

SIP-4 / SIP-7 isolated MagI³C Power Modules

- Simplest design (no transformer design know-how required)
- Leaded through-hole package for easy manufacturing and prototyping
- Stand alone solution (C_{IN} and C_{OUT} integrated, no external components)
- Simple functional isolation for overvoltage protection,avoiding ground loops, ground shift and noise in signal path or sensor systems
- Standard industrial package and pin configuration
- IEC/EN/UL60950 approved



