

All inclusive.



#MAGICPOWERMODULES

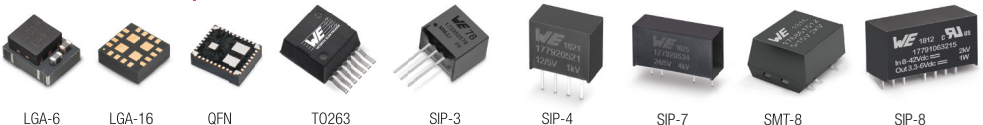
*WE speed up
the future*

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 EN55032 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

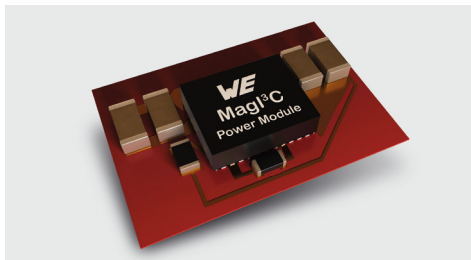
SMT-8

SIP-8

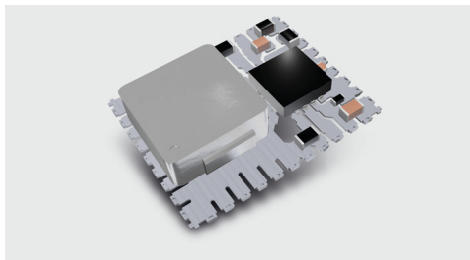
MagI³C Power Modules

Advantages & Design-In Support

Advantages



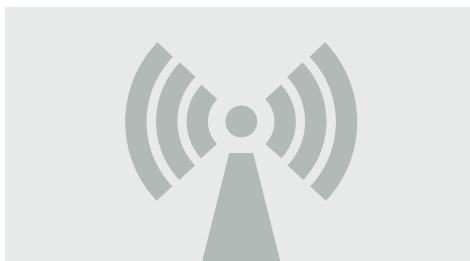
Fewer external components (reduces overall footprint)



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



Simple design-in process & fast time to market



Low conducted & radiated EMI compliant to EN55032 class B / CISPR-32

Individual Design-in Support

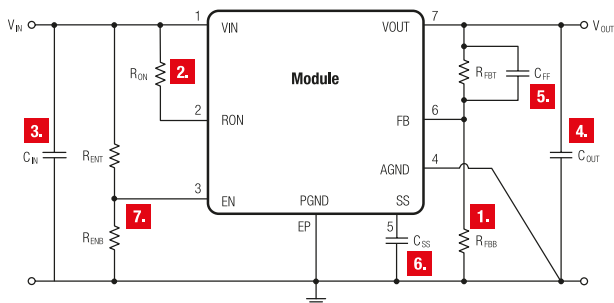
Electrical calculations, product behavior & thermal design

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

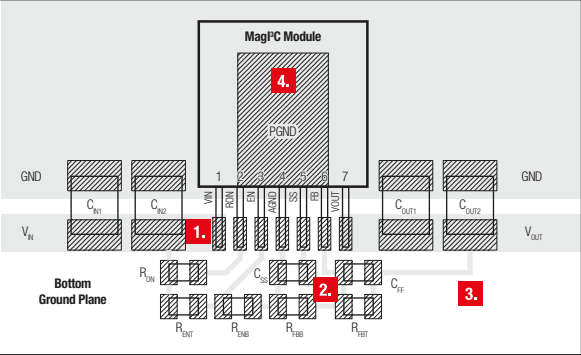


Layout Review of your PCB Files

Analysis and recommendations of customer layouts

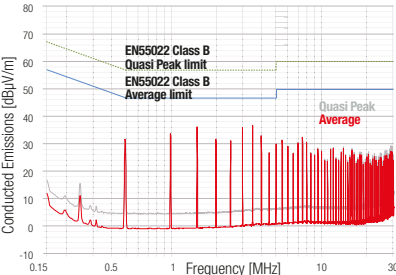
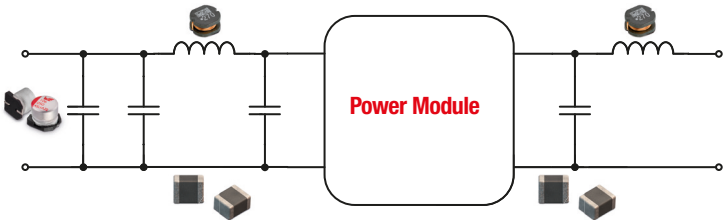
4 design steps

- 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

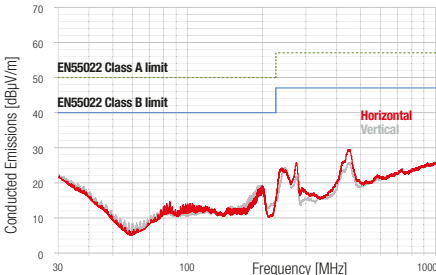


EMI Filter Design Support

Tested filter configuration with inductor and capacitor order codes



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



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

Product Overview

LDHM / VDRM Portfolio (High Voltage)

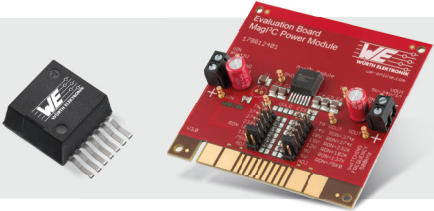
LDHM / VDRM MagI³C Power Modules

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
				2		171 020 601	178 020 601
				3		171 030 601	178 030 601
		6 – 36		5		171 050 601	178 050 601
				1		171 012 401	178 012 401
		6 – 42	5 – 24	2		171 012 402	178 012 402
				3		171 032 401	178 032 401
		7 – 50*	2.5 – 15	2.5	BQFN-41	171 021 501	178 021 501

*36 V rail only supported by 50 V_{IN} module

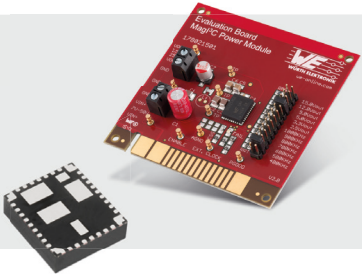
T0263 MagI³C Power Modules

- 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



Product Overview

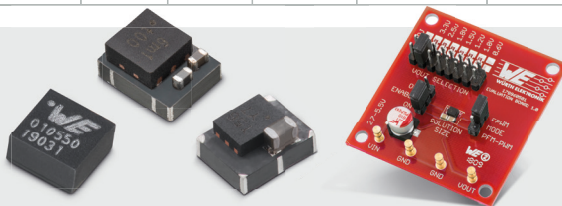
VDMM / VDRM Portfolio (Low Voltage)

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
		2.5 – 5.5	0.8 – 5.5	1		171 010 502	178 010 502
				1.2		171 010 550	178 010 550
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
				4		171 040 302	178 040 302
				6		171 060 302	178 060 302
	5, 9, 12	4 – 18	0.8 – 17	1	LGA-16EP	171 011 801	178 011 801
				2		171 021 801	178 021 801
				3		171 031 801	178 031 801

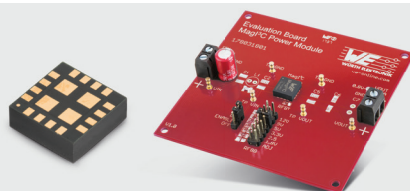
LGA-6 MagI³C MicroModules

- Very low profile micro package
- Ideal for space constrained applications
- 3 solder cycles supported



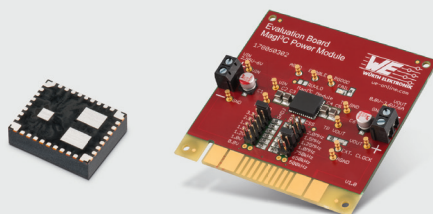
LGA-16 MagI³C Power Modules

- 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



Product Overview

FDSM Portfolio (Through-Hole Package)

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			173 950 578	
		7 – 28	3.3	1		173 010 378	
		8 – 28	5.0			173 010 578	
	9, 12, 18, 24	4.75 – 36	3.3	0.5		173 950 336	
		6.5 – 36	5.0			173 950 536	
		7 – 42	3.3			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)



More information on:
www.we-online.com/powermodules



Product Overview

Fixed Isolated SIP/SMT Module Portfolio

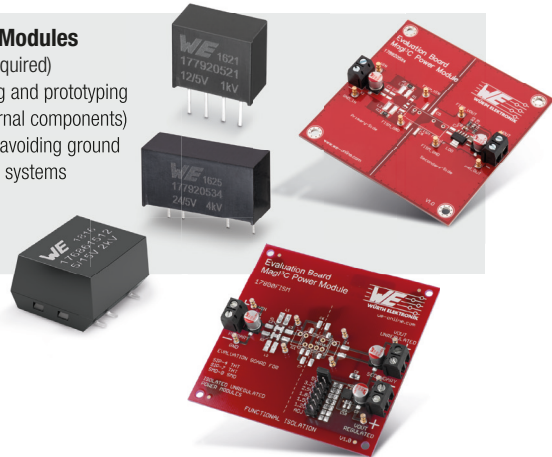


FISM MagI³C Power Modules

Type	Input Rail (V)	V _{IN} (V)	V _{OUT} (V)	P _{OUT} max (W)	V _{isolation} (V) functional	Package	Order Code Module	Order Code EVAL Board
Fixed Isolated SIP Module (FISM)	±10% from nominal V _{IN}	3.3	5.0	1	1000	SIP-4	177 920 501	1789205X1
		5.0					177 920 511	
		12					177 920 521	
		24					177 920 531	
		3.3	5.0	1	2000	SMT-8	176 920 502	17800FISM
		5.0					176 920 512	
		12					176 920 522	
		5.0					12	
			15	176 861 512				
		5.0	5.0	1	4000	SIP-7	177 920 514	1789205X4
		12					177 920 524	
		24					177 920 534	

SIP-4, SMT-8 / SIP-7 isolated MagI³C Power Modules

- Simplest design (no transformer design know-how required)
- Leadless 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
- Industrial standard package and pin configuration
- IEC/EN/UL60950 approved



Product Overview

VISM Portfolio (Through-Hole Package)

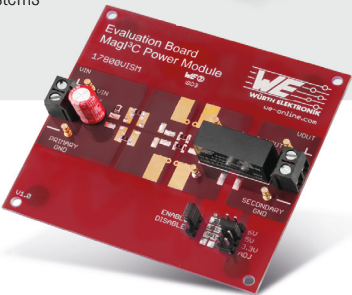
VISM MagI³C Power Module

Type	Input Rail (V)	V _{IN} (V)	V _{OUT} (V)	P _{OUT} max (W)	V _{isolation} (V) functional	Package	Order Code Module	Order Code EVAL Board
Variable Isolated SIP Module (VISM)	9, 12, 18, 24	8 – 42	3.3 – 6	1 – 3*	2000	SIP-8	177 910 632 15	17800VISM

* 3W dynamic power boost for 0.5s

SIP-8 adjustable isolated MagI³C Power Module

- Simplest isolated design (no transformer design know-how required)
- Flexible: Wide VIN and adjustable regulated, short circuit protected VOUT
- Power Boost: Tripple output power for short term load demands
- SIP: Leaded through-hole package for easy manufacturing and prototyping
- Stand alone solution (CIN and COUT integrated, no external components)
- Simple functional isolation for overvoltage protection, avoiding ground loops, ground shift and noise in signal path or sensor systems
- Industrial standard package and pin configuration
- UL62368 approval



View details of emissions and temperature behavior in REDEXPERT
www.we-online.com/re-behavior



Technical support:
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