

## Current Mode, Dual Channel Power Modules

### OVERVIEW

#### Dual Power Modules

MxL7204	20V, 4A
MxL7213	18V, 13A
MxL7218	15V, 18A
MxL7225 / MxL7225-1	15V, 25A

Evaluation Boards [See Page 3](#)

### FEATURES

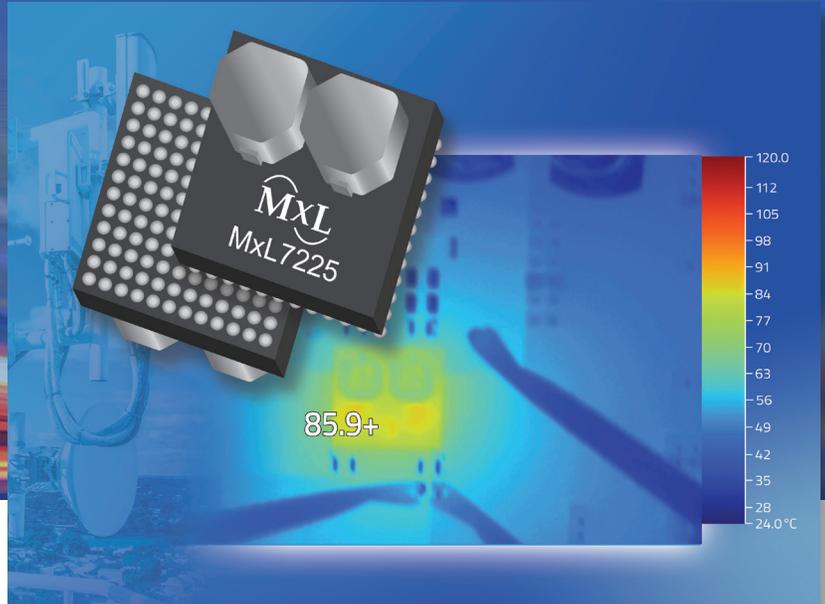
- Choice of 4 dual output devices
  - All configurable to single output at twice the current
  - Wide single input voltage ranges
  - Adjustable output voltage ranges down to 0.6V
- Multiphase operation up to 300A
- Current mode control
  - Fast transient response
  - Adjustable switching frequency
    - 250k-780kHz, MxL7204 and MxL7213
    - 400kHz-780kHz, MxL7218 and MxL7225
  - Internally compensated
- Overcurrent, overvoltage and over temperature protection
- Frequency synchronization across adjustable switching frequency
- Programmable soft-start
- Space-saving, thermally enhanced LGA and / or BGA packaging:
  - Industry compatible pinouts simplify drop-in
  - Unique thin 16 x 16mm package with outside inductor improves thermal conductivity

### BENEFITS

- Integrated controller, drivers, MOSFETs, HF capacitors and inductors
- Better efficiency and thermal performance versus competing power modules
- Power system ease of design

### APPLICATIONS

- Optical Networking
- Enterprise Networking
- Telecommunications
- FPGA/DSP/SoC Power
- Test Equipment
- Industrial Control



The MxL72xx Series are power modules that offer better efficiency and thermal performance than competing dual 4A, 13A, 18A and 25A modules. These complete switch mode DC/DC power supplies offer wide input voltage ranges and outputs down to 0.6V.

Power modules are used by designers when looking to simplify design, reduce time to market and increase power density. The MxL72xx Power Modules integrate the switching controller, power FETs, inductors and all supporting components. They have two outputs each with an adjustable output voltage set by a single external resistor. These outputs can be combined for a single higher current output and multiple modules can be used in parallel for currents up to 300A.

All power modules listed below were designed with industry standard footprints while achieving better efficiency and thermal performance than competing power modules.

Part Number	Input Voltage Range (V)	Output Voltage Range (V)	Dual Output Current (A)	Single Output Current (A)	Multiphase Output Current (A)
MxL7204	4.5 to 20	0.6 to 5.0	4	8	
MxL7213	4.5 to 16	0.6 to 5.3	13	26	156
MxL7218	4.5 to 15	0.6 to 1.8	18	36	216
MxL7225 MxL7225-1	4.5 to 15	0.6 to 1.8	25	50	300

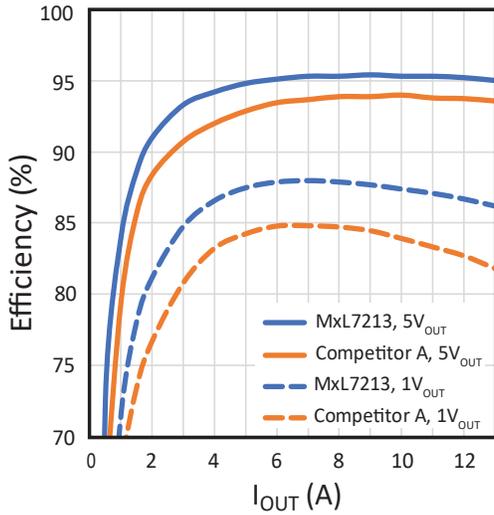
# MxL72xx Power Modules

The modules support frequency synchronization, multiphase operation, and output voltage tracking for supply rail sequencing. High switching frequency and a current mode architecture enable a very fast transient response to line and load changes without sacrificing stability.

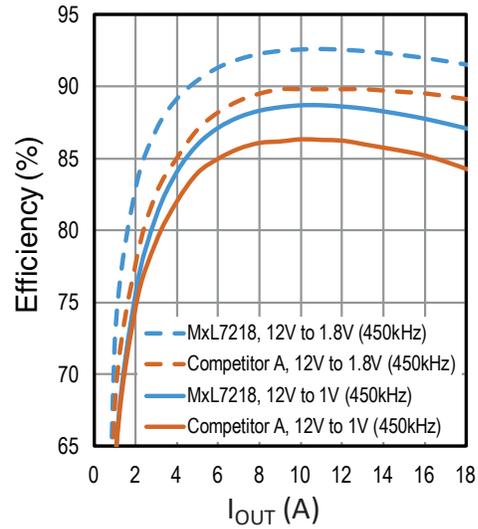
Fault protection features include overvoltage, overcurrent and over temperature protection. The Power Modules are offered in space saving and thermally enhanced LGA and / or BGA packages, including unique outside inductor packaging in 18A and 25A modules that improve thermal conductivity.

See page 4 for Product Information table.

## MaxLinear Offers Better Efficiency

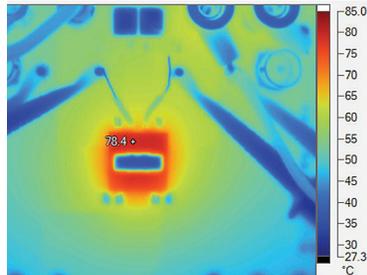
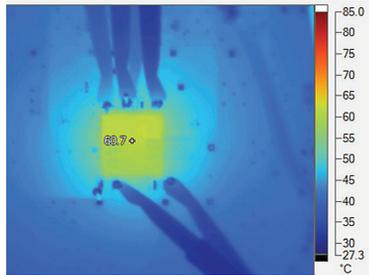


MxL7213 vs Competition

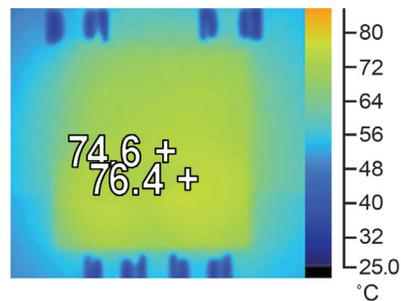
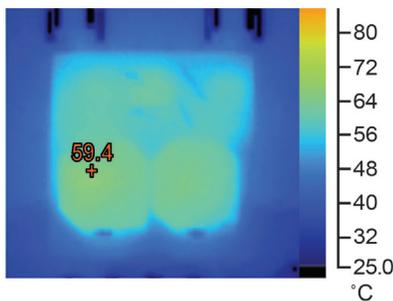


MxL7218 vs Competition

## Excellent Thermal Performance vs Competition



MxL7213 (left) vs Competition (right) at 1V<sub>OUT</sub>; 1V<sub>OUT</sub>; 400kHz; 13A

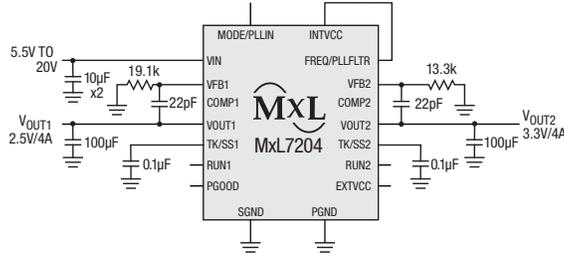


MxL7218 (left) vs Competition (right) at 1V<sub>OUT</sub>; 1V<sub>OUT</sub>; 36A; 200LFM

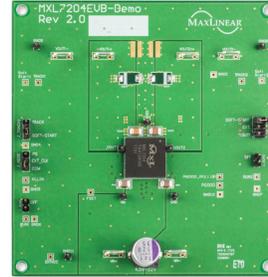
# MxL72xx Power Modules

## Evaluation Boards

### MxL7204

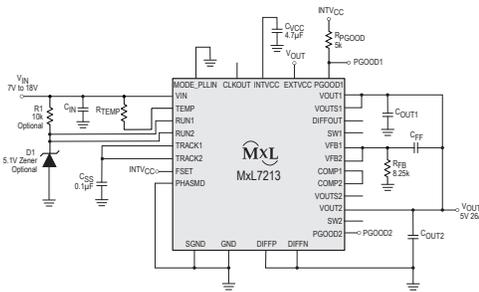


MxL7204 Typical Application



MxL7204EVB

### MxL7213

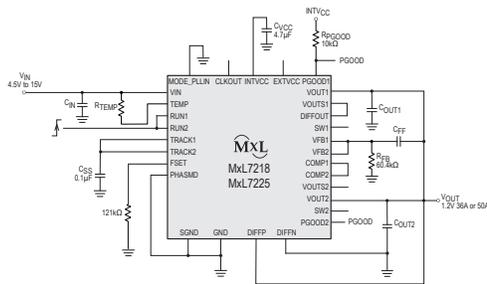


MxL7213 Typical Application

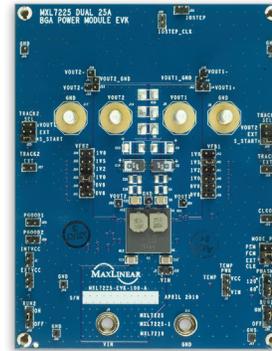


MxL7213EVB

### MxL7218 or MxL7225

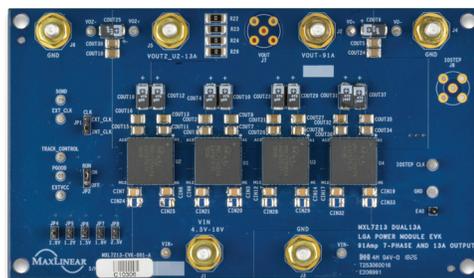


MxL7218 or MxL7225 Typical Application



MxL7218EVB or MxL7225EVB

## Quad Multiphase



MxL7213EVB

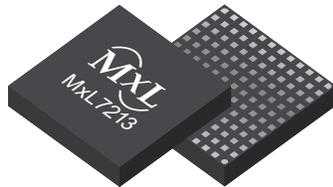


MxL7218EVB or MxL7225EVB

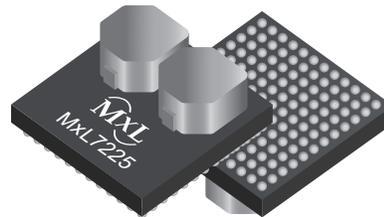
# MxL72xx Power Modules

## Product Information

Part Number	Ch.	Output Current (A)	V <sub>IN</sub> Range (V)	V <sub>OUT</sub> Range (V)	Frequency (kHz)	Efficiency (%)	X-Y Dimension (mm)	Z Dimension (mm)	Package	Features
MxL7204	2	4	4.5 to 20	0.6 to 5.0	250 to 780	93	15 x 15	2.82	LGA	<ul style="list-style-type: none"> <li>▪ PFM</li> <li>▪ Adjustable frequency and soft start</li> <li>▪ UVLO, OTP, and over current/over voltage/short-circuit protection</li> <li>▪ Frequency synchronization</li> <li>▪ PGOOD</li> </ul>
MxL7213	2	13	4.5 to 16	0.6 to 5.3	250 to 780	95	15 x 15	4.41 5.01	LGA BGA	
MxL7218	2	18	4.5 to 15	0.6 to 1.8	400 to 780	95	16 x 16	5.01	BGA	
MxL7225 MxL7225-1	2	25	4.5 to 15	0.6 to 1.8	400 to 780	93	16 x 16	5.01	BGA	



LGA 15 x15



BGA 16 x16



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