

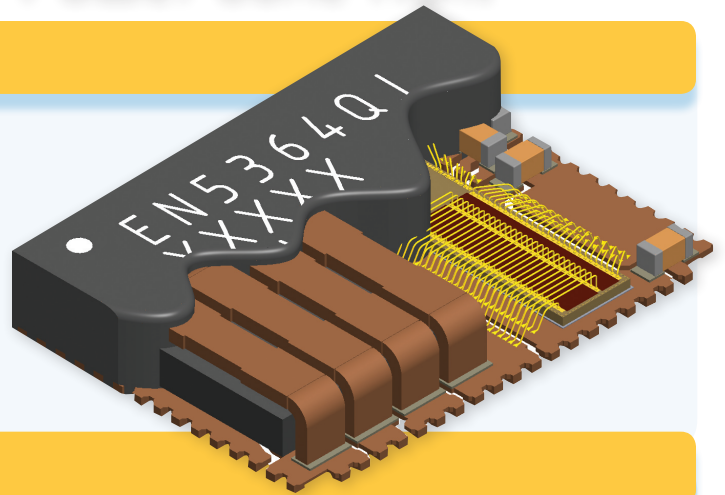
Power done right

*PowerSoC, the new norm in power conversion*

*Fall 2009*

## Enpirion Technology

- High Frequency Process Technology
- Integrated Magnetics Leadership
- Innovative Packaging Design
- Advanced Power Architecture & Design



## Benefits

### Smallest Footprint/Highest Power Density

Saves board space and minimizes profile, offering true point-of-load regulation and unparalleled power density.

### Lower Noise

Integrated inductor reduces AC current loops thus reducing noise generated. Enpirion's SoC's offer low Ripple, Conducted & Radiated noise for sensitive applications.

### Higher Reliability

1 order of magnitude better MTBF than competing discrete solutions.

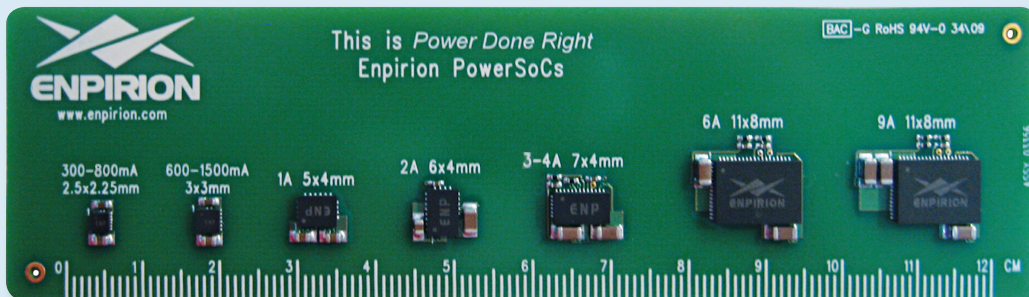
### Ease of Use enabling Faster Design Cycles

Plug-and-play approach enables faster power design for simply upgrading LDO regulation or more sophisticated multi-rail high performance applications. Comprehensive applications support and PCB layout guidelines ensure first pass success.

### Smaller Bill of Materials

High frequency operation and integration (e.g. inductor) enable a significant reduction in the number and size of supporting components. With as few as 2 external components, Enpirion provides simpler board layout, design qualification, manufacturing and reduces risk.

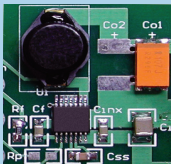
## Size Benefit (shown at actual size)



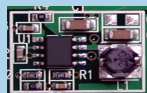
*Smallest  
Footprint*

Enpirion Power SoC's reduce PCB space by up to 80%

Competitor A



Competitor B



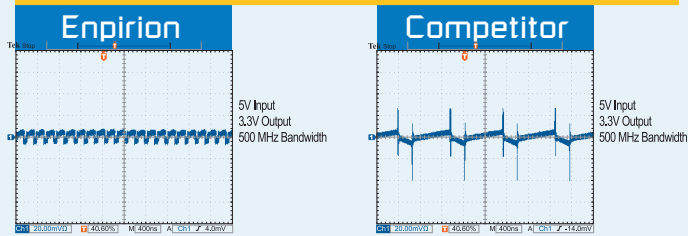
Enpirion



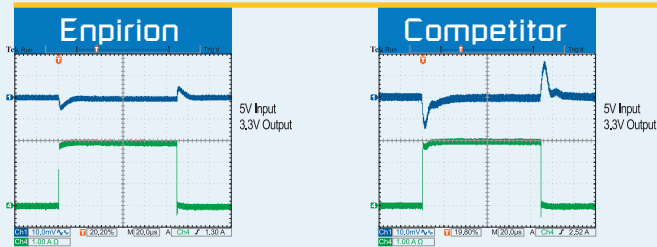
*Highest  
Density*

## Performance Benefits

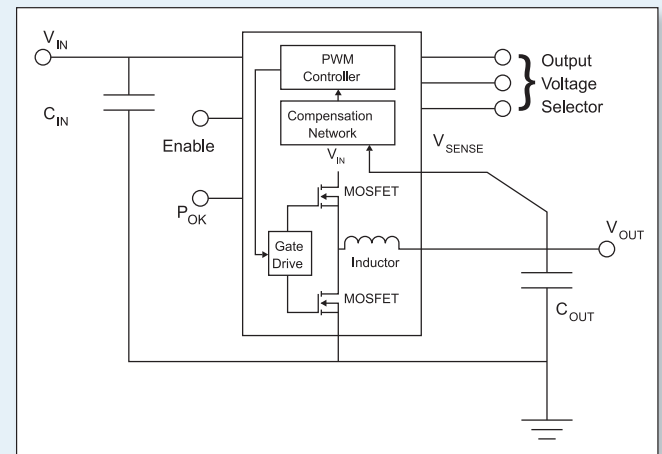
### Low Ripple



### Fast Dynamic Response



## Ease of Use Benefit



## Enabled Applications

Market pressures are driving equipment manufacturers to add more features, functionality and higher bandwidth while moving to smaller form factors and improved energy efficiency. Furthermore, nano-meter process technology has enabled complex digital SoCs that have an increasing number of power rails and tighter noise tolerances. Enpirion SoCs meet these power design challenges and are broadly used to power FPGAs, ASICs, DSPs, processors, memory, and high speed I/O.

### Enterprise



- Server Motherboards
- NIC and HBA Cards
- RAID Controllers
- Multi-function printer

### Storage



- Solid State Drives (SSD)
- Storage Systems
- Advanced USB Drives

### Home Entertainment



- Set-top boxes/Media Gateway
- PVR, Blu-Ray Players
- LCD, Plasma and OLED DTV
- Audio Amplifiers and Tuners

### Networking and Telecom



- Broadband Modems (xDSL, PON, Cable)
- Media Gateway (ATCA/AMC)
- Radio BTS (Macro, Pico, Femto)

### Wireless and Portable



- PC Cellular Data Cards
- Portable Accessories
- Mobile Internet Devices/Netbooks
- Smart Phones

### Industrial and Professional



- Test and Measurement
- Security Systems/PVR
- Industrial Computing (IPC,SBC)
- Handheld POS terminals



## Select Featured Products<sup>10</sup>

PN	I <sub>out</sub> (A)	V <sub>in</sub> (VDC)	V <sub>o</sub> Range (VDC)	Pkg (pins)	Pkg Size (mm)			Solution Size mm <sup>2</sup>	External Components	XFB V Adjust (3)	VID V Adjust (4)	POK Pin (5)	Programmable Soft Start (6)	Margining (7)	Input sync (8)	Output Sync (8)	Parallel Capability	AB-LLM
					L	W	H											
EP5357LUI	0.5	2.400 - 5.5	0.80-1.5	uQFN16	2.5	2.25	1.1	11	2	•	3-pin							•
EP5357HUI	0.5	2.400 - 5.5	1.80-3.3	uQFN16	2.5	2.25	1.1	11	2		3-pin							•
EP5358LUI	0.5	2.400 - 5.5	0.80-1.5	uQFN16	2.5	2.25	1.1	11	2	•	3-pin							
EP5358HUI	0.5	2.400 - 5.5	1.80-3.3	uQFN16	2.5	2.25	1.1	11	2		3-pin							
EP5367LQI	0.6	2.400 - 5.5	0.80-1.5	QFN16	3.0	3.0	1.1	21	2	•	3-pin							•
EP5367HQI	0.6	2.400 - 5.5	1.80-3.3	QFN16	3.0	3.0	1.1	21	2		3-pin							•
EP5368QI	0.6	2.400 - 6.6	0.80-3.3	QFN16	3.0	3.0	1.1	21	2	•	3-pin							
EP5385QI	0.8	2.400 - 5.5	0.80-3.3	uQFN16	2.5	2.25	1.1	11	2		3-pin							
EP5387LQI	0.8	2.400 - 5.5	0.80-1.5	QFN16	3.0	3.0	1.1	21	2	•	3-pin							•
EP5387HQI	0.8	2.400 - 5.5	1.80-3.3	QFN16	3.0	3.0	1.1	21	2		3-pin							•
EP5388QI	0.8	2.400 - 5.5	0.80-3.3	QFN16	3.0	3.0	1.1	28	2	•	3-pin							
EP53A7LQI	1.0	2.400 - 5.5	0.80-1.5	QFN16	3.0	3.0	1.1	21	2	•	3-pin							•
EP53A7HQI	1.0	2.400 - 5.5	1.80-3.3	QFN16	3.0	3.0	1.1	21	2		3-pin							•
EP53A8LQI	1.0	2.400 - 5.5	0.80-1.5	QFN16	3.0	3.0	1.1	21	2	•	3-pin							
EP53A8HQI	1.0	2.400 - 5.5	1.80-3.3	QFN16	3.0	3.0	1.1	21	2		3-pin							
EN5311QI	1.0	2.400 - 6.6	0.60-3.3	QFN20	4.0	5.0	1.1	36	2	•	3-pin							
EP53F8QI	1.5	2.400 - 5.5	0.80-3.3	QFN16	3.0	3.00	1.1	40	3	•		•						
EN5322QI	2.0	2.400 - 5.5	0.60-3.3	QFN24	4.0	6.0	1.1	58	3	•	3-pin	•						
EN5335QI	3.0	2.375 - 6.6	0.80-3.3	QFN44	7.5	10.0	1.85	157	3		3-pin	•	•					
EN5336QI	3.0	2.375 - 6.6	0.75-3.3	QFN44	7.5	10.0	1.85	162	5	•		•	•					
EN5337QI	3.0	2.375 - 5.5 (I)	0.60-3.3	QFN38	4.0	7.0	1.85	75	6	•		•	•	•				
EN5364QI	6.0	2.375 - 6.6	0.60-3.3	QFN68	8.0	11.0	1.5	160	5	•		•		•	•	•	•	
EN5365QI	6.0	2.375 - 5.5	0.80-3.3	QFN58	10.0	12.0	1.85	229	3		3-pin	•	•					•
EN5366QI	6.0	2.375 - 5.5	0.75-3.3	QFN58	10.0	12.0	1.85	234	5	•		•	•					•
EN5394QI	9.0	2.375 - 6.6	0.60-3.3	QFN68	8.0	11.0	1.5	190	5	•		•		•	•	•	•	
EN5395QI	9.0	2.375 - 5.5	0.75-3.3	QFN58	10.0	12.0	1.85	277	3		3-pin	•						•
EN5396QI	9.0	2.375 - 5.5	0.75-3.3	QFN58	10.0	12.0	1.85	282	5	•		•						•

### Definitions/Notes:

- Contact Enpirion for 6.6V
- All solutions are qualified to Industrial (I) temperature Range: -40°C to +85°C
- XFB = Output voltage programming with external resistor divider
- VID = Output voltage programming using Voltage ID code
- POK = Power OK (good). Indicates when output voltage stays within a certain tolerance of nominal V<sub>out</sub>
- Soft Start = To limit in-rush current when the converter is powered up, the soft start time is programmable through choice of a soft start capacitor
- Margining = The ability to force V<sub>OUT</sub> out of regulation by a specific percentage (percentage is selectable via 2-pins). Useful during system level compliance testing.
- Input/Output Synchron = The ability to control the switching frequency of the regulator(s) to reduce input/output voltage ripple
- Solution Size estimate includes all suggested external components
- Contact Enpirion for complete product offering

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