

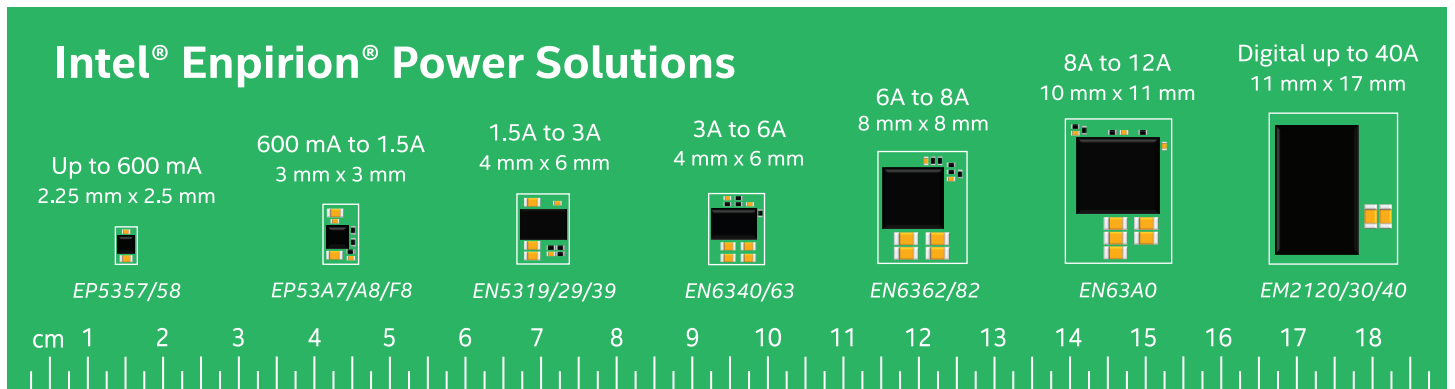


**INTEL[®] ENPIRION[®]
POWER SOLUTIONS**

INTEL® ENPIRION® POWER SOLUTIONS

PART NUMBER	MAX I _{out} (A)	V _{IN} RANGE (V)	V _{OUT} RANGE (V)	SWITCHING FREQUENCY (MHZ)	PACKAGE (PINS)	PACKAGE SIZE (MM)			SOLUTION SIZE (MM ²) ⁽¹⁾	DIGITAL V _{out} SET (VID OR PMBus*)	POWER GOOD / POK FLAG	PROGRAMMABLE SOFT-START	PRECISION ENABLE	INPUT SYNCHRONIZATION	OUTPUT SYNCHRONIZATION	PARALLEL CAPABILITY	PROGRAMMABLE FREQUENCY	LIGHT LOAD MODE	AUTOMOTIVE-GRADE AVAILABLE
						L	W	H											
FOOTPRINT-OPTIMIZED POWERSoCs																			
EP5348UI	0.4	2.5 – 5.5	0.6 – V _{IN} ⁽²⁾	9.0	uQFN14	2.0	1.75	0.9	21										
EP5357/8HU ⁽³⁾	0.6	2.4 – 5.5	1.8 – 3.3	5.0	QFN16	2.5	2.25	1.1	14	•								•	•
EP5357/8LU ⁽³⁾	0.6	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	5.0	QFN16	2.5	2.25	1.1	14	•								•	•
EP5368QI	0.6	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	4.0	QFN16	3.0	3.0	1.1	21	•									
EP5388QI	0.8	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	4.0	QFN16	3.0	3.0	1.1	28	•									
EP53A7/8HQ ⁽³⁾	1.0	2.4 – 5.5	1.8 – 3.3	5.0	QFN16	3.0	3.0	1.1	21	•								•	•
EP53A7/8LQ ⁽³⁾	1.0	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	5.0	QFN16	3.0	3.0	1.1	21	•								•	•
EN5311QI	1.0	2.4 – 6.6	0.6 – V _{IN} ⁽²⁾	4.0	QFN20	4.0	5.0	1.1	36	•									
EP53F8QI	1.5	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	4.0	QFN16	3.0	3.0	1.1	40		•								
EN5319QI	1.5	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	3.2	QFN24	4.0	6.0	1.1	50		•								
EN5322QI	2.0	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	4.0	QFN24	4.0	6.0	1.1	58	•	•								
EN5329QI	2.0	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	3.2	QFN24	4.0	6.0	1.1	50		•								
EN5337QI	3.0	2.4 – 5.5	0.75 – V _{IN} ⁽²⁾	5.0	QFN38	4.0	7.0	1.85	75		•	•	•						
EN5339QI	3.0	2.4 – 5.5	0.6 – V _{IN} ⁽²⁾	3.2	QFN24	4.0	6.0	1.1	55		•								
EN6363QI	6.0	2.7 – 6.6	0.6 – V _{IN} ⁽²⁾	2.0	QFN34	4.0	6.0	2.5	60		•	•	•						
EN5365/6Q ⁽⁴⁾	6.0	2.4 – 5.5	0.75 – 3.3/V _{IN} ⁽²⁾	5.0	QFN58	10.0	12.0	1.85	229	•	•	•				•			
EN5367QI	6.0	2.5 – 5.5	0.75 – V _{IN} ⁽²⁾	4.0	QFN54	5.5	10.0	3.0	160		•	•	•	•		•			
EN5395/6Q ⁽⁴⁾	9.0	2.4 – 5.5	0.75 – 3.3/V _{IN} ⁽²⁾	5.0	QFN58	10.0	12.0	1.85	277	•	•	•				•			
PERFORMANCE-OPTIMIZED AND WIDE V_{IN} POWERSoCs																			
EN6310QI	1.0	2.7 – 5.5	0.6 – 3.3	2.2	QFN30	4.0	5.0	1.85	65		•	•	•						•
EN5335/6Q ⁽⁴⁾	3.0	2.4 – 6.6	0.75 – 3.3/V _{IN} ⁽²⁾	5.0	QFN44	7.5	10.0	1.85	157	•	•	•							
EN6337QI	3.0	2.5 – 6.6	0.75 – V _{IN} ⁽²⁾	1.9	QFN38	4.0	7.0	1.85	75		•	•	•					•	•
EN6340QI	4.0	2.7 – 6.6	0.6 – V _{IN} ⁽²⁾	2.0	QFN34	4.0	6.0	2.5	60		•	•	•						
EN6347QI	4.0	2.5 – 6.6	0.75 – V _{IN} ⁽²⁾	3.0	QFN38	4.0	7.0	1.85	75		•	•	•	•				•	•
EN2342QI	4.0	4.5 – 14.0	0.75 – 5.0	0.9 – 1.8	QFN68	8.0	11.0	3.0	200		•	•	•	•	•		•		
EN5364QI	6.0	2.4 – 6.6	0.6 – V _{IN} ⁽²⁾	4.0	QFN68	8.0	11.0	1.85	160		•	•	•	•	•	•			
EN6362QI	6.0	3.0 – 6.5	0.6 – V _{IN} ⁽²⁾	0.9 – 1.5	QFN56	8.0	8.0	3.0	160		•	•	•				•		
EN6382QI	8.0	3.0 – 6.5	0.6 – V _{IN} ⁽²⁾	1.2 – 1.7	QFN56	8.0	8.0	3.0	160		•	•	•				•		
EN6360QI	8.0	2.5 – 6.6	0.6 – V _{IN} ⁽²⁾	0.9 – 1.5	QFN68	8.0	11.0	3.0	190		•	•	•	•	•	•	•		•
EN5394QI	9.0	2.4 – 6.6	0.6 – V _{IN} ⁽²⁾	4.0	QFN68	8.0	11.0	1.85	190		•	•	•	•	•	•			
EN63A0QI	12.0	2.5 – 6.6	0.6 – V _{IN} ⁽²⁾	0.9 – 1.5	QFN76	10.0	11.0	3.0	225		•	•	•	•	•	•	•		•
EM2120xQI	20.0	4.5 – 16	0.7 – 5.0	0.8 or 1.33	QFN100	11.0	17.0	6.76	360	•	•	•							
EM2130xQI	30.0	4.5 – 16	0.7 – 3.6	0.8 or 1.33	QFN100	11.0	17.0	6.76	360	•	•	•							
EM2140xQI	40.0	4.5 – 16	0.7 – 1.325	0.8	QFN100	11.0	17.0	6.76	360	•	•	•							
EM2260xQI	60.0	4.5 – 16	0.5 – 1.3	0.8	QFN156	18.0	23.0	5.05	650	•	•	•							
MULTI-OUTPUT POWERSoCs																			
EZ6301QI	1.5	2.7 – 6.6	0.6 – 3.3	2.5	QFN40	4.0	7.0	1.85	120	•	•	•							
	0.3	1.6 – 5.5	0.9 – 3.3							•	•								
	0.3	1.6 – 5.5	0.9 – 3.3							•	•								
EZ6303QI	2.2	2.7 – 3.6	0.6 – V _{IN} ⁽²⁾	2.5	QFN40	4.0	7.0	1.85	120	•	•	•							
	0.3	1.6 – 5.5	0.9 – V _{IN} ⁽²⁾							•	•								
	0.3	1.6 – 5.5	0.9 – V _{IN} ⁽²⁾							•	•								

High Efficiency And Small Total Footprint Enables Maximum Power Density



Size Key = 0.4" = 1.0mm

PART NUMBER	MAX I _{OUT} (A)	V _{IN} RANGE (V)	V _{OUT} RANGE (V)	SWITCHING FREQUENCY (MHZ)	PKG (PINS)	PKG SIZE (MM)			SOLUTION SIZE (MM ²) ⁽¹⁾	V _{OUT} SET: VOLTAGE ID (VID)	POWER GOOD / POK FLAG	PROGRAMMABLE SOFT-START	PRECISION ENABLE	INPUT SYNCHRONIZATION	OUTPUT SYNCHRONIZATION	PARALLEL CAPABILITY	PROGRAMMABLE FREQUENCY	LIGHT LOAD MODE	AUTOMOTIVE-GRADE AVAILABLE
						L	W	H											
LOW DROUPOUT REGULATORS (LDOS)																			
EY1602SI-ADJ	0.05	6.0 – 40.0	2.5 – 12.0		SOIC8	6.2	5.0	1.68	~45										
EY1603TI-ADJ	0.15	6.0 – 40.0	2.5 – 12.0		TSSOP14	6.4	5.0	0.9	~45										
EY1501DI-ADJ	1.0	2.2 – 6.0	0.8 – 5.0		DFN10	3.0	3.0	1.0	~15		*	*							
DC-DC REGULATORS																			
ER3015DI	0.5	3.0 – 36.0	0.6 – 34.0	0.3 – 2.0	DFN12	4.0	3.0	1.0	~160		*	*		*			*	*	
ER3110DI	1.0	3.0 – 36.0	0.6 – 12.0	0.3 – 2.0	DFN12	4.0	3.0	1.0	~160		*	*		*			*	*	
ER2120QI	2.0	5.0 – 14.0	0.6 – 5.0	0.5 – 1.2	QFN24	4.0	4.0	0.9	~165		*	*		*			*	*	
ER3125QI ⁽⁶⁾	2.5	3.0 – 36.0	0.8 – 36.0	0.2 – 2.2	DFN20	4.0	4.0	0.9	~225		*	*		*			*	*	
HIGH EFFICIENCY DDR MEMORY TERMINATION (VTT)																			
EV1320QI	2.0	0.95 – 1.8	0.5 – 0.9	0.625	QFN16	3.3	3.3	0.9	40		*	*				*			
EV1340QI	5.0	1.0 – 1.8	0.6 – 0.9	1.5	QFN54	5.5	10.0	3.0	125		*	*							
EV1380QI	8.0	1.2 – 1.65	0.6 – 0.825	1.25 – 1.75	QFN68	8.0	11.0	3.0	200		*	*		*	*	*	*	*	

For a complete list of Intel® Enpirion® power products, please visit www.altera.com/enpirion-power-solutions.html.

Notes:

1. Size estimate for single-sided PCB including all suggested external components. Smaller size may be possible with double-sided PCB design.
2. Maximum V_{OUT} = V_{IN} - V_{DROPOUT}, where V_{DROPOUT} = R_{DROPOUT} x Load Current. Reference device datasheet to calculate V_{DROPOUT}.
3. Only "7" version features Light Load Mode. Only "8" version available in automotive grade.
4. Only "5" version features V_{OUT} set by VID.
5. Supports both buck and buck-boost modes of operation.

Also available:

ES1030QI: Tiny, Low-Profile, Four-channel Power Rail Sequencer

Intel® Enpirion® Power Solutions

Powering Your Innovation

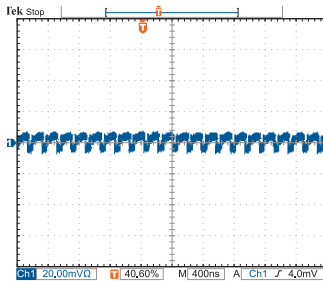
Intel Enpirion Power Solutions integrate nearly all the components needed to build a power supply without sacrificing performance or efficiency. These robust, easy-to-use products meet your most challenging power requirements, all in a small footprint. Focus on your overall design - not how to power it - with Intel Enpirion Power Solutions.

Enpirion PowerSoCs enable:

- Low noise and fast transient response performance
- High power density and small footprint
- High efficiency and excellent thermal performance
- Low component count and high reliability
- Ease of design and fastest time to market

Excellent AC+DC Noise Performance

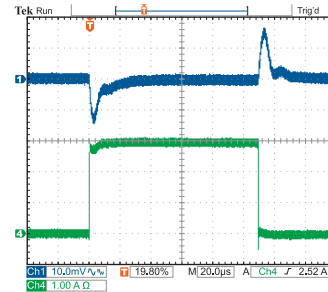
Achieve $<10\text{ mV}_{pp}$ ripple and $\leq 2\%$ accuracy for most devices†



5V input, 3.3V output, 500 MHz bandwidth

Fast Transient Response

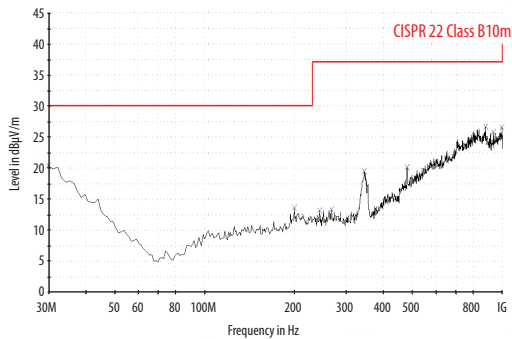
Reduce large, expensive bulk capacitance



5V input, 3.3V output, $<16\text{ mV}$ deviation

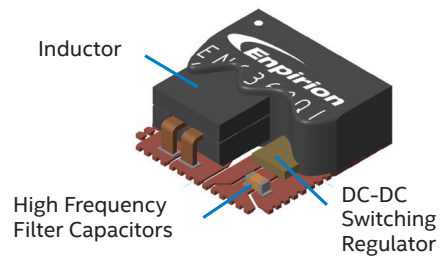
Excellent EMI Performance

Exceeds CISPR 22 Class B and CISPR 25 requirements†



Designed And Validated As A Complete Power

Highly integrated and achieves $>45,000$ year MTBF reliability†



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†Tests measure performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. Consult other sources of information to evaluate performance as you consider your purchase. For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.