

eGaN® FETs and ICs for Networking Point of Load Converters



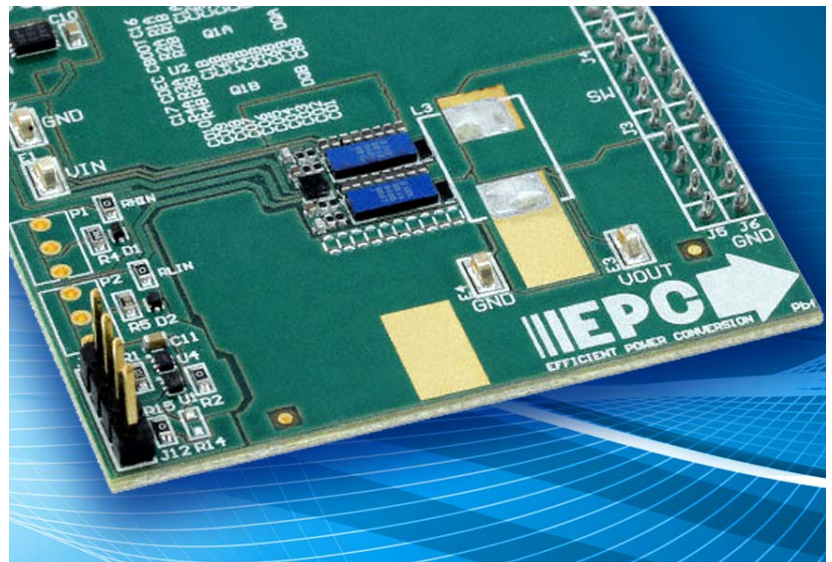
The continually increasing demand for small, high efficiency, high speed response point of load converters is driving demand for faster, more efficient power switches.

eGaN FETs offer big efficiency in a little converter

Low Q_{oss} and low Q_G , along with low inductance, are the keys to the eGaN FET's advantage in POL converters.

eGaN FETs enable:

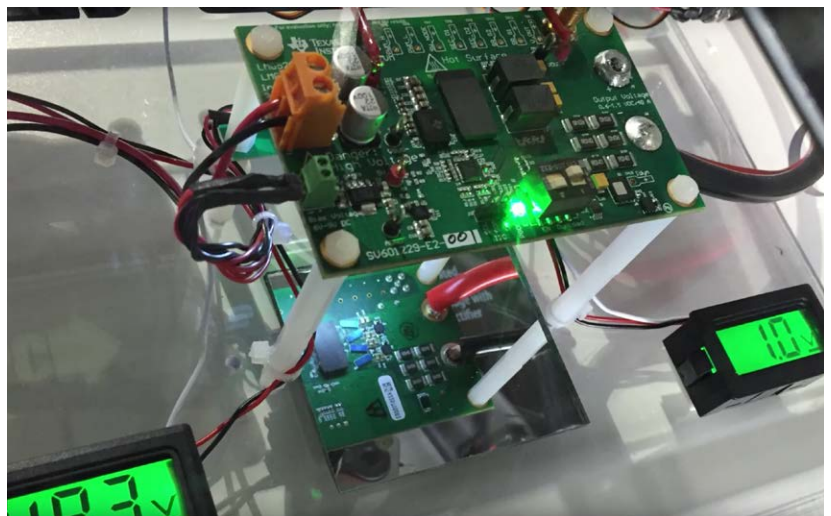
- High Efficiency and High Current at High Frequency
- Single-stage conversion
- Energy savings at light load
- Fast transient response



Single-stage conversion provides higher efficiency, consumes less board space and lowers cost. eGaN FETs and ICs are critical components in achieving single-stage conversion.

Benefits of eGaN FETs in POL Converter Designs:

- **Higher Current Capability** – Increases output capability
- **Higher Efficiency** – Lower conduction and switching losses, zero reverse recovery losses
- **Smaller Footprint** – Higher power density
- **High Step Down Ratio** – Single stage conversion



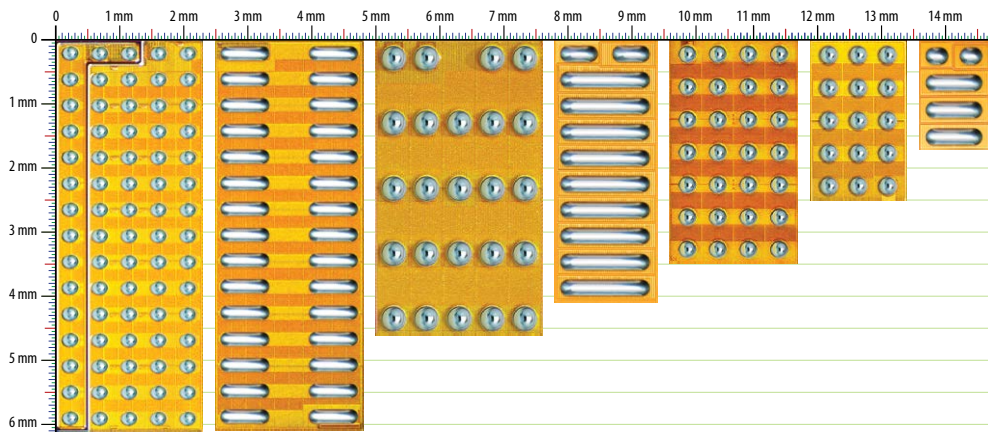
Fan Speed = 400 LFM, $f_{sw} = 1$ MHz
 $V_{in} = 12$ V, $V_{out} = 1.2$ V, $I_{out} = 40$ A

eGaN FET and ICs

Recommended Devices for POL Converters

Part Number	Configuration	V _{DS}	Max R _{DS(on)} (mΩ) at 5 V _{GS}	Q _g typ (nC)	Q _{es} typ (nC)	Q _{GD} typ (nC)	Q _{oss} typ (nC)	Q _{RR} (nC)	I _o (A)	Pulsed I _o (A)	Package (mm)	Development Board
EPC2100	Half Bridge	30	8.2 2.1	3.6 15	1.3 4.8	0.6 2.7	6.1 29	0	10 40	100 400	BGA 6.05 x 2.3	EPC9036
EPC2023	Single	30	1.45	19	5.7	3.2	30	0	90	590	LGA 6.05 x 2.3	EPC9031
EPC2014C	Single	40	16	2	0.7	0.3	4	0	10	60	LGA 1.7 x 1.1	EPC9005C
EPC2015C	Single	40	4	8.7	2.7	1.2	19	0	53	235	LGA 4.1 x 1.6	EPC9001C
EPC2030	Single	40	2.4	18	5.2	3.4	41	0	31	495	BGA 4.6 x 2.6	EPC9060
EPC2024	Single	40	1.5	18	5.1	2.4	45	0	90	560	LGA 6.05 x 2.3	EPC9032
EPC2101	Half Bridge	60	11.5 2.8	3.3 13	1.1 3.9	0.5 2.2	9.3 45	0	10 40	80 350	BGA 6.05 x 2.3	EPC9037
EPC2031	Single	60	3	16	5	3	48	0	48	450	BGA 4.6 x 2.6	EPC9061
EPC2020	Single	60	2.2	16	3.9	2.3	50	0	90	470	LGA 6.05 x 2.3	EPC9033
EPC2105	Half Bridge	80	14.5 3.6	2.7 11	0.9 3	0.5 2.1	11 51	0	10 40	70 300	BGA 6.05 x 2.3	EPC9041
EPC2029	Single	80	3.2	13	3.4	1.9	53	0	48	360	BGA 4.6 x 2.6	EPC9046
EPC2021	Single	80	2.5	15	3.4	2.3	63	0	90	420	LGA 6.05 x 2.3	EPC9034
EPC2053	Single	100	4	12.0	4.1	1.5	43	0	32	240	BGA 3.5 x 2	EPC9093
EPC2045	Single	100	7	5.9	1.9	0.8	25	0	16	130	BGA 1.5 x 2.5	EPC9078
EPC2001C	Single	100	7	7.5	2.4	1.2	31	0	36	150	LGA 4.1 x 1.6	EPC9002C

Note: Table data subject to change. Please refer to the Product section on www.epc-co.com.



Design Support Materials @ www.epc-co.com:

Application Note: GaN Integration for Higher DC-DC Efficiency and Power Density

Video: Increase Efficiency and Power Density

EPC9018, 30 V, 40 A Development Board

EPC9059: 30 V, 50 A Development Board

EPC9031, 30 V, 50 A Development Board

EPC9019, 80 V, 20 A Development Board

EPC9034, 80 V, 27 A Development Board

EPC9118 48 V to 5 V at 20 A Demo Board

GaN Transistors for Efficient Power Conversion, 2nd Edition

Reliability Reports

Device Models

Assembly Guides



For More Information

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