

eGaN® FETs and ICs for DC-DC Conversion



DC-DC Power Conversion

eGaN Technology Solutions

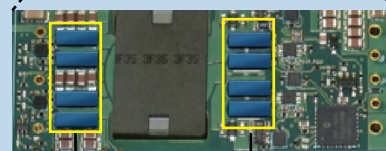
Benefits

Isolated DC-DC Brick Converters

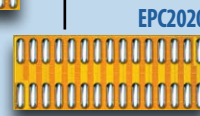


A major challenge of power conversion design is the quest for power density - output power per area. With eGaN technology the power of a quarter brick converter can be achieved with an eighth brick footprint.

EPC9115 Eighth Brick Converter Demo Board

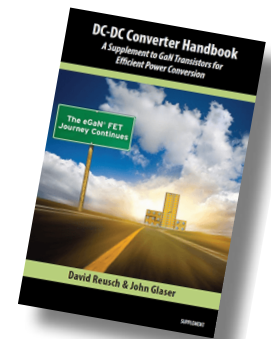


EPC201



EPC2020

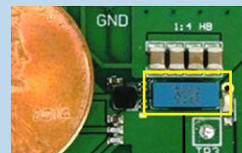
GaN's small size, thermal efficiency and high frequency switching contribute to the superior performance of eGaN FETs. Power density of hard-switched PWM "brick-type" converters can be increased by nearly 70%.



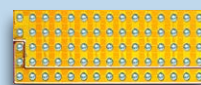
Point of Load Converters



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.



EPC9041 80V Development Board for eGaN Monolithic Half-Bridge



EPC2105 eGaN IC

eGaN FETs and ICs high frequency switching and the FET's extremely small chip-scale packaging enables high power density with outstanding thermal efficiency.

Rethinking the Data Center Power Architecture

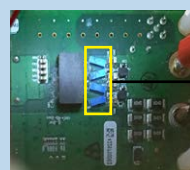


Power conversion is at the core of reducing energy consumption of data centers. Highly efficient eGaN FETs and ICs enable the 48V rack design adopted by Facebook and Google's Open Compute Project (OCP), cutting cloud data center energy bills.

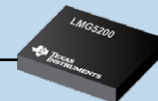


(top view)

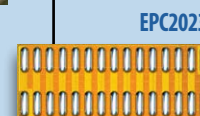
TI Reference Board Design (PMP4435): 48V_{IN} 300W 1/8th brick digital module with eGaN FET



(bottom view)



TI LMG5200 module



EPC2023

High frequency switching and extremely small chip-scale packaging of eGaN FETs and ICs enable high power density with outstanding thermal efficiency. These attributes support the power architecture mandated by the Open Compute Project (OCP).

Recommended Devices and Development Boards for DC-DC Conversion

Part Number	Configuration	V _{DS}	Max R _{DS(on)} (mΩ) (V _{GS} = 5 V _{GS})	Q _G typ (nC)	Q _{GS} typ (nC)	Q _{GD} typ (nC)	Q _{OSS} typ (nC)	Max. Peak Pulsed I _D (A) (25°C, T _{pulse} = 300 μs)	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	100/400	LGA 6.05 x 2.3	EPC9036
EPC2014C	Single	40	16	2	0.7	0.3	4	60	LGA 1.7 x 1.1	EPC9005C
EPC2055	Single	40	3.6	6.6	2.3	0.7	13	161	LGA 2.5 x 1.5	EPC90132
EPC2067	Single	40	1.55	17.1	5.3	2	37	409	LGA 2.85 x 3.25	EPC90138
EPC2066	Single	40	1.1	25	8.9	3.2	59	639	LGA 6.05 x 2.3	EPC90149
EPC2101	Half Bridge	60	11.5/2.8	3.3/13	1.1/3.9	0.5/2.2	9.3/45	80/350	LGA 6.05 x 2.3	EPC9037
EPC2031	Single	60	3	16	5	3.2	48	450	BGA 4.6 x 2.6	EPC9061
EPC8002	Single	65	480	0.133	0.057	0.015	0.334	2	LGA 2.05 x 0.85	EPC9022
EPC2105	Half Bridge	80	14.5/3.6	2.7/11	0.9/3	0.5/2.1	11/51	70/300	LGA 6.05 x 2.3	EPC9041
EPC2065	Single	80	3.6	9.4	2.6	1.7	33	150	LGA 3.5 x 2	EPC90137
EPC2206	Single – AEC-Q101	80	2.2	15	4.1	3	72	390	LGA 6.05 x 2.3	EPC90122
EPC2051	Single	100	25	1.8	0.6	0.3	7.3	37	BGA 1.3 x 0.85	EPC9091
EPC2052	Single	100	13.5	3.5	1.5	0.5	13	74	BGA 1.5 x 1.5	EPC9092
EPC2044	Single	100	10.5	4.3	1.3	0.5	15	89	BGA 2.5 x 1.5	EPC90128
EPC2204	Single	100	6	5.7	1.8	0.8	25	125	LGA 2.5 x 1.5	EPC9097
EPC2306	Single	100	3.8	11.0		1.1	41	197	QFN 3 x 5	EPC90145
EPC2619	Single	100	3.3	8.3	2.1	1	27	150	LGA 2.5 x 1.5	EPC90153
EPC2088	Single	100	3.2	12.5	4.4	1.4	47	231	LGA 3.5 x 1.95	EPC90123
EPC2071	Single	100	2.2	18	6	1.8	71	350	LGA 4.45 x 2.3	EPC90146
EPC2302	Single	100	1.8	23	8	2.3	85	408	QFN 3 x 5	EPC90142
EPC2361	Single	100	1.0 (typ)	28	7.2	2.5	86	519	QFN 3 x 5	EPC90156
EPC2308	Single	150	6	11	3.8	1.3	50	157	QFN 3 x 5	EPC90148
EPC2305	Single	150	4	21	6.3	2.6	105	329	QFN 3 x 5	EPC90143
EPC2054	Single	200	43	2.9	0.9	0.30	15	150	BGA 1.3 x 1.3	EPC9094
EPC2307	Single	200	10	10.6		1.3	58	130	QFN 3 x 5	EPC90150
EPC2215	Single	200	8	13.6	3.3	2.1	69	162	LGA 4.6 x 1.6	EPC9099
EPC2304	Single	200	5	21	0.0	2.6	115	260	QFN 3 x 5	EPC90140

Table data subject to change. Please visit: epc-co.com/epc/Products/gan-fets-and-ics



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