

eGaN® FETs and ICs for Brushless DC (BLDC) Motors



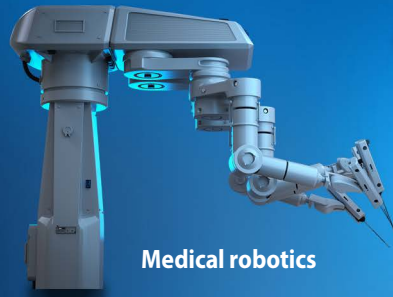
Key Features

- 1/5 the size of silicon MOSFETs for the same $R_{DS(on)}$
- Zero reverse recovery
- Lower switching losses
- Ruggedness for short circuit stress high dV/dt and small deadtime
- Integration simplifies design

Key Benefits

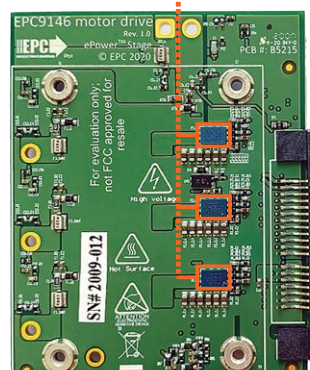
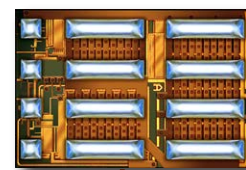
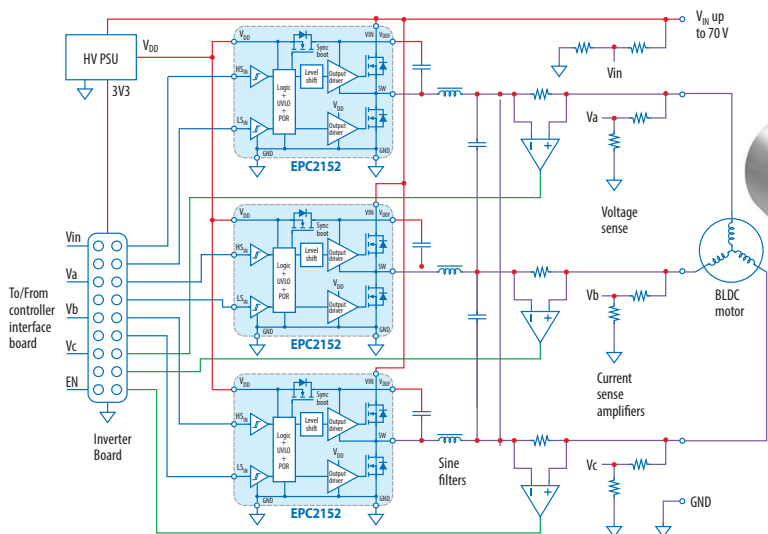
- Miniaturization & low weight
- Higher battery efficiency
- Higher precision
- Reduced EMI
- Reliability
- High Frequency operation (100 kHz+)
 - Higher position accuracy
 - Lower current & torque ripple
 - Lower audible noise

Applications



400 W Motor Drive Solution

- 48 V_{IN}
- 3 phases
- 15 Apk/phase
- 98.5% efficiency @ 100 kHz



マイクロコントローラへのインタフェース基板

- EPC9147A
- EPC9147B
- EPC9147C



Motor Drive

Part Number	Description	V _{IN}	I _{Phase} (A _{RMS})	f _{SW} (kHz)	Featured Product
EPC9146	400 W Motor Drive Demo	14 - 60	10	20 - 200	EPC2152

ePower™ Stage

Part Number	Configuration	Nominal Logic Supply Voltage (V)	Maximum Input Voltage (V)	Typ R _{DS(on)} (mΩ)	Rated Output Current (A)	Features	Fault Protection	Max T _J (°C)	Package (mm)	Development Board
EPC2152	Half-Bridge ePower™ Stage	12	80	10	12.5	Level shifting, bootstrap circuits	UVLO	150	LGA 3.65 x 2.59	EPC90120

Recommended Devices for Brushless DC (BLDC) Motors

Part Number	Configuration	V _{DS} (V)	Max R _{DS(on)} (mΩ) @ 5V _{GS}	Q _G typ (nC)	Q _{GS} typ (nC)	Q _{GD} typ (nC)	Q _{OSS} typ (nC)	Q _{RR} (nC)	C _{ISS} (pF)	C _{OSS} (pF)	C _{RSS} (pF)	I _D (A)	Pulsed I _D (A)	Max T _J (°C)	Package (mm)	Development Board
EPC2102	Half Bridge	60	4.9	8	2.5	1.5	26 31	0	850	500 610	11	30	220	150	BGA 6.05 x 2.3	EPC9038
EPC2101	Half Bridge	60	11.5 2.8	3.3 13	1.1 3.9	0.5 2.2	9.3 45	0	300 1200	200 1000	5 25	10 40	80 350	150	BGA 6.05 x 2.3	EPC9037
EPC2039	Single	80	25	1.91	0.76	0.42	7.64	0	210	115	2	6.8	50	150	BGA 1.35 x 1.35	EPC9057
EPC2103	Half Bridge	80	5.5	6.5	2.2	1.1	30 34	0	730	445 525	7	30	195	150	BGA 6.05 x 2.3	EPC9039
EPC2105	Half Bridge	80	14.5 3.6	2.7 11	0.9 3	0.5 2.1	11 51	0	300 1170	170 780	3 12	10 40	70 300	150	BGA 6.05 x 2.3	EPC9034
EPC2065	Single	80	3.6	9.4	2.6	1.7	33	0	1097	534	8.9	60	215	150	LGA 3.5 x 2	EPC90137
EPC2021	Single	80	2.2	15	4.1	3	72	0	1610	1100	15	90	390	150	LGA 6.05 x 2.3	EPC9034
EPC2106	Half Bridge	100	70	0.73	0.24	0.140	3.96 4.68	0	79	52 61	0.5	1.7	18	150	BGA 1.35 x 1.35	EPC9055
EPC2212	Single	100	13.5	3.2	0.9	0.6	18	0	339	238	3	18	75	150	LGA 2.1 x 1.6	n/a
EPC2045	Single	100	7	6	1.9	0.8	25	0	767	295	3	16	130	150	BGA 2.5 x 1.5	EPC9078
EPC2104	Half Bridge	100	6.8	6.8	2.3	1.4	35 41	0	730	430 500	5	30	180	150	BGA 6.05 x 2.3	EPC9040
EPC2204	Single	100	6	5.7	1.8	0.8	25	0	644	304	2.3	29	125	150	LGA 2.5 x 1.5	EPC9097
EPC2053	Single	100	3.8	11.4	4.1	1.5	45	0	1453	642	10.4	48	246	150	BGA 3.5 x 2	EPC9093
EPC2218	Single	100	3.2	10.5	3.2	1.5	46	0	1189	562	4.3	60	231	150	LGA 3.5 x 1.95	EPC90123
EPC2022	Single	100	3.2	13.2	3.4	2.4	71	0	1400	840	7	90	390	150	LGA 6.05 x 2.3	EPC9035
EPC2059	Single	170	9	5.7	1.3	0.9	35	0	633	267	1.6	24	102	150	LGA 2.8 x 1.4	EPC9098
EPC2207	Single	200	22	4.5	1.3	0.7	23	0	1400	130	0.7	14	54	150	LGA 2.9 x 0.9	EPC90124
EPC2215	Single	200	8	13.6	3.3	2.1	69	0	0	390	2	32	162	150	LGA 4.6 x 1.6	EPC9099
EPC2034C	Single	200	8	11.4	3.8	2.1	95	0	1166	630	2.8	48	213	150	BGA 4.6 x 2.6	EPC9048C

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



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