eGaN® FETs and ICs for Drones

EFFICIENT POWER CONVERSION

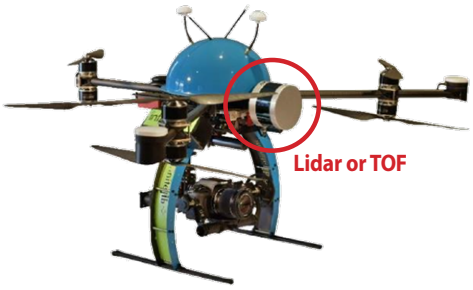
Revised April 22, 2025

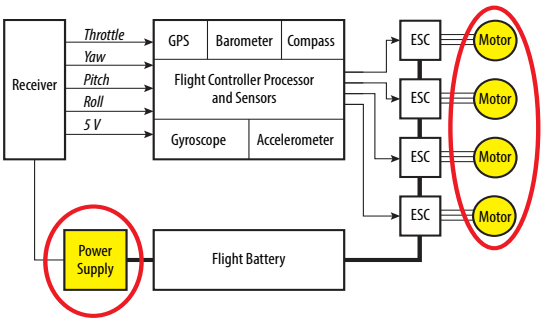
Applications	Why GaN?
Lidar/Time of Flight	Higher resolution, increased range, smaller/lighter weight
DC-DC Power Supply	Higher efficiency, smaller/lighter weight, lower cost
BLDC motors	Smaller/lighter weight, higher efficiency, reduced EMI

Key eGaN Features

- Smaller size for $R_{DS(on)}$
- Lower switching losses
- No reverse recovery
- Hard switching figure of merit 5 x better than silicon MOSFET at 100 V
- Very high switching frequency
- Capability to generate very narrow high current pulses
- Extremely reliable
- Integration simplifies design

Opportunities for eGaN Devices in Industrial Drones and UAVs



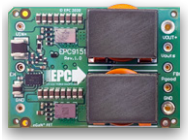


Lidar/Time of Flight

Part Number	Description	V_{BUS} (max)	V_{INPUT} (max)	T_{PIN} (min)	Max Pulse (A)	Featured Product
EPC9144	Short-Range Lidar Eval	12	5	1 ns	28	EPC2216
EPC91116	Short-Range Lidar Eval	40	5.5	5 ns	17	EPC2203
EPC9154	Short-Range Lidar Eval	40	5	2 ns	10	EPC21601
EPC9156	Short-Range Lidar Eval	40	5	2 ns	10	EPC21603
EPC9172	Short-Range Lidar Eval	60	5	2 ns	15	EPC21701
EPC9179	Long-Range Lidar Eval	70	5	2 ns	75	EPC2252
EPC9181	Long-Range Lidar Eval	70	5	2 ns	125	EPC2204A
EPC9180	Long-Range Lidar Eval	70	5	2 ns	230	EPC2218A
EPC9150	Long-Range Lidar Eval	160	5	1 ns	220	EPC2034C

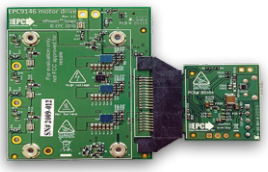
48 V Power Supply

Part Number	Description	V_{IN}	V_{OUT}	I_{OUT} (A)	Featured Product
EPC9151	300 W Bidirectional $^1/_{16}^{th}$ Brick Evaluation Module	18 V – 60 V (Buck) 12 V – 15 V (Boost)	12 V (Buck) 48 V (Boost)	25 A (Buck) 5.5 A (Boost)	EPC2152



Motor Drive

Part Number	Description	DC input	Max per phase current	Switching Frequency	Featured Product
EPC9146	Three-Phase BLDC motor drive reference design	48	15 A	100 kHz	EPC2152



Recommended Devices for Industrial Drones

Part Number	Configuration	V_{DS} (V)	Max $R_{DS(on)}$ (mΩ) @ 5 V_{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)	Evaluation Board
EPC2040	Single	15	30	0.745	0.23	0.14	0.42	0	86	67	20	3.4	28	150	BGA 0.85 x 1.2	n/a
EPC2216	Single – AEC-Q101	15	26	0.87	0.21	0.13	0.53	0	98	66	20	3.4	28	150	BGA 0.85 x 1.2	n/a
EPC2014C	Single	40	16	2	0.7	0.3	4	0	220	150	6.5	10	60	150	LGA 1.7 x 1.1	EPC9005C
EPC2055	Single	40	3.6	6.6	2.3	0.7	13	0	841	408	8.8	29	161	150	LGA 2.5 x 1.5	EPC90132
EPC2057	Single	50	8.5	3	1.2	0.5	8	0	383	172	3	9.6	66	150	LGA 1.5 x 1.2	EPC90155
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
EPC2203	Single – AEC-Q101	80	80	0.67	0.22	0.12	3.6	0	73	47	0.5	1.7	17	150	BGA 0.9 x 0.9	n/a
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
EPC2214	Single – AEC-Q101	80	20	1.8	0.5	0.3	8	0	198	129	1.8	10	47	150	BGA 1.35 x 1.35	n/a
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	17/780	3/12	10/40	70/300	150	BGA 6.05 x 2.3	EPC9034
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
EPC2007C	Single	100	30	1.6	0.6	0.3	8.3	0	170	110	1.9	6	40	150	LGA 1.7 x 1.1	EPC9006C
EPC2051	Single	100	25	1.8	0.6	0.3	7.3	0	224	86	1	1.7	37	150	LGA 1.3 x 0.85	EPC9091
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
EPC2052	Single	100	13.5	3.5	1.5	0.5	13	0	441	195	3.2	8.2	74	150	BGA 1.5 x 1.5	EPC9092
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
EPC2306	Single	100	3.8	11.0		1.1	41	0	1544	482	3.4	48	197	150	QFN 3 x 5	EPC90145
EPC2619	Single	100	3.3	8.3	2.1	1	27	0	1180	310	3	29	164	150	LGA 2.5 x 1.5	EPC90153
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
EPC2088	Single	100	3.2	12.5	4.4	1.4	47	0	1864	557	3.6	60	231	150	LGA 3.5 x 1.95	EPC90123
EPC2071	Single	100	2.2	18	6	1.8	71	0	2664	878	5.4	64	350	150	LGA 4.45 x 2.3	EPC90146
EPC2302	Single	100	1.8	23	8	2.3	85	0	3200	1000	7	101	408	150	QFN 3 x 5	EPC90142
EPC2367	Single	100	1.2 (typ)	17	5.3	2.4	54	0	2170	590	8	78	309	150	QFN 3.3 x 3.3	EPC90164
EPC2361	Single	100	1.0 (typ)	28	7.2	2.5	86	0	4094	1147	12	101	519	150	QFN 3 x 5	EPC90156
EPC2234	Single - AEC Q101	160	8	11	3.8	2.0	96	0	1155	641	3.1	48	213	150	BGA 4.6 x 2.6	n/a
EPC2019	Single	200	50	1.8	0.6	0.35	18	0	200	110	0.7	8.5	42	150	LGA 2.77 x 0.95	EPC9014
EPC2207	Single	200	22	4.5	1.3	0.7	23	0	454	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	1356	390	2	32	162	150	LGA 4.6 x 1.6	EPC9099
EPC2307	Single	200	10	10.6		1.3	58	0	1401	326	1.2	62	130	150	QFN 3 x 5	EPC90150
EPC2304	Single	200	5	21	0.0	2.6	115	0	2786	649	2.4	133	260	150	QFN 3 x 5	EPC90140

ePower™ Stage

Part Number	Configuration	Function	VPwr	I_{OUT}	I_{OUT} Peak	V_{DD}	Input Logic	F (Max)	UVLO	Package (mm)	Evaluation Board
EPC2152	Half-Bridge ePower™ Stage	ePower™ Stage	80	12.5	90	12	3.3 V	3 MHz	7.5	LGA 3.9 x 2.6	EPC90120
EPC23101	HS FET + Driver + Level Shift	ePower™ Stage	100	65	240	6	5.5 V	3 MHz	0.5– 4	QFN 3.5 x 5	EPC90142
EPC23102	HS FET + Driver + Level Shift	ePower™ Stage	100	35	140	6	5.5 V	3 MHz	0.5– 4	QFN 3.5 x 5	EPC90147
EPC23104	HS FET + Driver + Level Shift	ePower™ Stage	100	15	44	6	3.3 V or 5 V	3 MHz		QFN 3.5 x 5	EPC90152

eToF™ Laser Driver IC

Part Number	Configuration	Function	VPwr	I_{OUT}	I_{OUT} Peak	V_{DD}	Input Logic	F (Max)	UVLO	Package (mm)	Evaluation Board
EPC21601	Single	eToF™ Laser Driver	40	3.7	10	5	3.3 V	200 MHz	0	BGA 1 x 1.5	EPC9154
EPC21603	Single	eToF™ Laser Driver	40	3.7	10	5	LVDS	200 MHz	0	BGA 1 x 1.5	EPC9156
EPC21701	Single	eToF™ Laser Driver	80	7.2	15	5	3.3 V	50 MHz	0	BGA 1.7 x 1	EPC9172

Note: Table data subject to change. Please refer to the Product section on https://epc-co.com/epc/products/gan-fets-and-ics

EFFICIENT POWER CONVERSION

For More Information
Please contact info@epc-co.com
or your local sales representative
Visit our website: epc-co.com
Sign-up to receive EPC updates at
https://bit.ly/EPCupdates

eGaN is a registered trademark of Efficient Power Conversion Corporation