eGaN® FETs and ICs for Time-of-Flight/Lidar

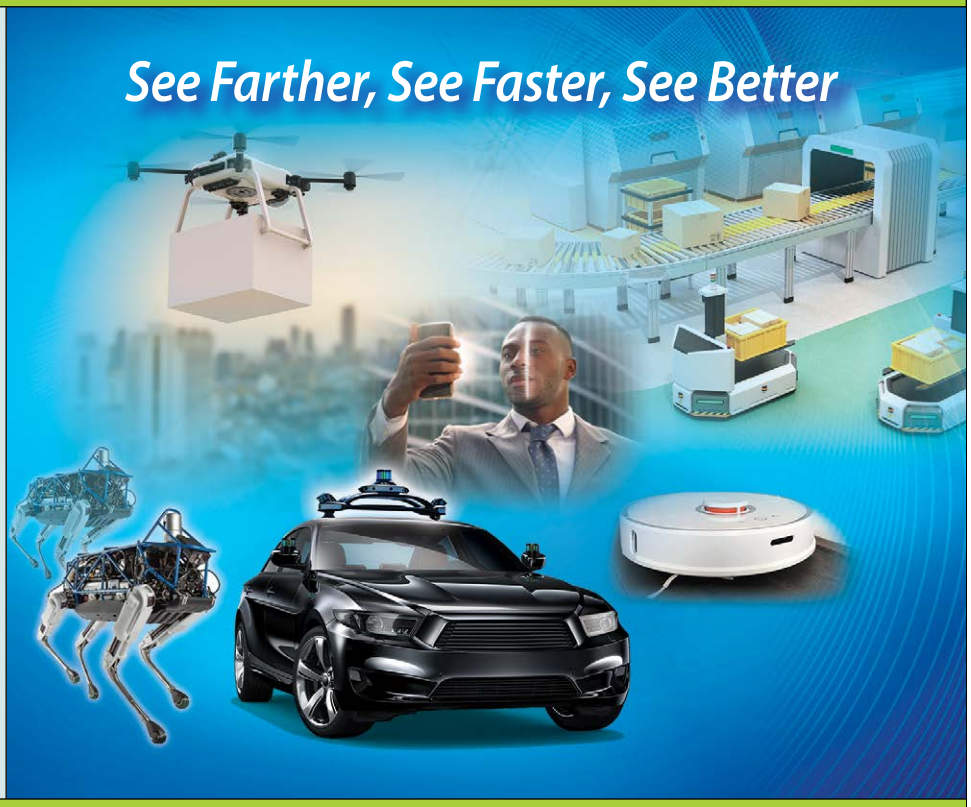
EFFICIENT POWER CONVERSION

GaN transistors and integrated circuits are a vital element in the "eyes" of autonomous vehicles, robotics and drones by powering the lasers used in Time of Flight(ToF)/lidar systems.

Direct Time of Flight (DToF) systems are typically used for long range applications such as autonomous vehicles. Indirect Time of Flight (IToF) is used often in flash lidar systems and for short-range applications such as collision avoidance.

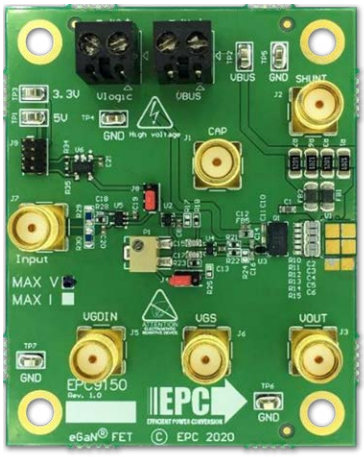
eGaN FETs and ICs create the high-current pulses with extremely short pulse widths required for higher resolution, longer range, and safer ToF/Lidar systems.

These benefits along with the extremely small size and low cost, make GaN the ideal solution helping all ranges of lidar systems see farther, faster, and better.

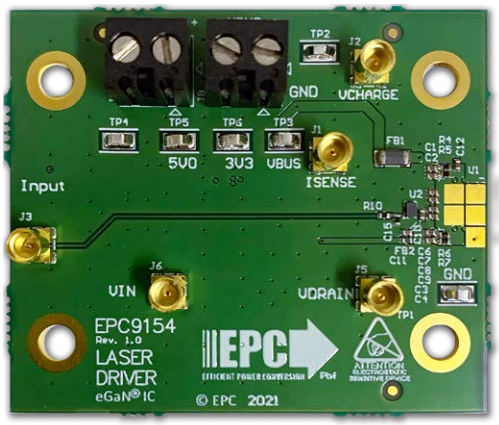


Benefits of eGaN Technology in Your Lidar Designs

- **Faster Switching** – More accurate and smaller pulses
- **Higher Efficiency** – Higher pulse repetition rate
- **Smaller Footprint** – Higher power density, lower inductance, integration with Laser Diode



EPC9150
Long Range Lidar
221 A laser pulse peak
2.9 ns wide pulses



EPC9154
Short Range Lidar
10 A laser pulse peak
410 ps on time, 320 ps off time

High Current, Narrow Pulse Width Demo Boards

Part Number	Description	V_{BUS} (max)	V_{INPUT} (max)	T_{PIN} (min)	Max Pulse (A)	Featured Product
EPC9144	15 V High Current Pulsed Laser Diode Driver Demo Board	12	5	1 ns	28	EPC2216
EPC9154	40 V High Current Pulsed Laser Diode Driver Demo Board	40	5	2 ns	10	EPC21601
EPC9156	40 V High Current Pulsed Laser Diode Driver Demo Board	40	5	2 ns	10	EPC21603
EPC9126	100 V High Current Pulsed Laser Diode Driver Demo Board	80	5	6 ns	75	EPC2212
EPC9126HC		80	5	6 ns	150	EPC2001C
EPC9150	160 V High Current Pulsed Laser Diode Driver Demo Board	160	5	1 ns	220	EPC2034C

eToF™ Laser Driver ICs for Time-of-Flight/Lidar

Part Number	Configuration	Function	V	I_{OUT}	I_{OUT} Peak	V_{DD}	Input Logic	Frequency (Max)	UVLO	Package (mm)	Demo Board
EPC21601	Single	eToF™ Laser Driver	40	3.7	10	5	3.3 V	200 Mhz	✓	BGA 1 x 1.5	EPC9154
EPC21603	Single	eToF™ Laser Driver	40	3.7	10	5	LVDS	200 Mhz	✓	BGA 1 x 1.5	EPC9156

Recommended Devices for Time-of-Flight/Lidar

Part Number	Configuration	V_{DS}	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)	I_D (A)	Pulsed I_D (A)	Package (mm)	Demo Board
EPC2040	Single	15	30	0.745	0.23	0.14	0.42	0	3.4	28	BGA 0.85 x 1.2	n/a
EPC2216	Single - AEC-Q101	15	26	0.87	0.21	0.13	0.53	0	3.4	28	BGA 0.85 x 1.2	n/a
EPC8004	Single	40	110	0.37	0.12	0.047	0.63	0	4	7.5	LGA 2.05 x 0.85	EPC9024
EPC2014C	Single	40	16	2	0.7	0.3	4	0	10	60	LGA 1.7 x 1.1	EPC9005C
EPC2055	Single	40	3.6	6.6	2.3	0.7	13	0	29	161	LGA 2.5 x 1.5	EPC90132
EPC2035	Single	60	45	0.88	0.25	0.16	2.6	0	1.7	24	BGA 0.9 x 0.9	EPC9049
EPC2219	Single with Gate Diode – AEC-Q101	65	3300	0.044	0.02	0.004	0.104	0	0.5	0.5	BGA 0.9 x 0.9	n/a
EPC8002	Single	65	480	0.133	0.057	0.015	0.344	0	2	2	LGA 2.05 x 0.85	EPC9022
EPC8009	Single	65	130	0.37	0.12	0.055	0.94	0	4	7.5	LGA 2.05 x 0.85	EPC9029
EPC2214	Single	80	20	1.8	0.5	0.3	8	0	10	47	BGA 1.35 x 1.35	n/a
EPC2065	Single	80	3.6	9.4	2.6	1.7	33	0	60	215	LGA 3.5 x 2	EPC90137
EPC2038	Single with Gate Diode	100	3300	0.044	0.02	0.004	0.134	0	0.5	0.5	BGA 0.9 x 0.9	EPC9507
EPC2037	Single	100	550	0.115	0.032	0.025	0.6	0	1.7	2.4	BGA 0.9 x 0.9	EPC9087
EPC8010	Single	100	160	0.36	0.13	0.06	2.2	0	4	7.5	LGA 2.05 x 0.85	EPC9030
EPC2036	Single	100	73	0.7	0.17	0.14	3.9	0	1.7	18	BGA 0.9 x 0.9	EPC9050
EPC2007C	Single	100	30	1.6	0.6	0.3	8.3	0	6	40	LGA 1.7 x 1.1	EPC9006C
EPC2051	Single	100	25	1.8	0.6	0.3	7.3	0	1.7	37	BGA 1.3 x 0.85	EPC9091
EPC2016C	Single	100	16	3.4	1.1	0.55	16	0	18	75	LGA 2.1 x 1.6	EPC9010C
EPC2212	Single - AEC-Q101	100	13.5	3.2	0.9	0.6	18	0	18	75	LGA 2.1 x 1.6	n/a
EPC2052	Single	100	13.5	3.5	1.5	0.5	13	0	8.2	74	BGA 1.5 x 1.5	EPC9092
EPC2204	Single	100	6	5.7	1.8	0.8	25	0	29	125	LGA 2.5 x 1.5	EPC9097
EPC2218	Single	100	3.2	10.5	3.2	1.5	46	0	60	231	LGA 3.5 x 1.95	EPC90123

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