

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



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.

See Farther, See Faster, See 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

eGaN FET and ICs

High Current, Narrow Pulse Width Demo Boards

Part Number	Default Configuration	Description	V _{BUS} (max)	V _{INPU} (max)	T _{PI} (min)	Max Pulse (A)	Featured Product
EPC9144	IToF	High Current Pulsed Laser Diode Driver Demo Board	12	5	1 ns	28	EPC2216
EPC9154	IToF	High Current Pulsed Laser Diode Driver Demo Board	40	5	2 ns	10	EPC21601
EPC9156	IToF	High Current Pulsed Laser Diode Driver Demo Board	40	5	2 ns	10	EPC21603
EPC9172	IToF	High Current Pulsed Laser Diode Driver Demo Board	60	5	2 ns	15	EPC21701
EPC9179	Resonant Pulse DToF	High Current Pulsed Laser Diode Driver Demo Board	70	5	2 ns	75	EPC2252
EPC9181	Resonant Pulse DToF	High Current Pulsed Laser Diode Driver Demo Board	70	5	2 ns	125	EPC2204A
EPC9180	Resonant Pulse DToF	High Current Pulsed Laser Diode Driver Demo Board	70	5	2 ns	230	EPC2218A
EPC9150	Resonant Pulse DToF	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	VPwr	I _{OUT}	I _{OUT} Peak	V _{DD}	Input Logic	F (Max)	UVLO	Package (mm)	Development Board
EPC21601	Single	eToF™ Laser Driver	40	3.7	10	5	3.3V	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	3.3V	50 MHz	0	BGA 1.7 x 1	EPC9172
EPC21702	Single	eToF™ Laser Driver	100	7.2	30	5 and 10	3.3V	10 MHz	0	BGA 1.66 x 1.46	n/a

Recommended Devices for Time-of-Flight/Lidar

Part Number	Configuration	V _{DS}	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)	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
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
EPC2214	Single	80	20	1.8	0.5	0.3	8	0	10	47	BGA 1.35 x 1.35	n/a
EPC2252	Single – AEC-Q101	80	11	3.5	1	0.5	15	0	8.2	75	BGA 1.5 x 1.5	EPC9179
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
EPC2036	Single	100	73	0.7	0.17	0.14	3.9	0	1.7	18	BGA 0.9 x 0.9	EPC9050
EPC2221	Dual Common Source - AEC Q101	100	58	0.85	0.27	0.19	4.7	0	5	20	BGA 1.35 x 1.35	n/a
EPC2051	Single	100	25	1.8	0.6	0.3	7.3	0	1.7	37	BGA 1.3 x 0.85	EPC9091
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
EPC2306	Single	100	3.8	11.0		1.1	41	0	48	197	QFN 3 x 5	EPC90145
EPC2619	Single	100	3.3	8.3	2.1	1	27	0	29	164	LGA 2.5 x 1.5	EPC90153
EPC2088	Single	100	3.2	12.5	4.4	1.4	47	0	60	231	LGA 3.5 x 1.95	EPC90123
EPC2071	Single	100	2.2	18	6	1.8	71	0	64	350	LGA 4.45 x 2.3	EPC90146
EPC2302	Single	100	1.8	23	8	2.3	85	0	101	408	QFN 3 x 5	EPC90142
EPC2361	Single	100	1.0 (typ)	28	7.2	2.5	86	0	101	519	QFN 3 x 5	EPC90156

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



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