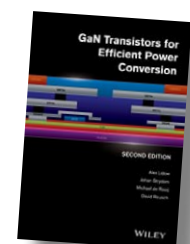


eGaN® FETs and ICs for LiDAR (Light Distancing and Ranging) Applications



	LiDAR Application	Application Description	Benefits
Autonomous Vehicles		LiDAR is used as the “eyes” for self-driving cars. It is critical that the highest resolution is obtained. With MOSFETs images are fuzzy, however due to the speed of eGaN FETs and ICs high resolution is achieved.	<p>GaN’s Contribution to LiDAR</p> <p>Using the speed of light as a reference, LiDAR is an active method for remotely sensing objects. Simply put, it records the time it takes for a laser pulse to be sent and received after striking a distant object. The distance and image of the object is calculated from this information. By directing the laser around 360 degrees allows the system to identify objects in the entire 3-D environment surrounding the LiDAR unit.</p> <p>Knowing the precise time the light pulses are triggered, and when they return to the sensor, contributes significantly to the accuracy of the image the LiDAR system creates. GaN FETs’ and ICs’ fast switching capability enables more accurate determination of the distance measurements between the time the light pulses are fired and the time they are received.</p> <p>Also, since only a small amount of the light will be reflected back to the sensors, the ability of GaN components to deliver more power to the laser results in a more intense laser beam output, enabling the LiDAR system to “see” at a greater distance, or in less than perfect atmospheric conditions.</p> <p>Generating a series of laser pulses that take snapshots of the entire surroundings, one pulse at a time, creates the full three-dimensional LiDAR image.</p>
Unmanned Aerial Vehicles (UAV)		LiDAR carried aloft with UAVs (drones) provide 3-D mapping that can be used in agriculture, mining and even under water topography. eGaN FETs and ICs provide better resolution, small size and weight make them ideal for airborne use.	
Robotics		LiDAR provides the ability for robots to obtain images of their environments, which increases their autonomy. With the superior clarity provided by the superior performance of eGaN FETs and ICs, the robot has a clear view of its surroundings.	
Augmented Reality (AR)		LiDAR enables the expansion of a viewer’s environment with AR used in gaming, medical technology and in the classroom. eGaN FETs and ICs small size and thermal efficiency minimize the size of AR headsets.	
Military		Within the military environment, LiDAR has many applications. For example, images from a LiDAR-equipped drone can provide troops wearing an augmented reality headset a view of the battlefield.	



Recommended Devices for LiDAR Designs

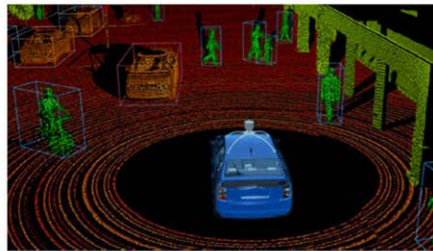
Part Number	Configuration	V _{DS}	Max R _{DS(on)} (mΩ) (V _{GS} = 5 V _{GS})	Q _G typ (nC)	Q _{GS} typ (nC)	Q _{GD} typ (nC)	Q _{OSS} typ (nC)	Max. Peak Pulsed I _D (A) (25°C, T _{pulse} = 300 μs)	Package (mm)	Development Board
EPC2040	Single	15	30	0.745	0.23	0.14	0.42	28	BGA 0.85 x 1.2	N/A
EPC8004	Single	40	110	0.37	0.12	0.047	0.63	7.5	LGA 2.05 x 0.85	EPC9024
EPC2014C	Single	40	16	2	0.7	0.3	4	60	LGA 1.7 x 1.1	EPC9005C
EPC2015C	Single	40	4	8.7	2.7	1.2	19	235	LGA 4.1 x 1.6	EPC9001C
EPC2035	Single	60	45	0.88	0.25	0.16	2.6	24	BGA 0.9 x 0.9	EPC9049
EPC8009	Single	65	130	0.37	0.12	0.055	0.94	7.5	LGA 2.05 x 0.85	EPC9029
EPC2039	Single	80	25	1.91	0.76	0.42	7.64	50	BGA 1.35 x 1.35	EPC9057
EPC2038	Single with Gate Diode	100	3300	0.044	0.02	0.004	0.134	0.5	BGA 0.9 x 0.9	EPC9507
EPC2037	Single	100	550	0.115	0.032	0.025	0.6	2.4	BGA 0.9 x 0.9	EPC9087
EPC8010	Single	100	160	0.36	0.13	0.06	2.2	7.5	LGA 2.05 x 0.85	EPC9030
EPC2036	Single	100	73	0.7	0.17	0.14	3.9	18	BGA 0.9 x 0.9	EPC9050
EPC2007C	Single	100	30	1.6	0.6	0.3	8.3	40	LGA 1.7 x 1.1	EPC9006C
EPC2051	Single	100	25	1.7	0.6	0.3	7.3	37	BGA 1.3 x 0.85	EPC9091
EPC2016C	Single	100	16	3.4	1.1	0.55	16	75	LGA 2.1 x 1.6	EPC9010C
EPC2045	Single	100	7	5.9	1.9	0.8	25	130	BGA 2.5 x 1.5	EPC9078
EPC2001C	Single	100	7	7.5	2.4	1.2	31	150	LGA 4.1 x 1.6	EPC9002C

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

Silicon Laser Driver



GaN Laser Driver



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eGaN transistors enable superior resolution in Augmented Reality and Autonomous Vehicles

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