

eGaN® FETs and ICs for Wireless Power Applications



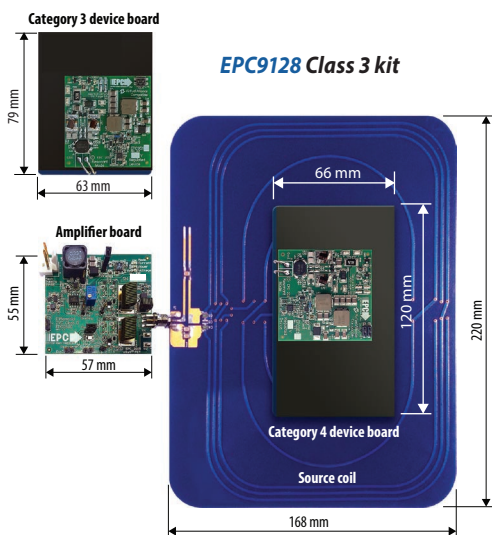
Wireless energy transfer enables the remote powering and charging of the myriad of battery-powered devices that have infiltrated our daily lives.

With this explosion in the variety and number of mobile devices, wireless power transfer offers the convenience of charging batteries without the annoyance of cumbersome cables and the inconvenience of looking for outlets to “plug in.”

Enhancement-mode gallium nitride (eGaN) FETs and ICs are ideal for wireless power applications due to their ability to operate at high frequency, high voltage, and high power.



Demonstration Kits Speed Time to Market



eGaN Products Cover Full Power Range

- Class 2, 10 W
- Class 3, 16 W
- Class 4, 33 W
- Multi-mode

AirFuel™ Alliance Compatible Wireless Power Kits

Transmit Unit (amplifier)	Device Receive Unit				
		EPC9513 Category 3 (6.5 W)	EPC9515 Category 4 (13 W)	Category 3 (6.5 W) Category 4 (13 W)	Category 3 (6.5 W) Qi (5 W)
	Typical Application	Smart Phone, Digital Assistant, Any 1 A USB Device	Tablet, Any 2 A USB Device	Small Form Factor Laptop, 19 V Lamp	Smart Phone, Digital Assistant, Any 1 A USB Device
	EPC9510 Class 2 (10 W)	EPC9127 Class 2 Demo Kit			
	EPC9509 Class 3 (16 W)		EPC9128 Class 3 Demo Kit		
	EPC9512 Class 4 (33 W)			EPC9120 Class 4 Demo Kit	
	EPC9511 Multi-Mode (10 W)				EPC9121 Multi-Mode Demo Kit

Highly Resonant Wireless Power Kits

Part Number	Output Power	Operating Frequency
EPC9111	35 W	6.78 MHz preset or user selectable
EPC9112	50 W	6.78 MHz preset or user selectable

eGaN FETs and ICs

Recommended Devices for Wireless Power Applications

AirFuel Class	Max Input Power (W)	Topology	EPC 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 _b (A)	Pulsed I _b (A)	Package (mm)
1	tbd	Class-E	EPC2037	Single	100	550	0.115	0.032	0.025	0.6	0	1	2.4	BGA 0.9 x 0.9
			EPC8010	Single	100	160	0.36	0.13	0.06	2.2	0	2.7	7.5	LGA 2.1 x 0.85
		ZVS Class-D	EPC2108	Dual with Sync Bootstrap	60 100	240 3300	0.24 0.044	0.106 0.02	0.047 0.004	0.71 0.93 0.134	0	1.7 0.5	5.5 0.5	BGA 1.35 x 1.35
			EPC8009	Single	65	130	0.37	0.12	0.055	0.94	0	2.7	7.5	LGA 2.1 x 0.85
			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
		Current Mode Class-D	EPC8010	Single	100	160	0.36	0.13	0.06	2.2	0	2.7	7.5	LGA 2.1 x 0.85
2	10	Class-E	EPC2012C	Single	200	100	1	0.3	0.2	10	0	5	22	LGA 1.7 x 0.9
			EPC2106	Dual	100	70	0.73	0.24	0.140	3.96 4.68	0	1.7	18	BGA 1.35 x 1.35
			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
		ZVS Class-D	EPC8010	Single	100	160	0.36	0.13	0.06	2.2	0	2.7	7.5	LGA 2.1 x 0.85
			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
		EPC2107	Dual with Sync Bootstrap	100	390 3300	0.19 0.044	0.077 0.02	0.041 0.004	1.25 0.9 0.134	0	1.7 0.5	3.8 0.5	BGA 1.35 x 1.35	
		Current Mode Class-D	EPC8010	Single	100	160	0.36	0.13	0.06	2.2	0	2.7	7.5	LGA 2.1 x 0.85
3	16	Class-E	EPC2012C	Single	200	100	1	0.3	0.2	10	0	5	22	LGA 1.7 x 0.9
		ZVS Class-D	EPC2108	Dual with Sync Bootstrap	60 100	240 3300	0.24 0.044	0.106 0.02	0.047 0.004	0.71 0.93 0.134	0	1.7 0.5	5.5 0.5	BGA 1.35 x 1.35
			EPC2007C	Single	100	30	1.6	0.6	0.3	8.3	0	6	40	LGA 2.1 x 0.85
			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
		Current Mode Class-D	EPC2007C	Single	100	30	1.6	0.6	0.3	8.3	0	6	40	LGA 2.1 x 0.85
			EPC2016C	Single	100	16	3.4	1.1	0.55	16	0	18	75	LGA 2.1 x 0.85
			EPC2045	Single	100	7	5.2	1.7	1.1	21	0	16	130	BGA 1.5 x 2.5
4	33	ZVS Class-D	EPC2016C	Single	100	16	3.4	1.1	0.55	16	0	18	75	LGA 2.1 x 0.85
			EPC2007C	Single	100	30	1.6	0.6	0.3	8.3	0	6	40	LGA 2.1 x 0.85
			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
			EPC2045	Single	100	7	5.2	1.7	1.1	21	0	16	130	BGA 1.5 x 2.5
		Current Mode Class-D	EPC2001C	Single	100	7	7.5	2.4	1.2	31	0	36	150	LGA 4.1 x 1.6
			EPC2045	Single	100	7	5.2	1.7	1.1	21	0	16	130	BGA 1.5 x 2.5
5	45	ZVS Class-D	EPC2016C	Single	100	16	3.4	1.1	0.55	16	0	18	75	LGA 2.1 x 0.85
			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
			EPC2045	Single	100	7	5.2	1.7	1.1	21	0	16	130	BGA 1.5 x 2.5
		Current Mode Class-D	EPC2001C	Single	100	7	7.5	2.4	1.2	31	0	36	150	LGA 4.1 x 1.6
			EPC2045	Single	100	7	5.2	1.7	1.1	21	0	16	130	BGA 1.5 x 2.5

Design Support Materials @ www.epc-co.com

Wireless Power Handbook

[Wireless Power Application Page](#)
[Video: Cut the Cord! Wireless Power with GaN](#)
 Highly Resonant Wireless Power Design Kits:
[EPC9111: 35 W, highly resonant demo kit](#)
[EPC9112: 50 W, highly resonant demo kit](#)
[EPC9120: AirFuel™ Class 4 Kit, 33 W](#)
[EPC9121: 10 W Multi-Mode Kit](#)
[EPC9127: AirFuel™ Class 2 Kit, 10 W](#)

[EPC9128: AirFuel™ Class 3 Kit, 16 W](#)
[GaN Transistors for Efficient Power Conversion Textbook](#)
[DC-DC Handbook](#)
[Demo Boards](#)
[Reliability Reports](#)
[Device Models](#)
[Assembly Guides](#)



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