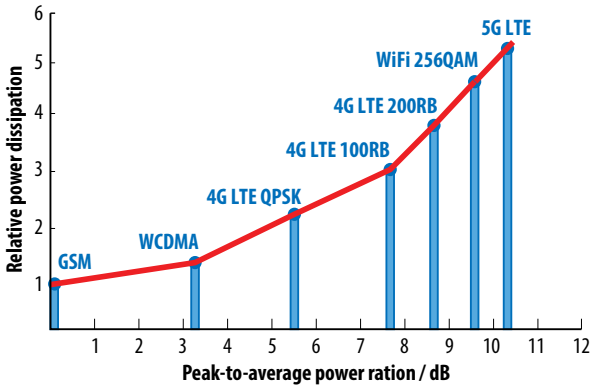
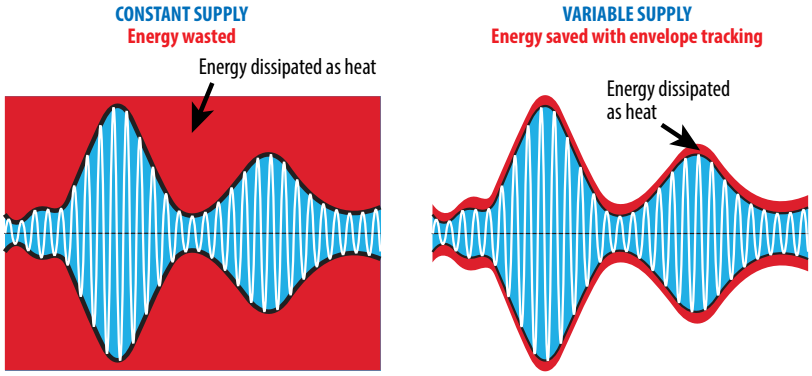
eGaN® FETs and ICs for Envelope Tracking Applications

EFFICIENT POWER CONVERSION

Envelope tracking is a power supply technique for improving the energy efficiency of Radio Frequency Power Amplifiers by precisely tracking the power demand, as compared to today's fixed-power systems. In cell phones use of envelope tracking means longer talk time, and in base stations it means smaller, less expensive amplifiers that consume far less energy and are less expensive to operate.

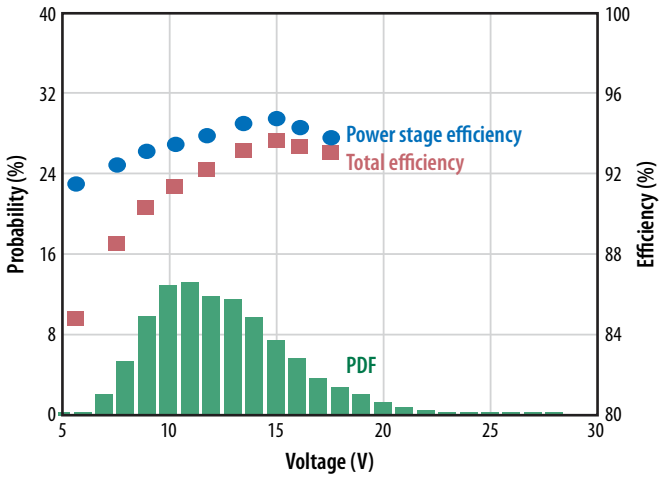
Gallium nitride is being seen as an enabling technology for both envelope tracking converters and wide bandwidth RF Power Amplifier designs. The ultra-fast switching capabilities of eGaN FETs enable the high frequency, multi-phase buck converters used in envelope tracking power systems.





Benefits of eGaN FETs and ICs in Your Envelope Tracking Power Supply Designs:

- **Higher Switching Frequency** – lower switching losses and lower drive power enable wider power supply bandwidth via higher switching frequencies
- **Higher Efficiency** – lower conduction and switching losses, zero reverse recovery losses
- **Smaller Footprint** – higher power density

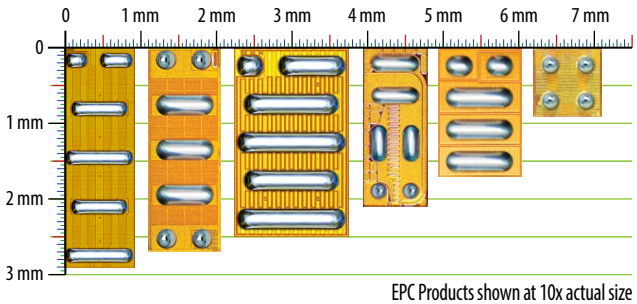


Measured steady-state power-stage efficiency and total efficiency; and probability distribution (PDF) of a 20 MHz LTE envelope signal

Recommended Devices for Envelope Tracking Power Supplies

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)	Development Board
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
EPC8002	Single	65	480	0.133	0.057	0.015	0.344	0	2	2	LGA 2.05 x 0.85	EPC9022
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
EPC2107	Dual	100	390	0.19	0.077	0.041	0.9 1.25	0	1.7	3.8	BGA 1.35 x 1.35	EPC9063
	Integrated Bootstrap		3300	0.044	0.02	0.004	0.134	0	0.5	0.5		
EPC2106	Half Bridge	100	70	0.73	0.24	0.140	3.96 4.68	0	1.7	18	BGA 1.35 x 1.35	EPC9055
EPC2007C	Single	100	30	1.6	0.6	0.3	8.3	0	6	40	LGA 1.7 x 1.1	EPC9006C
EPC2019	Single	200	50	1.8	0.6	0.35	18	0	8.5	42	LGA 2.77 x 0.95	EPC9014
EPC2207	Single	200	22	4.5	1.3	0.7	23	0	14	54	LGA 2.9 x 0.9	EPC90124

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



EPC Products shown at 10x actual size