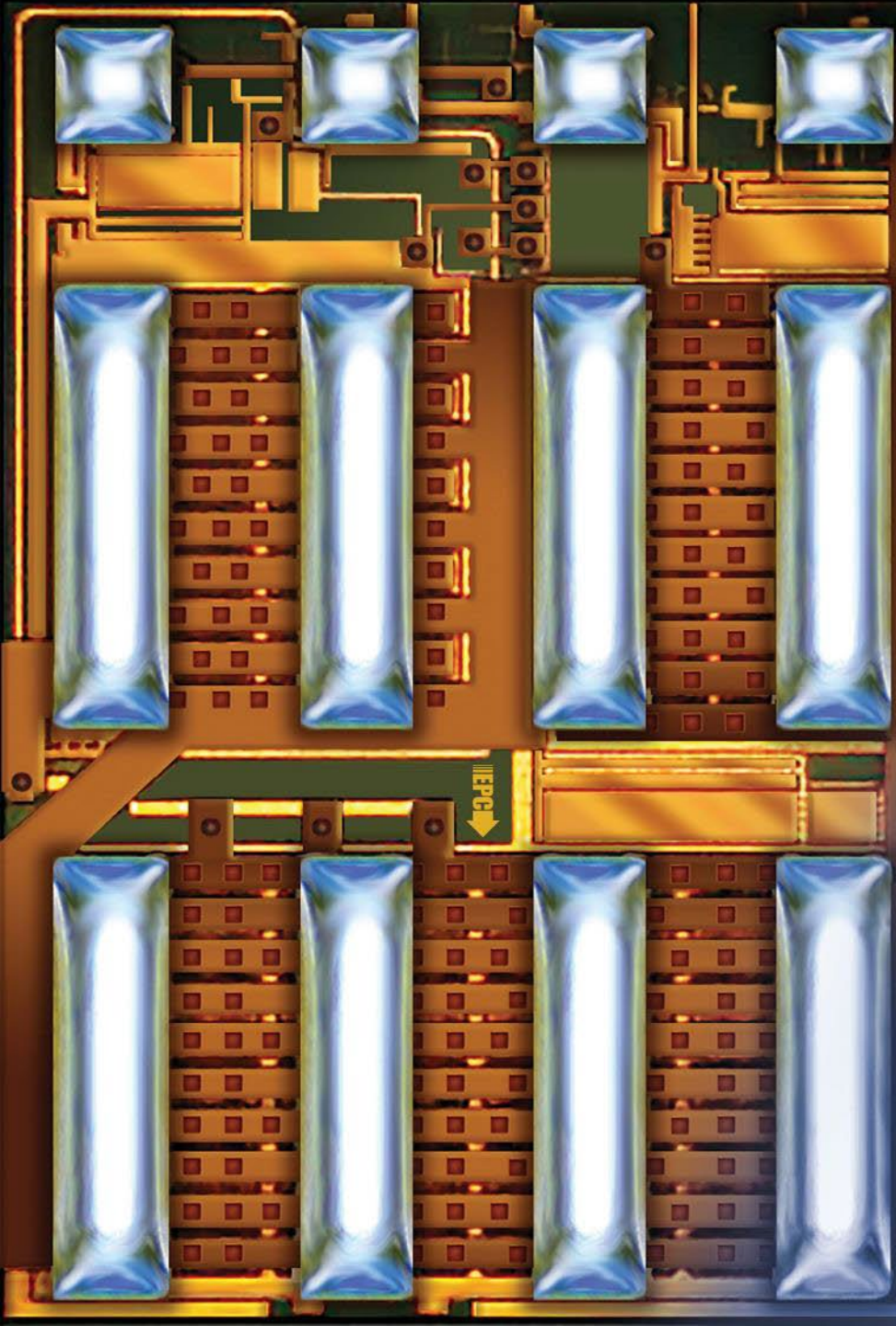


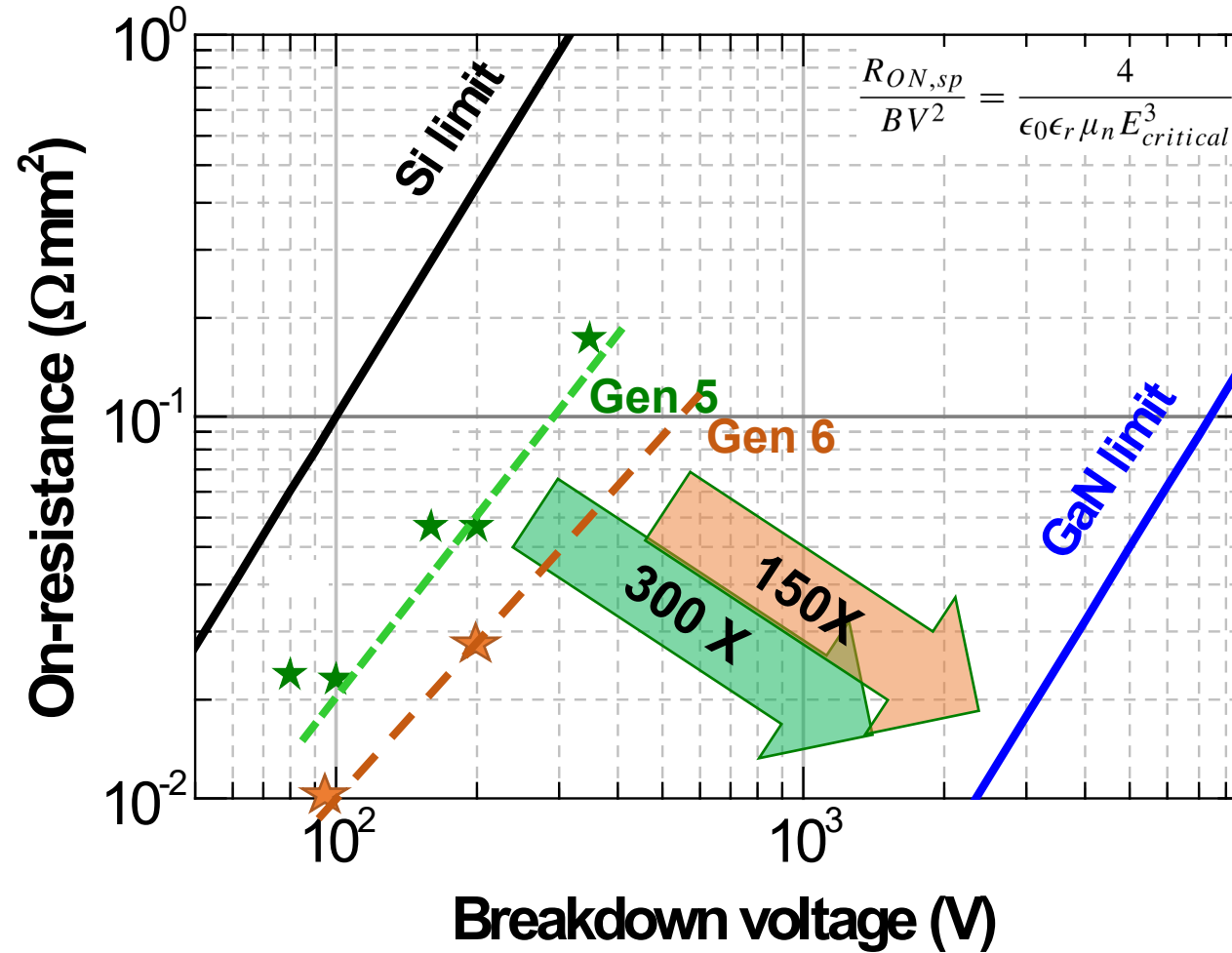


Gen6

November 2022



eGaN[®] Technology Evolution



Basic Facts

- Gen6 is a factor of two smaller than Gen5
- Gen6 is faster and therefore more efficient
- Compared with MOSFETs, Gen6 is ***5x smaller and 30x faster!***

Gen6: 80 V eGaN FETs vs. Si MOSFETs

Benchmark
Si MOSFET

BSZ070N08LS5



3.3 x 3.3 mm

EPC2204

EPC2619



1.5 x 2.5 mm

Sampling Now!

Parameter	BSZ070N08LS5 (@ 10 V _{GS})	EPC2204 (@ 5 V _{GS})	EPC2619 (@ 5 V _{GS})
V _{DS}	80 V	100 V	80 V
R _{DS(on)} max	7 mΩ	6 mΩ	4 mΩ
R _{DS(on)} * Area	88.5	16.5	12
R _{DS(on)} * Q _G	83	25	27
R _{DS(on)} * Q _{OSS}	171	110	87
R _{DS(on)} * Q _{GD}	29.5	3.5	3
R _{TJC} to top	62 °C/W max	1 °C/W typ	1 °C/W typ
Device Size	11 mm ²	3.75 mm ²	3.75 mm ²

Parameter	Infineon 80 V	Gen5 100 V	Gen6 80 V
Q _G typ	14 nC	5.7 nC	8.3 nC
Q _{GD} typ	5 nC	0.8 nC	0.9 nC
Q _{OSS} typ	29 nC	25 nC	27 nC
Q _{RR} typ	27 nC	0 nC	0 nC

Lower numbers indicate better performance

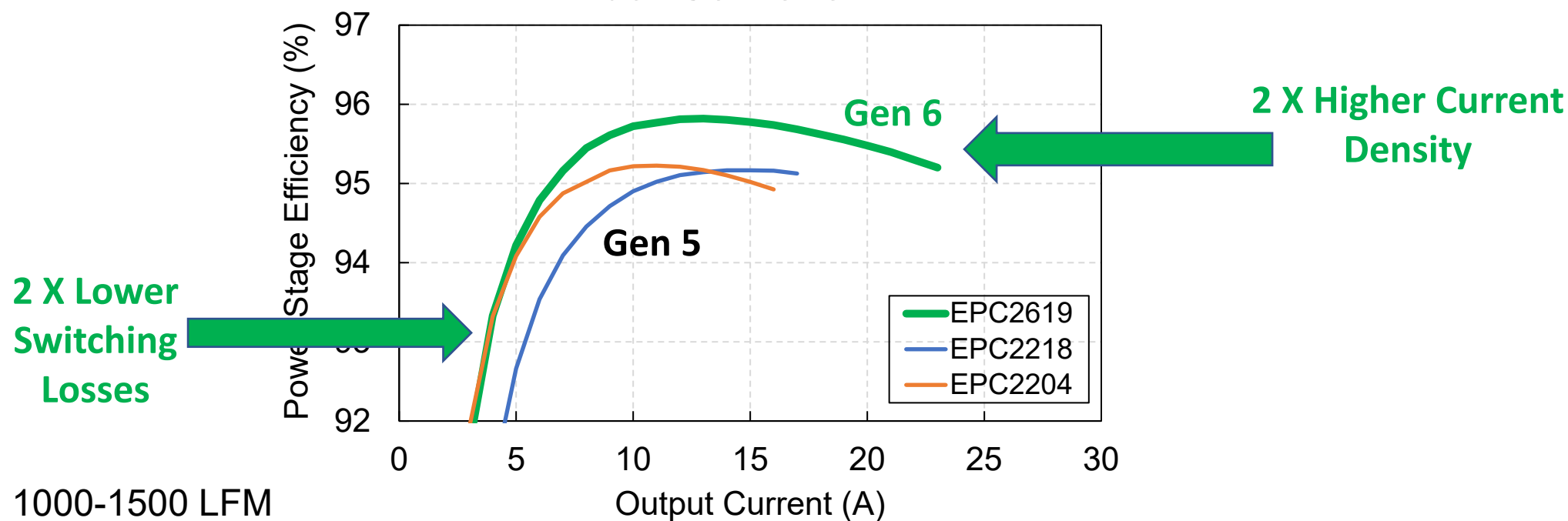
Gen 6 Performance

$$V_{IN} = 48 \text{ V}, V_{OUT} = 12 \text{ V}$$

1 MHz

$$L = 2.2 \text{ } \mu\text{H}$$

Buck Converter



No heatsink, 1000-1500 LFM
Data shown for $T_{Case} \leq 110 \text{ }^{\circ}\text{C}$

Conclusions

- ***Gen6 80 V has better performance than a Gen5 100 V die double its size!***
 - Gen6 enables **higher power density and efficiency** vs. Gen5, for soft switching applications (primary of 48 V_{IN} LLC DCX) & hard switching applications (buck, boost, buck-boost from 32 V–48 V) due to better FOM and half size for the same R_{DS(on)}.
 - Gen6 supports **higher current without a heatsink** to reduce system cost
 - Gen6 improves efficiency in the whole load range
- EPC2619 outperforms both Gen5 EPC2204 and EPC2218 across all conditions evaluated.
- Compared with MOSFETs, Gen6 is ***5x smaller and 30x faster!***

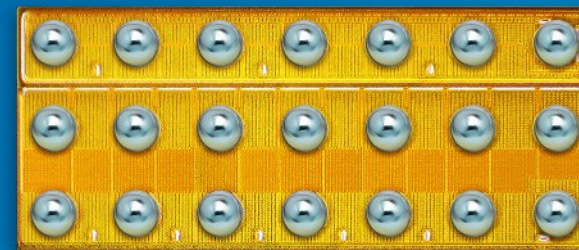


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