

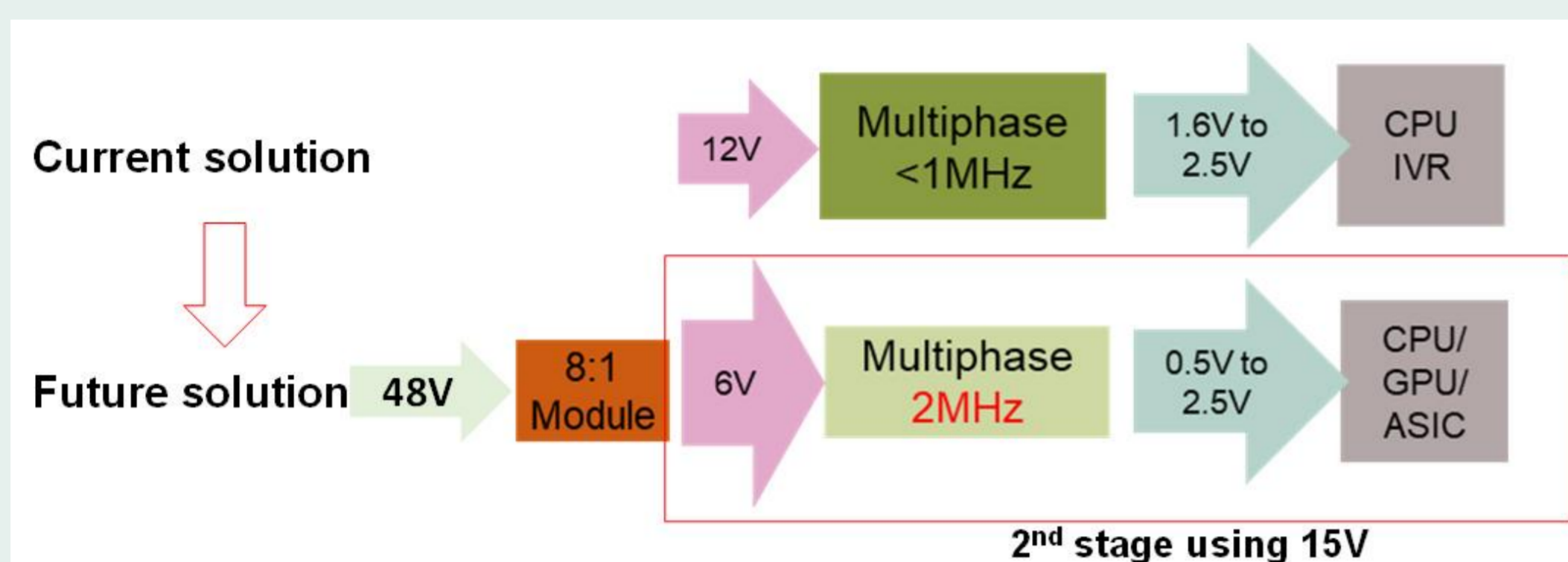
New 15 V silicon trench MOSFET technology optimized for high frequency switching buck converters at low input voltages

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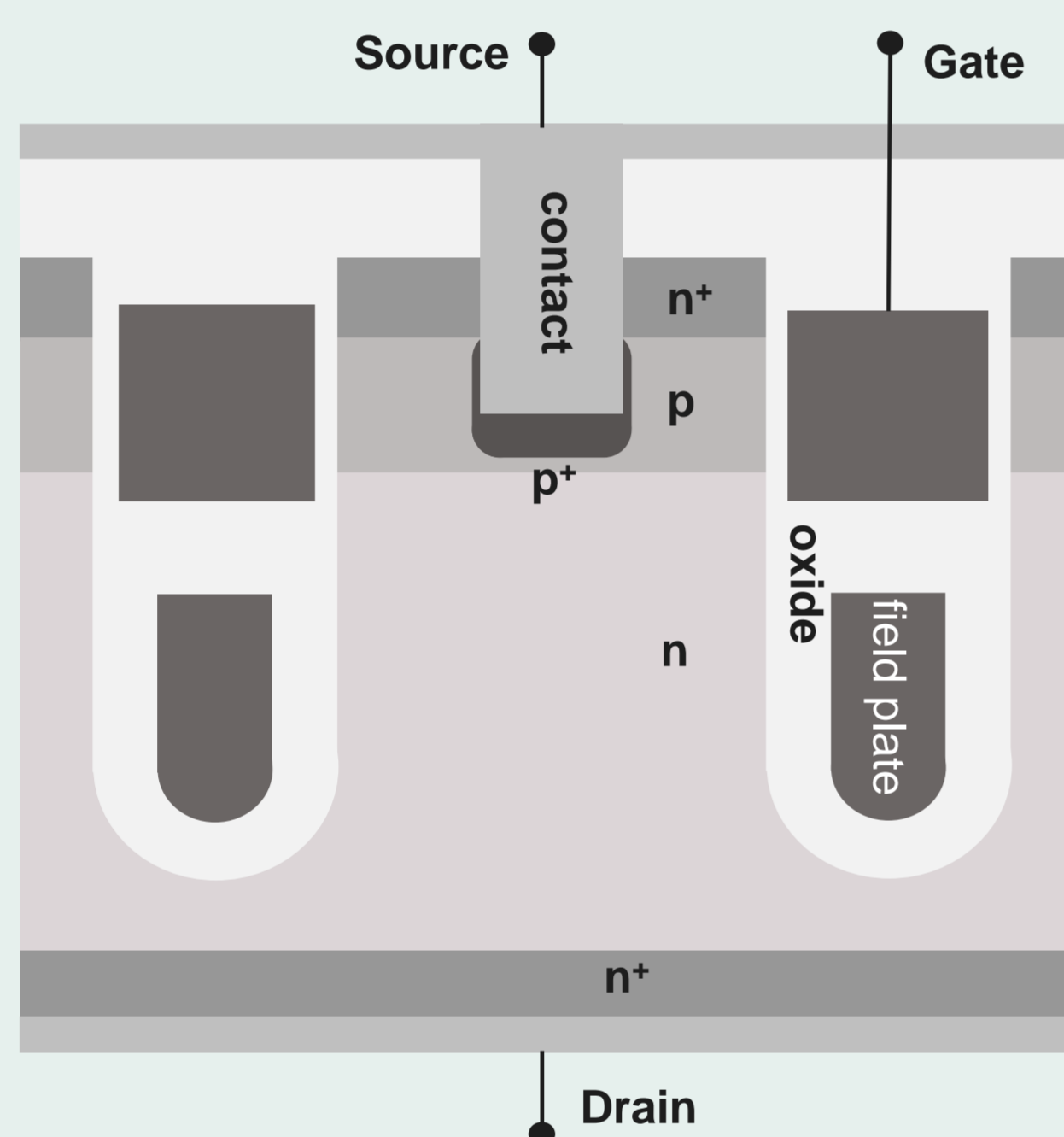
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Infineon 15 V silicon trench MOSFET technology

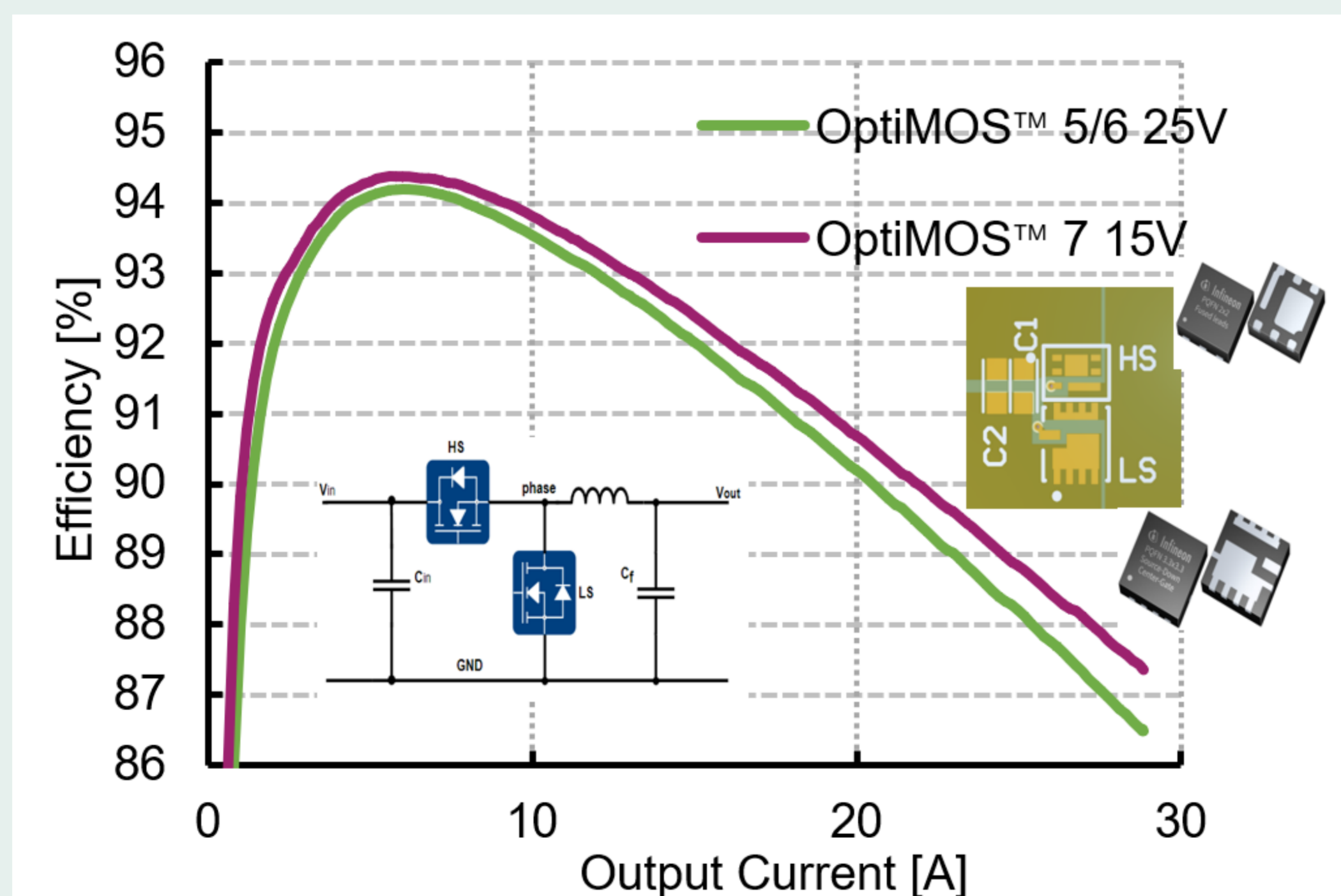


› Infineon's newly introduced 15 V trench power MOSFET plays a key role in converting the 48 V to a CPU/GPU supply voltage level.

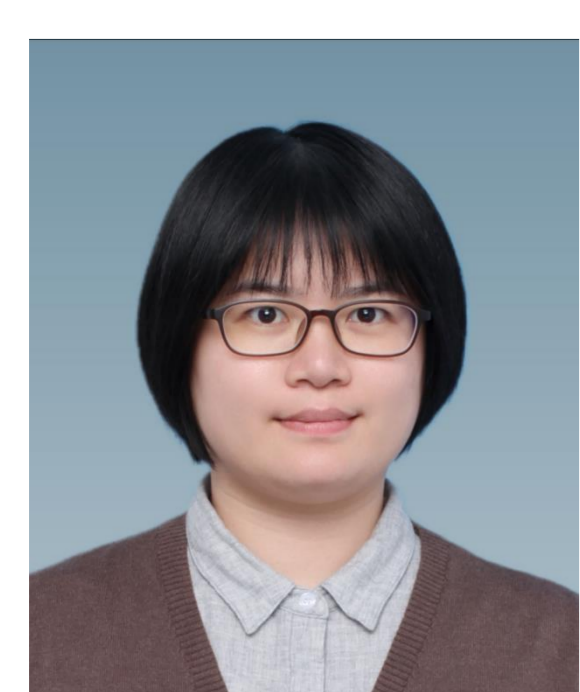


- › The latest Infineon trench MOSFET technology node available in integrated powerstages was adapted for a 15V blocking voltage.
- › To optimize the field plate trench for buck converters with a low 6 - 6.75 V input voltage, in particular the trench depth and drift zone were shrunk to enable a lower RonA and FOMQ_{oss} (=Q_{oss} x Rds_{on}).

Discrete Package Application Results

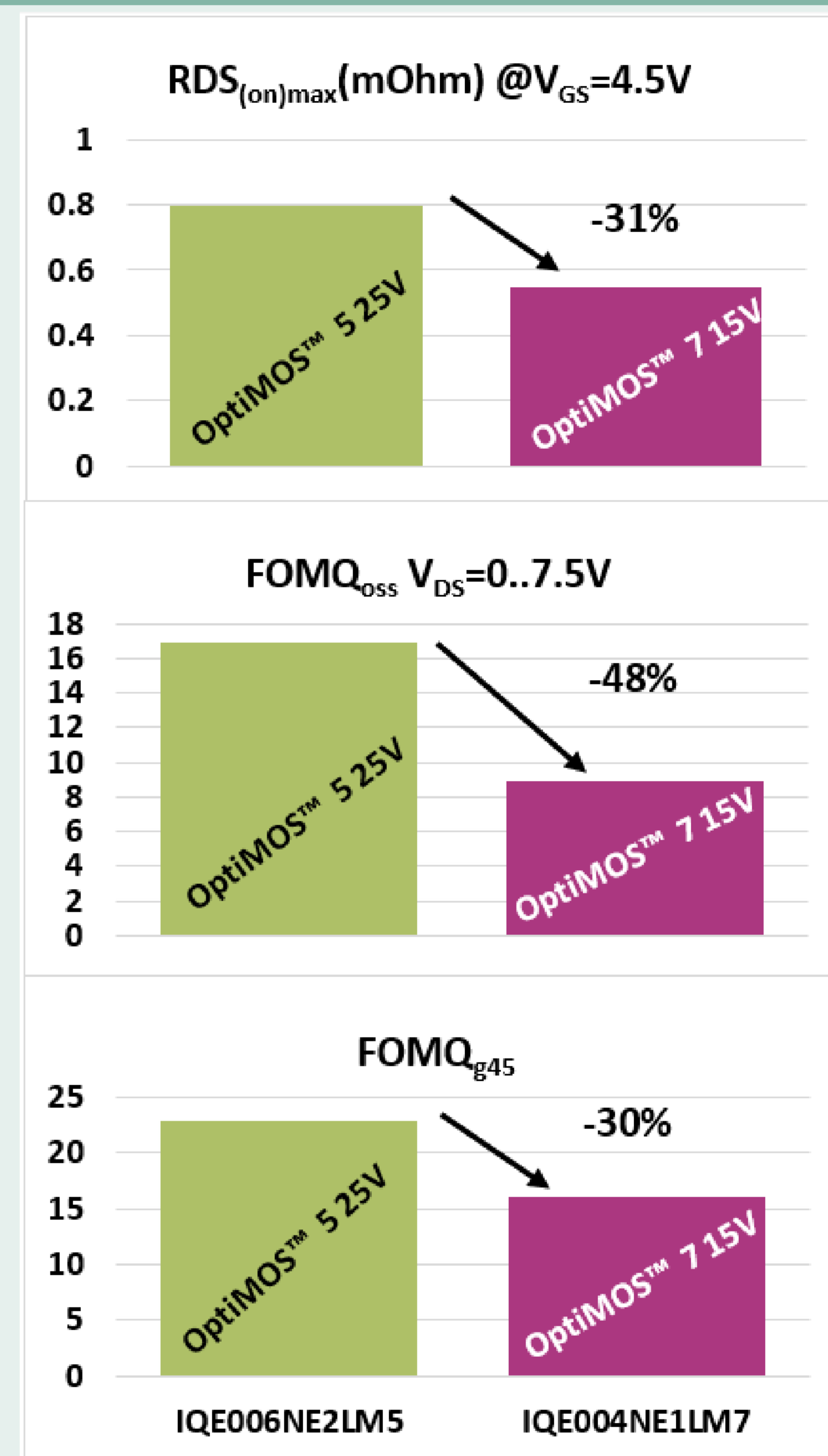


› Benchmarking the OptiMOS™ 7-15V OptiMOS™ 6(HS)/5(LS)-25V, synchronous buck: f=750kHz, V_{in}=6V, V_{out}=1.2V.



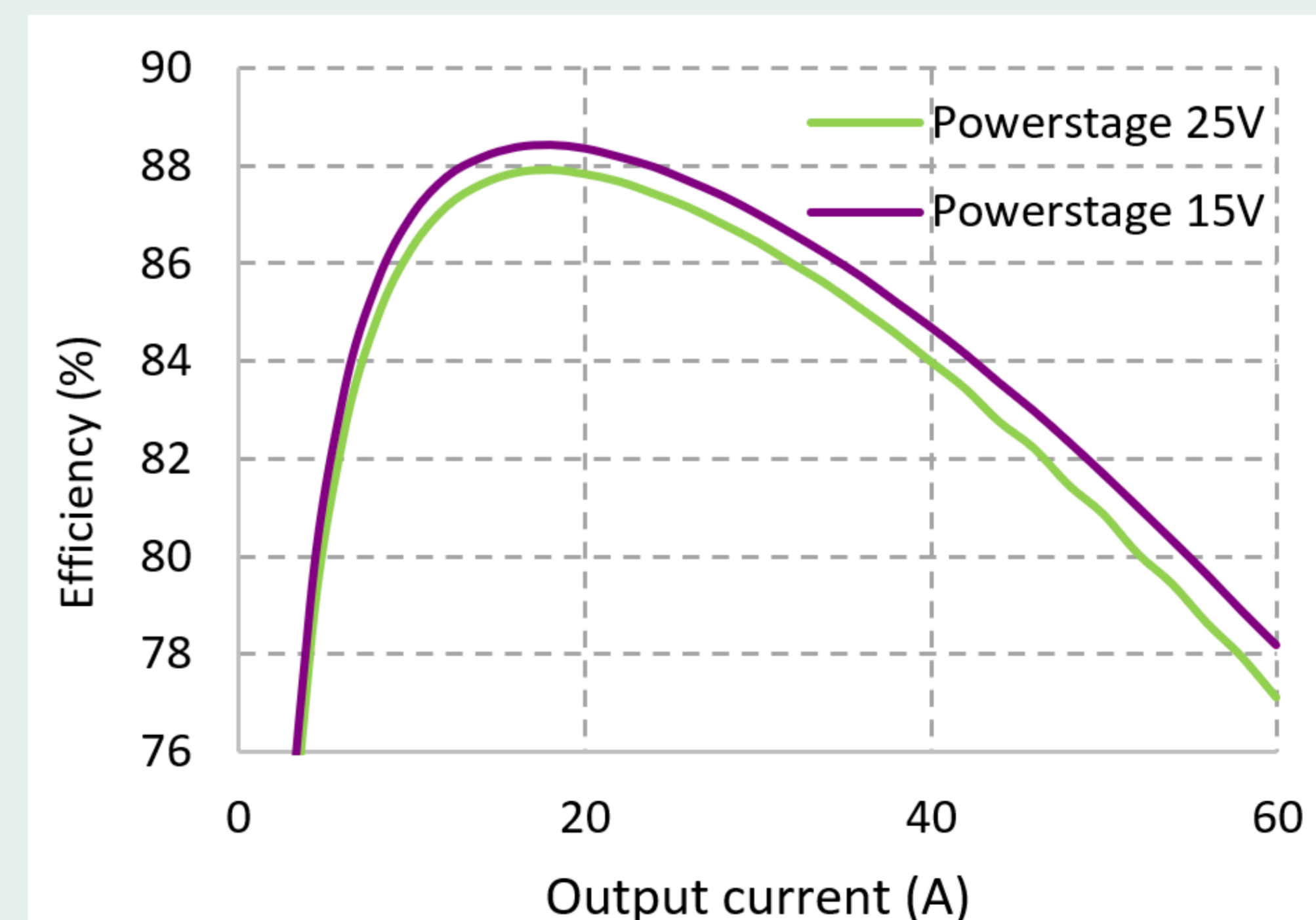
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Performance Comparison



› This results in strong performance improvements for discrete 2x2 and 3.3x3.3 OptiMOS™7 products versus the previous OptiMOS™5/6 25V giving a 31% Rds_{on}4.5 reduction, a 48% FOM_{oss} and 30% FOM_{Qg45} reduction (FOM_{Qg45} = Qg4.5 x Rds_{on}4.5).

Integrated Powerstage Application Results



› Efficiency measurement on test board of integrated powerstage comparing 15V vs 25V low side from same generation, f=2.0MHz, V_{in}=6.75V, 100nH, V_{out}=0.8V.