L6699: Double-ended controller specific to series-resonant half-bridge topology

The new generation
of high performance
resonant controller

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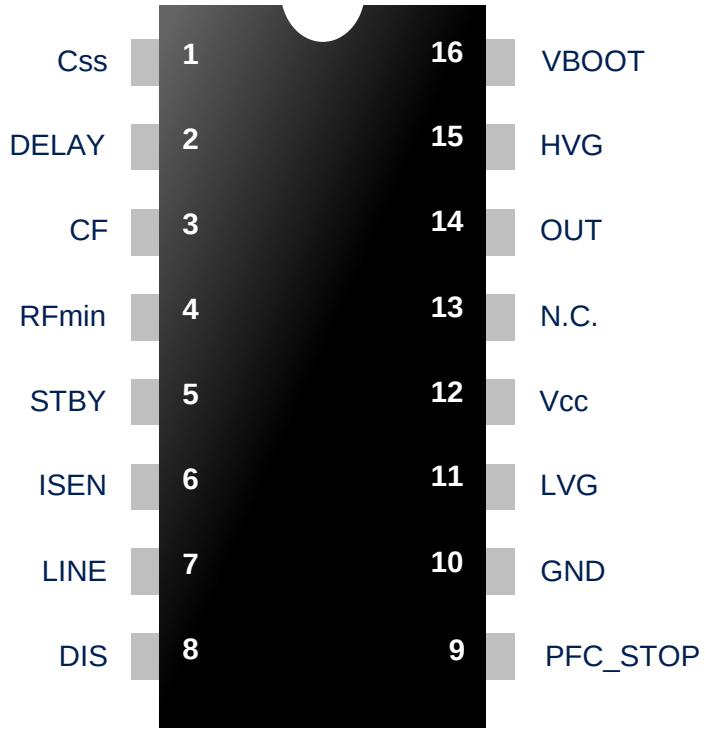
IC description

Symmetrical Duty Cycle,
variable frequency control of
ZVS resonant Half Bridge (HB)

Available in SO16N
Halogen Free package



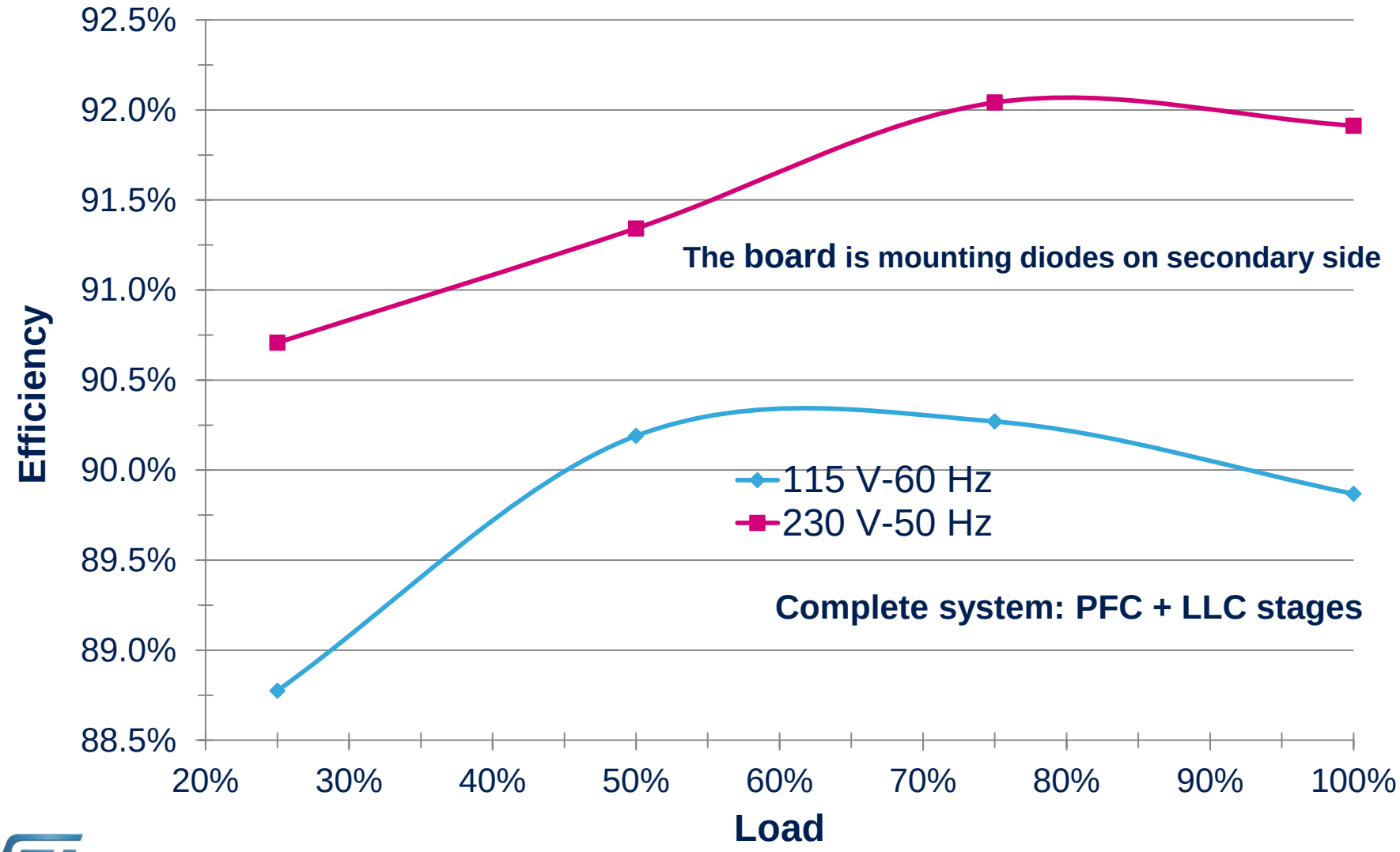
Features and benefits

Features	Benefits
• 600 V high side gate driver with integrated bootstrap diode and high dV/dt immunity	• Improved reliability and reduced BOM
• Non linear soft-start for monotonic output voltage rise	• Prevents any dangerous hard switching at start-up
• Self-Adjusting adaptive dead-time	• Maximized efficiency at both light and full load
• Superior stand-by performance: 1. Improved Burst-mode operating at light-load and no-load 2. Direct interface with PFC controller	1. No audible noise 2. Reduced BOM
• High performance protections: 1. Anti-capacitive mode protection 2. Two-level OCP: frequency-shift and immediate shutdown 3. Latched disable input 4. Input for brownout protection or power ON/OFF sequencing	1. Avoid potential MOSFET cross conduction; avoid hard switching; improve reliability; reduce EMI 2. Improved design flexibility 3. Improved design flexibility 4. Easier system design

Why move to L6699

- It improves efficiency thanks to:
  - A reduced internal consumption: 1 mA of quiescent current
  - Its internal auto adjusted dead-time which allows the user to optimize the design of the resonant tank so that soft-switching can be achieved with a lower level of reactive energy (i.e. magnetizing current), hence optimizing efficiency under a broader load range, from full to light load.
- It improves system reliability and lifetime thanks to:
  - The internal Anti-capacitive protection which prevents the converter from working in or too close to the capacitive mode, in order to guarantee soft-switching
  - The proprietary smooth start-up circuit that controls the half-bridge to prevent hard-switching from occurring in the initial cycles.
- It avoids audible noise when entering burst-mode operation:
  - The first driver pulse length is shorter to prevent the initial peak current
- Easy to design!
  - Full set of both circuit calculation and simulation files (Orcad and Simplis)

90 W/19 V demo
final efficiency data: full load



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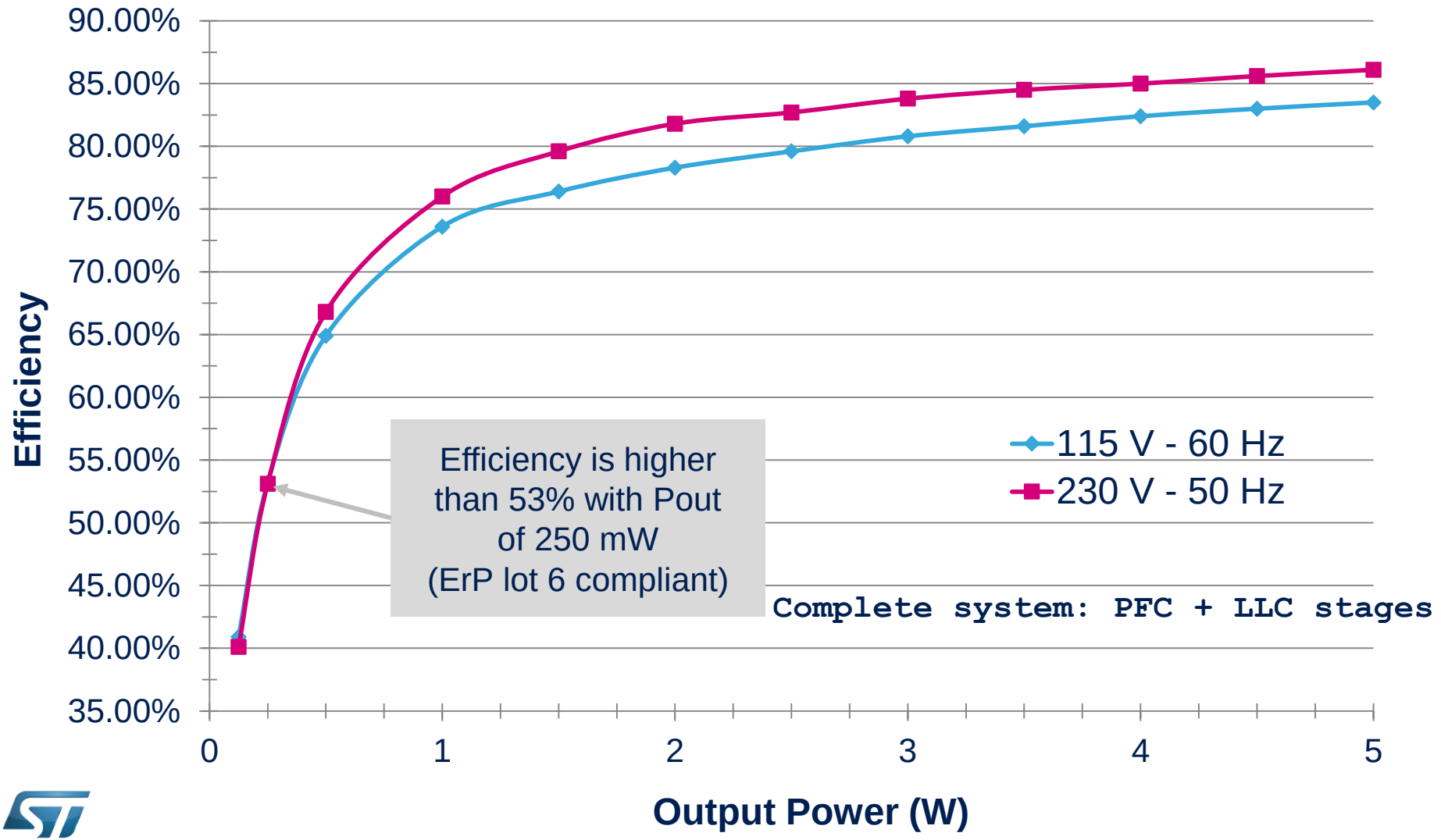
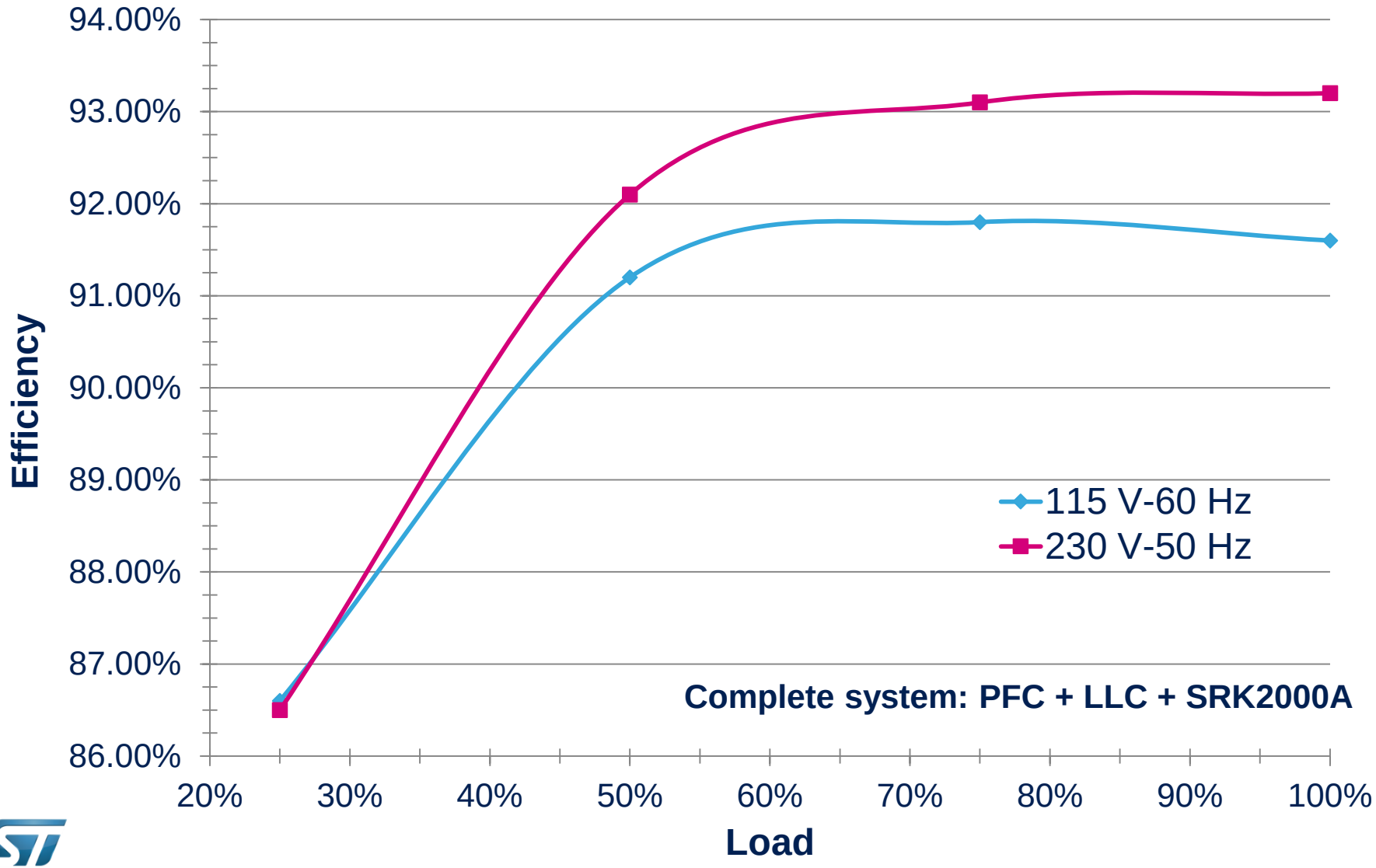
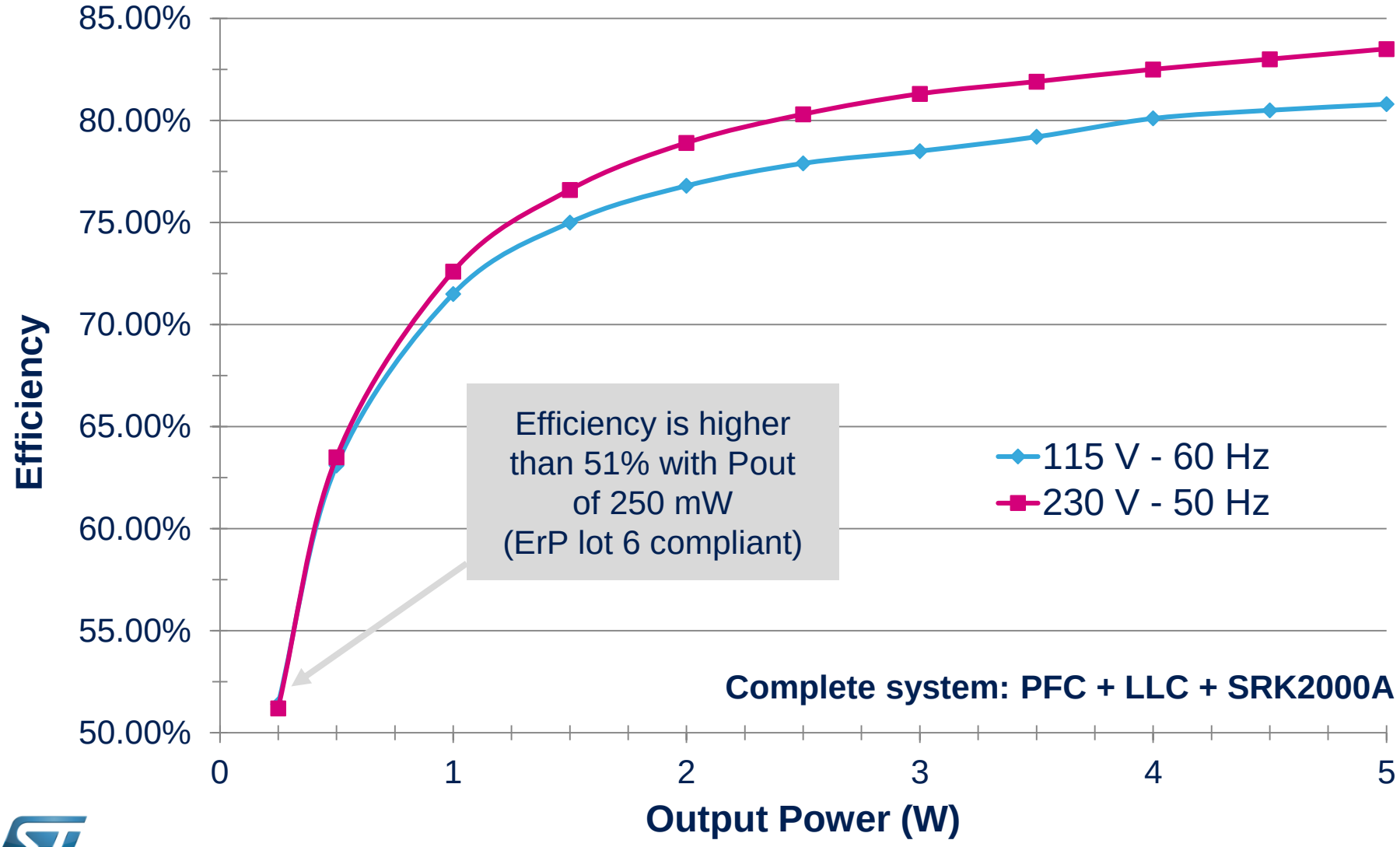
90 W/19 V demo
final efficiency data: light load



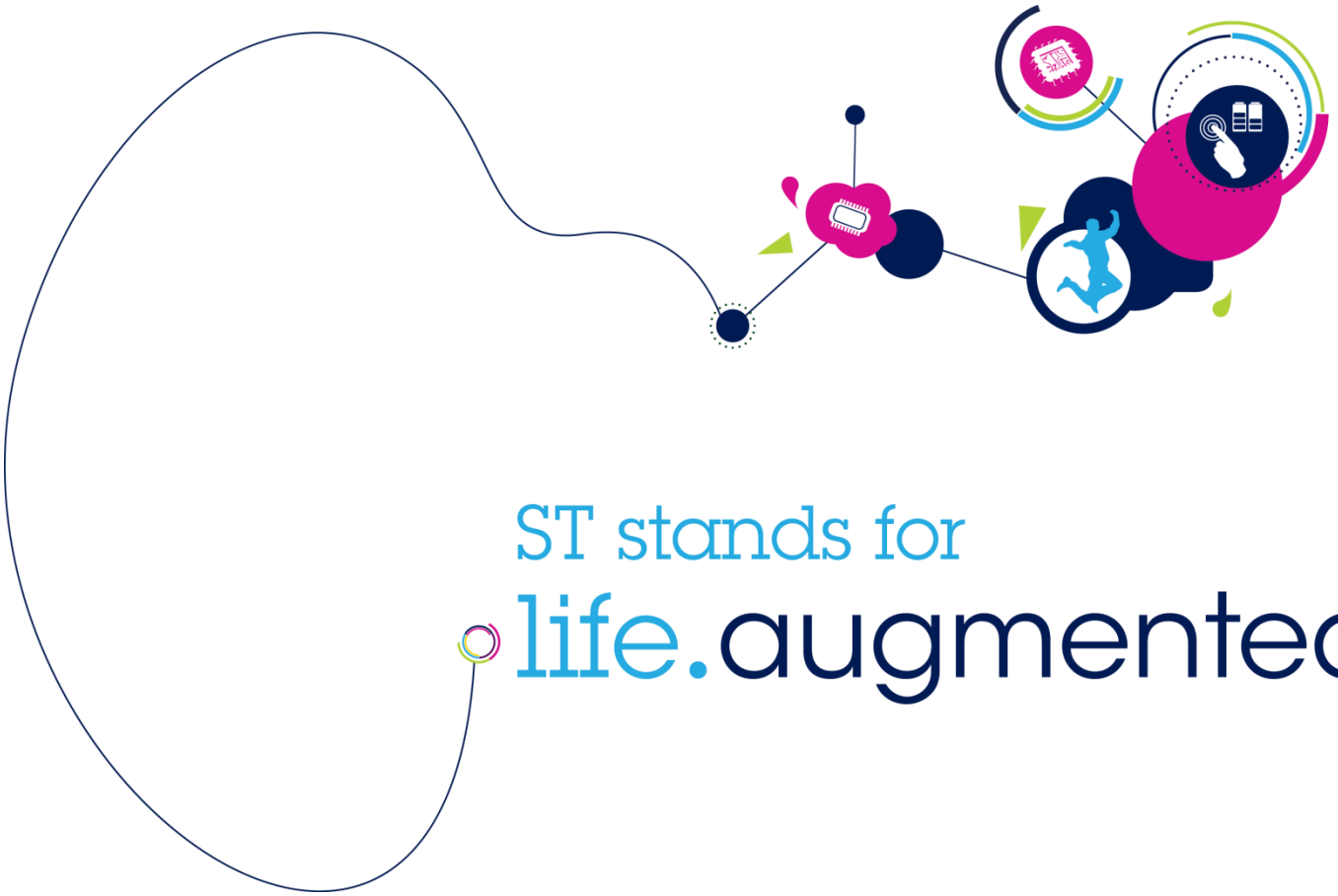
150 W/12 V demo efficiency data: full load



150 W/12 V demo
final efficiency data: light load



Thank you!



ST stands for

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