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# EVAL\_500W\_5G\_PSU

### Overview

500W power supply for 5G small cells using 600V CoolMOS™ G7 and CFD7 in DDPAK

Please get in touch with the support center to reserve your board upfront.

The EVAL\_500W\_5G\_PSU demonstrates a power supply from AC (85-305 V<sub>AC</sub>) to DC (12 V<sub>DC</sub>) with a rated output power of 500 W. The target applications of this demo board are power supplies for **5G telecom small cells**.

With a height of 27mm only, this PSU comes with high efficiency (96.5% peak efficiency at 230 V<sub>AC</sub>) and fanless cooling enabled by **600V CoolMOS™ superjunction MOSFETs (/cms/en/product/power/mosfet/n-channel/500v-950v/)** housed in the DDPAK package.

### Summary of Features

- Featuring top-side cooling 600V CoolMOS™ superjunction MOSFETs
- Fully analog control with ICE3PCS01G, ICE1HS01G and IR11688S
- Fanless cooling design

### Benefits

- Low-profile power supply (max. height 27mm)
- Efficiency above 96% at high-line input
- Compact design in 25W/in<sup>3</sup> form factor
- Surge protection included
- Wide input voltage range

### Potential Applications

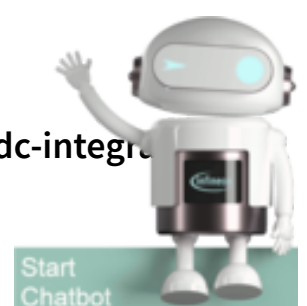
- Telecom (/cms/en/applications/communication/telecom-infrastructure/)
- Edge computing

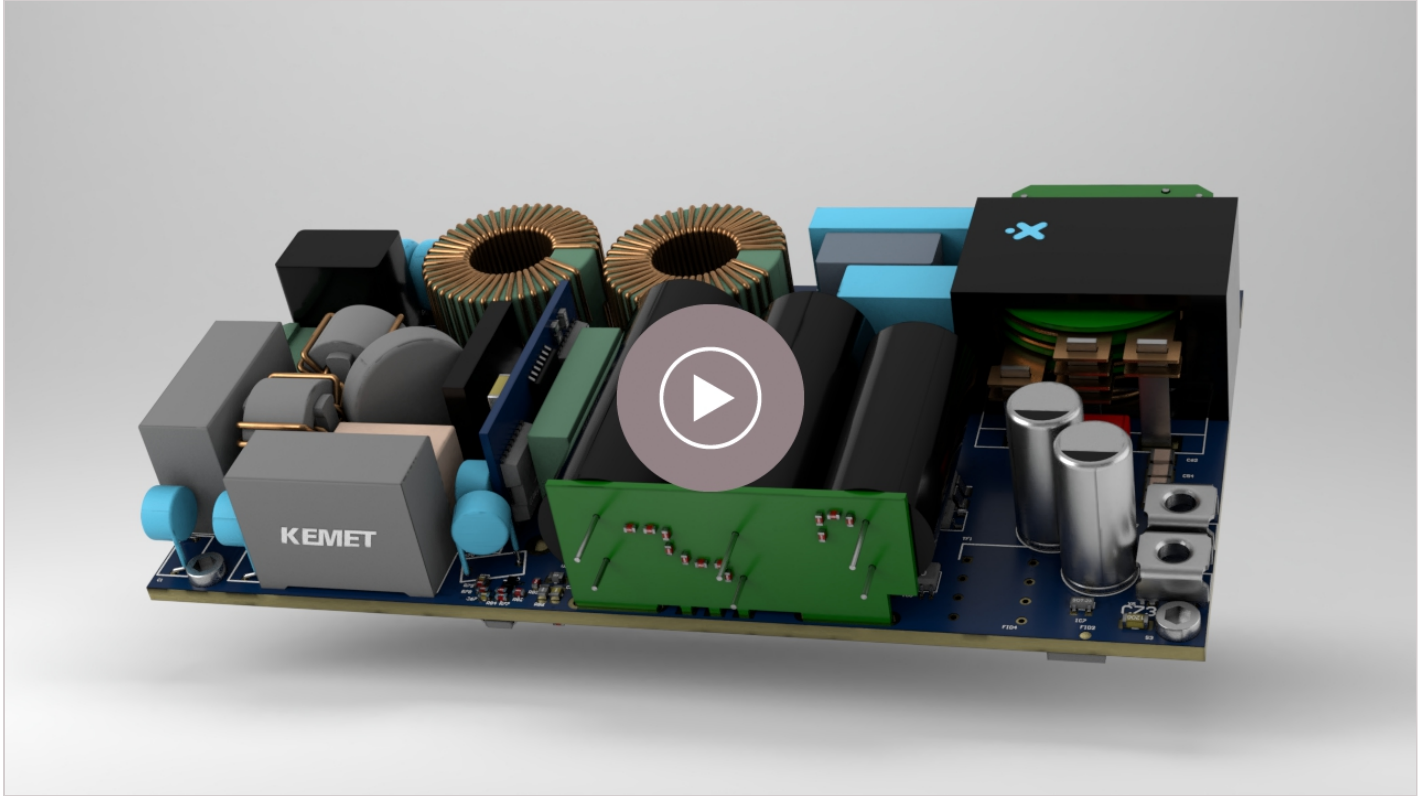


- [Server \(/cms/en/applications/solutions/power-supplies/server-power-supply/\)](/cms/en/applications/solutions/power-supplies/server-power-supply/)
- [SMPS \(/cms/en/applications/solutions/power-supplies/\)](/cms/en/applications/solutions/power-supplies/)

## List of components

- 600V CoolMOS™ G7 80mΩ ([IPDD60R080G7 \(/cms/en/product/power/mosfet/n-channel/500v-950v/ipdd60r080g7/\)](/cms/en/product/power/mosfet/n-channel/500v-950v/ipdd60r080g7/)) serving as high-frequency MOSFETs in the PFC
- 600V CoolMOS™ S7 22 mΩ ([IPT60R022S7 \(/cms/en/product/power/mosfet/n-channel/500v-950v/ipt60r022s7/\)](/cms/en/product/power/mosfet/n-channel/500v-950v/ipt60r022s7/)) serving as line-rectification MOSFETs in the PFC
- CoolSiC™ 650V 8A ([IDH08G65C6 \(/cms/en/product/power/diodes-thyristors/coolsic-schottky-diodes/idh08g65c6/\)](/cms/en/product/power/diodes-thyristors/coolsic-schottky-diodes/idh08g65c6/)) serving as high-frequency diodes in the PFC
- 600V CoolMOS™ CFD7 75 Ω ([IPDD60R075CFD7 \(/cms/en/product/power/mosfet/n-channel/500v-950v/ipdd60r075cfd7/\)](/cms/en/product/power/mosfet/n-channel/500v-950v/ipdd60r075cfd7/)) in the DC-DC primary-side HB
- OptiMOS™ 6 40V 1.3mΩ ([IQE013N04LM6 \(/cms/en/product/power/mosfet/n-channel/iqe013n04lm6/\)](/cms/en/product/power/mosfet/n-channel/iqe013n04lm6/)) in the DC-DC secondary-side bridge
- EiceDRIVER™ 1EDN8550 (</cms/en/product/power/gate-driver-ics/1edn8550b/>) and 1EDI20N12 (</cms/en/product/power/gate-driver-ics/1edi20n12af/>), for driving the PFC and DC-DC CoolMOS™, respectively
- EiceDRIVER™ 2EDN7524G (</cms/en/product/power/gate-driver-ics/2edn7524g/>) for driving the OptiMOS™ power MOSFET (IQE013N04LM6)
- [ICE3PCS01G \(/cms/en/product/power/ac-dc-power-conversion/ac-dc-pwm-pfc-controller/pfc-ccm-continuous-conduction-mode-ics/ice3pcs01g/\)](/cms/en/product/power/ac-dc-power-conversion/ac-dc-pwm-pfc-controller/pfc-ccm-continuous-conduction-mode-ics/ice3pcs01g/) IC for the PFC control implementation
- [ICE1HS01G-1 \(/cms/en/product/power/ac-dc-power-conversion/ac-dc-pwm-pfc-controller/llc-resonant-mode-controller/ice1hs01g-1/\)](/cms/en/product/power/ac-dc-power-conversion/ac-dc-pwm-pfc-controller/llc-resonant-mode-controller/ice1hs01g-1/) IC for the DC-DC control implementation
- [IR11688S \(/cms/en/product/power/ac-dc-power-conversion/ac-dc-pwm-pfc-controller/synchronous-rectification-ics/ir11688s/\)](/cms/en/product/power/ac-dc-power-conversion/ac-dc-pwm-pfc-controller/synchronous-rectification-ics/ir11688s/) IC for the secondary-side bridge control implementation
- [ICE2QR2280G \(/cms/en/product/power/ac-dc-power-conversion/ac-dc-integrated-power-stage-coolset/quasi-resonant-coolset/ice2qr2280g/\)](/cms/en/product/power/ac-dc-power-conversion/ac-dc-integrated-power-stage-coolset/quasi-resonant-coolset/ice2qr2280g/) for the bias supply implementation





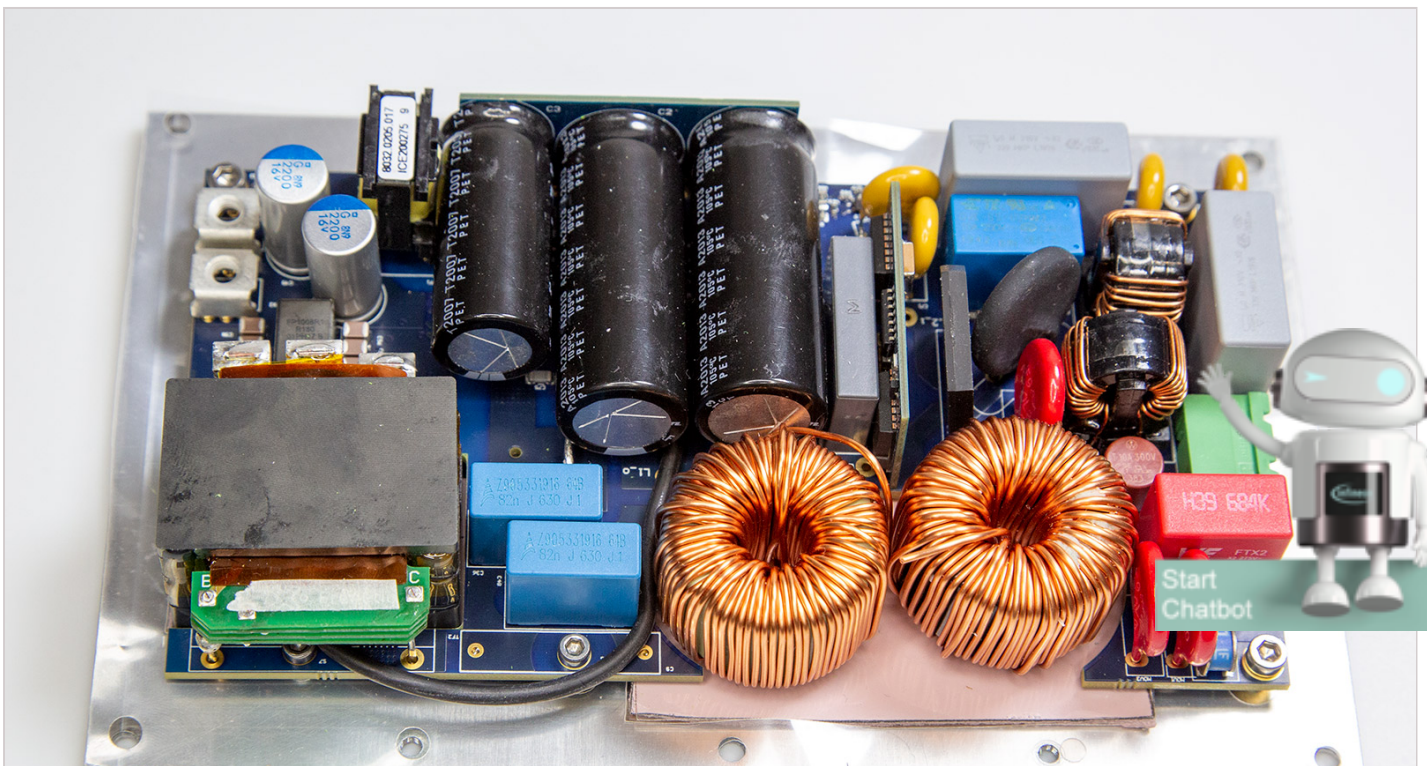
(<https://www.infineon.com/cms/media/pss-3dmodels/500w-5g-psu/>)

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### Parametrics

|                        |                              |
|------------------------|------------------------------|
| Parametrics            | EVAL_500W_5G_PSU             |
| Input Type             | AC                           |
| Output Current         | 42 A                         |
| Output Voltage         | 12 V                         |
| P <sub>out</sub>       | 500 W                        |
| Product Name           | EVAL_500W_5G_PSU             |
| Supply Voltage min max | 230 V 85 V 305 V             |
| Target Application     | SMPS ; Telecom               |
| Topology               | Boost ; Isolated ; LLC ; PFC |

### Documents

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### — Data Sheets

