



## Case-Study: Technology insights with RECOM and Nexperia

How Trench Schottkys can increase the efficiency of a state-of-the-art switch-mode power converter

# Introduction: Speakers



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# Introduction to RECOM

- RECOM is an international corporation, which develops, manufactures and sells innovative AC/DC & DC/DC converters as well as switching regulator power modules.
- We've been in the power supply business since 1975 and we have offices around the world with production factories in Taiwan, mainland China and Italy., and a comprehensive global and regional distribution network.
- We are well-known for low power products, but we are now branching out into higher power designs.

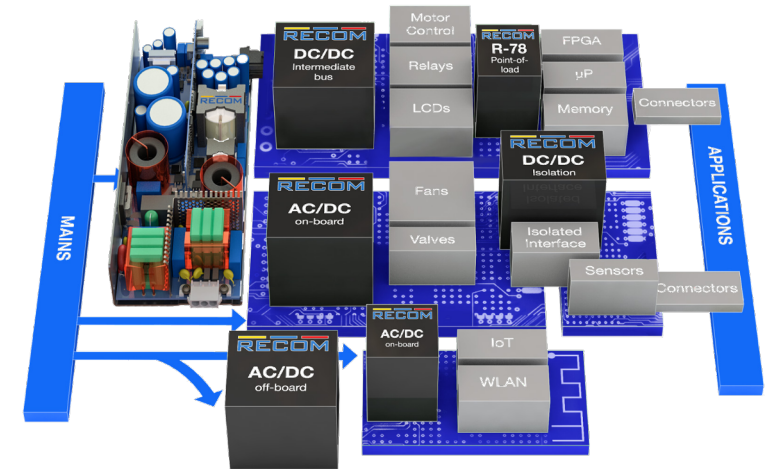
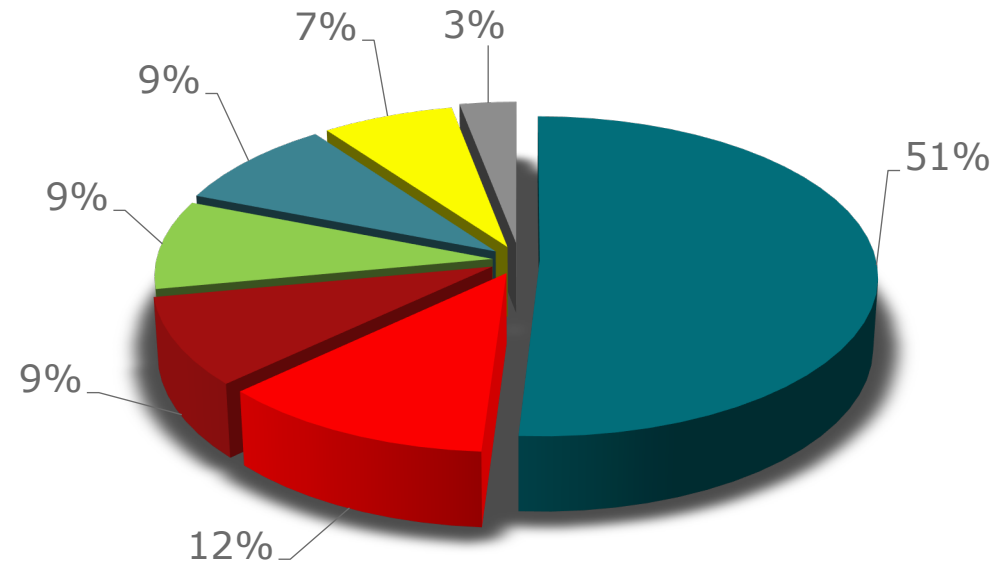


Global Distributors

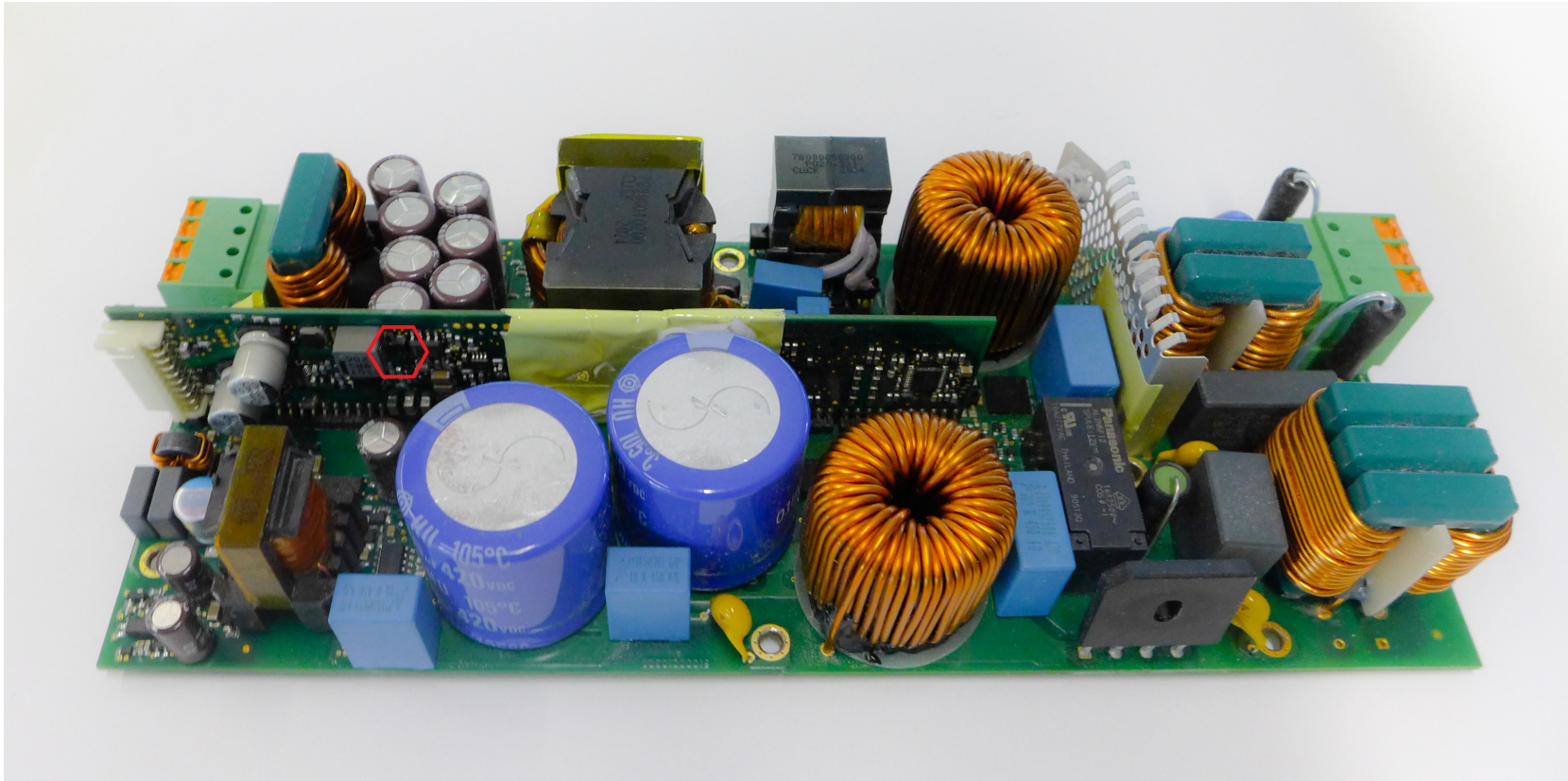


# RECOM's Product Offering

- Industrial
- Medical
- Test & Measurement
- Energy
- Transportation / Military / Aviation
- Lighting
- Telecom

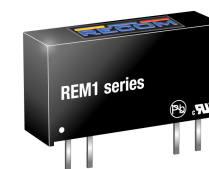
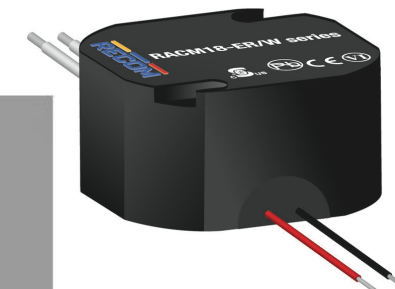
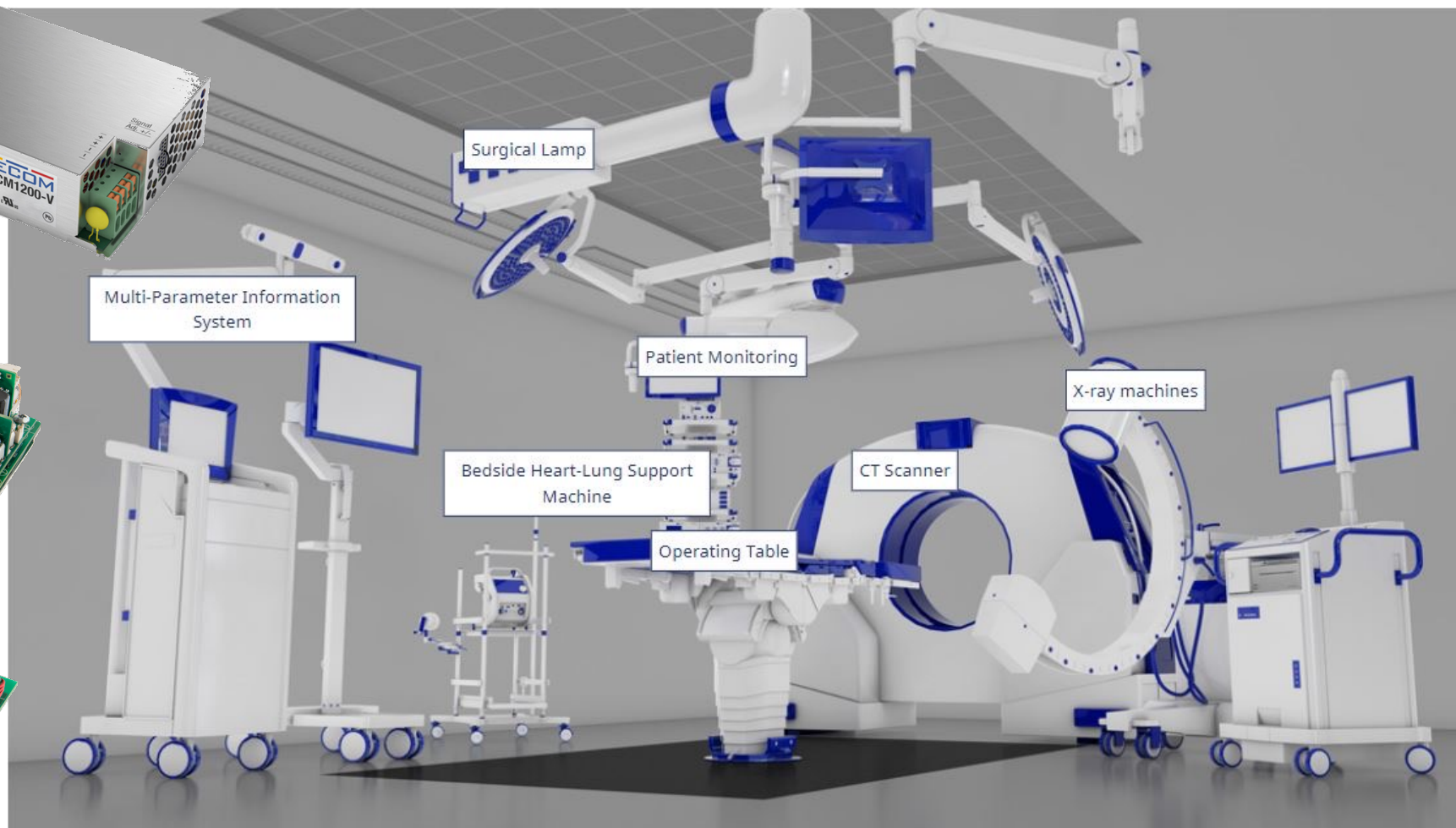
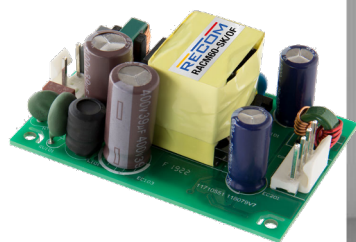


# RECOM RACM1200-V Series



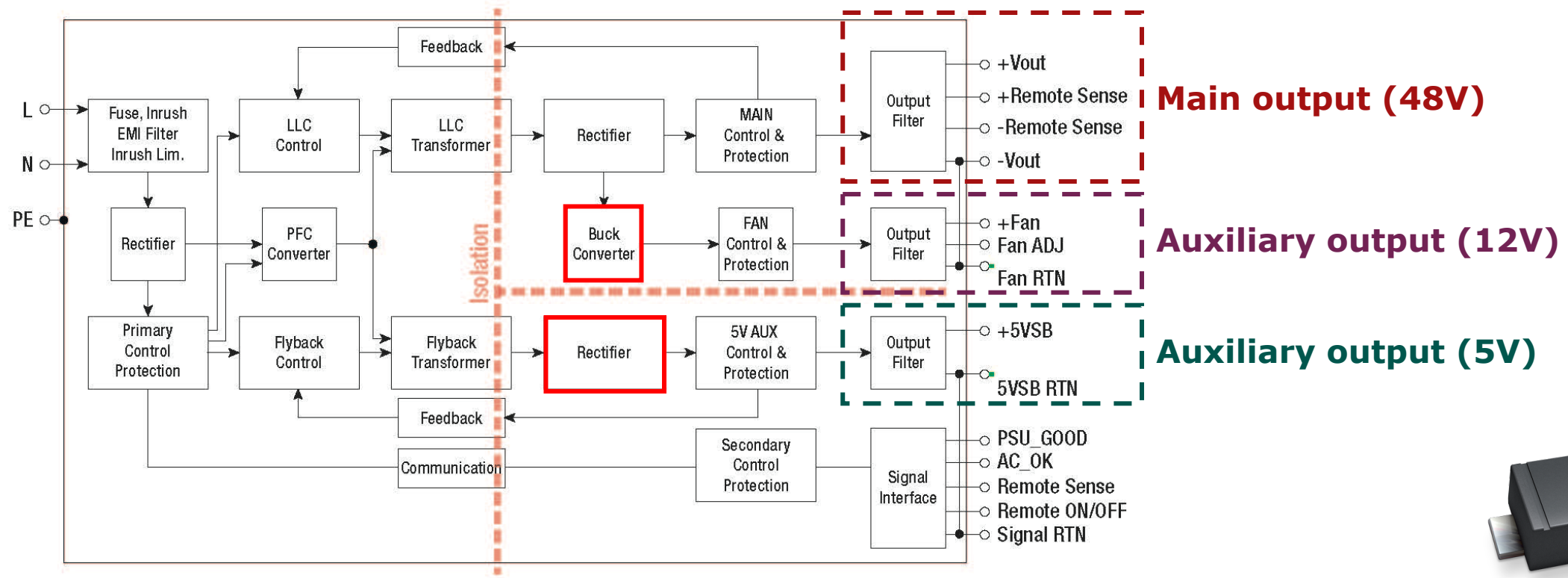
<https://youtu.be/cBT6eSFSF9U>

# IEC/EN/UL 60601-1, 60601-1-2



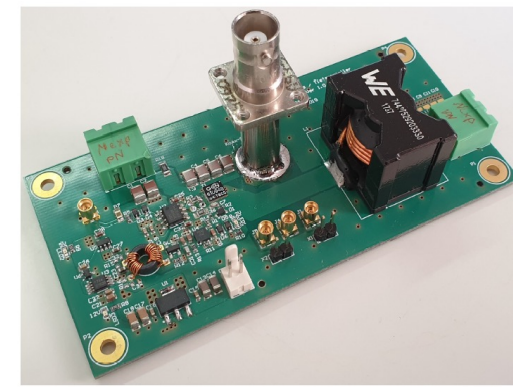
# RECOM RACM1200-V Series

## Block Diagram

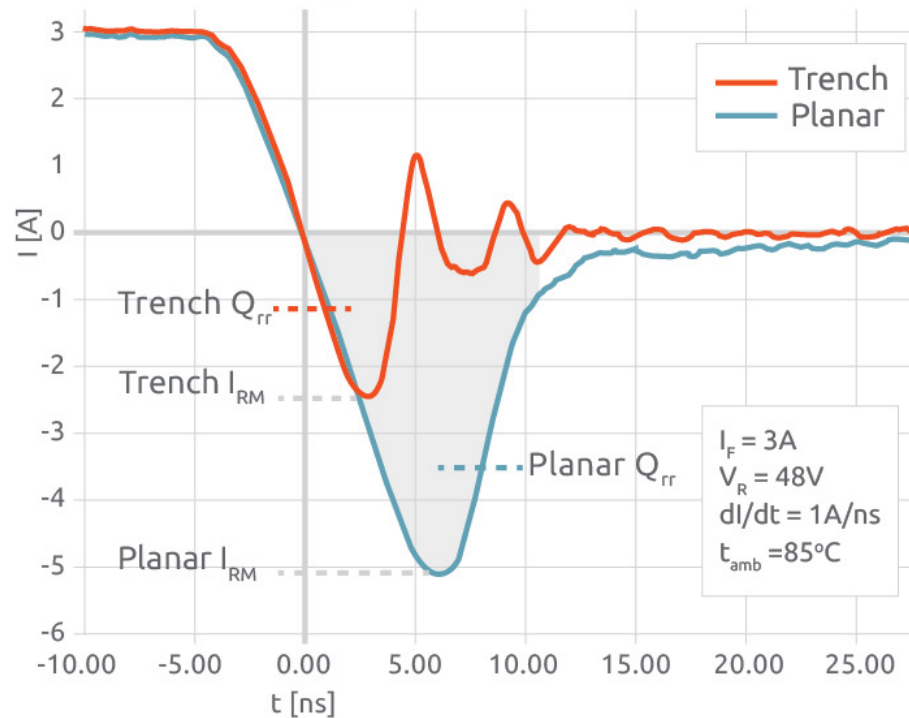


# Trench Schottky Efficiency

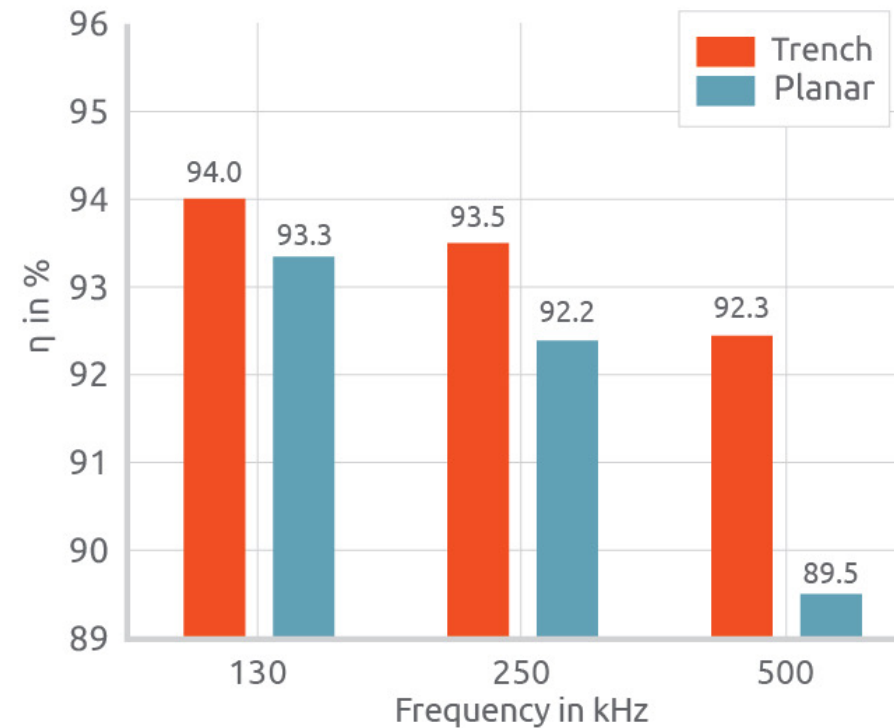
Comparison to Planar Schottky Benchmarking in a 48V/12V Buck Converter\*



## Reverse Recovery Behavior



## DC/DC Converter Efficiency

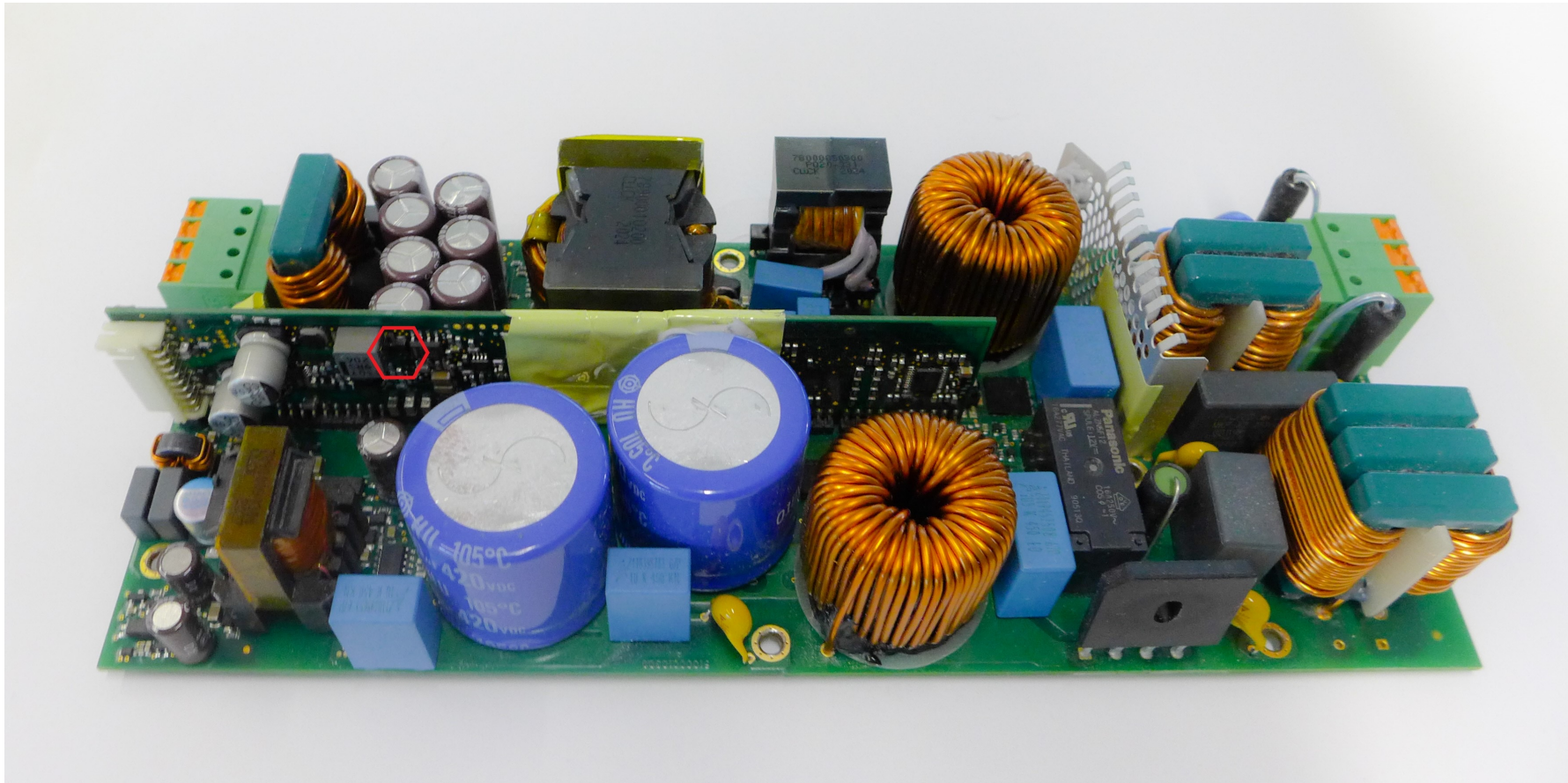


Significant efficiency improvement with Trench Schottky at higher frequencies.

\* Collaboration with the Helmut Schmidt University, Hamburg, Germany

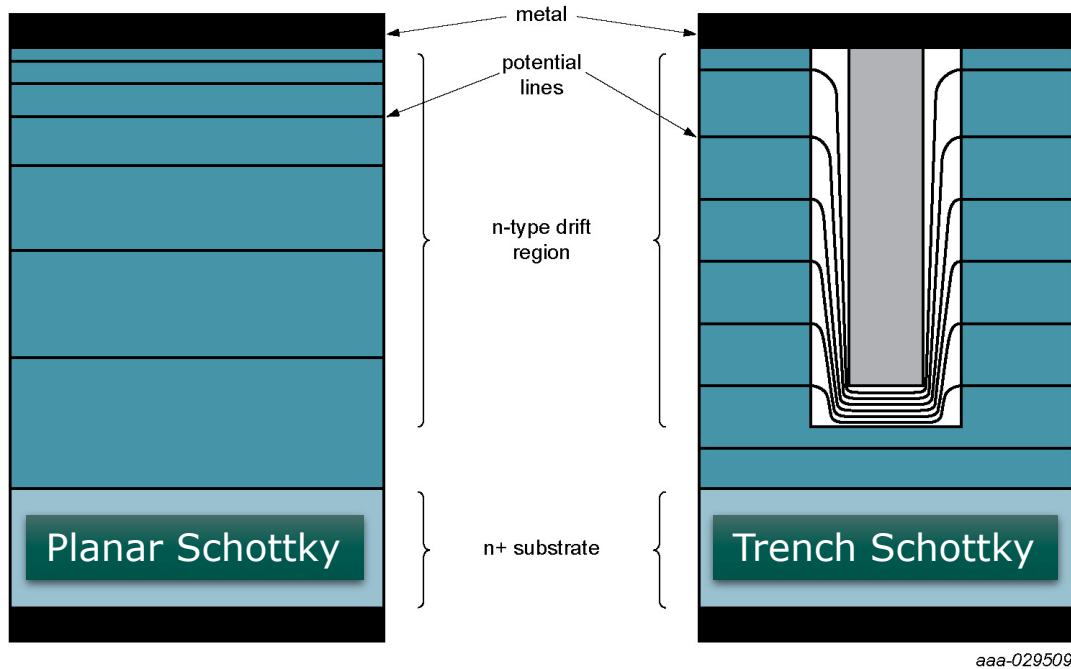
# RECOM RACM1200-V Series

Board Design



# Trench Schottky Thermal Stability

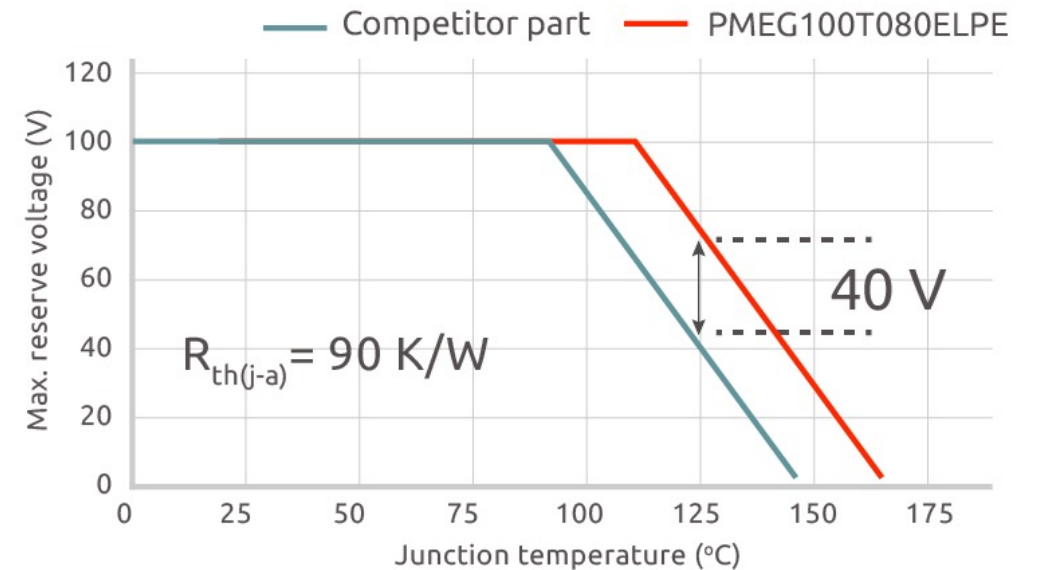
## The Trench RESURF Effect



Trench structure reduces the electric field close to the surface (junction), reducing leakage currents and increasing thermal stability.

*RESURF = Reduced Surface Field*

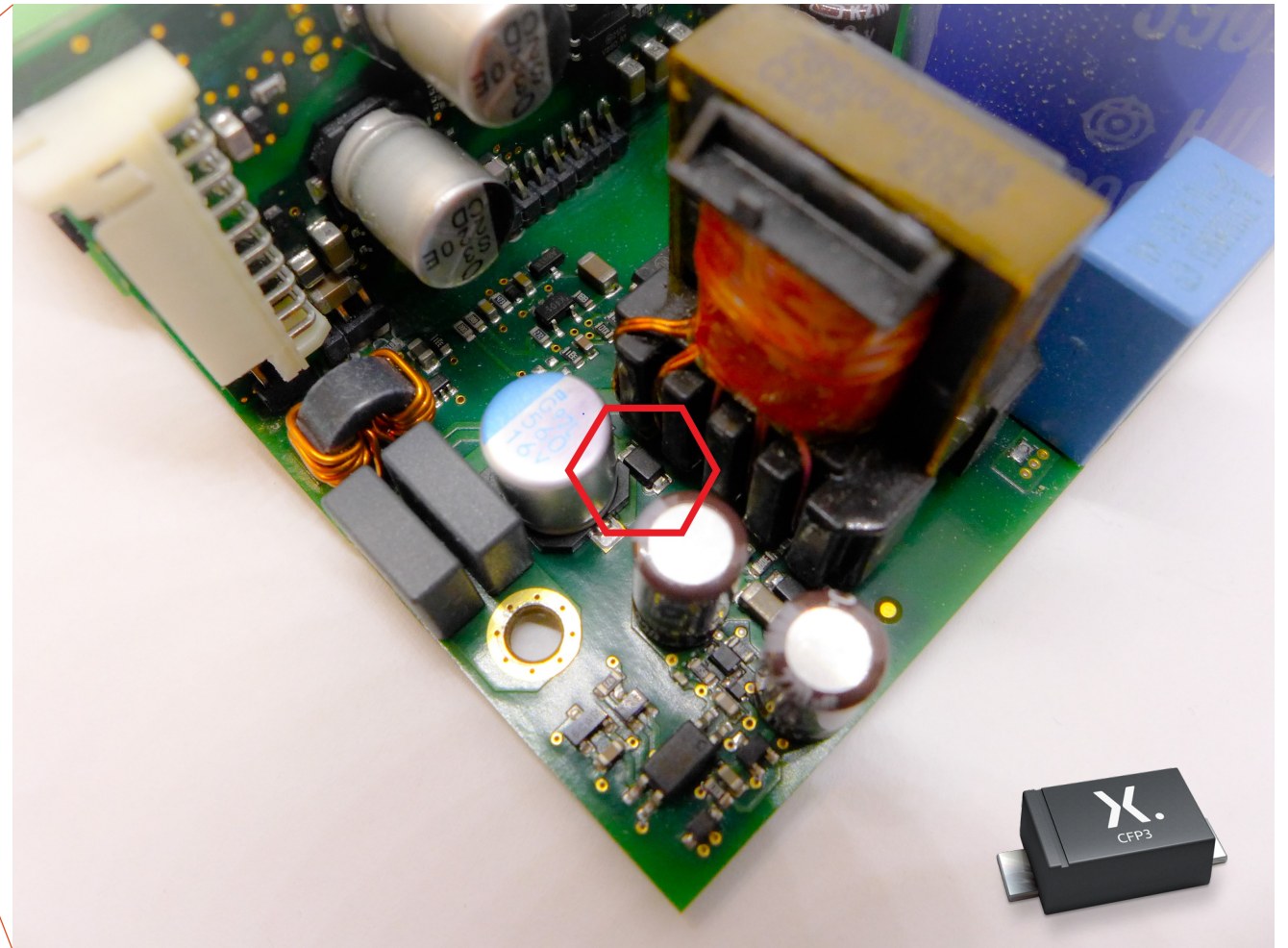
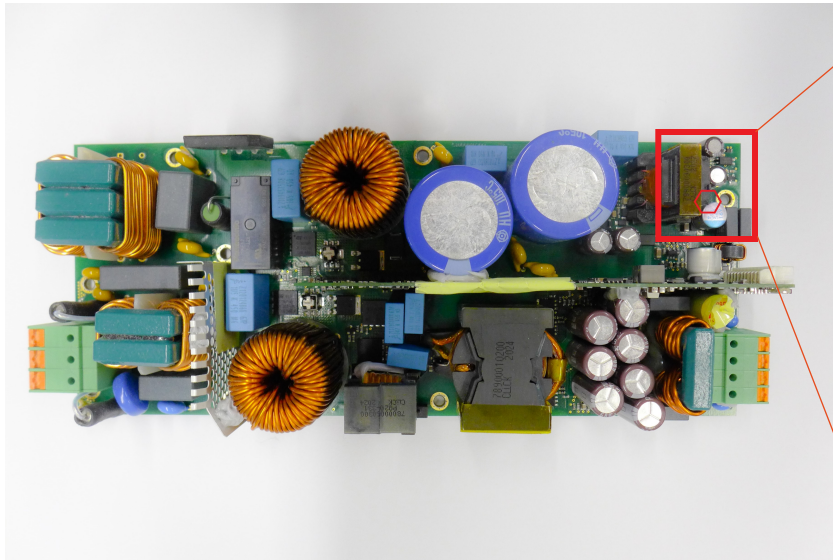
## Safe Operation Area vs. Competitor



Nexperia's Trench Schottkys are design with a special attention to wide Safe Operation Area.

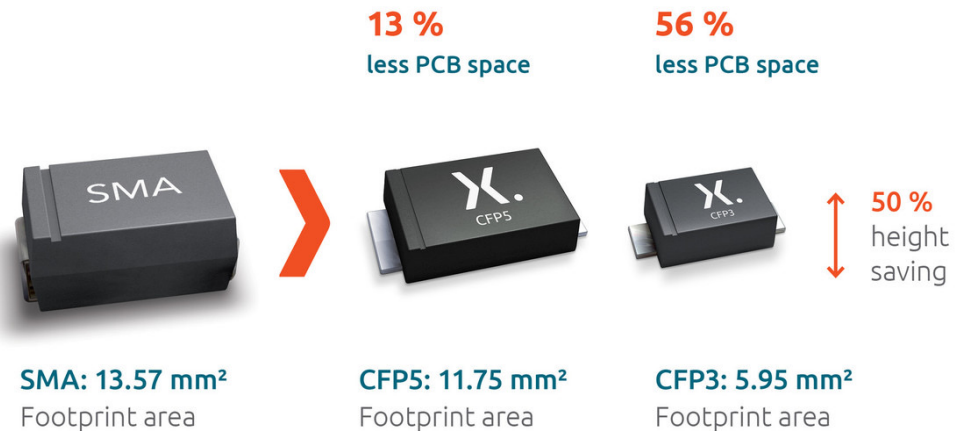
# RECOM RACM1200-V Series

## Board Design



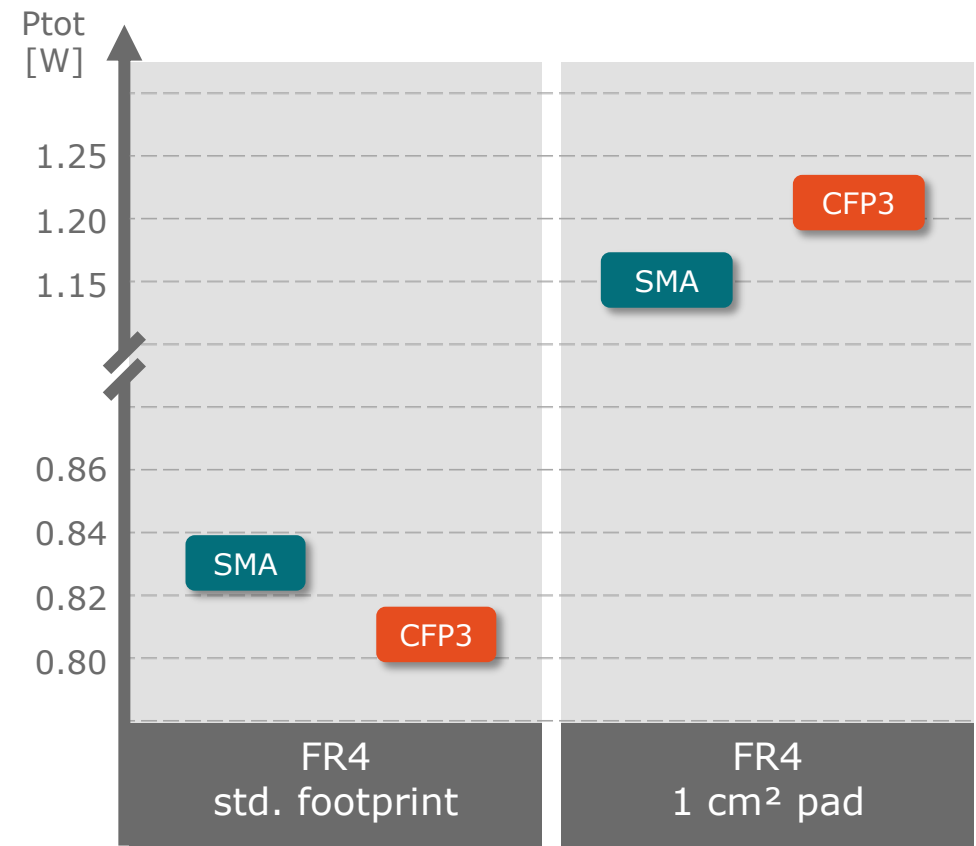
# Saving PCB Space with CFP Packages

## Miniaturization: from SMA to CFP



Nexperia's CFP (Clip Flat Power) packages offer significant miniaturization compared to older SMA or SMB packages, while achieving a similar electrical and thermal performance.

## Power Dissipation of SMA and CFP3



# Links

- [RACM-1200V](http://www.recom-power.com/1200V) Landing Page ([www.recom-power.com/1200V](http://www.recom-power.com/1200V))
- [Recom Power](https://recom-power.com/medical-power-supplies.html) Medical Products (<https://recom-power.com/medical-power-supplies.html>)
- Nexperia Trench Schottky rectifiers Landing Page ([www.nexperia.com/trench-schottky-rectifiers](http://www.nexperia.com/trench-schottky-rectifiers))
- Download Case Study ([www.nexperia.com/recom-nexperia-case-study](http://www.nexperia.com/recom-nexperia-case-study))

Please share your  
questions and insights

EFFICIENCY WINS.