

# 45 W high efficiency adapter evaluation board

featuring 700 V CoolMOS™ P7 in  
SOT-223 package

DEMO\_45W\_19V\_FLYB\_P7

[Jared Huntington \(IFAT PMM ACDC AE\)](#)

[Florian Zechner \(IFAT PMM ACDC AE\)](#)

GD10000490



# Table of contents

1

General description

2

Efficiency results

3

EMI results

# Table of contents

1

General description

2

Efficiency results

3

EMI results

# General description

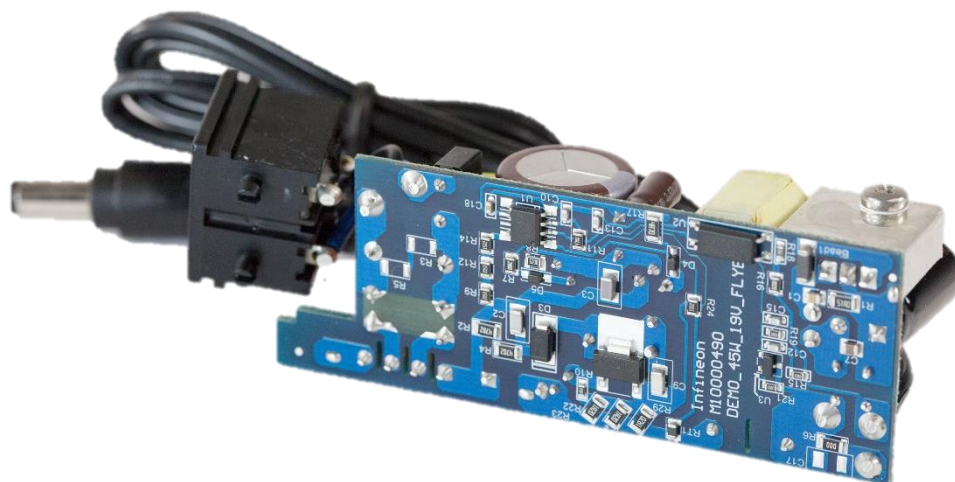
## Introduction

This evaluation board (DEMO\_45W\_19V\_FLYB\_P7) was designed in a 45 W notebook adapter form factor using the 700 V CoolMOS™ P7 in a SOT-223 package (IPN70R600P7S) and a standard flyback PWM controller. The SOT-223 package is a cost effective one-to-one drop-in alternative to DPAK that also enables footprint reduction in some designs.

This evaluation board is not only designed to meet efficiency and thermal specifications, but has also passed the necessary conducted and radiated emissions requirements. It is an evaluation board design which meets the typical notebook adapter requirements and can be produced after verification tests.

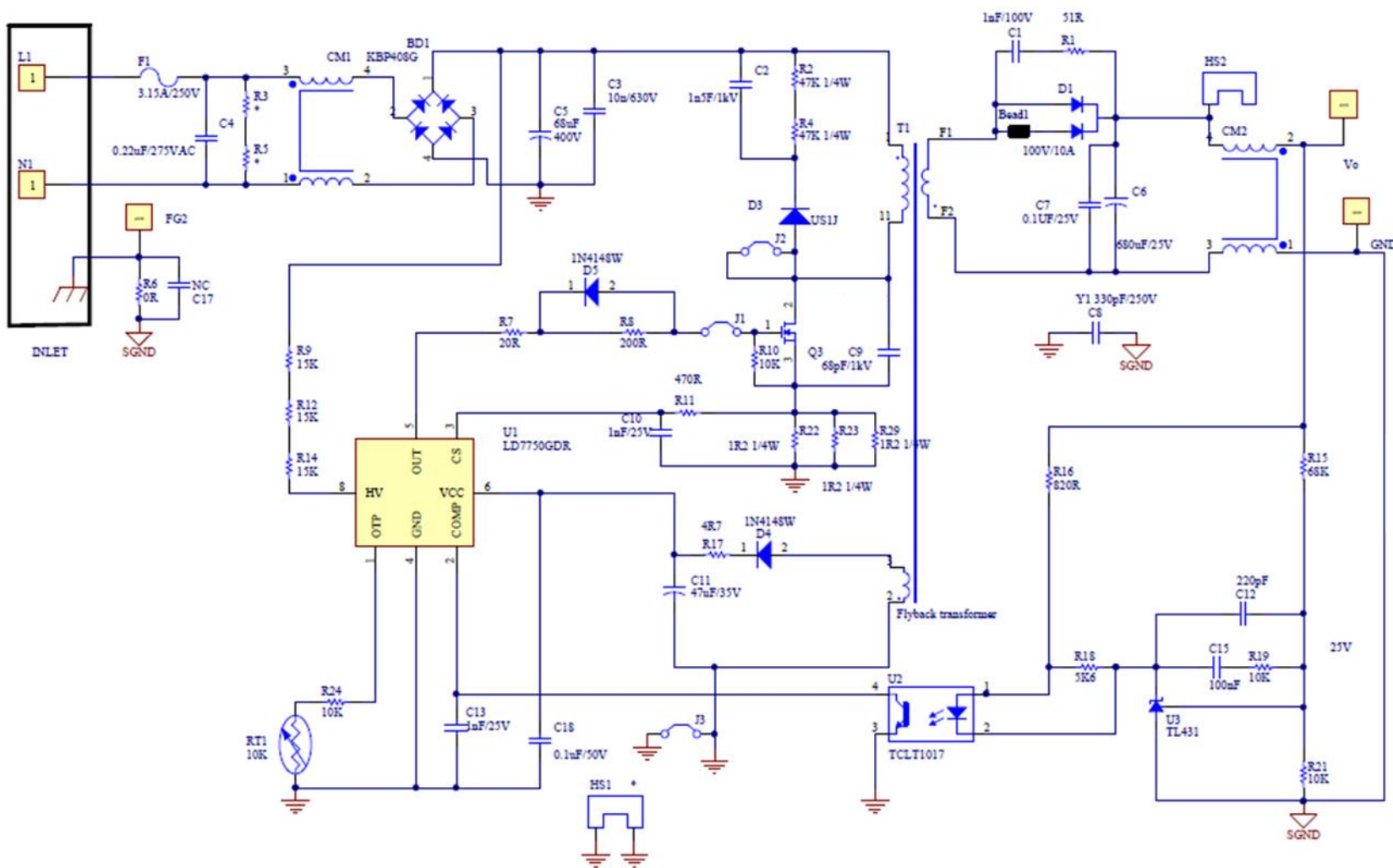
## Summary of features:

- › Input voltage: 90 – 264 V<sub>AC</sub>
- › Output voltage: 19 V<sub>DC</sub>
- › Output current max.: 2.37 A
- › Efficiency: ~87.9% (at 115 V<sub>AC</sub>, 100% load)
- › Efficiency: ~89.1% (at 230 V<sub>AC</sub>, 100% load)



# General description

## Schematic



# Table of contents

1 General description

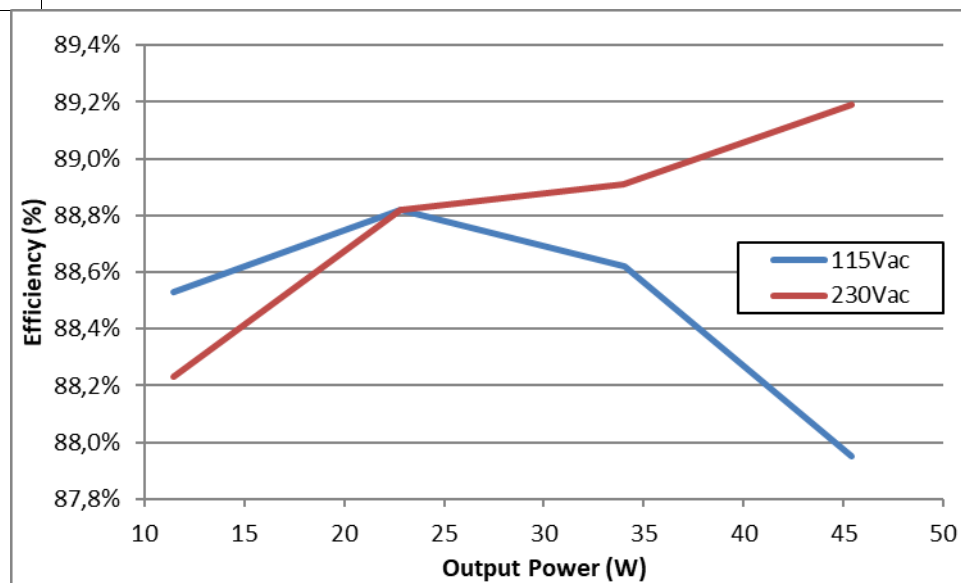
2 Efficiency results

3 EMI results

# Efficiency results

The table below shows the measured efficiency results of the final reference board meeting the EU CoC Version 6 requirements.

Input voltage	Rated power	$P_{in}$	$V_{out}$	$I_{out}$	$P_{out}$	Efficiency	Average $\eta$
115 V AC	25%	12.93	19.32	0.592	11.45	88.53%	88.53%
	50%	25.72	19.25	1.186	22.84	88.82%	
	75%	38.43	19.2	1.773	34.05	88.62%	
	100%	51.68	19.13	2.375	45.44	87.95%	
Input voltage	Rated power	$P_{in}$	$V_{out}$	$I_{out}$	$P_{out}$	Efficiency	Average $\eta$
230 V AC	25%	12.97	19.32	0.592	11.45	88.23%	88.79%
	50%	25.71	19.25	1.185	22.83	88.82%	
	75%	38.25	19.19	1.771	34.00	88.91%	
	100%	50.96	19.13	2.375	45.44	89.19%	



# Table of contents

1

General description

2

Efficiency results

3

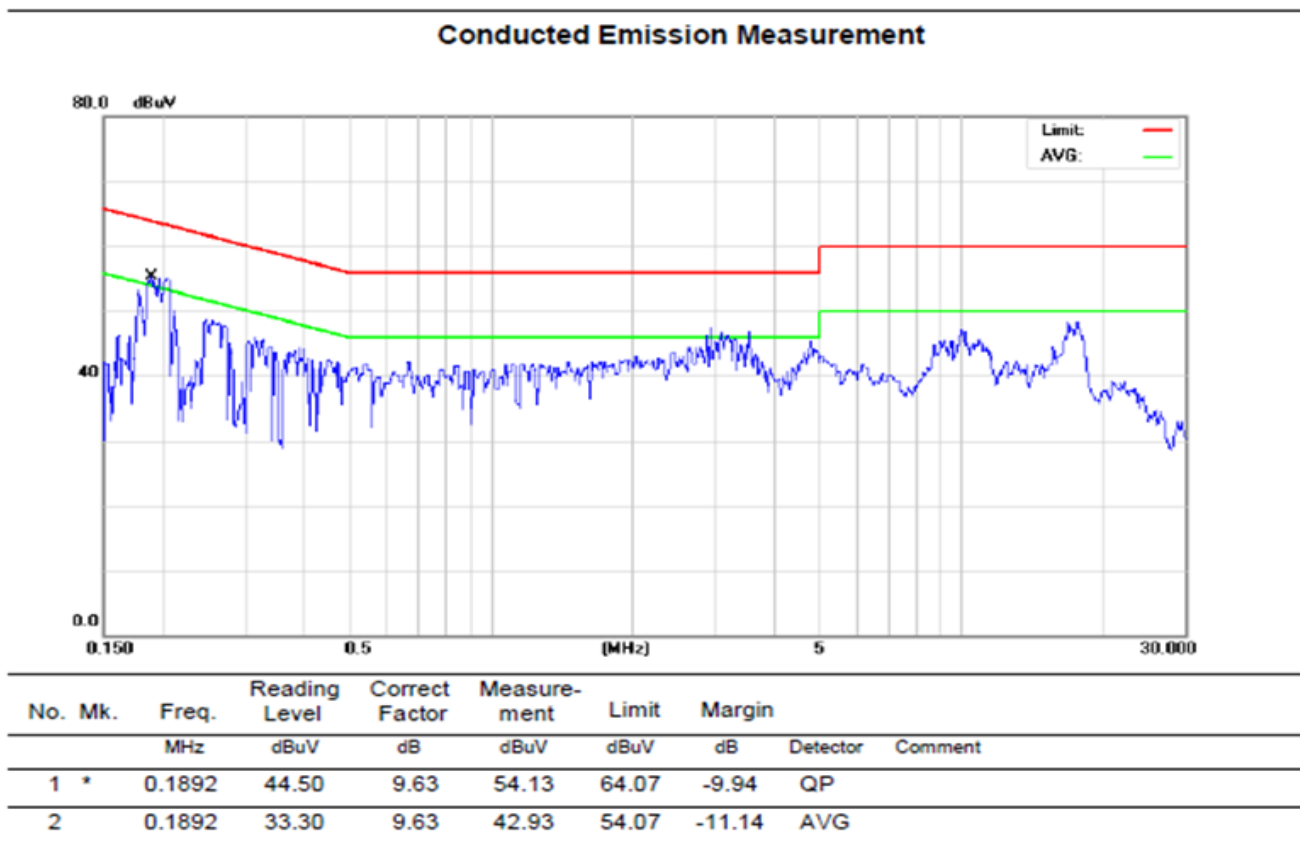
EMI results



# Conducted EMI results

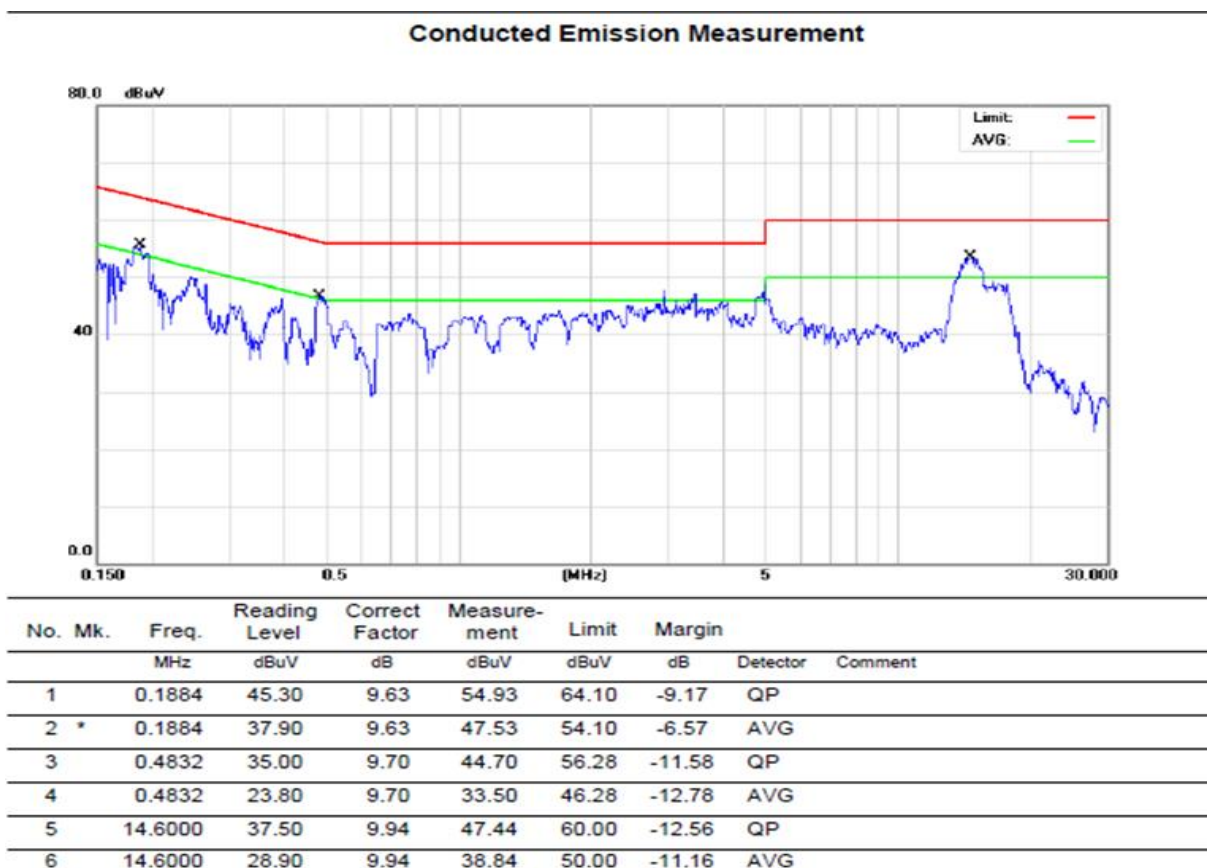
## Conducted emissions results from the reference board at 115 V<sub>AC</sub> (line)

Below are the conducted emissions test results. The results are tested to the EN 55022 class B limit. With the changes mentioned in the previous sections, the reference design is capable of meeting the requirements with the QP measurement 9.94 dB below the QP limit line.



# Conducted EMI results

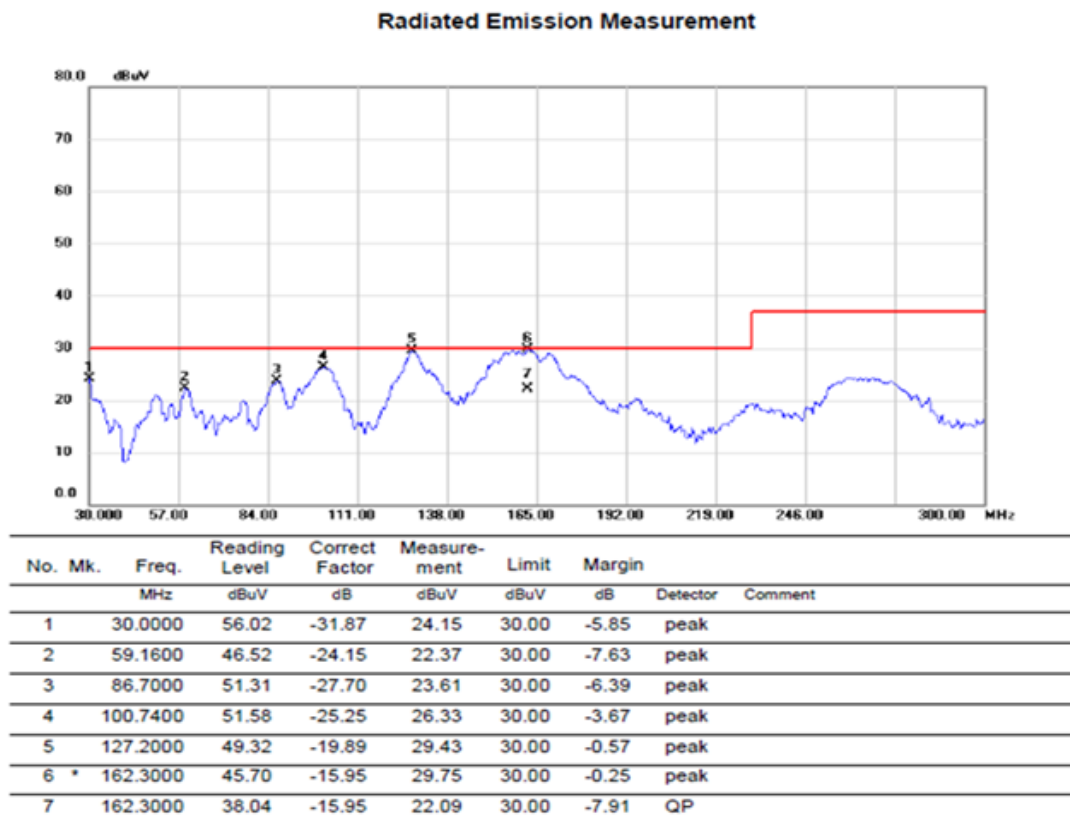
## Conducted emissions results from the reference board at 230 V<sub>AC</sub> (line)



# Radiated EMI results

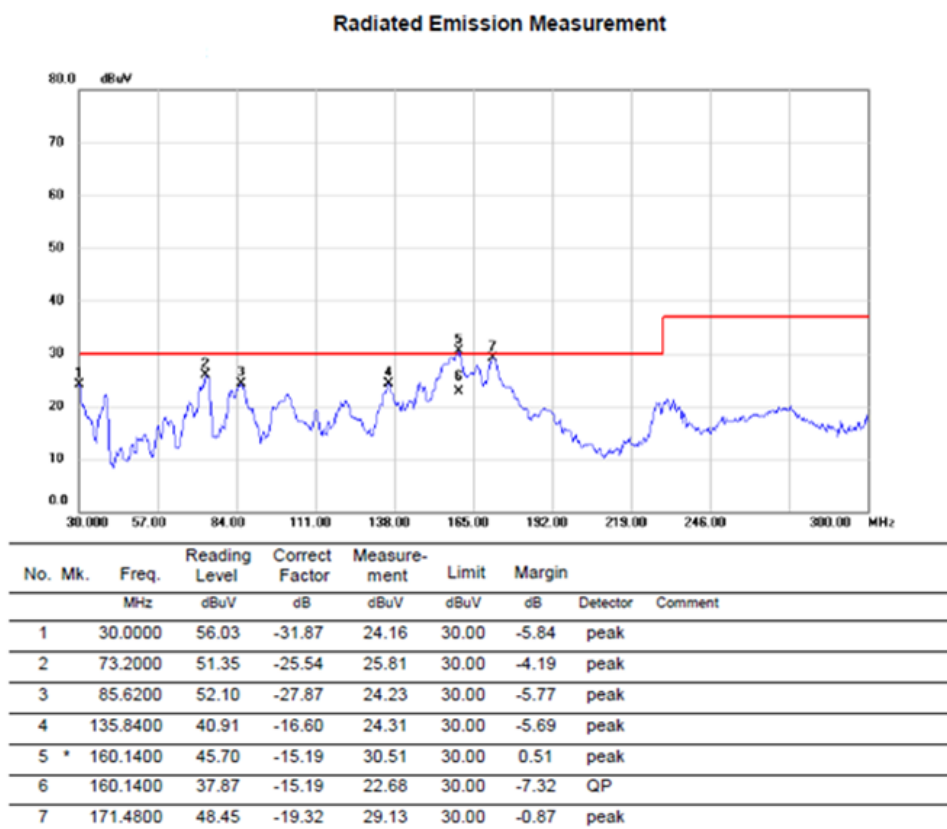
## Radiated emissions results from the reference board at 115 V<sub>AC</sub> (vertical)

Below are the radiated emissions test results done in at an external EMI chamber. The results are tested to the EN 55022 class B limit. With the changes mentioned in the previous sections, the reference design is capable of meeting the requirements with the QP measurement 7.32 dB below the QP limit line.



# Radiated EMI results

## Radiated emissions results from the reference board at 230 V<sub>AC</sub> (vertical)





## Technical Material

- > Application Notes
- > Simulation Models
- > Datasheets
- > PCB Design Data

- > [DEMO 45W 19V FLYB P7](#)
- > [IPN70R600P7S](#)

## Evaluation Boards

- > Evaluation Boards
- > Demoboards
- > Reference Designs

- > [www.infineon.com/evaluationboards](http://www.infineon.com/evaluationboards)

## Videos

- > Technical Videos
- > Product Information Videos

- > [www.infineon.com/mediacenter](http://www.infineon.com/mediacenter)

# Support Online tools and services



- 1 **Subscribe to Newsletter**
- 2 **Where to Buy**
- 3 **Tools, Finders and Selectors**
- 4 **Support**

- **Products**
  - Applications
  - Tools
  - Support** (4)
  - Technology
- **Power**
  - Automotive System IC
  - ESD & EMI
  - Microcontroller
  - RF & Wireless Control
  - Security IC
  - Sensor
  - Smart Card IC
  - Interface
  - Transistor & Diode
- **Power Overview**
  - Power MOSFET
  - IGBT
  - Smart Low-Side & High-Side Switches
  - Linear Voltage Regulator
  - DC-DC Converter
  - LED Driver | Lighting ICs
  - Silicon Carbide (SiC)
  - High Power Thyristors & Diodes
  - Motor Control & Gate Driver
  - AC-DC Supply

News & Tweets





Part of your life. Part of tomorrow.

