America Sales Conference
IC Division Session

Date

VISHAY
The DNA of tech.®

Power Management Solutions delivering Protection, Control, and Power Conversion

1	2	3
eFuse	Controller	Power Stage
3.3V to 12V eFuses including parallable ones	Digital Multiphase Controllers	Smart Power Stages
2.7V to 27V eFuses	Buck Controllers	DrMOS

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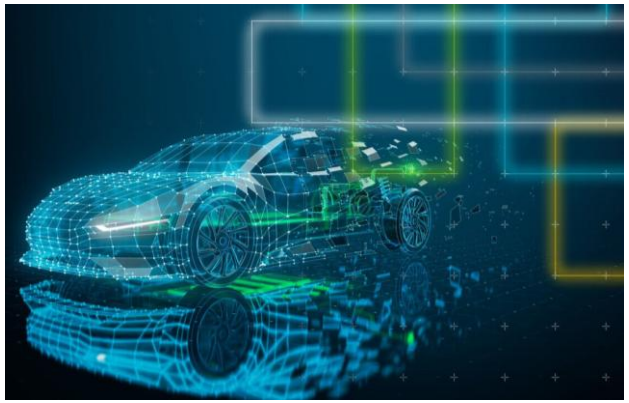
DC/DC Converters
Leo Chou

BUILT TO WIN
VISHAY EVERYDAY

AMERICAS SALES CONFERENCE

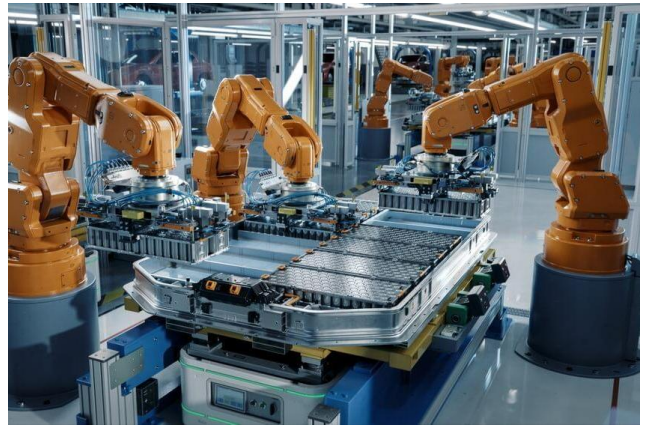
AI / DATACENTER

COMPUTING

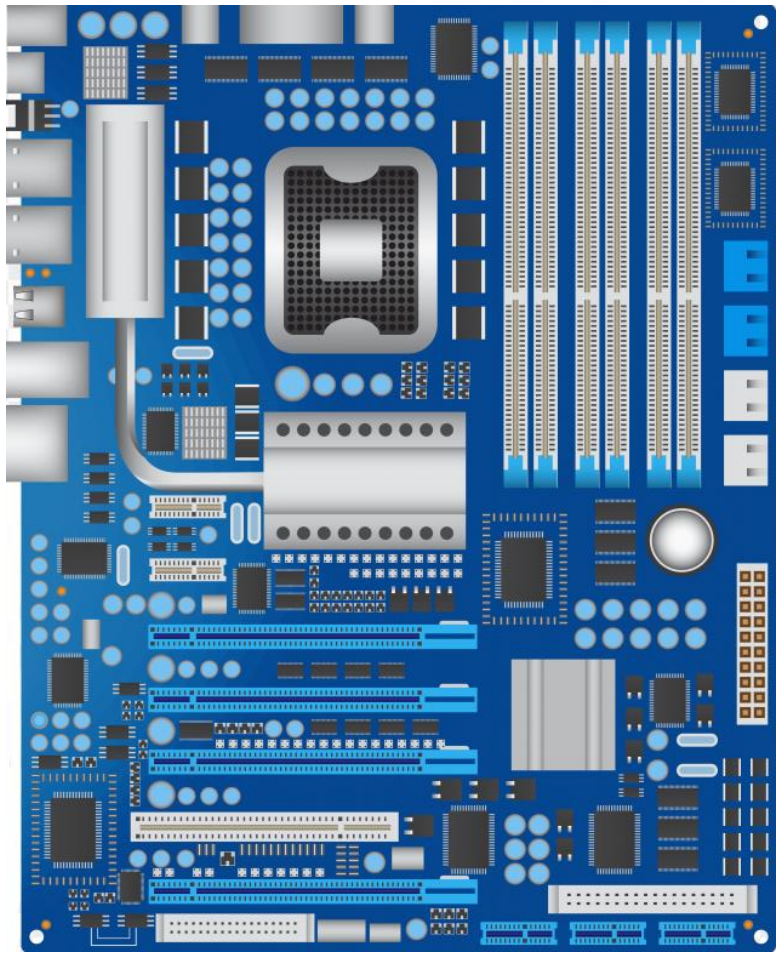


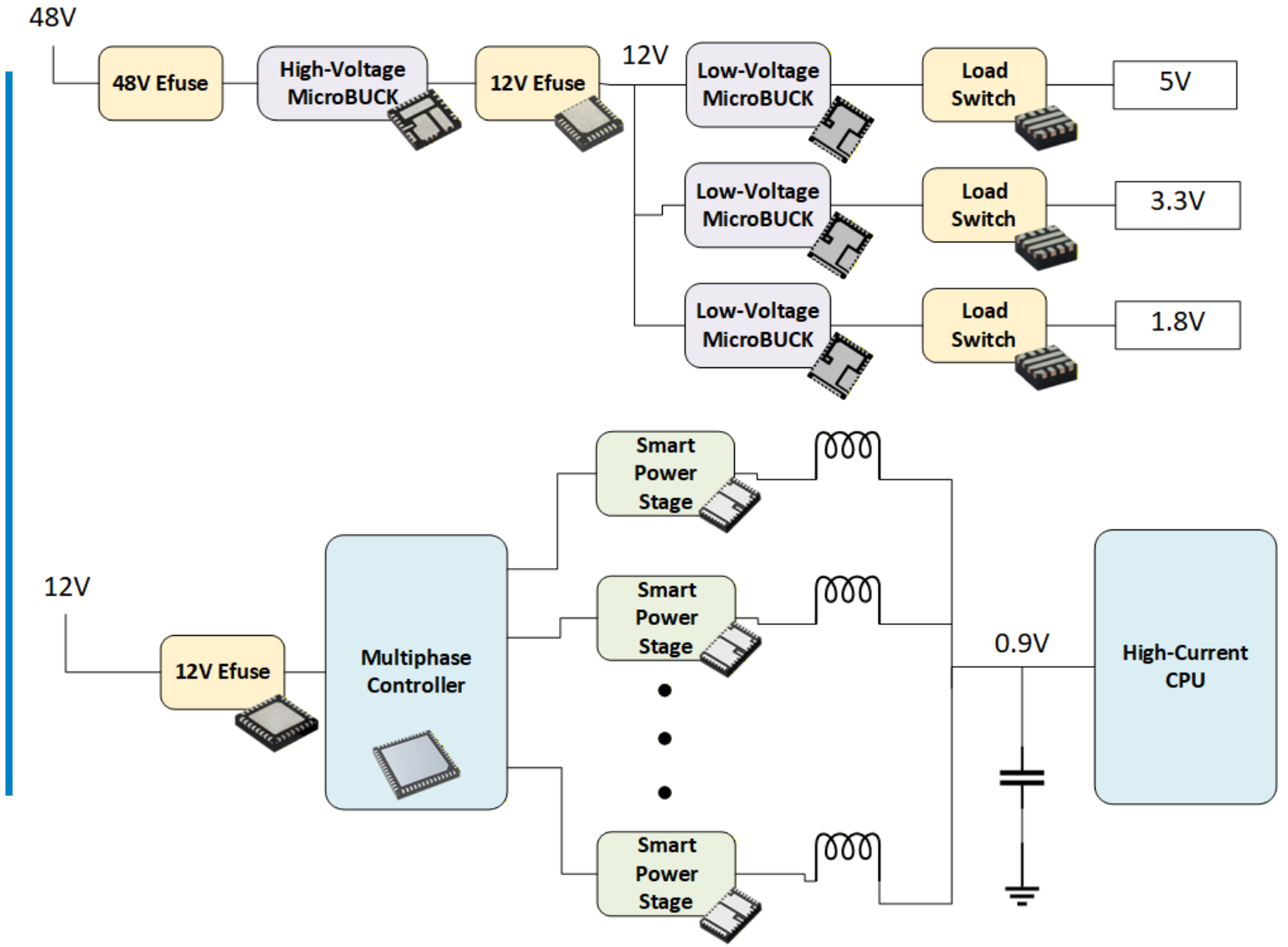
AUTOMOTIVE

INDUSTRIAL



Vishay DC/DC Power ICs in Servers / AI Datacenters

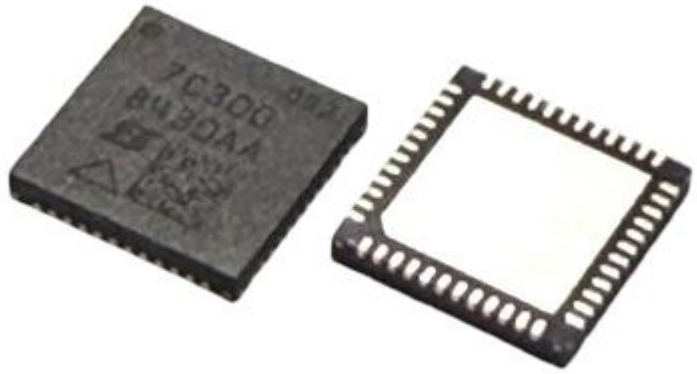




Multiphase Controllers

Product Features

- High density digital control process
- 8-phase / 12-phase / 16-phase options
- Fast transient response
  - Adaptive constant on-time control with high speed, non-linear response
  - Excellent phase current balance performance
- High speed telemetry and fault management
  - Voltage / current / power / temperature
- Comprehensive digital interfaces
  - PMBus 1.4 with AVSBus
  - AMD SVI3 3.X
  - Nvidia PWMVID

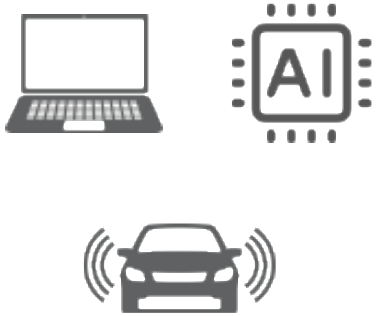


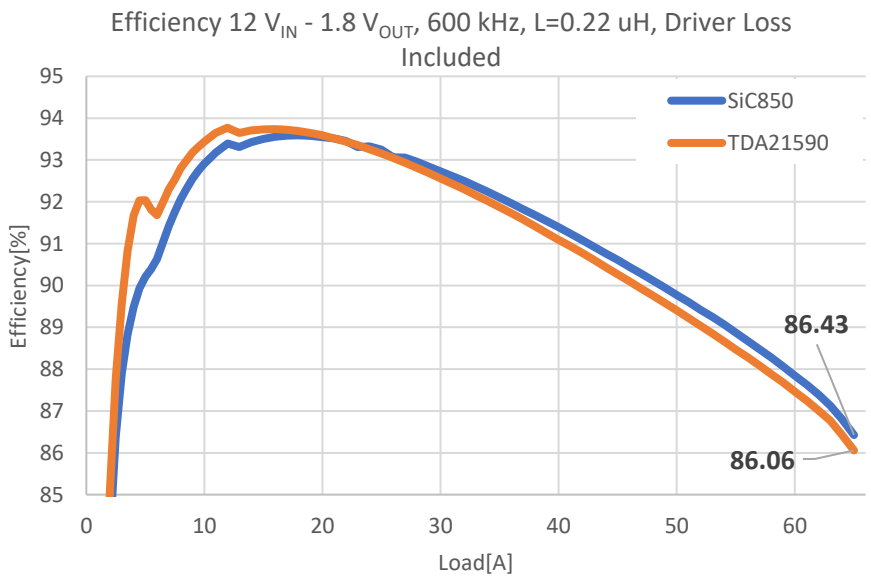
Pkg	P/N	Comm. Protocol	Phase	Output
5x5	SiP78300	AMD SVI3 / PMBus / AVSBus	8	2
6x6	SiP79300		9	4
	SiP7C300		12	2
7x7	SiP7G300		16	2
	SiP7G500	Nvidia PWMVID / PMBus	16	2

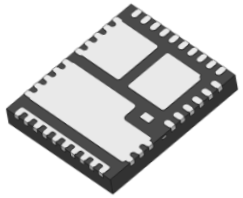
Smart Power Stages / DrMOS

Product Features

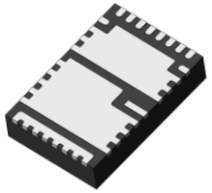
- TrenchFET® Gen V process technology for 12 V V_{IN}
  - High efficiency and robustness
- Up to 100 A peak current capability
- Accurate current monitoring and reporting
- Accurate temperature monitoring and reporting
- Protection and fault reporting
  - Undervoltage
  - Overcurrent
  - Overtemperature



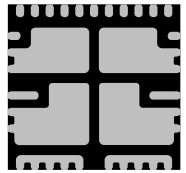




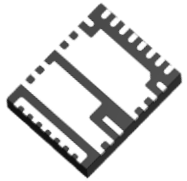
5 mm x 6 mm



4 mm x 6 mm



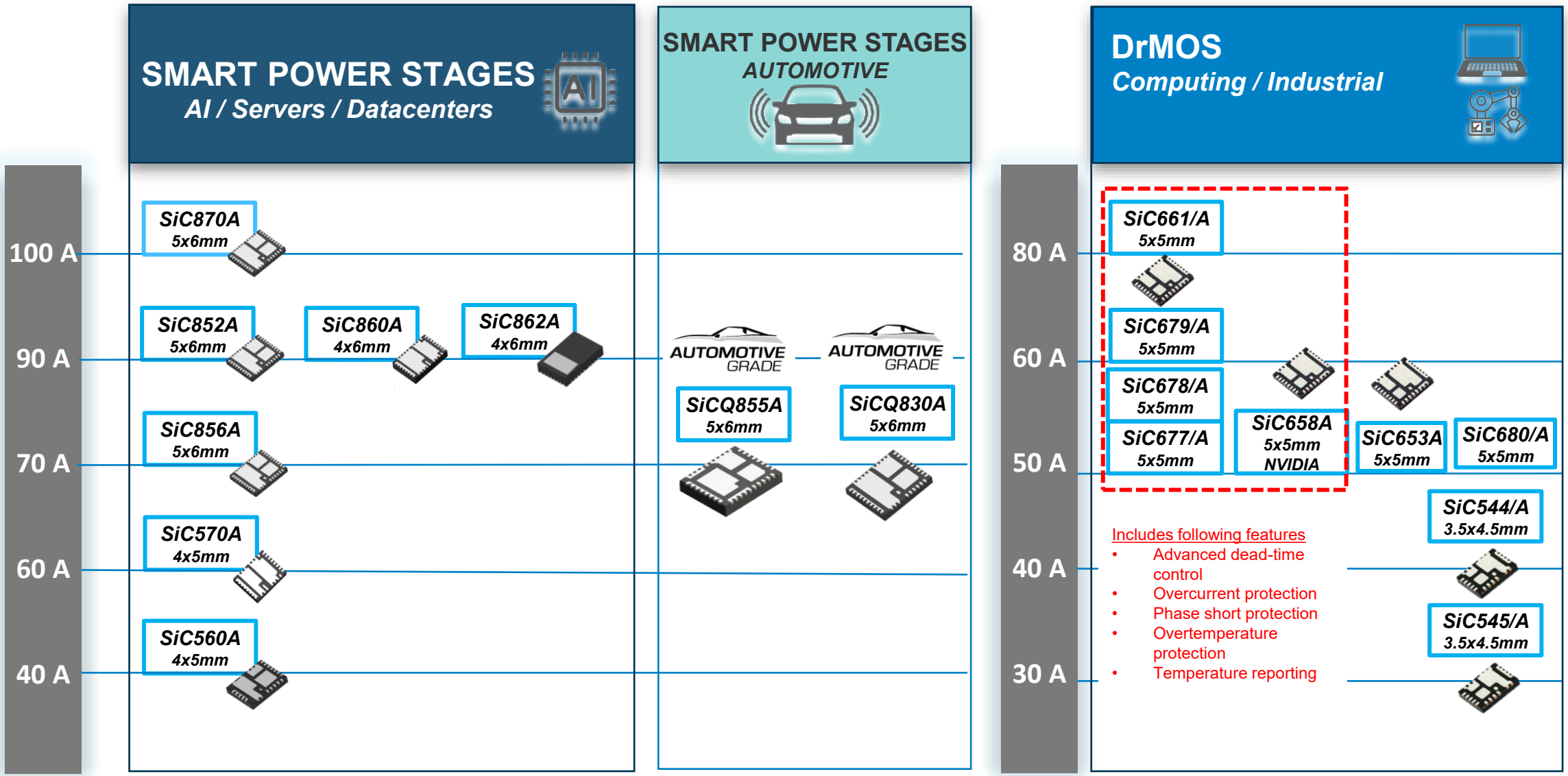
5.25 mm x 5 mm
Dual



4 mm x 5 mm

5 mm x 5 mm

Vishay Smart Power Stages / DrMOS Portfolio



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Design in Power Stages

Where to Hunt

- Segments:
  - AI / servers
  - Computing
  - Industrial
  - Automotive
- Competition:
  - Onsemi
  - Infineon
  - MPS
  - Renesas
  - AOS

How to Engage

- What is the needed output DC current?
  - 60 A to 100 A (Larger Pkg)
  - 30 A to 50 A (Smaller Pkg)
- What are the needed features?
  - Protections – voltage, current, temperature
  - Telemetry – Temp and/or current
  - Fault reporting

How to Win

- Compatible with major controllers on the market
- High efficiency performance
- Strong MOSFET robustness and reliability
- Proven industry quality track record
- Pin-to-Pin with competitors
- 20-week lead time

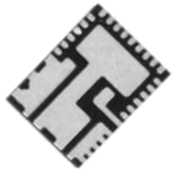
microBUCK® / microBRICK®

Product Features

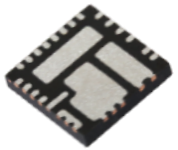
- Advanced TrenchFET® process technology
  - High efficiency and robustness
- Supports both high (up to 60 V) and low (≤ 20 V) input voltages
- Integrated inductor (*microBRICK®*)
- Up to 40 A peak current capability
- PMBus interface available (SiC45x)
- Constant on-time control with fast transient response
- Protection and fault reporting
  - Over- / Undervoltage
  - Overcurrent
  - Overtemperature

Applications

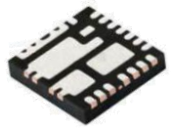
- AI / computing
- Industrial
- Networking
- Telecom



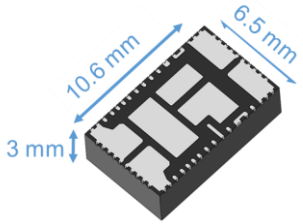
5 mm x 7 mm microBUCK®



5 mm x 5 mm microBUCK®

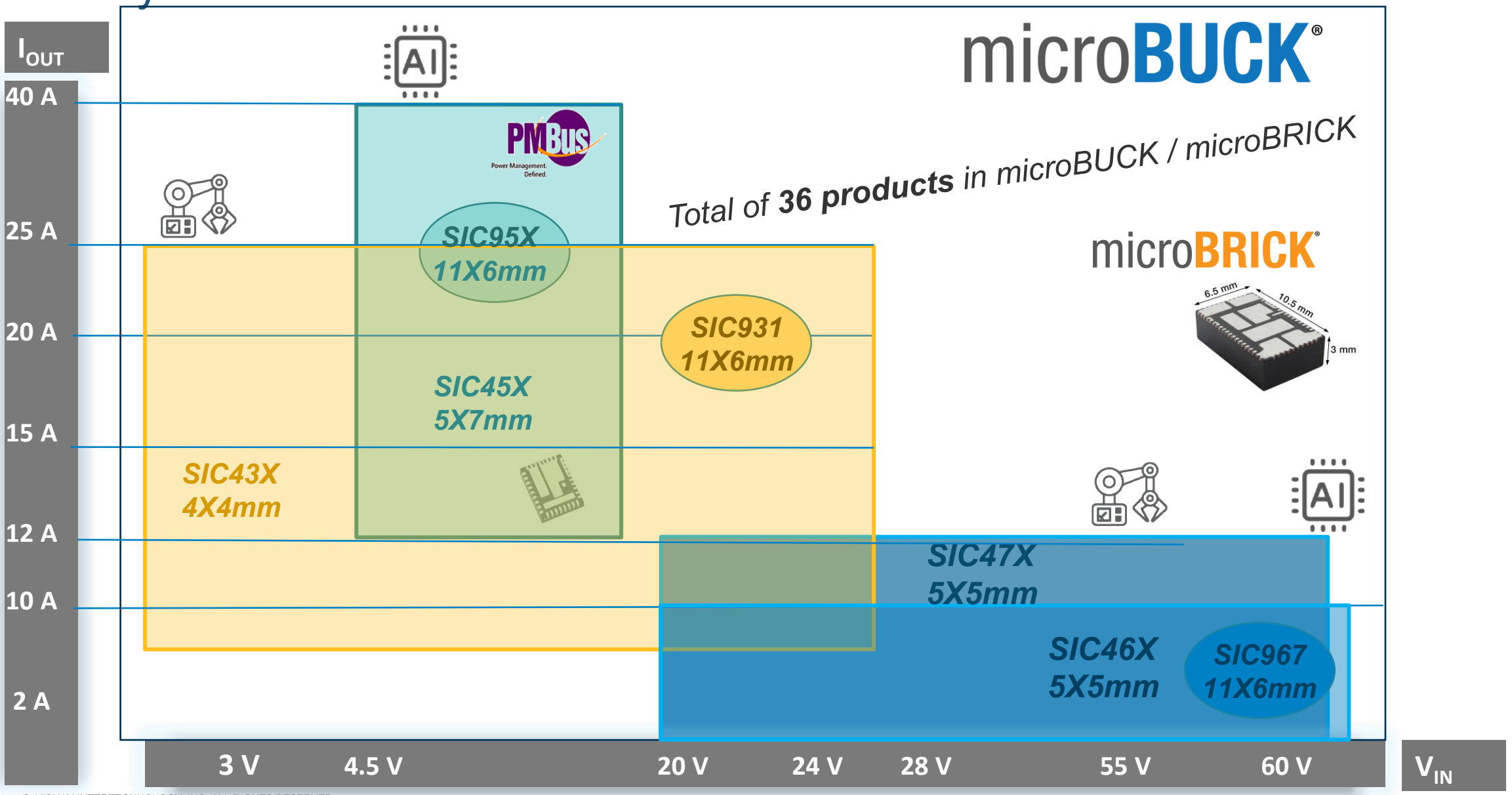


4 mm x 4 mm microBUCK®



6 mm x 10 mm microBRICK®

Vishay microBUCK® / microBRICK® Portfolio



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Design in microBUCK® / microBRICK®

SMALL ▪ EASY ▪ EFFICIENT

Choose the Right Buck Converter From 2 A to 40 A

Where to Hunt

- Segments:
  - AI / servers
  - Computing
  - Industrial
  - Automotive
- Competition:
  - Onsemi
  - TI
  - MPS
  - Analog Devices
  - Infineon

How to Engage

- What is the input voltage?
  - 12 V computing / datacenters
  - 24 V industrial
  - 48 V datacenters / automotive
- What is the output current?
  - > 20 A
  - 10 A to 20 A
  - < 20 A
- What are the needed features?
  - PMBus vs. external BOM
  - Integrated inductor

How to Win

- Highly integrated solutions
- Supports high current with small PKG
- Strong MOSFET performance with high efficiency
- Cost-competitive
- Pin-to-Pin with competitors

eFuses
Johnson Zhao

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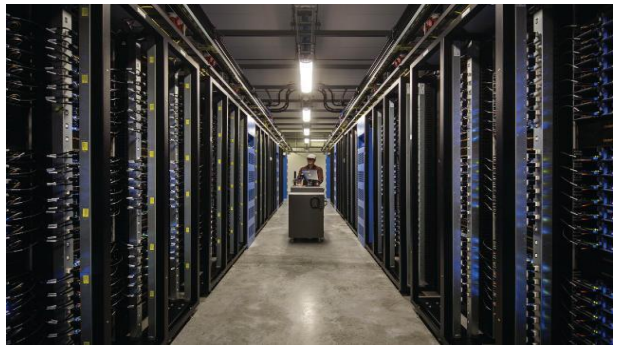


AI / DATACENTERS

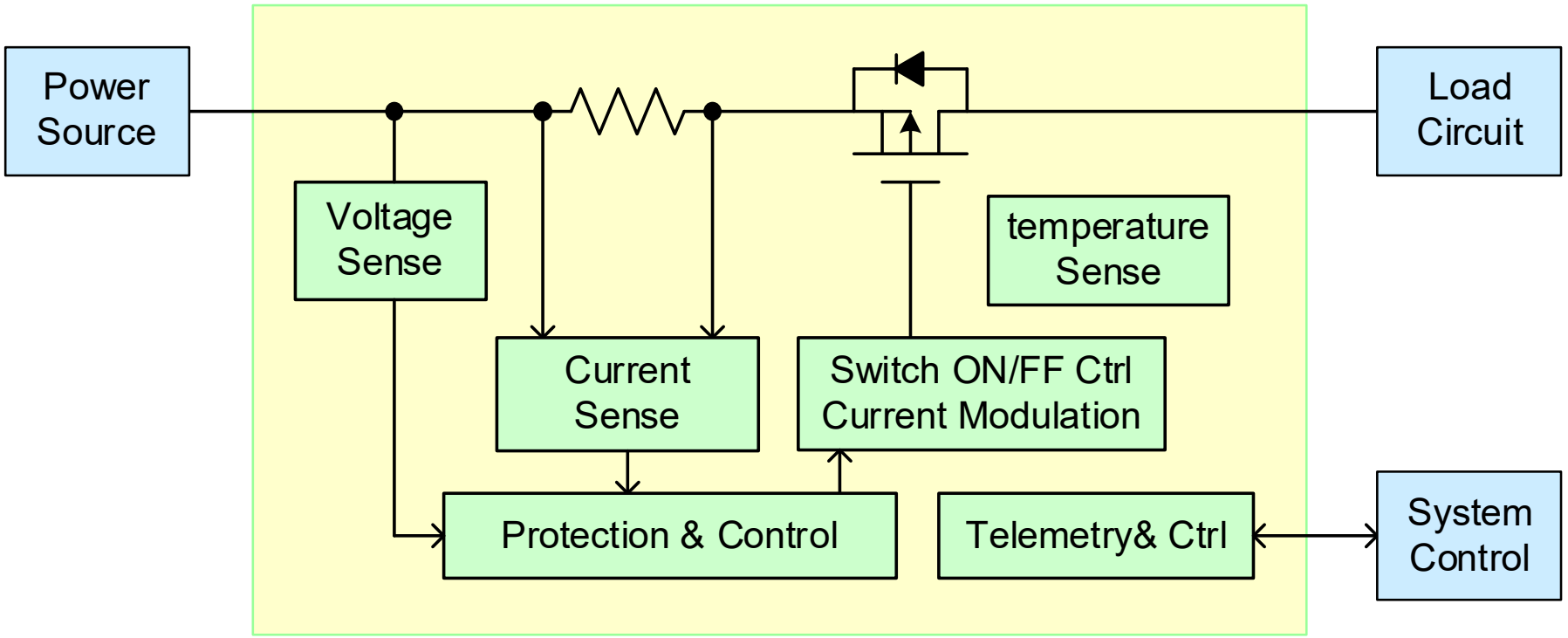
COMPUTING

AUTOMOTIVE

INDUSTRIAL

What is an eFuse?

An eFuse is an intelligent, semiconductor-based power protection device that monitors and actively controls current and voltage to protect both upstream and/or downstream circuits.

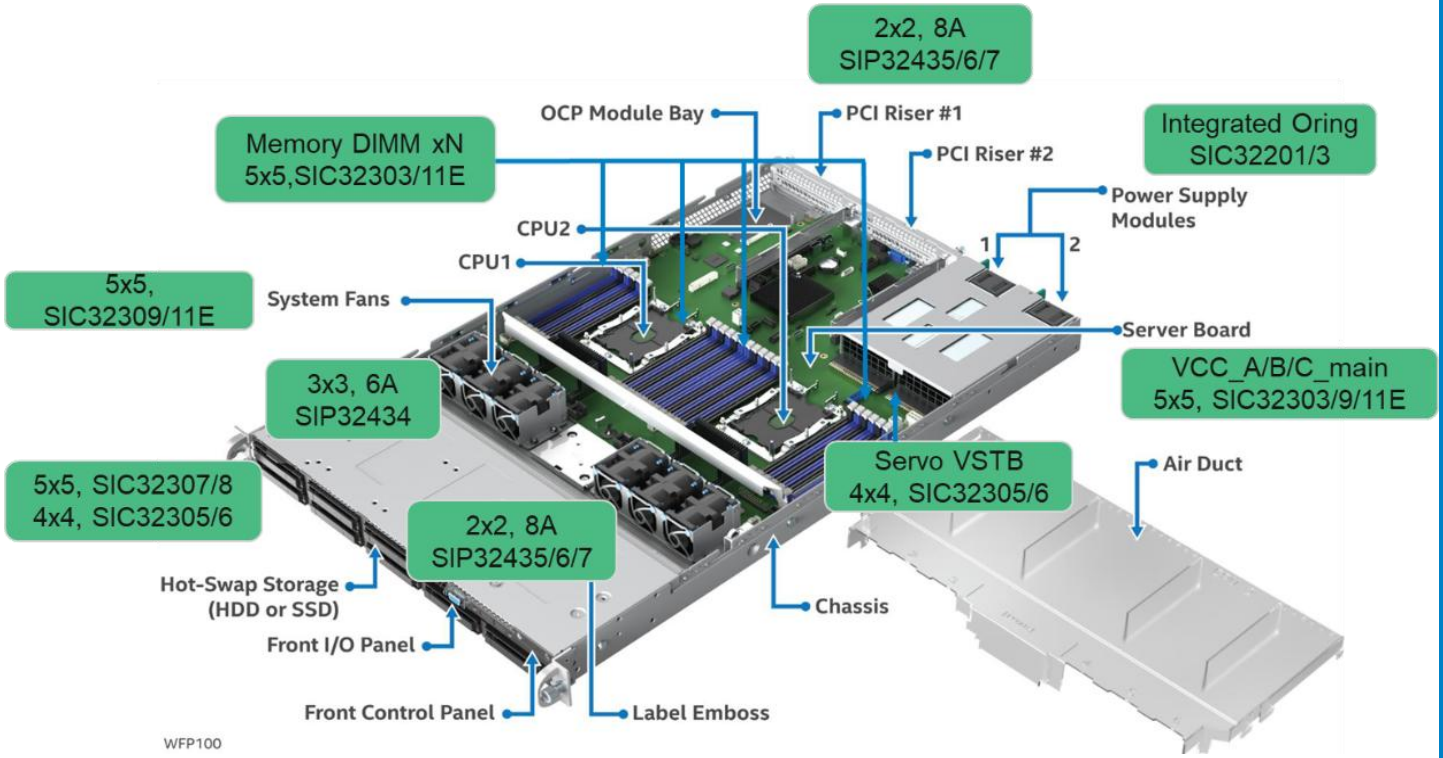


eFuses in Servers, Cloud Computing Applications

- Rapidly growing application demand for higher power density and efficiency
- Increasing design requirements for smart controllability and safety in system power management
- Precision dynamic sensing and real-time reporting capabilities
- Comprehensive protection and fast response to fault conditions to ensure system reliability

Target Customers

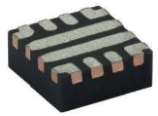
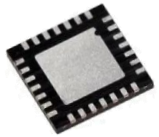
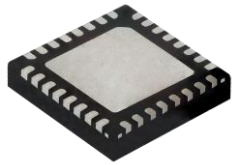
- Google, Meta, AWS, Microsoft, Apple, Oracle, Supermicro, Broadcom, HPE, Dell, AMD, Intel



eFuse Smart Load Switches

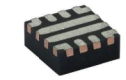
- Provide a comprehensive portfolio covering low current up to 60 A for 3.3 V, 5 V, and 12 V power rail designs
- Develop 48 V solutions with PMBus capability to support next-generation system power management
- Maintain pin compatibility while differentiating with superior features and performance

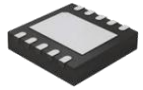
Industry highest Power 4x4 ***Industry Lowest Resistance 5x5***

SIP32435/6/7, 8 A, QFN10	SIC32305/6, 30 A, QFN28	SIC32303/9/11E/12E, 60 A, MLP32
2.8 V to 22 V operating V_{IN} *9.2 mΩ, 8 A* • *NAC* • *OCP Bay* • *PCIe* • *m.2*	*4.5 V to 16 V operating V_{IN}* *1.2 mΩ, 30 A* • *Servo power rail* • *Memory module* • *Cooling system* • *Data storage*	*4.5 V to 16 V operating V_{IN}* *0.6 mΩ, 60A Parallelable* • *Main power rails* • *High power PCIe* • *Cooling* • *GPU board*
		
2 mm x 2 mm	**4 mm x 4 mm**	**5 mm x 5 mm**
8 A	**30 A**	**60 A**

Vishay eFuse and Load Switch Applications

- Broad operation voltage range that fits common 3.3 V, 5 V, 12 V, and 20 V applications
- Comprehensive protections include inrush control, hot swap, overvoltage, undervoltage, overcurrent, short circuit, reverse current, and overtemperature
- Compact packages and design solutions
- Enhanced reliability


SIP32437x

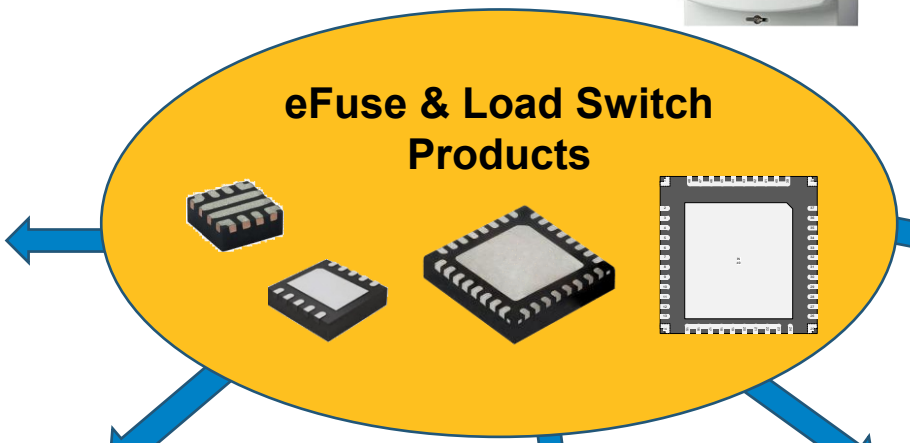

SIP32433x series


SIP3246x series


SIP32431/2


Smart Meter

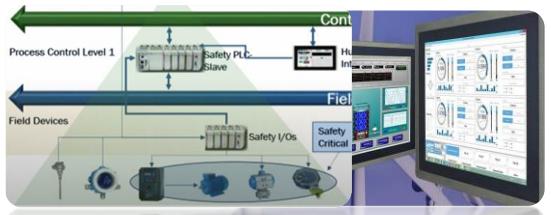

eBook Consumer



Telecom

Instrumentation Medical

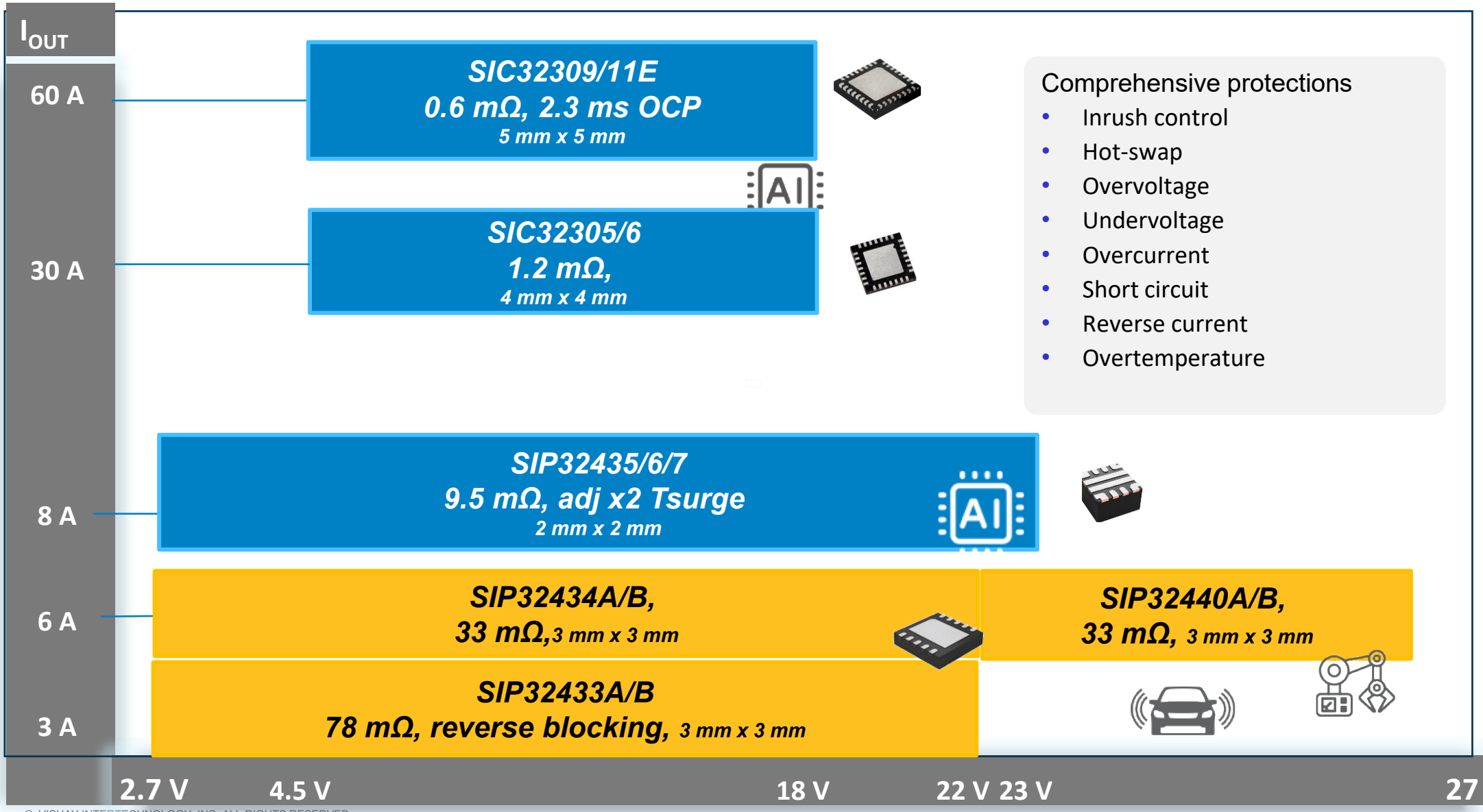
IPC, IoT, Industrial 4.0, Control and Automation, Sensor



Robotics, Gaming

Smart Home Security

Vishay eFuse Portfolio



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Design in eFuses

Where to Hunt

- Segments:
  - Servers / computing
  - Industrial
  - Medical
  - Automotive
- Applications:
  - Main power hot swap
  - PCIe, OCP, NAC, Riser
  - Memory, cooling
- Competition:
  - TI
  - MPS
  - ST

How to Engage

- What protected switch required?
  - Voltage and current level.
  - Package requirement
  - Resistance need
  - Output capacitance
- What protection and features?
  - Parallel operation
  - OCP, OVP, OTP, reverse current, heavy cap load inrush control
  - Reporting and precsion requirements

How to Win

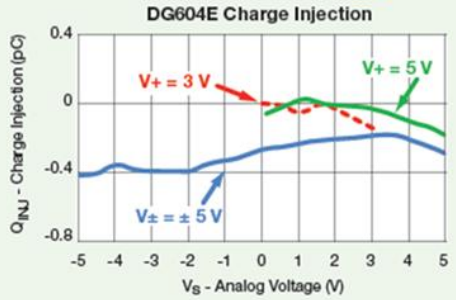
- Parts for 3.3V to 27V operations, current up to 60A
- Lowest resistance and higher power density solutions
- Exceptional start up and dynamic current capability
- Higher power path inductance tolerance
- Precision reporting and swift fault response
- Industry common footprint

ANALOG SWITCHES AND MULTIPLEXERS IN A NUTSHELL

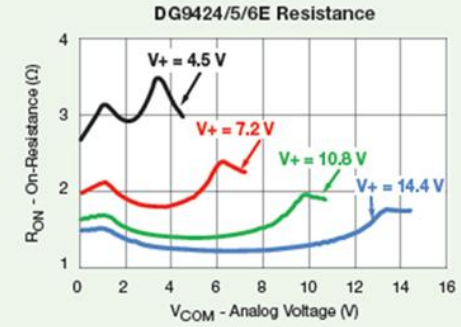
± 3 V TO ± 15 V, 1.8 V TO 24 V ENHANCED PRECISION SERIES

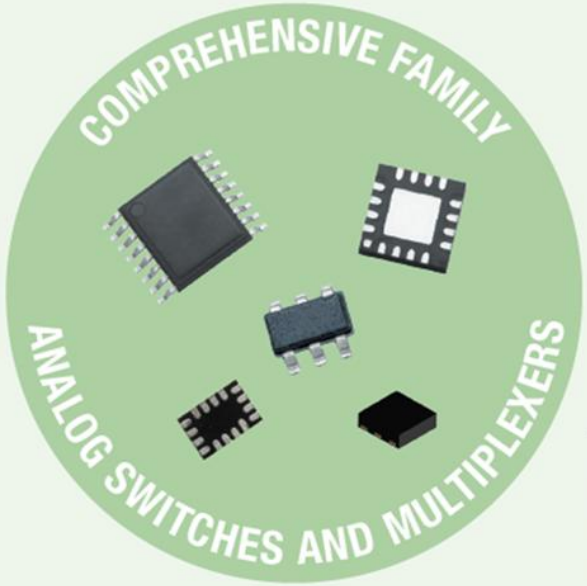
From **ultra low charge** injection to **ultra low resistance**, Vishay's **Enhanced Series** analog switch has your **precision designs** covered

Ultra low charge injection
higher accuracy and faster speed



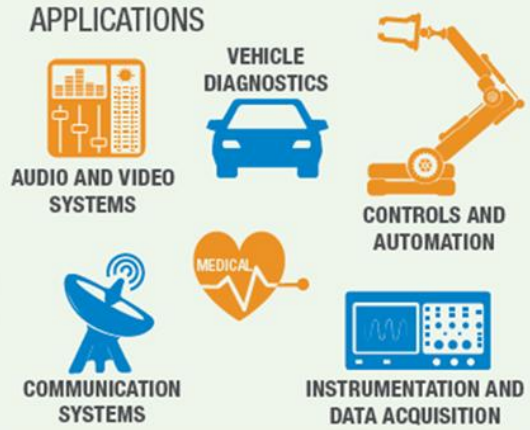
Low resistance → Low insertion loss



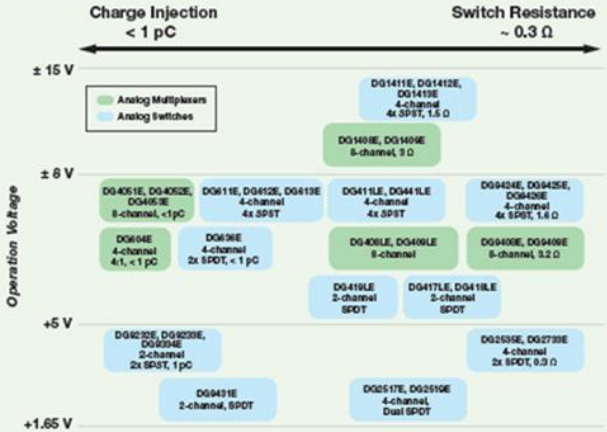


- **Rugged** reliability
- Power down **protection**
- **High** ESD and latch up levels

APPLICATIONS



INDUSTRY'S BROADEST VOLTAGE RANGE AND CHOICE OF CONFIGURATIONS



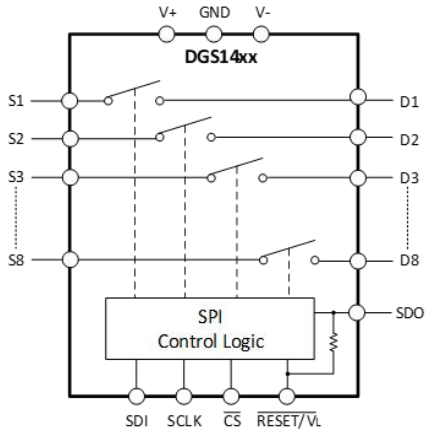
For Technical Questions: analogswitchtechsupport@vishay.com

VMN-MS7432-1709

www.vishay.com

New Product

DGS1414, 1.5Ω, Octal SPST with SPI Interface



Pin-to-Pin with ADGS1414

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IC Design Resources and Selling Tools

microBUCK® /microBRICK ® and eFuses

Accelerate Time to Market

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microBUCK® microBRICK®

Presentations

- Sales Presentation

microBUCK-microBRICK SALES slides.pdf

- FAE Presentation

microBUCK-microBRICK FAE slides.pdf

Collateral

- Selector Guide

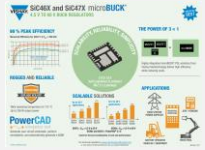
Sustainability Guide

- Video
- Cross Reference and Competition Spec Comparison

Infographs

- SIC43X
- SIC45X

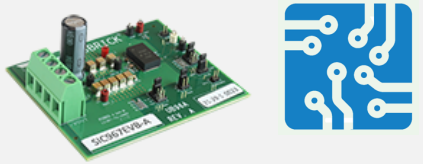
- SIC46X and SIC47X



- SIC931
- SIC951
- SIC967

Design Tools

- Evaluation Boards



- Simulation Tool

PowerCAD simulation tool

- GUI Interface

eFuses

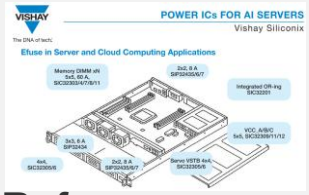
Presentations

- Sales Presentation
- FAE Presentation

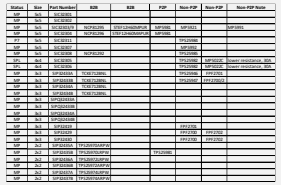
Collateral

- Selector Guide

- AI Servers Guide

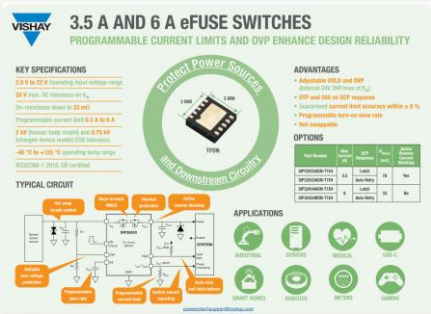


- Cross Reference



Infographics

- SIP32433/4



Design Tools

- Evaluation Boards

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