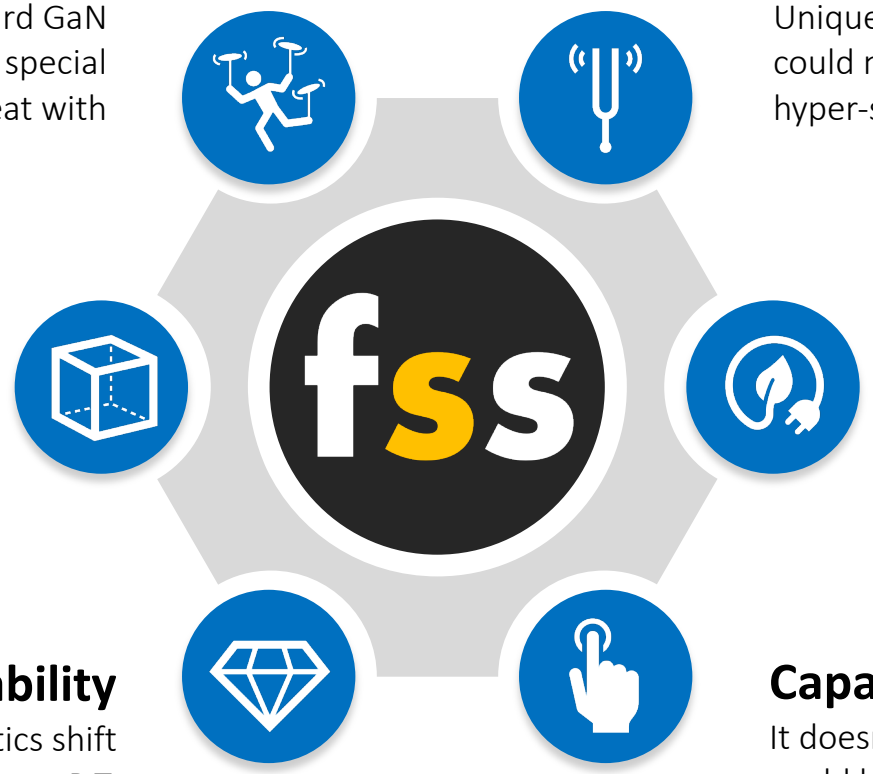
The Reason Why FastSiC is a Best Solution

All-rounder

Compact from Si toward GaN solutions, it doesn't need special peripheral components to treat with

EMI mitigation

Unique Silent-Switch technology could mitigate the EMI issue under hyper-speed switching



Compact design

Carrying more current–
FSS shrink 87% of chip size from Gen-6 SJ Si, 75% from Gen-7 SJ Si, and 40% from GaN HEMT

High efficiency & ruggedness

>5X of avalanche durability compared to Si device
High efficiency Wide band-gap material

High thermal conductivity & durability

Operate under 175°C with little characteristics shift
*$R_{DS(on)}$ of GaN & Si could increase over 2X from R.T.
3X of thermal conductivity compared to Si device

Capable for direct-driving

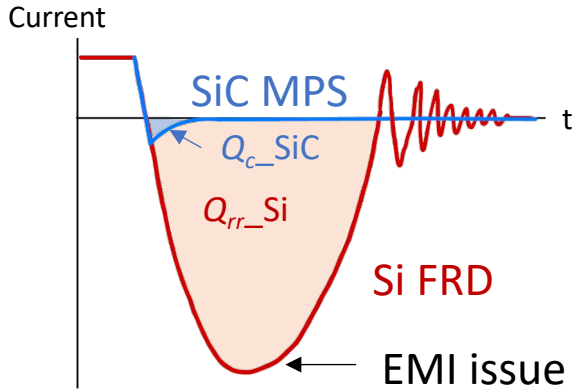
It doesn't need any additional gate drivers, it could be direct driven by conventional PWM ICs

+ Quasi thermal-independent body diode Q_{rr} behavior

fastSiC

SiC MPS Schottky Diodes

- FSS provides two series of SiC MPS diode for various applications:
  - **Cheetah Series**
    - Low Q_c, V_F=1.45, focus on high frequency applications, best-in-class Q_c*V_F
  - **Husky Series**
    - Low V_F, V_F=1.27, focus on high power applications, higher current durability



Forward Voltage Drop

- Husky series high power diodes can provide 15% lower V_F compared to conventional SiC counterparts

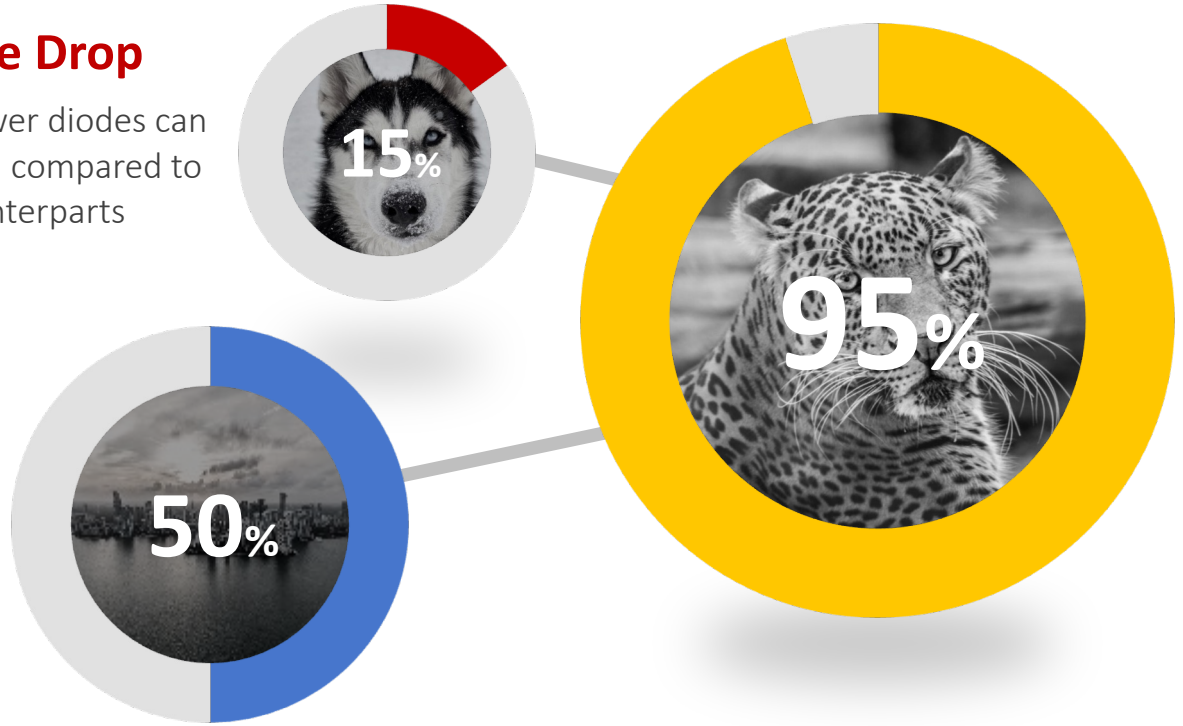


Figure of Merit (V_F*Q_c)

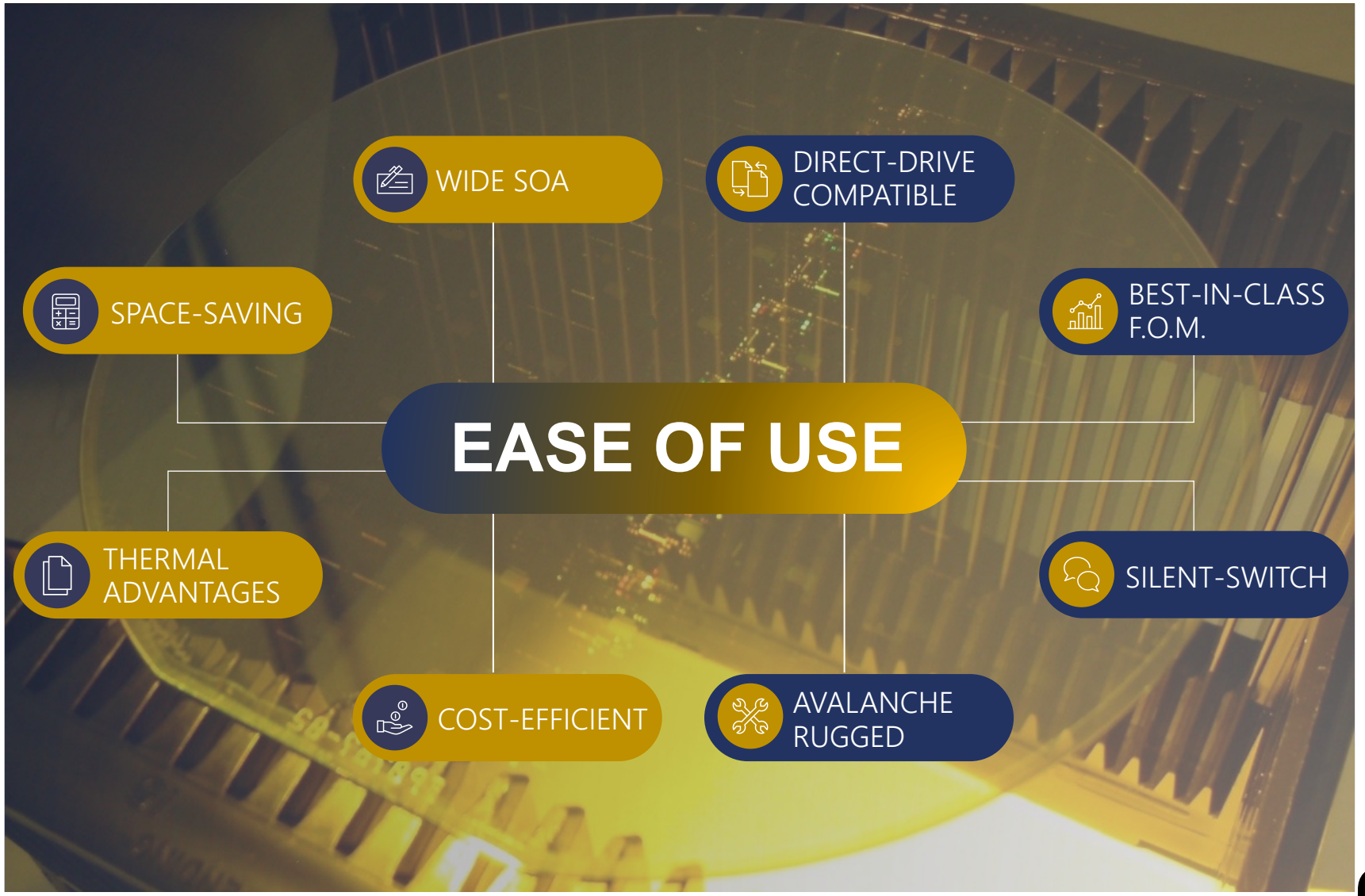
- Cheetah series high speed diodes can provide 50% better F.O.M. compared to the conventional SiC counterparts

Reverse Recovery Behavior

- Cheetah series high speed diodes can eliminate over 95% of total reverse recovery charge (Q_{total} =Q_c+Q_{rr}) from the 650V silicon FRD counterparts at 150°C of T_j

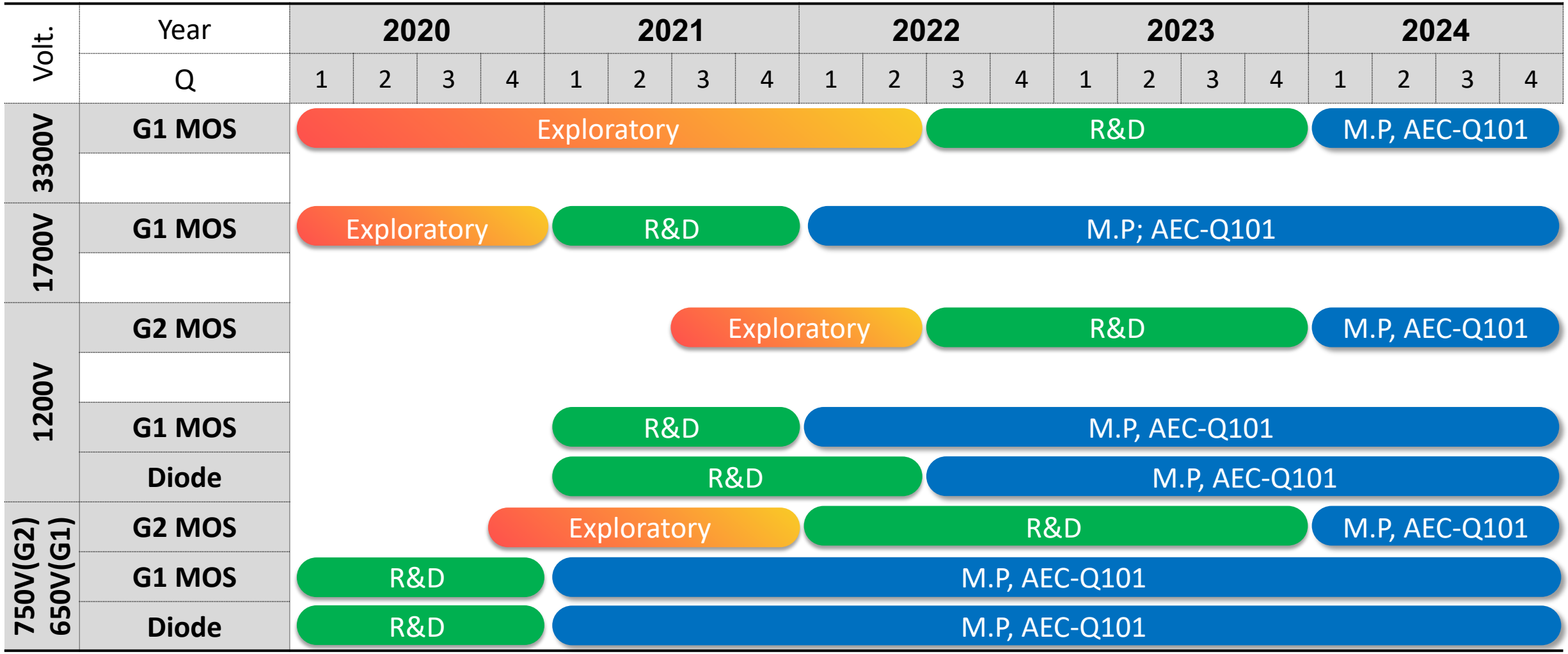
fastSiC

Quick Facts of FSS SiC MOSFET: Focus on “Ease of Use”

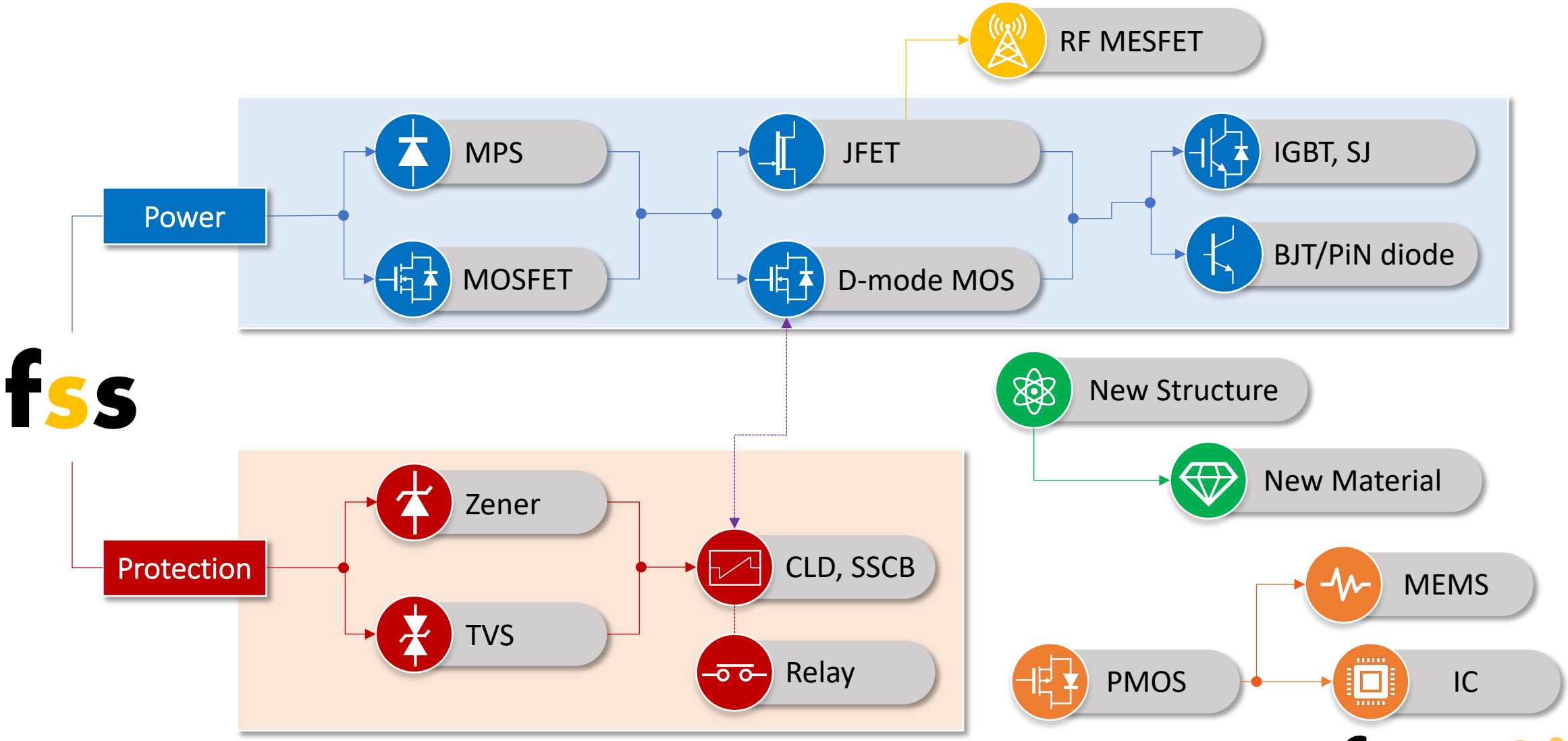


fastSiC

Fast SiC Semiconductor Inc. – Technology Roadmap



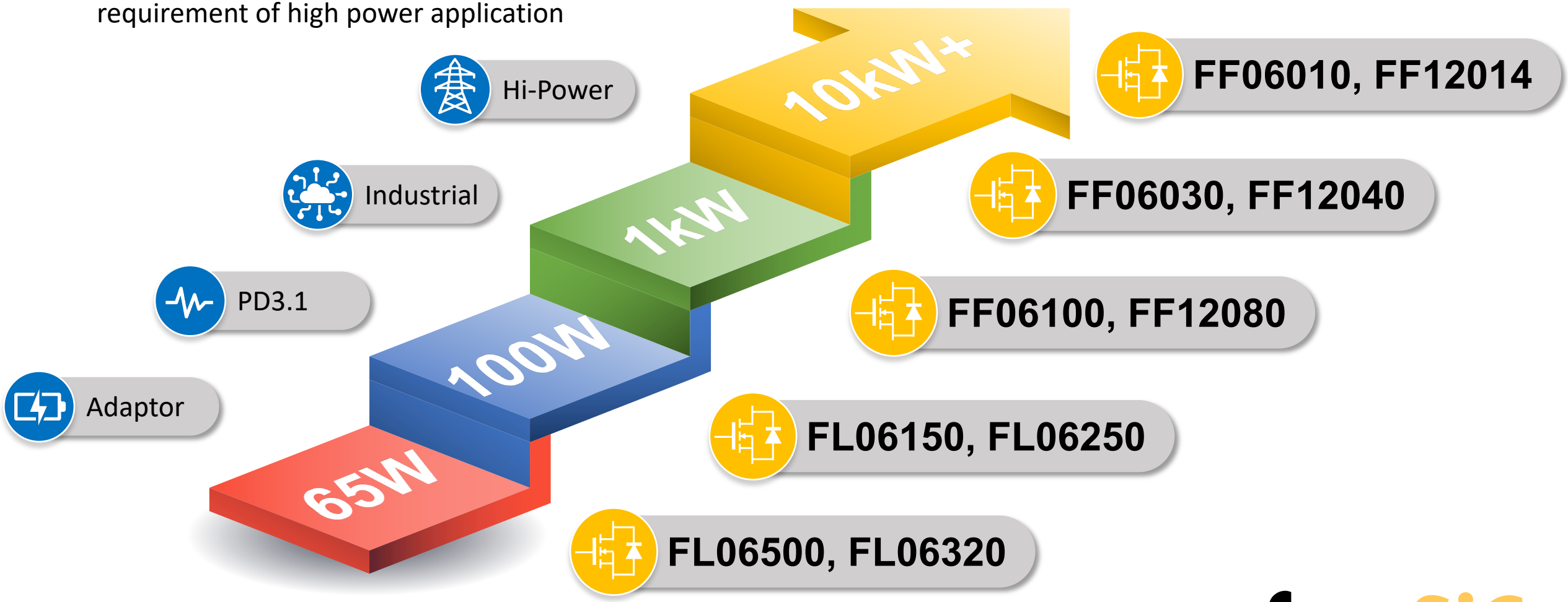
Fast SiC Semiconductor Inc. – Technology Roadmap (Long-term)



fastSiC

Falcon Series – Designing for High Density Power

- Fast SiC Semiconductor has launched a series of SiC MOSFET and MPS devices to fulfill the requirement of high power application



fastSiC

Product Portfolio

650V – 750V

FL series: Design for consumer applications
FF series: Design For industrial & automotive

900V – 1200V

Maximize the efficiency and minimize the form-factor of industrial & automotive systems

1700V –

Break the barrier of high-voltage applications

10mΩ – 40mΩ

Suitable for >10kW power systems
Bare dies are available for module requirement

60mΩ – 190mΩ

Suitable for kW-level power systems
Provide TOLL and multiple SMD solutions

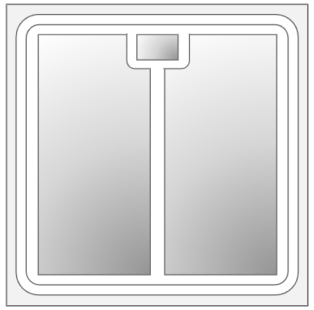
190mΩ – 3.5Ω

Suitable for <1kW power systems
Optimize for some niche applications

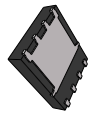
650V	10			20			30			60		100		150	250	320	500		1400
1200V	14				25			40			80			190					
1700V				22				40		66								900	3500

Package Type

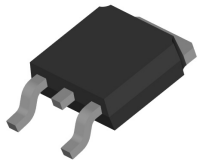
Various packaging types for different applications



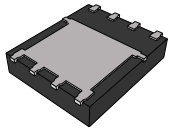
Bare Die



QFN3x3

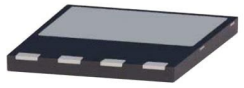


DPAK

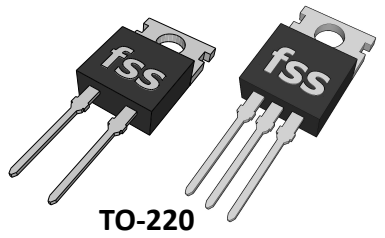


PQFN5x6

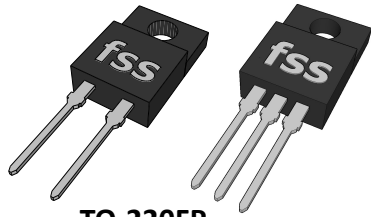
SOIC-8



PDFN8x8

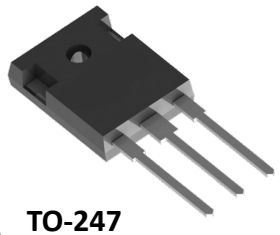


TO-220

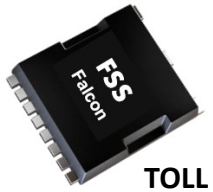


TO-220FP

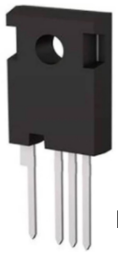
TO-247



and more…



TOLL



fastSiC

Contact us

- visit our website at https://fastsic.com
- email: sales@fastsic.com

fastSiC