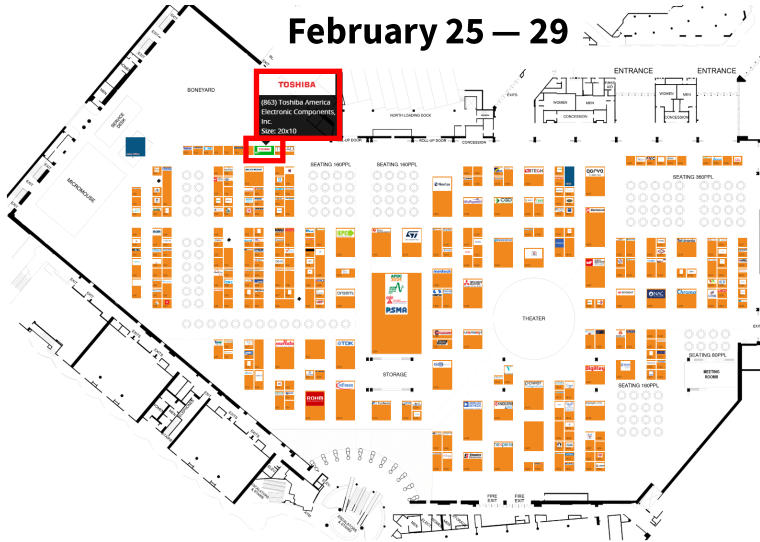


Toshiba will be at APEC 2024

Come check out what's on the horizon for power semiconductors

Find us at booth 863

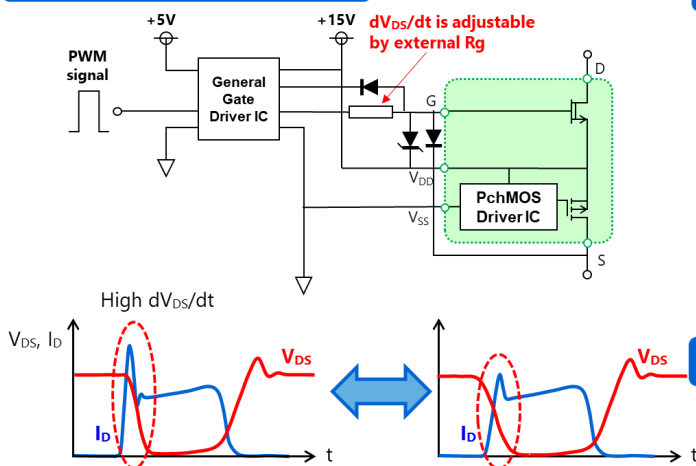
February 25 — 29



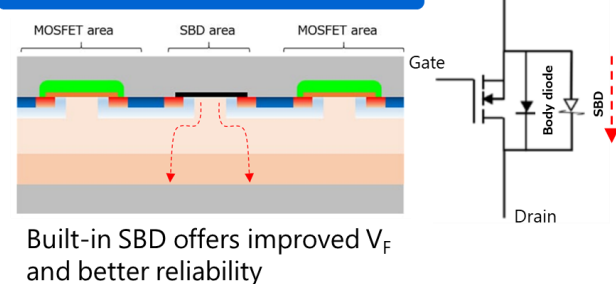
New technologies include:

- **650V Normally-On GaN**
 - 35mΩ w/ integrated Pch Drive IC
- **650V/1200V SiC MOSFETs**
 - 15 to 140mΩ w/ integrated SiC SBD
- **Low Voltage Power MOSFETs**
 - New UMOS-11-H process
- **Advanced Motor Control Solutions**
 - BLDC Motor FOC control made easy

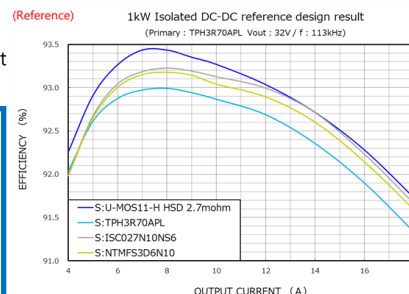
Cascode GaN w/Direct Drive



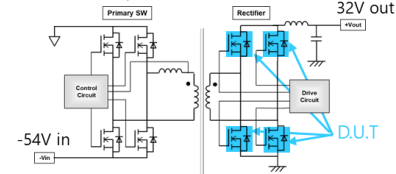
Silicon Carbide MOSFET w/ SBD



UMOS-11-H w/ High Speed Diode (HSD)



Test circuit and picture



Interested and want to learn more?

Come meet our power semiconductor experts at **booth 863**

Toshiba will be showcasing reference boards such as:

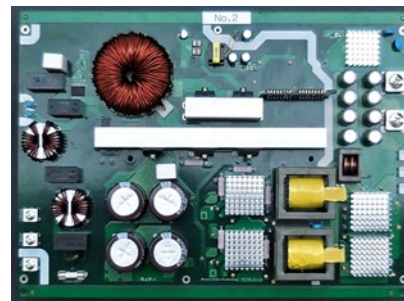
3-Phase Inverter Using SiC MOSFETs

- 3-phase AC 340 to 440 V, 15 A
- [Link to reference design](#)



ITTF 1.1kW AC-DC converter

- 1.1kW, Totem pole PFC+ITTF DC-DC



GaN Totem pole PFC for server power supply

- 2.5kW, 230V_{in}, 385V_{out}



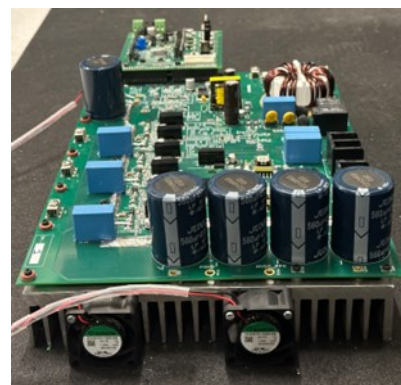
HVAC ODU 3-in-1 reference using single MCU (RD219)

- 220AC to 330V_{dc}, PFC + ~10A compressor inverter + 2A fan inverter



60kBTU ODU 3-in-1 reference using Single MCU

- 220AC to 330V, up to 25A Interleaved PFC, 16A compressor Inverter, 2A Fan inverter



Toshiba will be also showcasing Ceramics and Magnetics

Examples of where Toshiba Ceramics have been used:

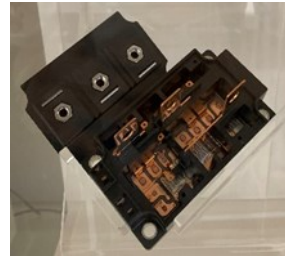
Power control unit (PCU)

- Electric control parts for HEV motors where TMAT SiN plane substrates are used.



Power module

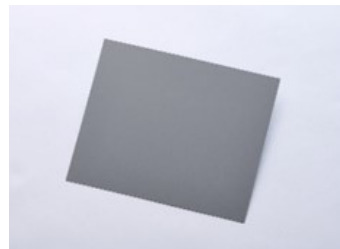
- Power modules where TMAT SiN AMC substrates are used.



Ceramics and Magnetics:

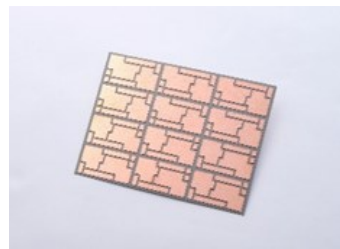
SiN-Plane substrate

- Silicon Nitride ceramic substrates have great heat dissipation and strength



SiN-AMC substrate

- Insulated circuit board with a copper circuit formed by Active Metal Brazing



AMOBEDs

- Noise inhibiting devices with high magnetic permeability.

