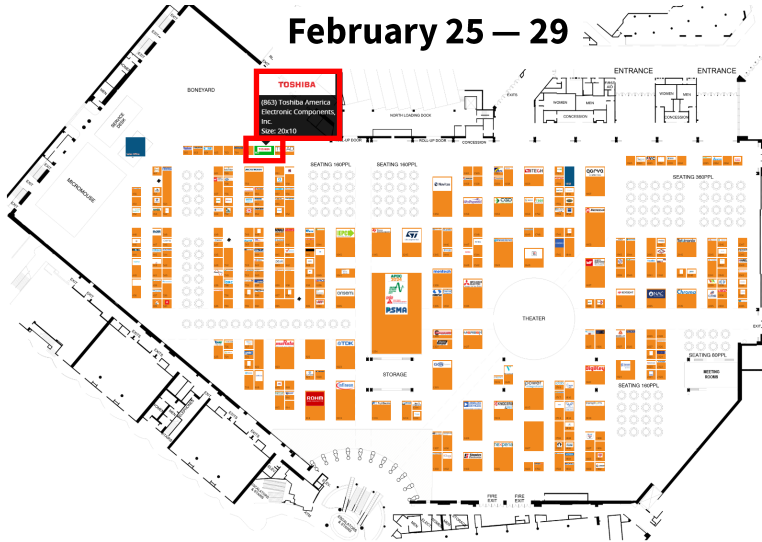


# Toshiba will be at APEC 2024

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

**Find us at booth 863**

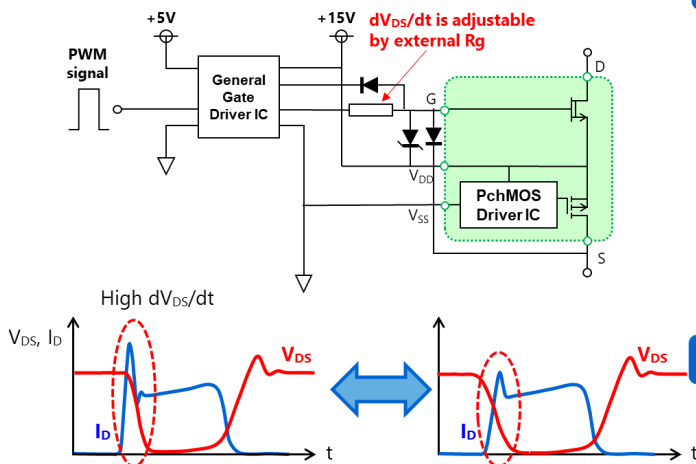
February 25 — 29



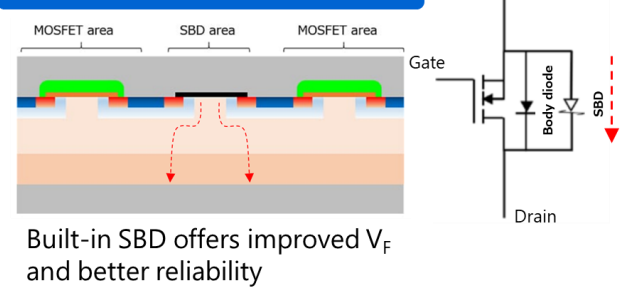
## New technologies include:

- **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

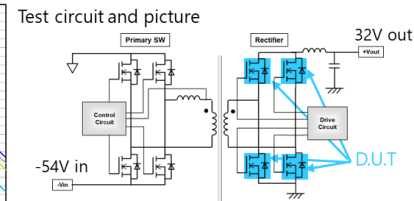
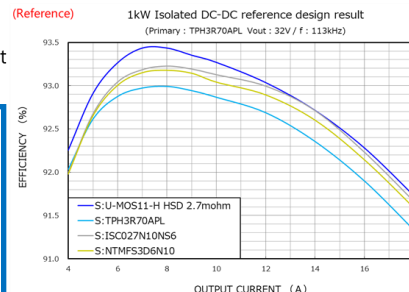
### Cascode GaN w/Direct Drive



### Silicon Carbide MOSFET w/ SBD



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



**Interested and want to learn more?**

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

## Toshiba will be showcasing reference boards such as:

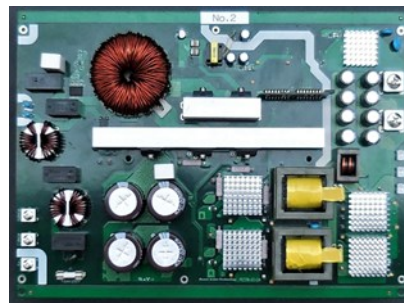
### 3-Phase Inverter Using SiC MOSFETs

- 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<sub>in</sub>, 385V<sub>out</sub>



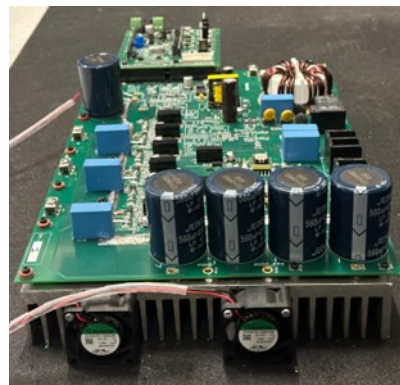
### HVAC ODU 3-in-1 reference using single MCU (RD219)

- 220AC to 330V<sub>dc</sub>, 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:

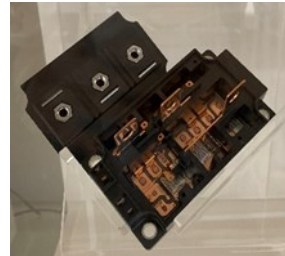
#### Power control unit (PCU)

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



#### Power module

- Power modules where TMAT SiN AMC substrates are used.

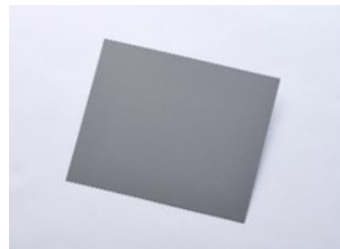


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### Ceramics and Magnetics:

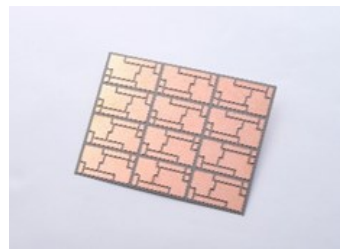
#### SiN-Plane substrate

- 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.

