

Compact, Single-Sided High Heat Dissipation  
Molded Power Modules for Traction Inverter Drive

# TRCDRIVE pack™

[TRC(ti: ar sí): DRIVE(dráiv) pack(páek)]

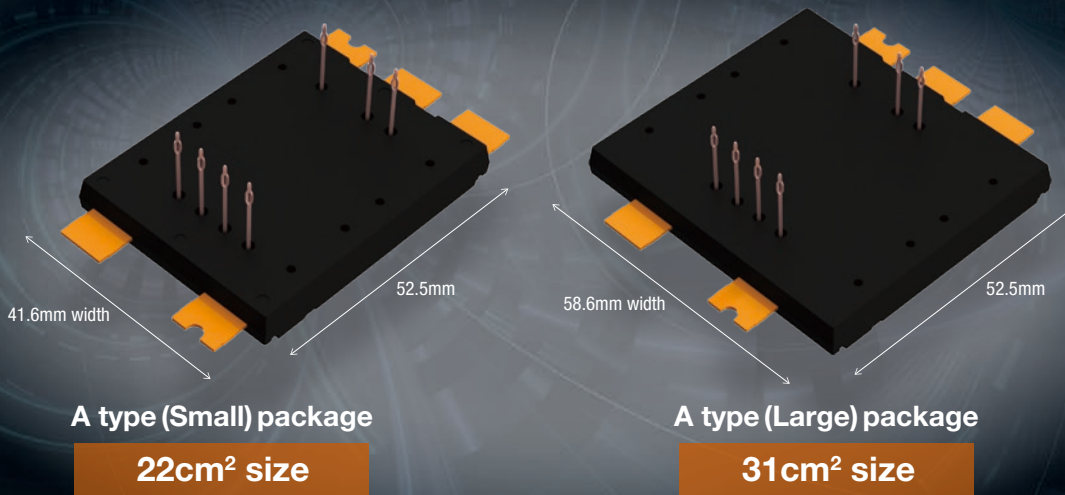
**Achieves ultra-high current density**  
(compact + Capable of high current)

Low inductance and switching loss

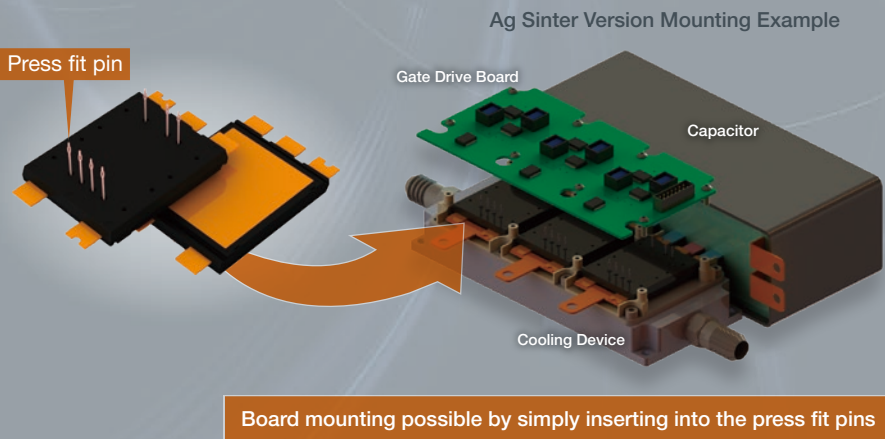
Equipped with Low ON resistance 4th Gen SiC MOSFETs

**Compact easy-to-mount**  
**single-sided high heat dissipation molded package**

Adopts a top-side press fit pin structure



## Advantages of single-sided high heat dissipation package with top-side press fit pins



- 1 Connects to the gate drive board via the shortest route
- 2 Top-side press fit pins facilitate mounting
- 3 Contributes to smaller inverter size
- 4 High heat dissipation design provides the same performance as double-sided heat dissipation modules

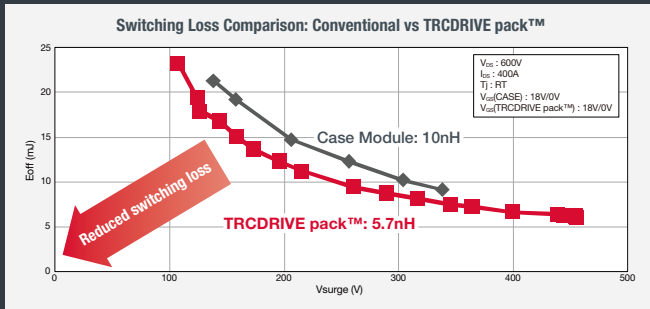
Board mounting possible by simply inserting into the press fit pins

**TRCDRIVE pack™ is a compact, single-sided heat dissipation high current density molded module developed for traction inverter drives using ROHM's proprietary module technology**

## TRCDRIVE pack™ Features

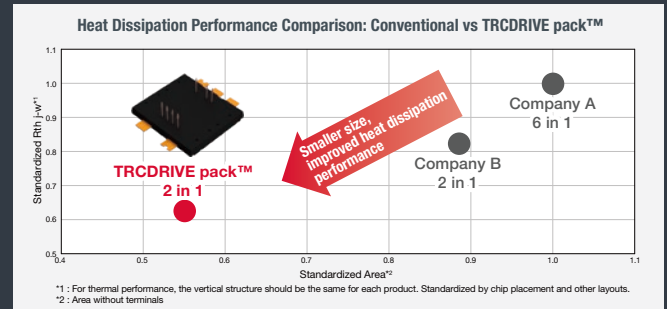
### Low inductance enables high current density

TRCDRIVE pack™ reduces switching losses by optimizing the internal layout to achieve an extremely small inductance of 5.7nH. Incorporating low ON resistance 4th Generation SiC MOSFETs results in an industry-leading current density of 19.1Arms/cm<sup>2</sup> (BST780D12P4A163), with an output current greater than 600Arms for both 750V rated (e.g. BST740D08P4A154) and 1200V rated (e.g. BST780D12P4A163) models.



### Compact single-sided heat dissipation molded package

TRCDRIVE pack™ delivers equivalent heat dissipation performance to that of competitor's products in a smaller single-sided heat dissipation design through a proprietary molded module structure. The 12-model lineup features top-side press fit pins in different package sizes (small/large) and mounting patterns (TIM : heat dissipation sheet, Ag sinter) to support quick adoption in a wider range of applications.



### Two evaluation kits enable immediate evaluation

ROHM offers two types of evaluation kits (EVKs) for double-pulse and 3-Phase Full Bridge. We support customer evaluations with a wide range of solutions, including simulations and thermal designs. For details, please contact a sales representative.

#### TRCDRIVE pack™ Evaluation kits (EVKs) with 4th Gen SiC MOSFETs

##### EVK for Double-pulse Test

- Features**
- Pre-connected screw-fastened external terminals eliminates the need for additional terminal welding
  - No dedicated capacitors are required, enabling evaluation in standard various environments

**Specifications**

Gate Driver Board Supply: 24V Typ  
Switching Frequency: up to 20kHz  
Working Voltage: Depends on the withstand voltage of the capacitor/device

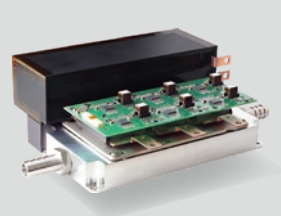


##### EVK for 3-Phase Full Bridge

- Features**
- Pre-welded screw-fastened external terminals eliminates the need for additional terminal welding
  - Dedicated pre-welded capacitors (low Ls)
  - Built-in cooling system

**Specifications**

Gate Driver Board Supply: 24V Typ  
Switching Frequency: up to 20kHz  
Working Voltage: up to 900V



## TRCDRIVE pack™ Lineup

Part No.	Absolute Maximum Ratings(Tj=25°C)				Tj [°C]	Heat Sink Assembly	Module Type	Built-in MOSFET	Topology	AQG 324 Qualified				
	V <sub>DSS</sub> [V]	R <sub>DS(on)</sub> [mΩ]	DC Current [A]*1	AC Current [A]*2										
<b>New</b> BST500D08P4A104	750	2.0	506	417	-40 to +175	TIM: heat dissipation sheet	Small	4th Gen. SiC MOSFET	Half bridge	Yes				
☆ BST500D08P4A114											429			
<b>New</b> BST400D12P4A101	1,200	2.8	394	326		TIM: heat dissipation sheet	Small		A type (Small)		8	2		
☆ BST400D12P4A111													336	
<b>New</b> BST740D08P4A154	750	1.4	738	634		TIM: heat dissipation sheet	Large		A type (Large)		9	4.5		
☆ BST1040D08P4A156													1,039	736
☆ BST740D08P4A164													738	659
☆ BST1040D08P4A166													1,039	771
<b>New</b> BST580D12P4A151	1,200	1.9	575	475		TIM: heat dissipation sheet	Large		A type (Large)		10	1.3		
☆ BST780D12P4A153													778	571
☆ BST580D12P4A161													575	494
☆ BST780D12P4A163													778	593

\*1 Tj=60°C, V<sub>GS</sub>=18V

\*2 Tj=65°C, V<sub>DC</sub>=800V/500V, f<sub>sw</sub>=10kHz, Modulation=0.9, Power factor=0.9

☆: Under Development

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