

FOR ENERGY EFFICIENT INNOVATIONS

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## VE-Trac™ Dual Power Modules

NVH800A75L4DSC/B

Public Information



# VE-Trac™ (Vehicle Electrification for Traction) Product Family

- Versatile & innovative solutions to power vehicle electrification into the future
- Uncompromised cost, quality & performance

**VE-Trac™  
Dual**



**VE-Trac™  
Direct**



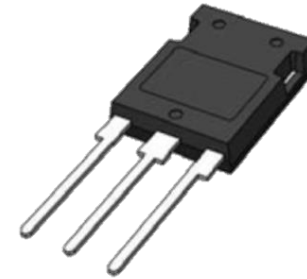
**VE-Trac™  
Chip**



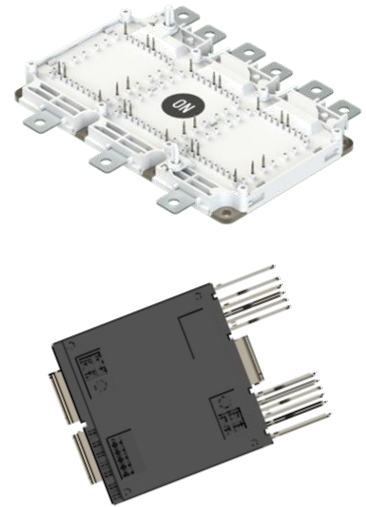
**VE-Trac™  
Driver**



**VE-Trac™  
Discrete**



**VE-Trac™  
SiC**



# VE-Trac™ Dual

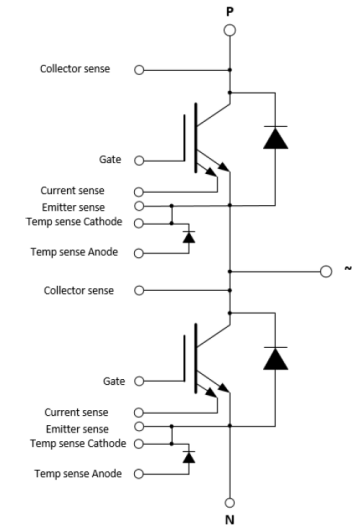
## Features

- Half Bridge Dual-Side Cooling
- Ultra-Low Stray Inductance 6.5nH
- $T_{j\_max} = 175^{\circ}\text{C}$  continuous operation
- Low  $V_{CESAT}$  and Switching losses
- AQG324 Qualified FS4 750V Narrow Mesa IGBT
- Smart On Chip Current and Temperature Sensor
- Wirebond-Free Structure

## Benefits

- Scalable, Modular, and Compact
- Lower Energy Losses
- Higher Inverter Peak Output Power
- Improved Inverter Efficiency
- Optimized for Automotive Traction Applications
- Fast Reaction Time and Better Accuracy
- Longer Power Cycle and Operation Lifetime
- Smart Features (current and Temperature sensing)

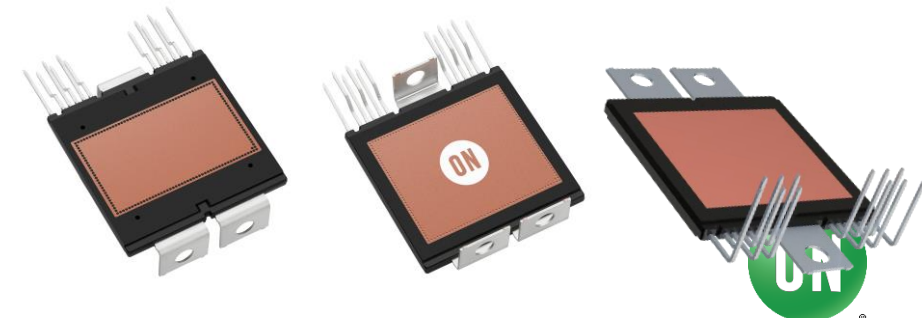
## Block Diagram



## Target Application

- Converter DC Battery Output to Power AC Traction Motors
- High Power DC-DC Converter

Package : 55mm X 55mm X 4.7mm



## 750V Line-up

Product	Voltage	Current	Configuration	Status	RTM
NVG800A75L4DSC	750V	800A	DSC Gen I	Released	Q4'19
NVG800A75L4DSB	750V	800A	DSC Gen I	Active sampling	Q2'20
NVG800A75L4DSC2	750V	800A	DSC Gen II	In development	Q4'20
NVG600A75L4DSB C2	750V	600A	DSC Gen II	In development	1H'21
NVG400A75L4DSB C2	750V	450A	DSC Gen II	In development	1H'21

## 1200V Line-up

Product	Voltage	Current	Configuration	Status	RTM
NVG400A120L2DSC	750V	800A	DSC Gen I	Active sampling	Q3'20

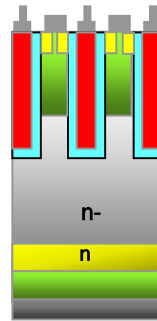
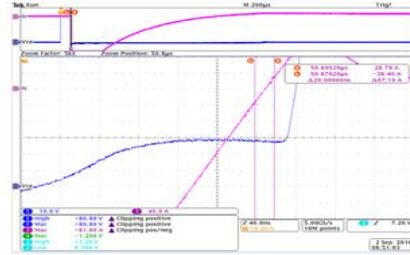
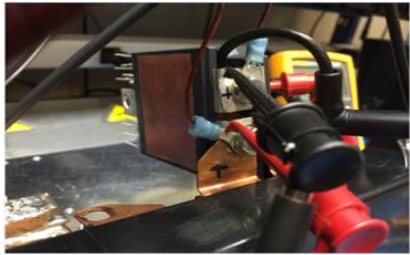


# VE-Trac™ Dual Value Proposition

## Excellent thermal & electrical

Best in class silicon in ultra low inductance package <7nH

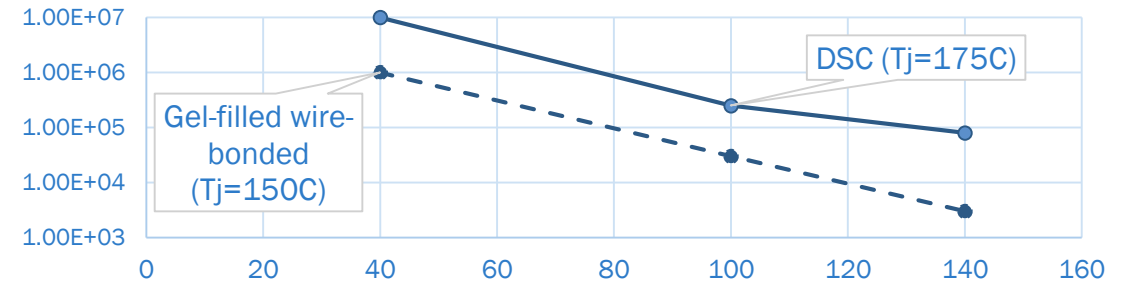
### IEC Method



collector

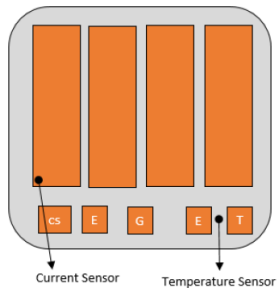
## High Lifetime – wire bond free

3x power cycling lifetime @ 175°C continuous operations

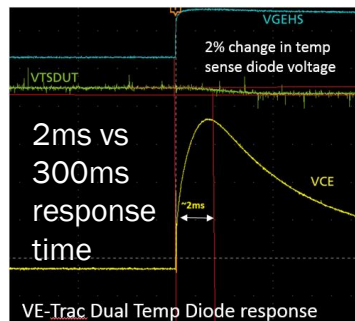


## Smart IGBT /w on-Chip Sensors

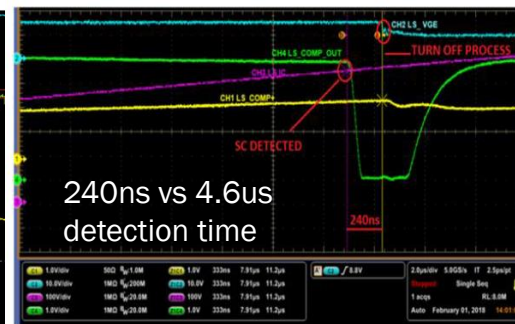
Integrated sensors on-Chip for fast & accurate diagnostics



### T-sense vs NTC

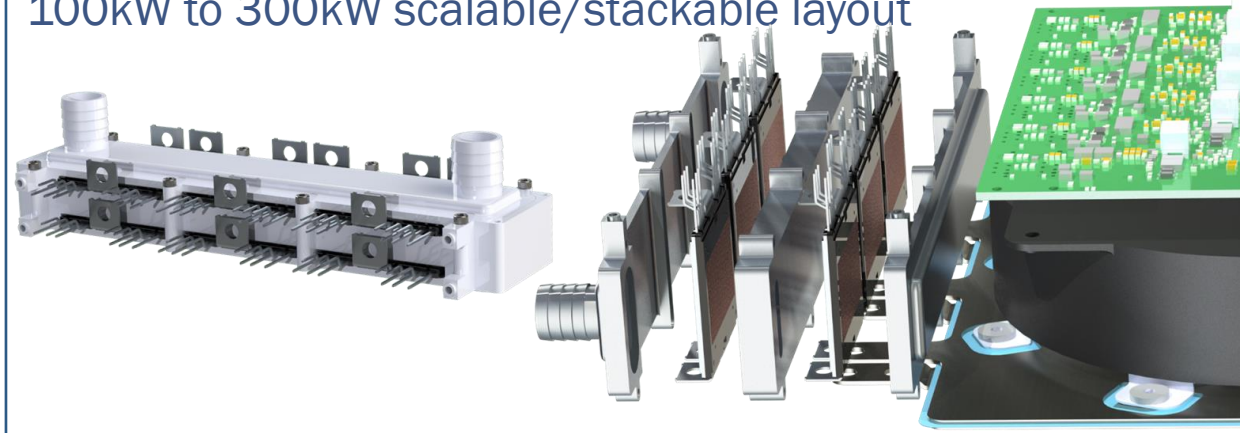


### I-sense vs DESAT



## Scalability

100kW to 300kW scalable/stackable layout



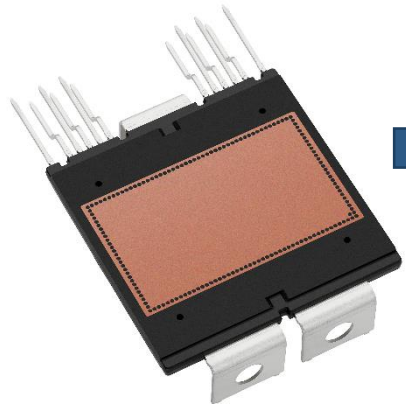
# VE-Trac™ Dual Inverter Kit

440VDC, 560Arms, up to 160kW 3-ph Inverter

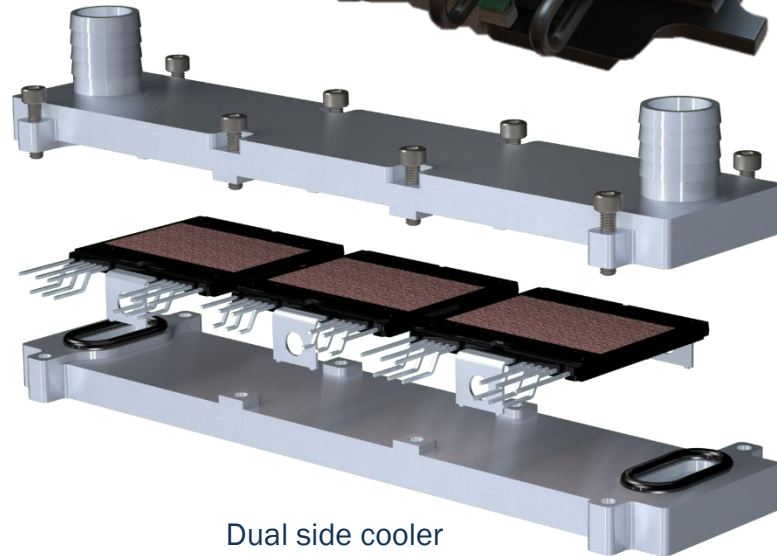
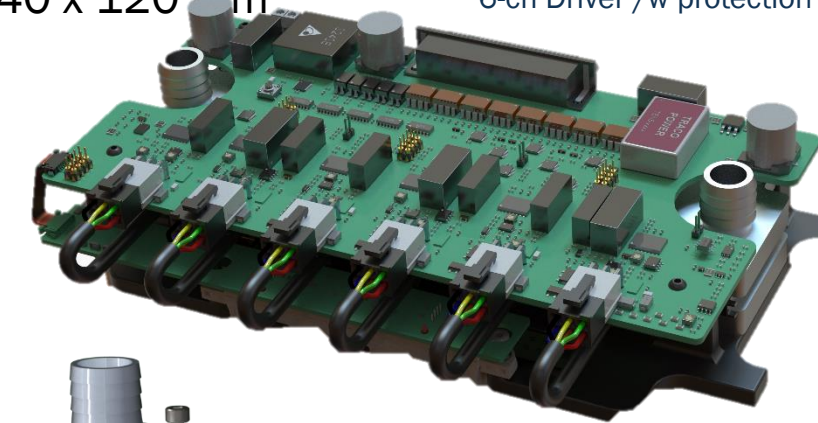
Compact size: 110 x 240 x 120 mm

6-ch Driver /w protection

2-ch Isolated Driver



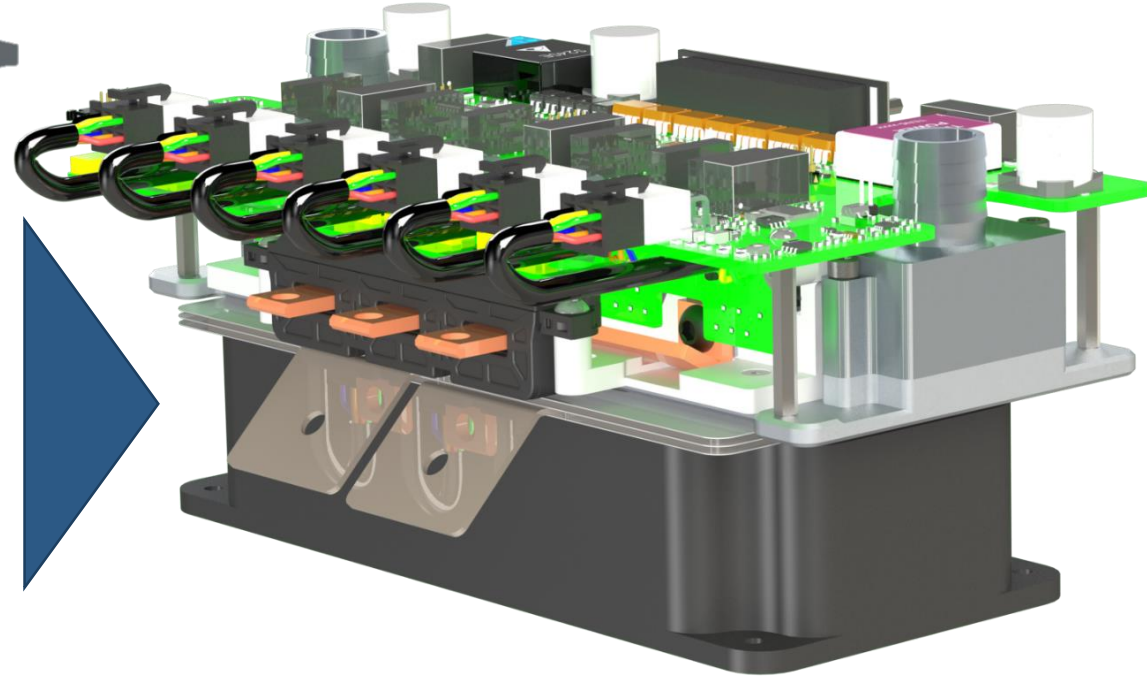
VE-Trac Dual HB Module



Dual side cooler



Design kit makes it easy to test performance

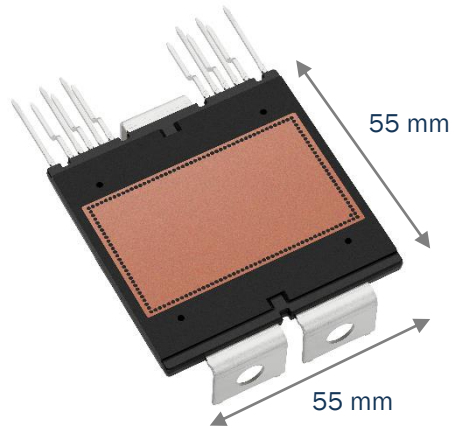


▲ Complete Inverter Kit

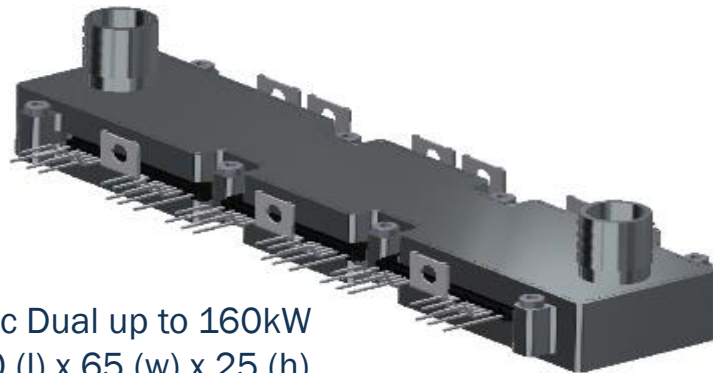


# One Power Module – Many power levels

200% Increase in Output Power  
/w only a 50% increase in volume



3x VE-Trac Dual up to 300kW  
Size: 230 (l) x 65 (w) x 39 (h)



3x VE-Trac Dual up to 160kW  
Size: 230 (l) x 65 (w) x 25 (h)

SCALABILITY

