

FOR ENERGY EFFICIENT INNOVATIONS

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VE-Trac™ Direct

Vehicle Electrification Traction Power Integrated Modules

Public Information



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

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

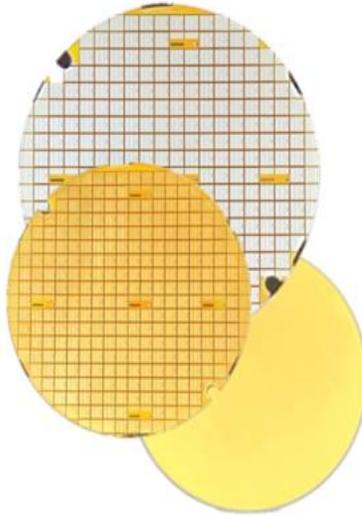
**VE-Trac™
Dual**



**VE-Trac™
Direct**



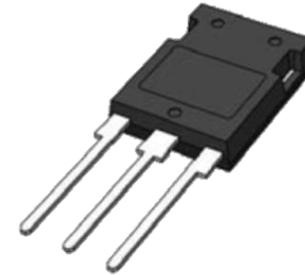
**VE-Trac™
Chip**



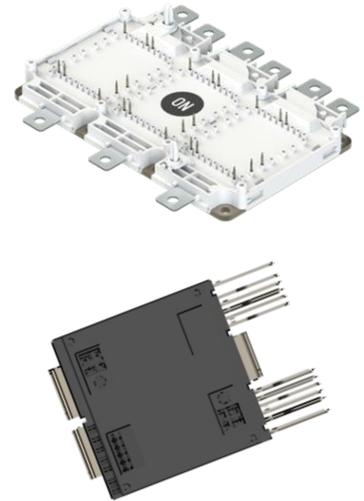
**VE-Trac™
Driver**



**VE-Trac™
Discrete**



**VE-Trac™
SiC**



VE-Trac™ Direct

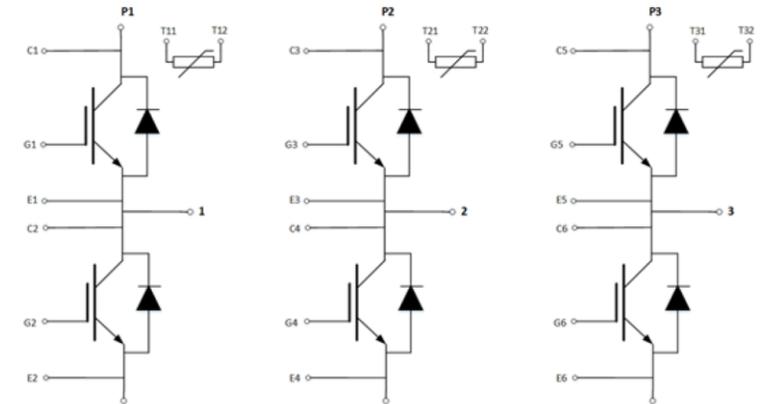
Features

- Direct Cooling with Integrated Pin-Fin Heatsink
- Ultra-low Stray Inductance of 8nH
- $T_{jmax} = 175^{\circ}\text{C}$ continuous operation
- Low V_{CESAT} and Switching losses
- AQG324 Qualified FS4 750V Narrow Mesa IGBT
- Highly Integrated 6-pack Topology

Benefits

- Low System Cost
- Lower Energy Losses
- Higher Inverter Peak Output Power
- Improved Inverter Efficiency
- Optimized for Automotive Traction Applications
- Easy Design and Integration

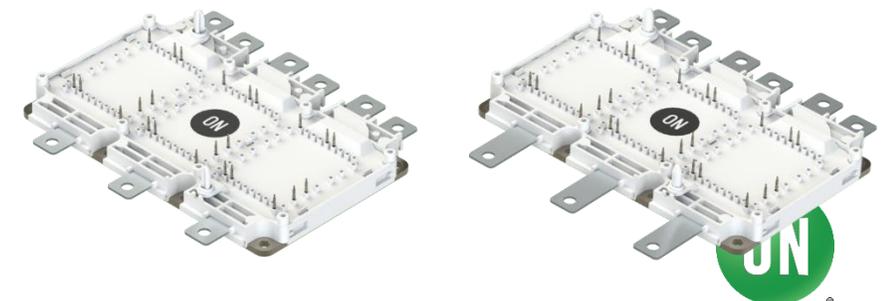
Block Diagram



Target Application

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

Package : 155mm X 100mm X 32mm



750V Line-up

Product	Voltage	Current	Configuration	Status	RTM
NVH820S75L4SPB	750V	820A	Pin-fin short tab	Released	Q4'19
NVH820S75L4SPC	750V	800A	Pin-fin long tab	Qualified	Q1'20
NVH950S75L4SPB	750V	600A	Pin-fin, Si_3N_4 short tab	Active sampling	Q2'20
NVH600S75L4SPB C	750V	600A	Pin-fin	Active sampling	Q2'20
NVH660S75L4SPFB C	750V	660A	Flat base-plate	Active sampling	Q3'20

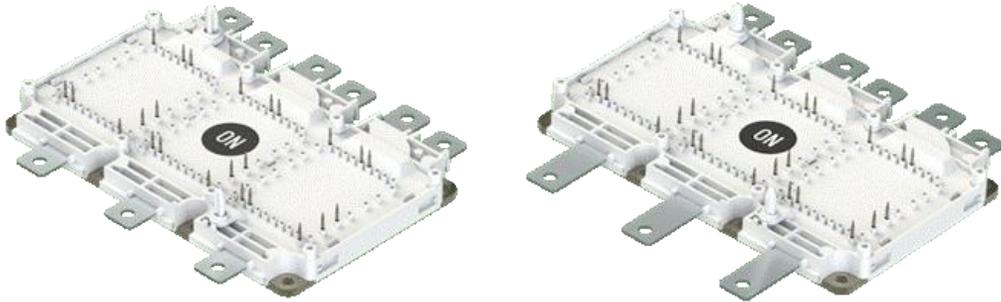
1200V Line-up

Product	Voltage	Current	Configuration	Status	RTM
NVH550S120L3SPB C	1200V	550A	Pin-fin	In development	1H'2021
NVH660S120L3SPB C	1200V	660A	Pin-fin, Si_3N_4	In development	2H'2021

VE-Trac™ Direct Value Proposition

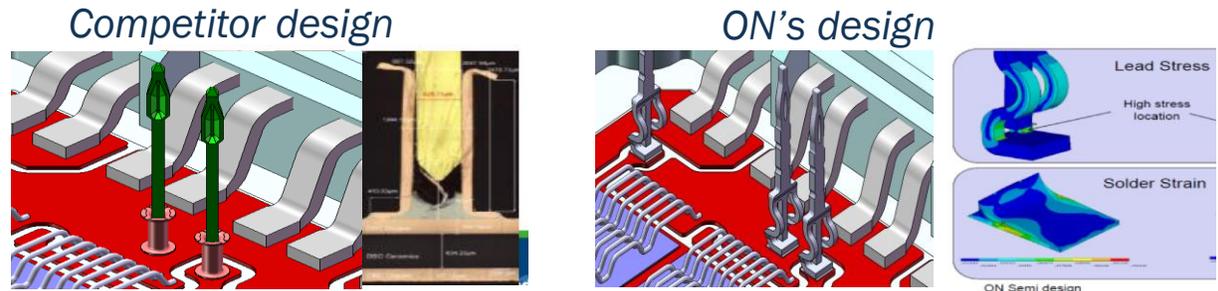
Pin & functional compatibility

Drop in replacement with minimal design adaption



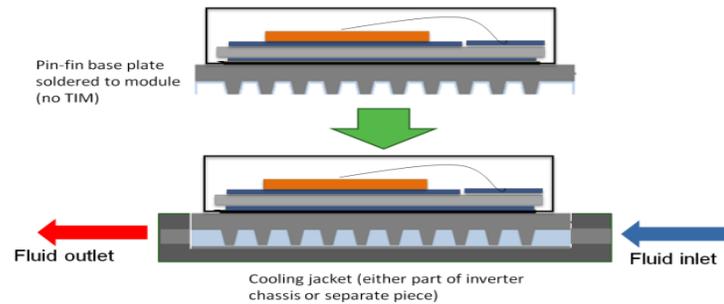
Robust Press-fit design

Innovative press fit design for accurate pin-positioning & robust contact lifetime



Advanced direct cooling

New Pin-Fin Structure improves $R_{th,j-f}$



Excellent Performance

Matches best performing competitor module

