

# TRENCHSTOP™ IGBT7

650 V Discrete

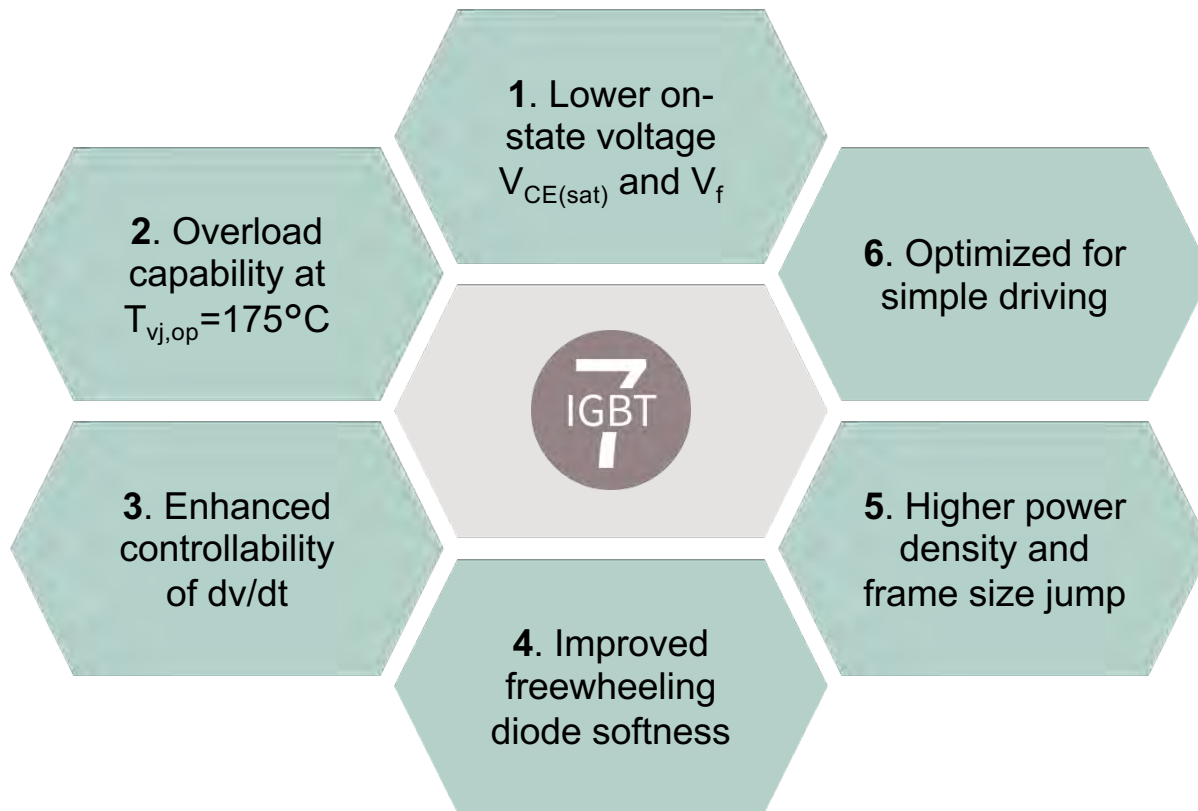
1200 V Low and Medium Power

1200 V PrimePACK™ 2 1600 A



인피니언 전력반도체 솔루션  
가상부스에 오신 걸 환영합니다!











# 650 V TRENCHSTOP™ IGBT7 T7

## Key features and benefits

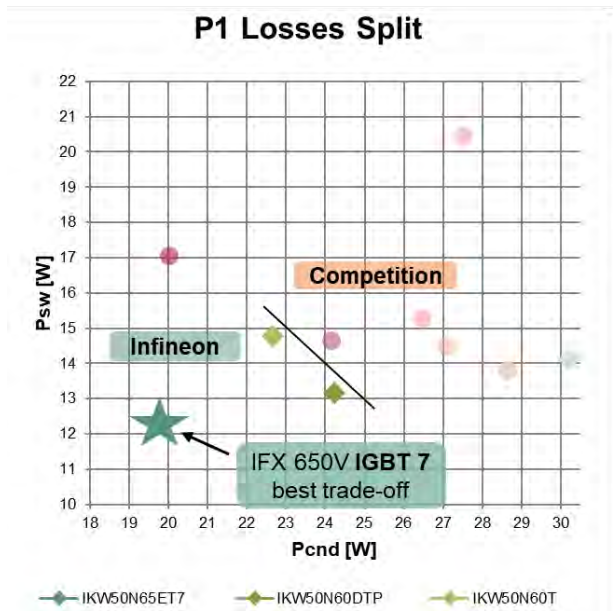
Introducing the new 650 V TRENCHSTOP™ IGBT7 discrete portfolio co-packed with soft EC7 diodes. This price-optimized portfolio has enhanced controllability for better EMI performance while switching losses have been reduced.

Key features	Key benefits	Value	Ideal for
Low Vce(sat) ≤1.35 V	<ul style="list-style-type: none"><li>› 20% lower case temp. due to lowest losses</li><li>› Best-in-class in price and performance</li><li>› Superior controllability</li><li>› Soft fully rated diode (EC7)</li><li>› Available in TO-247</li><li>› Ruggedness improvement</li><li>› 100% dynamic tested</li></ul>	Higher power density enables lower cooling requirement	<div> UPS</div> <div> Solar</div>
Improved EMI performance		Reduced system costs	<div> Motor drivers</div> <div> EV charger</div>
Improved humidity robustness		Easy to design products – drop-in replacement	<div> PFC</div> <div> Energy saving</div>
High collector emitter voltage at 650 V and 3 uS SC rating		High system reliability	

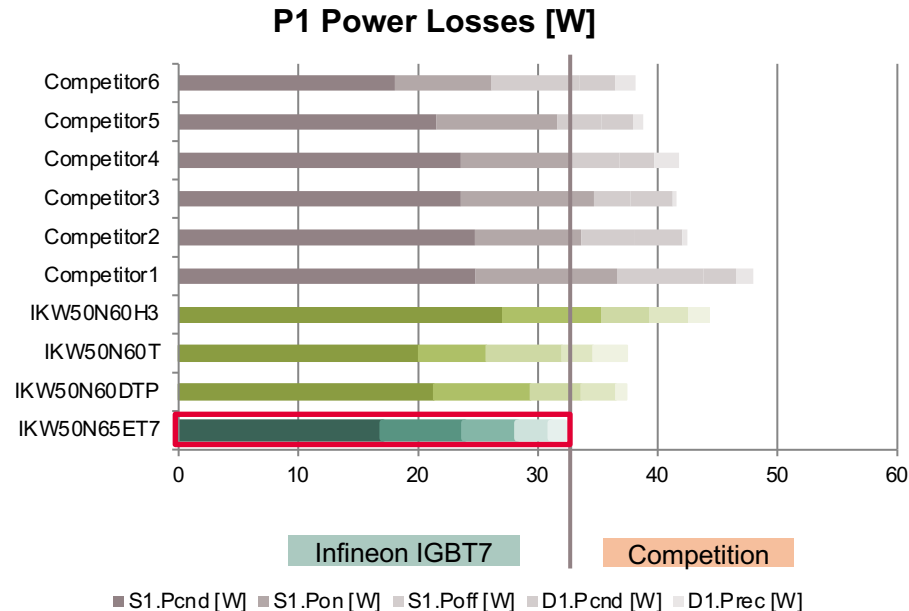
# 650 V TRENCHSTOP™ IGBT7 T7

## Motor drive inverter losses simulation

For the same  $dv/dt$ , the conduction and switching losses are lower than previous IFX technologies and competitors



The motor drive condition  
 $I_{ph}=35$  Arms (14 kW),  $V_{dc}=400$  V,  $PF=0.9$ ,  $M=0.9$  (147 Vrms),  $F_{pwm}=15$  kHz,  $V_{ph}=147$  Vrms

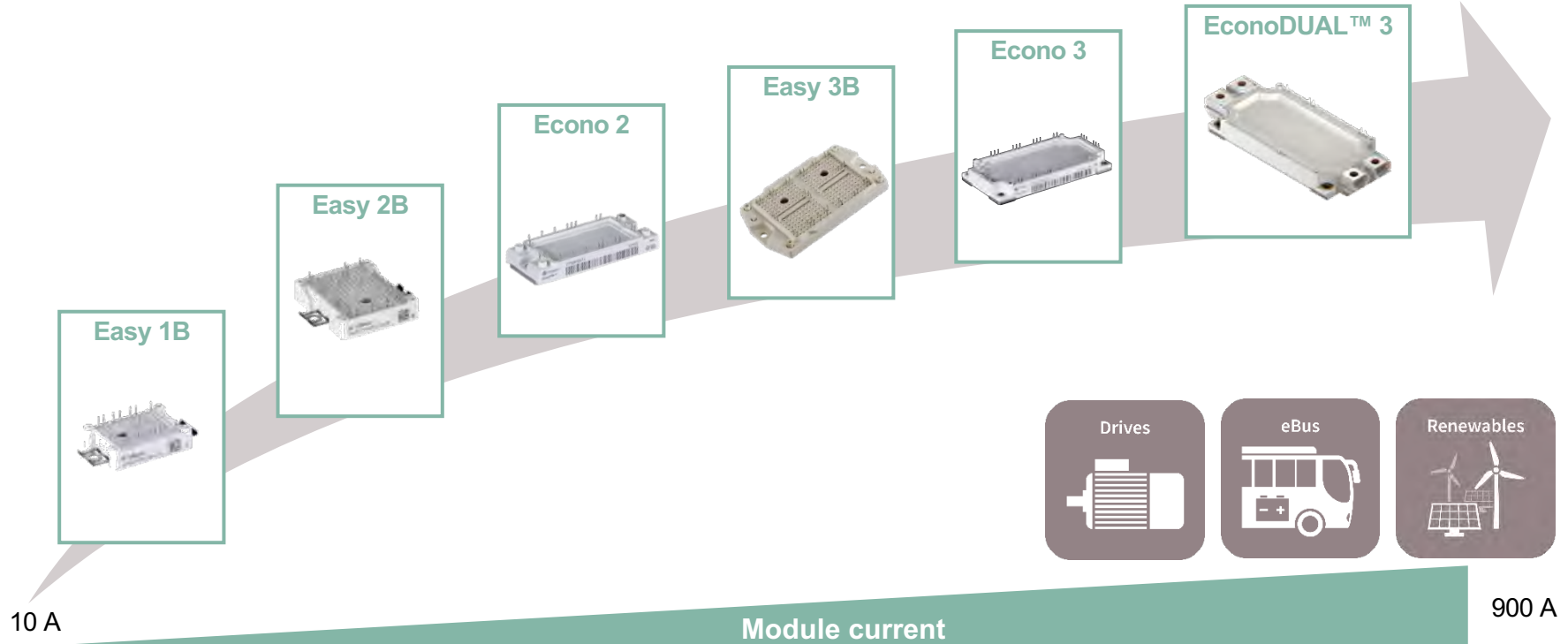


# 1200 V TRENCHSTOP™ IGBT7

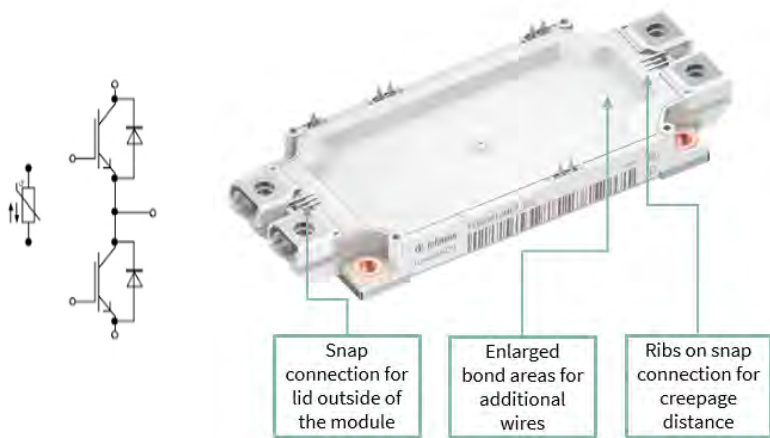
## Package portfolio for maximum flexibility



### Product line-up



# 1200 V TRENCHSTOP™ IGBT7 EconoDUAL™ 3 with TRENCHSTOP™ IGBT7



## Key features

- › 900 A 1200 V EconoDUAL™
- › Latest TRENCHSTOP™ IGBT7 chip technology
- › Improved EconoDUAL™ 3 housing for high current density

## Benefits

- › +30% higher inverter output current for the same frame size
- › Avoidance of paralleling of IGBT modules
- › Simplification of the inverter systems

## Target applications



CAV / e-bus



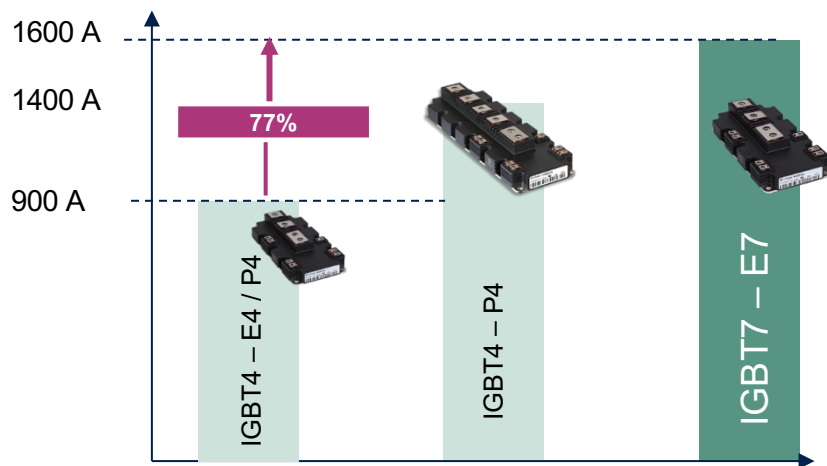
Drives



Solar

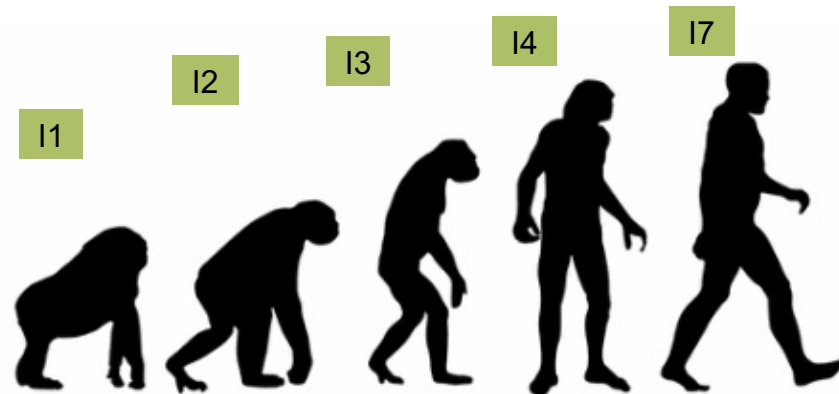
# 1200 V TRENCHSTOP™ IGBT7 PrimePACK™ 2 FF1600R12IP7

## Current density increase

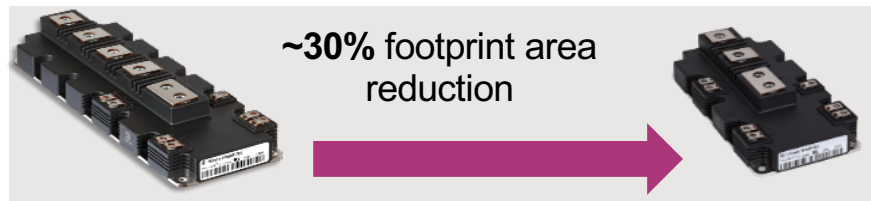


**Drastically lower conduction losses up to 700 mV**

## Evolution of IGBT technology



## Package miniaturization

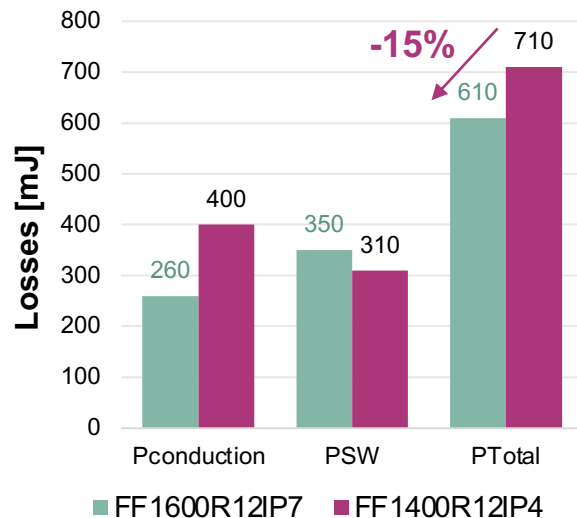


# 1200 V TRENCHSTOP™ IGBT7 PrimePACK™ 2 FF1600R12IP7

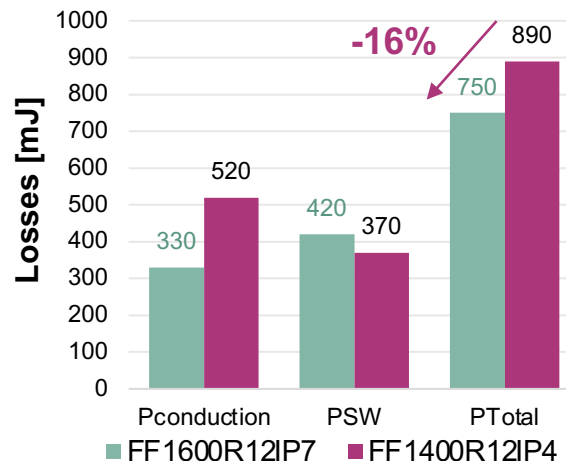


## Lower losses, high efficiency

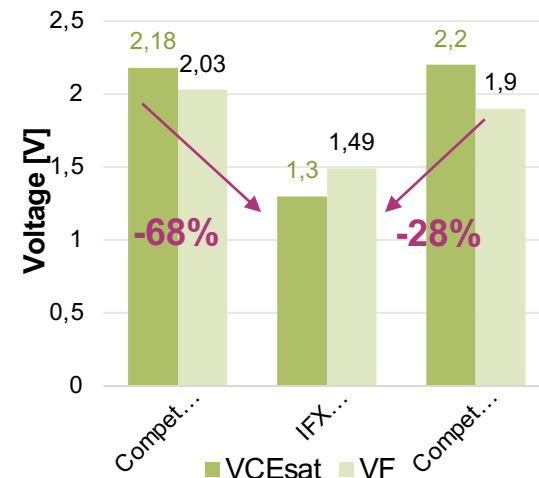
### Normal duty operation



### Heavy duty operation



### V<sub>CEsat</sub> & V<sub>F</sub> comparison @ 1400 A



### Test conditions

V<sub>DC</sub>: 540 V F<sub>sw</sub>: 2.5 kHz  
I<sub>rms</sub>: 700 A F<sub>out</sub>: 10 Hz

T<sub>uaHA</sub>: 120 sec  
T<sub>amb</sub>: 45°C

Cos(phi): 0.85  
R<sub>thHA</sub>: 0.08 K/W

Modulation index: 0.2



# 1200 V TRENCHSTOP™ IGBT7 PrimePACK™ 2 FF1600R12IP7



## Key features

- › 1600 A 1200 V PrimePACK™ 2
- › Latest TRENCHSTOP™ IGBT7 chip technology
- › Drastically lower conduction losses up to 700 mV

## Benefits

- › +30% higher inverter output current for the same frame size
- › Avoidance of paralleling of IGBT modules
- › Simplification of the inverter systems

## Target applications

Drives



Energy  
storage



CAV





Part of your life. Part of tomorrow.