

# 650V HB2 Series IGBTs



## Best performance in high-speed applications



### Outstanding performance and power density to address high efficiency demand

Combining both lower saturation voltage and lower total gate charge, the improved medium/high-speed 650 V IGBTs ensure minimal overshoot voltages during turnoff and lower turn-off energy in applications.

Thanks to an extended current capability up to 100 A, and an optimized co-packaged diode with three different options (protection, half-rated and full-rated), our new 650 V IGBT HB2 series ensures higher efficiency in applications working at medium to high frequencies such as welding machines, PFC converters, UPS

and solar inverters.

A complete product portfolio covering a current range from 15 to 100 A is available in several power packages including D<sup>2</sup>PAK, TO-220, and TO-220FP as well as long-lead and 4-lead TO-247 packages.

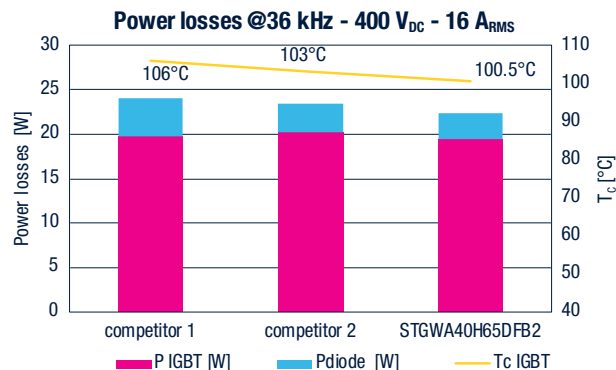
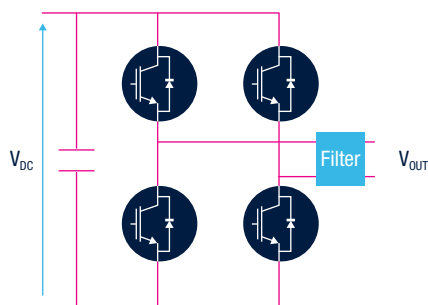
#### KEY FEATURES

- Wide frequency ranges from 16 to 60 kHz
- Very low  $V_{CE(sat)}$  (1.55-1.65 V typ.)
- Low thermal resistance
- Lower gate charge
- Maximum operating  $T_J$  of 175 °C
- Automotive eligible (AEC-Q101)
- Different diode options

## Application Benchmark

In a generic DC/AC converter in full bridge topology with a maximum output power of 3.6 kW, the power losses and case temperature have been evaluated.

The results of the STGWA40H65DFB2 high-speed HB2 series IGBT compared to main competitors' devices are shown in the figure below.



## PRODUCT PORTFOLIO

IGBT P/Ns	BV <sub>ces</sub>	I <sub>CN</sub> <sup>1)</sup>	V <sub>CE(sat)</sub> <sup>2)</sup>	E <sub>OFF</sub> <sup>3)</sup>	Diode option	Package				
	[A]	[A]	[V]	[μJ]		D <sup>2</sup> PAK	T0-220	T0-220FP	T0-247 long leads	T0-247-4
STGx15H65FB2	650	15	1.6	0.17	-	B	P			
STGx15H65DFB2					Full-rated	B	P	F		
STGx20H65FB2	650	20	1.65	0.21	-	B	P			
STGx20HP65FB2					Protection				WA	
STGx20H65DFB2					Full-rated	B	P	F	WA	
STGx30HP65FB2	650	30	1.65	0.31	Protection				WA	
STGx30H65DFB2					Full-rated	B	P	F	WA	
STGx40HP65FB2	650	40	1.55	0.41	Protection				WA	
STGx40H65DHPB2					Half-rated				WA	
STGx40H65DFB2					Full-rated				WA	
STGx50H65FB2	650	50	1.55	0.58	-	B				
STGx50HP65FB2					Protection				WA	
STGx50H65DFB2					Full-rated				WA	W.-4
STGx75H65DFB2	650	75	1.55	1.05	Full-rated				WA	W.-4
STGx100H65FB2	650	100	1.55	1.4	-					W.-4
STGx100H65DFB2					Full-rated				WA	

Notes : 1) nominal collector current

2) V<sub>CEsat</sub> @ I<sub>CN</sub> and T<sub>C</sub> = 25°C

3) E<sub>OFF</sub> @ I<sub>CN</sub> and T<sub>C</sub> = 25°C



To explore the complete HB2 series IGBTs product portfolio, visit [www.st.com](http://www.st.com) or use our [ST-IGBT-Finder mobile app](#) for Android and iOS.



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