STPOWER IGBTs
650 V IH series

life.augmented

The best choice for induction heating

Maximize efficiency in induction heating systems as well as resonant and soft switching applications

Specifically designed for induction heating applications, ST's 650 V IH series in trench-gate field-stop (TFS) IGBT technology offers very low $V_{CE(sat)}$, thermal resistance and switching losses.

Thanks to the fast and soft recovery freewheeling co-packed diode, the 650 V IH series ensures superior performance and high efficiency in induction heating applications (half-bridge topology) and in resonant and soft switching circuitries in a wide switching frequency range from 16 to 60 kHz.

Available in current capability from 20 to 50 A in TO-247 long-lead and in TO-220 package.

KEY FEATURES & BENEFITS

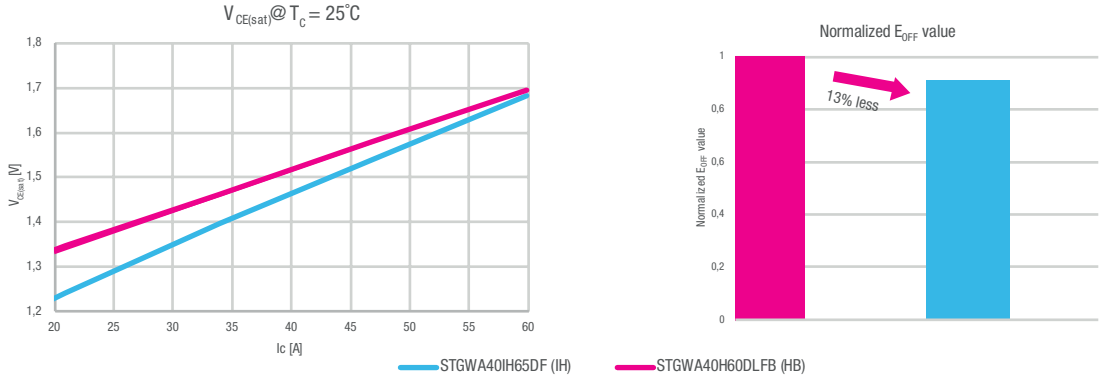
- Wide frequency range from 16 to 60 kHz
- Very low $V_{CE(sat)}$ (1.5 - 1.55 V typ.)
- Low thermal resistance
- Maximum operating T_J of 175 °C
- 650 V very fast and soft recovery freewheeling co-packed diode

KEY APPLICATIONS

- Half-bridge induction heating
- Microwave ovens
- Resonant converters

The technology improvements implemented on the dedicated IH IGBT series allow to reach lower $V_{CE(sat)}$ and E_{OFF} values than the previous HB IGBT series used for induction heating applications.
The figure 1 shows the different performances between the two products belonging to the two technologies (IH and HB):

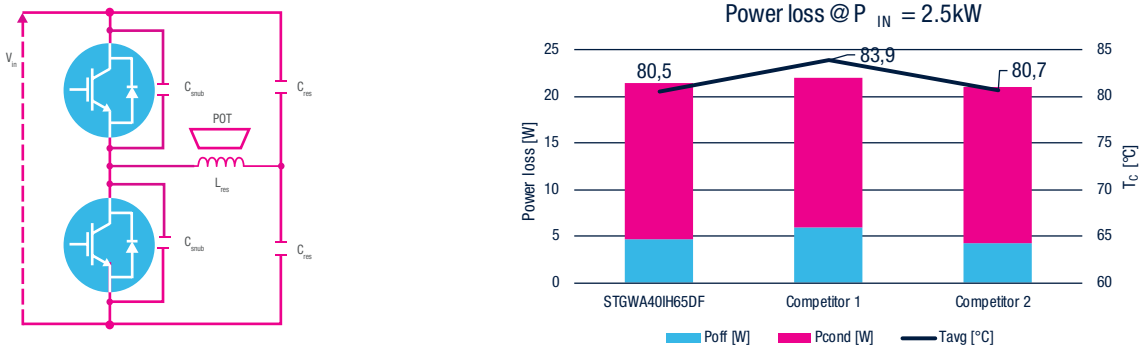
Fig 1: IH and HB IGBT products comparison



Benchmark results confirm performances aligned to major competitors

In a 2.5 kW half bridge resonant converter topology the power losses and the case temperature have been evaluated.
The results on STGWA40IH65DF product versus the main competitors' devices are showed in the below figure:

Fig 2: Power losses and T_C evaluation



Product portfolio

IGBT P/Ns	BVces (V)	I_{CN} (1) (A)	$V_{CE(sat)}$ (2) (V)	E_{OFF} (3) (mJ)	Switching frequency	Package	
						TO-220	TO-247 long leads
STGx20IH65DF	650	20	1.55	0.11	16-60 kHz	P *	WA
STGx30IH65DF		30	1.55	0.12		P *	WA
STGx40IH65DF		40	1.5	0.19			WA
STGx50IH65DF		50	1.5	0.28			WA

Note:
(1) Nominal collector current @ T_C = 100 °C,
(2) V_{CEsat} @ I_{CN} & T_C = 25 °C,
(3) E_{OFF} @ I_{CN}, T_J=25 °C on snubbed-inductive load
* Coming soon

To explore the complete IH series STPOWER IGBTs product portfolio, visit www.st.com or use our ST-IGBT-Finder mobile app for Android and iOS.

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