

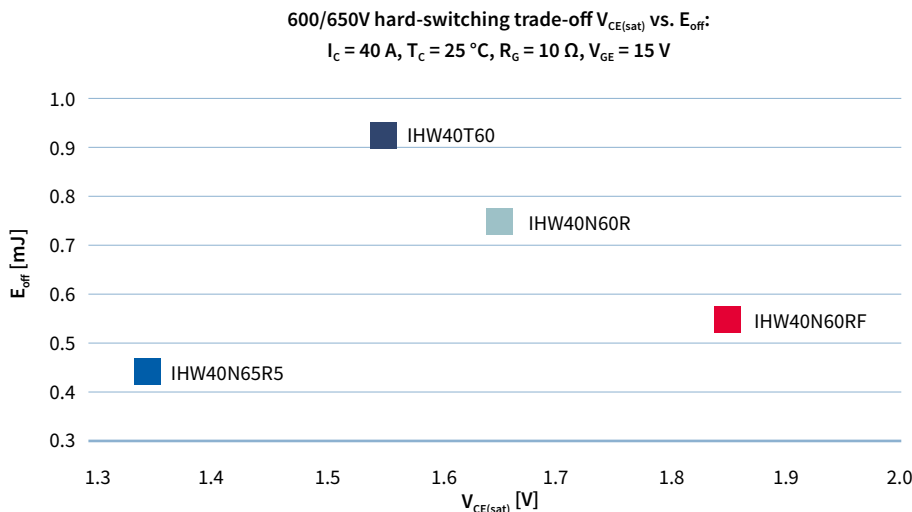
650 V RC-H5 Reverse Conducting IGBT

Efficiency and Reliability Leadership for Induction Cooking Appliances

Infineon combines the industry leading performance of the TRENCHSTOP™ 5 family with the technology innovation of the reverse conducting RC-H IGBTs to create a new generation of best-in-class devices. With a monolithically integrated diode, the 650 V RC-H5 IGBTs are perfectly suited for soft switching applications such as induction cooking stoves and inverterized microwave ovens, but are also suitable for designs which require some hard switching capabilities as well.

The 650 V RC-H5 devices have been optimized for the lowest $V_{CE(sat)}$ for best efficiency and thermal performance, as well as lower E_{off} for the improved performance in designs with higher switching frequencies. Up to 30% reduction in losses is now possible. This soft fast switching behavior can also result in lower EMI requiring less filtering. Designs can also benefit from an increased blocking voltage of 650 V for enhanced system reliability.

Optimized for improvements in both switching and conduction losses



Key Features

- Lowest $V_{CE(sat)}$ and optimized E_{off} for loss reduction up to 30% compared to previous generation
- 650 V blocking voltage
- Hard switching capable

Key Benefits

- Best-in-class efficiency, resulting in lower junction and case temperature for higher device reliability
- 50 V higher voltage possible for increased reliability
- Performs well in designs with higher switching frequencies up to 40kHz

Applications

- Induction cooking stoves
- Inverterized microwave ovens
- Other resonant switching topologies



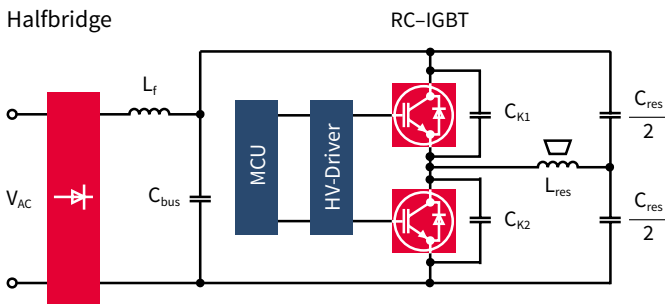
650 V RC-H5 Reverse Conducting IGBT

Efficiency and Reliability Leadership for Induction Cooking Appliances

Key features that consumers demand in home appliances are energy efficiency, reliability, and ease-of-use. Induction stoves and invertorized microwave ovens are unique products that address all of these needs, including quick heat-up times and variable power settings. At the heart of these half bridge system designs are the IGBTs. The new RC-H5 650 V family offers low losses, increased blocking voltage, and better EMI behavior, plus it can be used in designs which need hard switching capabilities at start up. These features make the RC-H5 ideally suited to help designers

create differentiated appliances that consumers want. The RC-H5 IGBTs can also be paired with the EiceDRIVER™ Compact driver ICs, available in both single channel and half bridge versions specifically designed for home appliance applications. Finally, to complement the power section of the design the central control can also be implemented with the XMC family of 32-bit industrial microcontrollers, based on ARM® Cortex™-M. Together these products offer a broad range of solutions for induction cooking appliances.

Example Topology for Induction Cooking



Recommended Infineon Products:

- RC-H5 650 V reverse conducting IGBTs
- EiceDRIVER™ 1EDL and 2EDL compact driver ICs
- XMC1000/XMC4000 family of microcontrollers

650 V RC-H5 Family Key Parameters

Part Number	V _{CE} [V]	I _c [A]	E _{off} , T _{vj} = 25°C	V _{CE(sat)} , T _{vj} = 25°C [V]	T _{vjmax} [C°]	Package
IHW20N65R5	650	20	0.16	1.35	175	PG-T0247-3
IHW30N65R5	650	30	0.24	1.35	175	PG-T0247-3
IHW40N65R5	650	40	0.37	1.35	175	PG-T0247-3
IHW50N65R5	650	50	0.45	1.35	175	PG-T0247-3

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