

Product Brief

1200 V RC-E Reverse Conducting IGBT

Economical and efficient IGBT for induction cooking appliances

Resonant topologies like those used in induction cooking appliances have special requirements for power components. They need an IGBT that performs best at switching frequencies from 18 kHz–40 kHz and has low losses to meet energy efficiency standards, but at the most competitive price. However, unlike motor drive applications, induction cooking appliances don't need hard switching capabilities, short circuit ratings, or special package types.

The new RC-E IGBTs build on a long tradition of application specific technologies. They are cost- and feature-optimized specifically for low- to mid-range induction cookers and other resonant applications. The RC-E technology uses an IGBT with monolithically integrated reverse conduction diode to set the new benchmark for price/performance and ease-of-use in the industry. This new family offers Infineon's proven quality in RC IGBTs and meets all the needs of soft switching applications, including attractive pricing compared to other general purpose IGBTs.

Key features

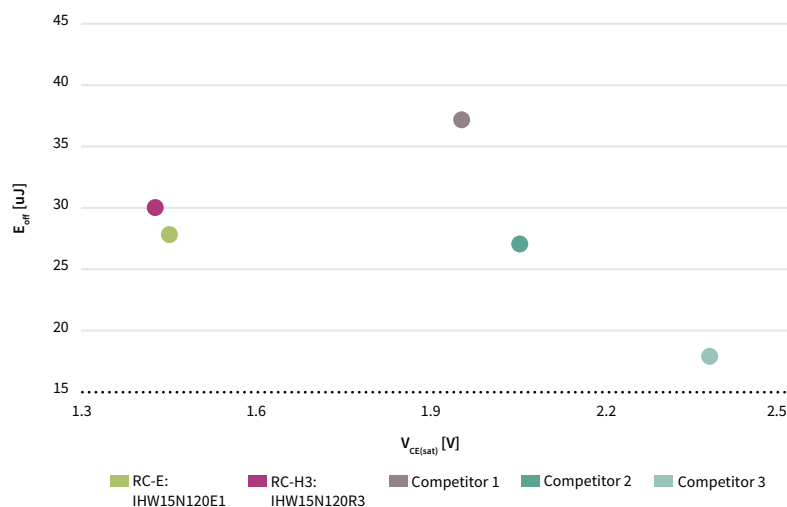
- > Low E_{off} and $V_{ce(sat)}$
- > Designed for soft switching applications
- > Optimized for performance with switching frequencies from 18 kHz–40 kHz
- > Most commonly used blocking voltage, 1200 V

Key benefits

- > Price versus performance leader for cost-effective designs
- > Low losses help designs meet energy efficiency standards
- > Drop-in replacement for existing designs
- > Soft switching for good EMI behavior

Soft switching trade-off – optimized for induction cooking appliances

$I_c = 15\text{ A}$, $T_c = 25^\circ\text{C}$, $R_G = 10\ \Omega$, $V_{GE} = 18\text{ V}$



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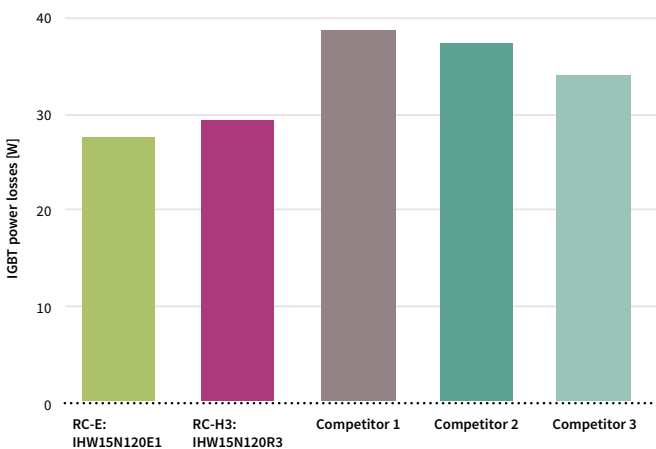
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Key highlights of the RC-E family

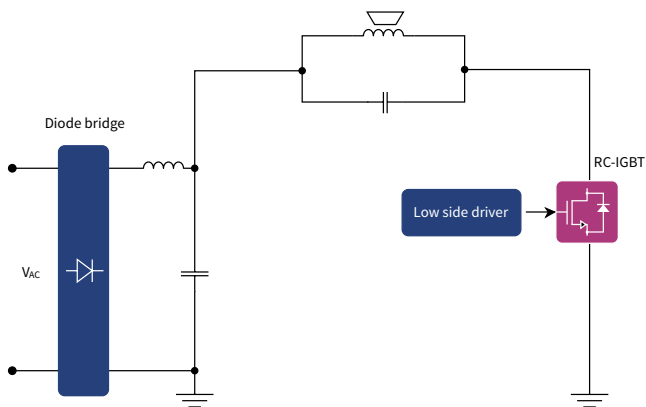
- › Low switching and conducting losses, similar to Infineon’s RC-H3 family
- › Based on the technology used in the worldwide number 1 discrete IGBT family, RC-H
- › Standard TO-247 package for simple replacement in existing designs

IGBT power losses – IHW15N120E1 versus competitors

Output power = 2.1 kW, $T_c = 25^\circ\text{C}$



Induction heating inverter (voltage resonance)



RC-E product family key parameters

Part number	I_c at 100°C [A]	V_{br} [V]	$V_{CE(sat)}$ [V]	E_{off} [mJ]	V_F [V]	I_F at 100°C [A]
IHW15N120E1	15	1200	1.50	0.03	1.90	15
IHW25N120E1	25	1200	1.50	0.08	1.90	25

Published by
Infineon Technologies Austria AG
9500 Villach, Austria

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