

# Join the Infineon IGBT Revolution

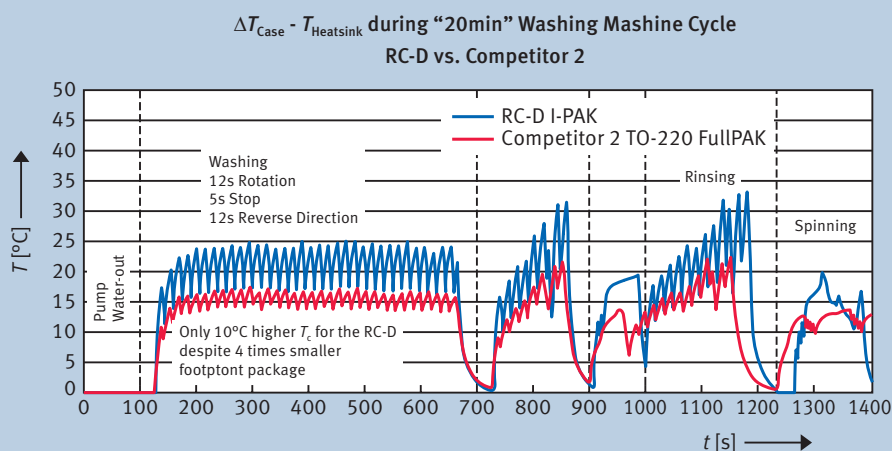
## Everything has got smaller, even the price

IGBTs up to 15A can now be offered in either a D-PAK (TO-252) or I-PAK (TO-251) at a revolutionary price. Infineon's new Reverse Conducting (RC-D) IGBT family is recommended for hard switching applications up to 5kW. The RC-D family uses  $V_{ce(sat)}$  optimised TRENCHSTOP™ IGBTs and commutation proof diodes that are integrated into a monolithic die.

Commercially, the outstanding feature is the price. Not just from the savings made on the customer's bill of materials, but also the RC-D IGBTs themselves. Smaller dies and packages mean substantial savings that can be passed on.

Quality does not come at a price. The RC-D family is qualified to JEDEC standard with a  $T_{j(max)}$  of 175°C. Additionally, the D-PAK family is also qualified according to Infineon's "Automotive Excellence" program for automotive use.

**Let the revolution begin!**



Outstanding thermal behaviour is proven in application measurements, which show comparable case temperatures compared to TO-220 and D<sup>2</sup>-PAK packaged IGBTs currently on the market.

### Applications

- All hard switching applications up to 5kW
- Inverterised motors, pumps, & fans
- Industrial drives
- Room and public air-conditioners
- Vacuum cleaners
- Industrial drives
- PFC Stages
- Automotive HID lighting

### Features

- Best in class current versus package size (15A in D-PAK/I-PAK)
- Optimised  $V_{ce(sat)}$  for low conduction losses
- Same DC current rating of diode and IGBT
- $T_{j(max)}$  of 175°C
- 5µs Short Circuit capability
- Wide range of turn-off/-on time controllability via gate resistor

### Benefits

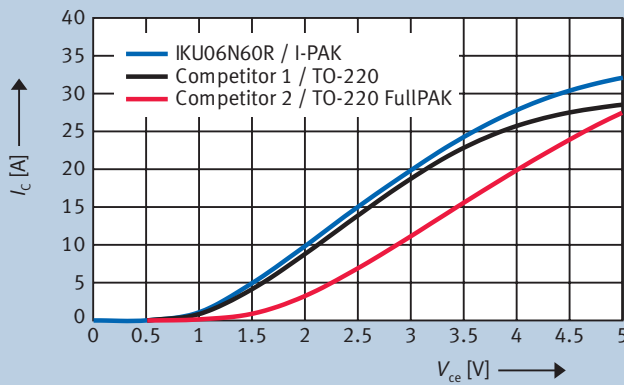
- Up to 60% space saving on the PCB
- Best cost/performance on today's market for hard switching applications up to 5kW
- Excellent EMI behaviour
- Higher reliability due to monolithically integrated IGBT + diode

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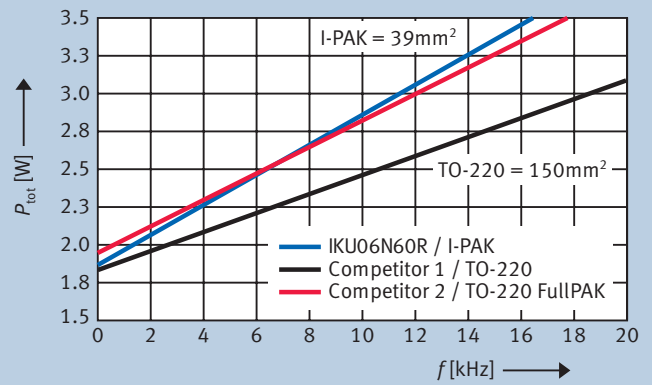


IGBT Output Characteristics Highlighting the Excellent  $V_{ce(sat)}$  Behaviour of the RC-D family;  $T_j = 25^\circ\text{C}$




In the application, conduction losses are dominant up to 16kHz. That's why the RC-D family has been  $V_{ce(sat)}$  optimised

Power Loss Comparison of RC-D in an I-PAK vs. Competitor Devices in a TO-220 B6-Inverter Hardswitching;  $I_c = 6\text{A}$ ,  $V_{ce} = 400\text{V}$ ,  $T_j = 175^\circ\text{C}$



The RC-D in the I-PAK shows comparable power losses compared to a larger TO-220

### Product Portfolio for 600 V IGBT RC-D

| $I_{C(max)}$<br>[A] | $I_{Cpuls(max)}$<br>[A] | $P_{tot(max)}$<br>[W] | $V_{ce(sat)}(typ.)$<br>[V] | D-PAK  | I-PAK  | Availability |
|---------------------|-------------------------|-----------------------|----------------------------|--|---|--------------|
| 4                   | 12                      | 73                    | 1.65                       | IKD04N60R  | IKU04N60R   | Now          |
| 4                   | 12                      | 73                    | 1.65                       | IKD04N60RA   |   | Now          |
| 6                   | 18                      | 102                   | 1.65                       | IKD06N60R  | IKU06N60R   | Now          |
| 6                   | 18                      | 102                   | 1.65                       | IKD06N60RA   |   | Now          |
| 10                  | 30                      | 154                   | 1.65                       | IKD10N60R  | IKU10N60R   | Now          |
| 10                  | 30                      | 154                   | 1.65                       | IKD10N60RA   |   | Now          |
| 15                  | 30                      | 241                   | 1.65                       | IKD15N60R  | IKU15N60R   | Now          |
| 15                  | 30                      | 241                   | 1.65                       | IKD15N60RA   |   | Now          |

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