# STPOWER 1350 V IH2 SERIES IGBTS

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## Higher voltage range for induction cookers


### Maximize efficiency in single-switch quasi-resonant converters for induction heating systems

Specifically designed for induction heating applications, the 1350 V IH2 series in trench gate field-stop IGBT technology offers higher breakdown voltage, lower $V_{CEsat}$ and lower thermal resistance.

Moreover, thanks to the low drop diode and optimized turn-off energy, this series is ideal for maximizing efficiency in single-switch quasi-resonant converters over a wide switching frequency range from 16 to 60 kHz.

Finally, the higher breakdown voltage enhances reliability and robustness, providing suitable margin under all operating conditions.

**KEY FEATURES & BENEFITS**

- 1350 V trench gate field-stop IGBT
- Current capability: 25-35 A
- Low conduction losses
- Optimized turn-off energy for soft-switching commutation
- Low drop copacked diode
- Higher reliability and robustness thanks to:
  - Higher breakdown voltage
  - Maximum junction temperature $T_J$ of 175 °C
- Available in TO-247 Long leads

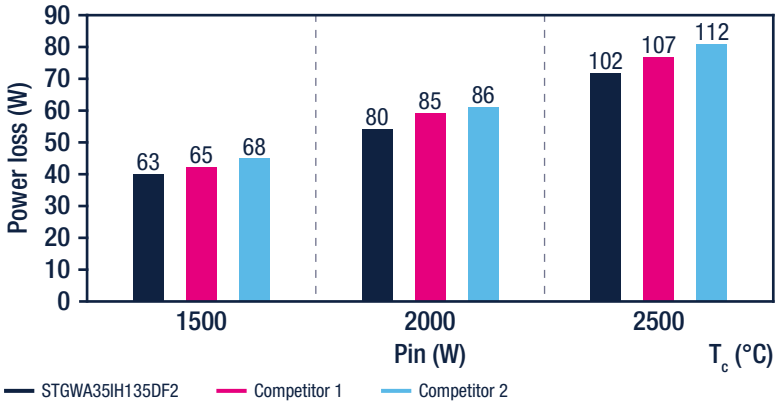
**KEY APPLICATIONS**

- Induction cookers
- Inverterized microwave ovens
- Rice cookers

## Application benchmark

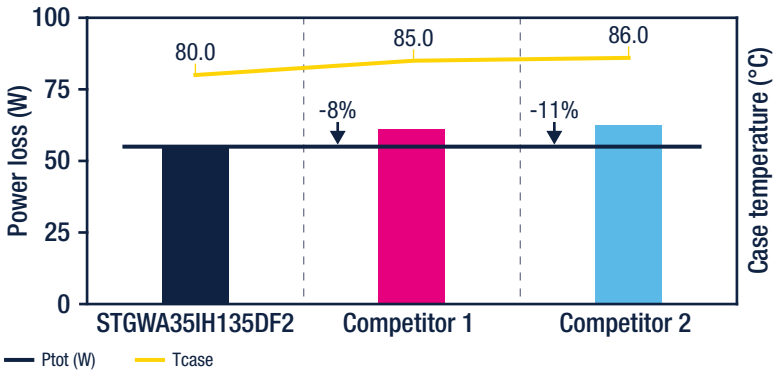
Figure 1 shows a comparison between STGWA35IH135DF2 and competitor products. The test was performed in a single-switch quasi-resonant converter (a typical induction cooker topology) from 1.5 to 2.5 kW power at 25 °C ambient temperature. The columns show the total power loss, while the values on top shows the measured case temperature.

Figure 1: Power loss and $T_C$ vs input power




The STGWA35IH135DF2 clearly demonstrates better performance than the main competitors in terms of power losses and case temperature over the entire input power range, with 8-11% less power loss at 2 kW input power, as shown in figure below:

Figure 2: Power loss and $T_C$ in 2 kW $P_{IN}$




The new ST 1350V IH2 series IGBT therefore represents the best solution for single-switch quasi-resonant converters.

## Product portfolio

| Part Number | $BV_{CES}$ (V) | $I_{CN}$ (A) | $V_{Cesat}$ [1] (V) | $E_{OFF}$ [2] (mJ) | $V_F$ (V)[1] | Package |
|---|---|---|---|---|---|---|
| STGWA25IH135DF2 | 1350 | 25 | 1.7 | 0.39 | 1.15 | TO-247 Long leads |
| STGWA25IH135DF2 | | 35 | 1.7 | 0.58 | 1.2 | |

Note: 1. @ $V_{GE}$ = 15 V, $I_{CN}$, $T_J$ = 25 °C
2. Switching characteristics on capacitive load