

STPOWER SLLIMM HP

Integration and higher power for your motor drive designs



New SLLIMM High Power products simplify design challenges and shrink the BOM for motor drive platforms up to 5 kW

The STGIK50CH65T is the new product of the SLLIMM™ High Power family of compact, powerful, dual-in-line intelligent power modules (IPMs). Designed using a new internal drivers' configuration and trench gate field-stop IGBTs plus freewheeling diodes for power stage, this new SLLIMM HP 650 V/50 A product expands the existing SLLIMM series in terms of breakdown voltage, current capability and power range. It is mainly tailored for industrial applications such as HVAC, servo motors, general purpose inverters (GPI) and industrial washing machine for power applications up to 5 kW.



KEY FEATURES & BENEFITS

- Trench gate field-stop IGBT technology: 650 V/50 A
- Low $V_{CE(sat)}$
- Short-circuit protection
- Very fast, soft-recovery diodes
- Separate open emitter outputs
- Comparator for fault protection
- Shutdown input/fault output
- Fully isolated package with top-side cooling
- HPS DBC substrate
- Isolation rating of 2500 VRMS/min
- 100 k Ω NTC for temperature monitoring

KEY APPLICATIONS

- HVAC, GPI, servo motors, industrial washing machine

Application benchmark

To highlight the main features of our new SLLIMM HP, we have compared its performance to a competitor’s product under a typical mission profile of an air conditioning system up to 5 kW.
 As shown in Figure 1 STGIK50CH65T demonstrates a greater performance on the entire power range, gaining 0.6 PoP of efficiency and saving about 16% of power loss in 5 kW conditions.
 Figure 2 shows that our SLLIMM HP can exhibit a lower ΔT_{case} up to about 28 °C at the highest power applied thanks to the combination of silicon and the new exposed pad solution.

Figure 1: Total power loss and efficiency vs Pin*

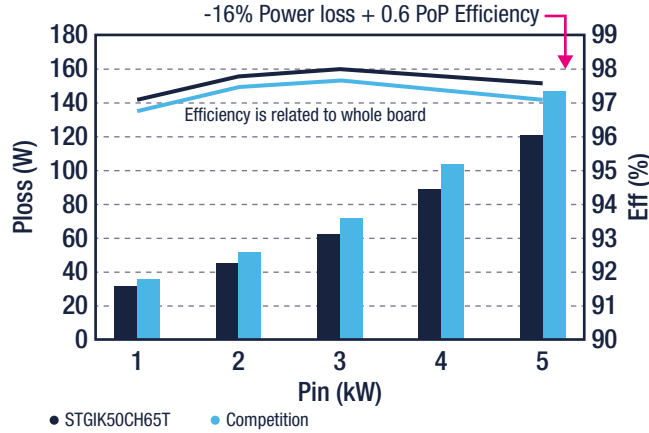
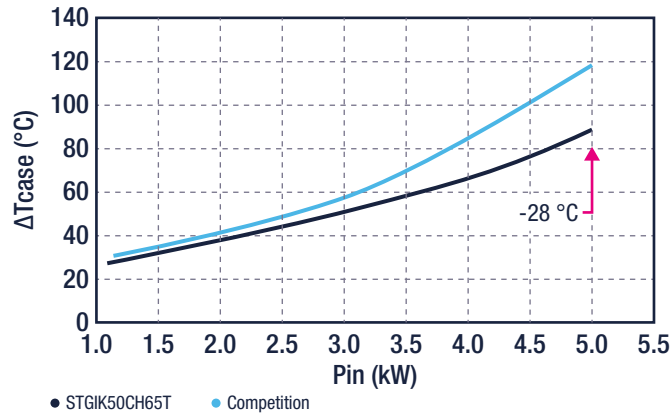


Figure 2: Delta temperature vs Pin*



Note: * test conditions: $V_{BUS} = 400 V$, $f_{SW} = 6.5 kHz$, $T_A = 25 °C$

Product table

Part number	Switch type	BV (V)	I_{CH} (A)	$V_{CE(sat)}$ typ (V) @ 25 °C and I_{CH}	Max R_{thJC} (°C/W)
STGIK50CH65T	IGBT	650	50	1.8	1



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