

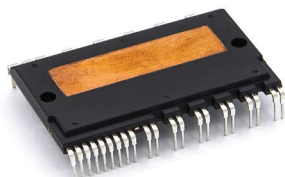
# STPOWER SLLIMM HP

## 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 7 kW**

The SLLIMM High Power (HP) series is the new family of compact, powerful, dual-in-line intelligent power modules (IPMs) from the STPOWER family. Designed using a new internal driver configuration and trench gate field-stop IGBTs plus freewheeling diodes for the power stage, these new SLLIMM HP products, available in 650V/50A and 1200V/10A, expand the existing SLLIMM series in terms of breakdown voltage, current capability, and power range. These devices are mainly tailored for industrial applications such as HVAC, servo motors, general purpose inverters (GPI), and industrial washing machines for power applications up to 7 kW.



### KEY FEATURES & BENEFITS

- Trench gate field-stop IGBT technology:
  - 650 V, 50A DC at 25°C,  $T_{Jmax} = 175^{\circ}\text{C}$
  - 1200 V, 10A DC at 25°C,  $T_{Jmax} = 150^{\circ}\text{C}$
- 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 $\Omega$  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 with a competing product under a typical mission profile for an air conditioning system up to 5 kW.

As shown in Figure 1, the STGIK50CH65T delivers greater performance over the entire power range, gaining 0.6 PoP efficiency and saving about 16% power loss in 5 kW conditions.

Figure 2 shows that our SLLIMM HP can exhibit a lower  $\Delta T_{case}$  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 input power\*

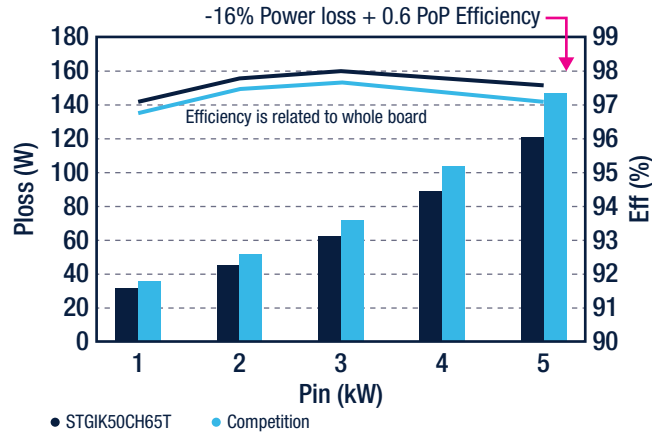
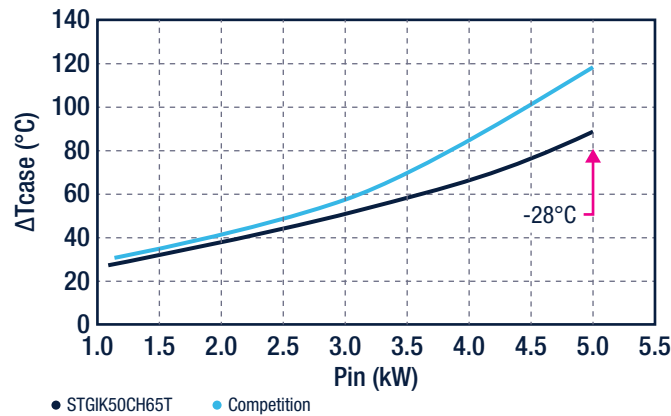


Figure 2: Delta temperature vs input power\*



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

## 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
STGIK10M120T	IGBT	1200	10	1.6	1



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