

SLLIMM -nano 2nd series

Intelligent Power Modules



Boost the power capability and save space in Home Appliance applications

The new SLLIMM*-nano 2nd series of IGBT and SJ-MOSFET based intelligent power modules fully satisfies space saving needs and features required in power applications working at up to 500 W.

The SJ-MOSFET based products, with a $R_{DS(on)}$ up to 1 Ω , are the ideal choice for fridge compressors and all applications working at low load. The IGBT based products, are ideal choice for full load applications, addressing also low-power washing machines.

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KEY FEATURES

- 600 V SJ-MOSFET and IGBT (planar and TFS) based IPMs
- Current capability from 1 up to 8 A at 25 °C
- Optimized voltage drop in conduction
- On-board NTC thermistor
- Slots for heatsink screws
- Dual-inline or zig-zag leads
- With and without stand off
- UL recognized 1.5 kVrms: UL 1557, file E81734

KEY BENEFITS

- Higher robustness and reliability
- Package compactness and thermal performance
- Embedded protection inside the module
- Plug'n Play solution
- Easily driven by microcontroller

MAIN APPLICATIONS

- Fans
- Dishwashers
- Compressors
- Pumps
- Refrigerators
- Washing machine

To highlight the advantages of our IPMs, we compared their performance under two different conditions corresponding to a fridge compressor and washing machine.

Figure 1 shows that our SJ-MOSFET IPM works better than IGBT IPM up to 100 W, having a lower delta temperature ($T_{case} - T_{amb}$), thus maximizing efficiency at low loads.

Figure 2 shows a benchmark with our IGBT based IPM vs the main competitor, revealing a better performance across the entire frequency range typical of washing machine conditions.

Fig1: IGBT vs SJ-MOSFET IPMs, low load delta temperature vs input power

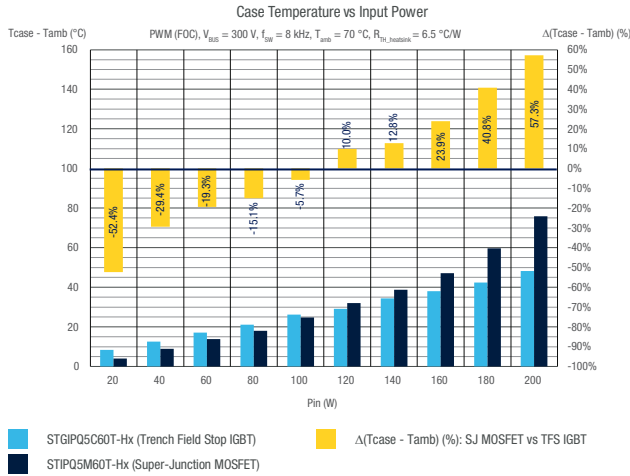
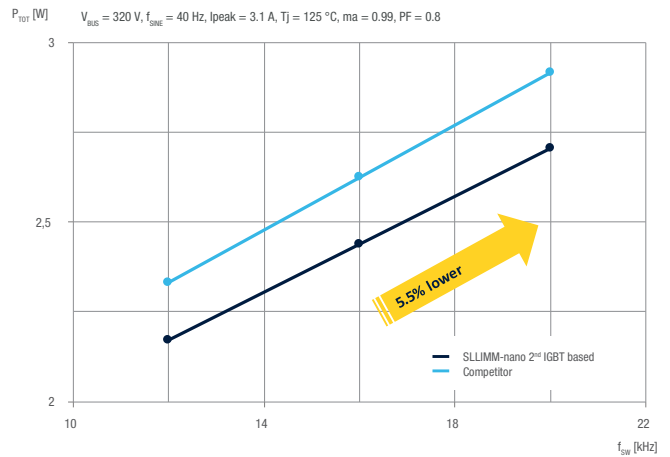
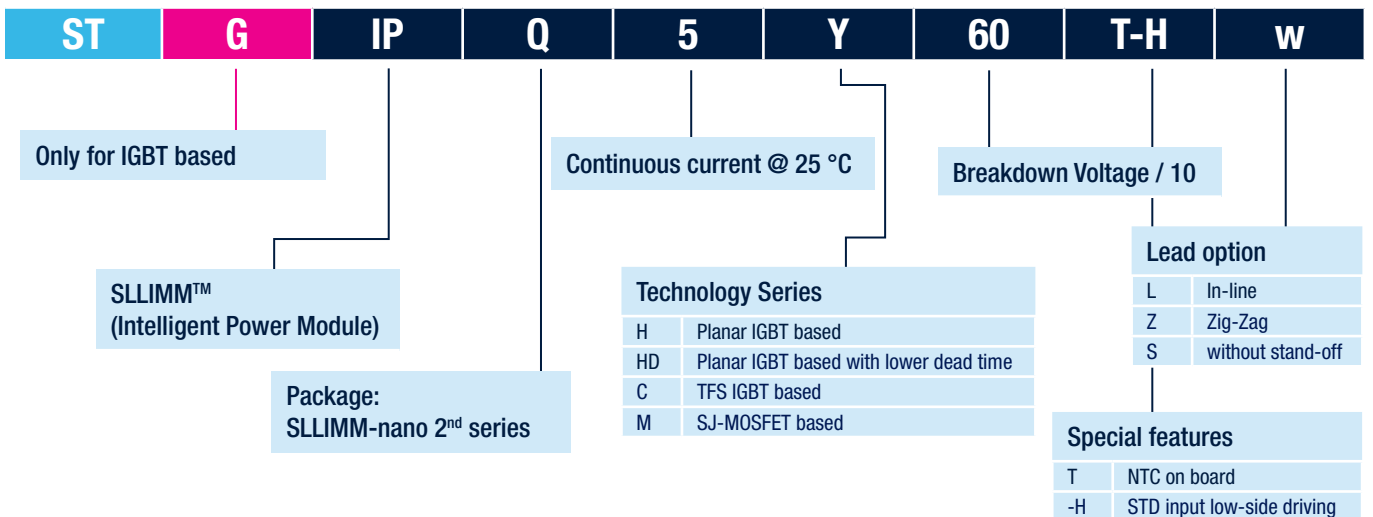


Fig2: Total power losses in a typical low-power washing machine



Part number	Switch type	BV	I _{CN}	R _{DS(ON)} max @ I _{CN/2} V _{cesat} typ @ I _{CN}	t _{dead min}
STIPQ3M60T-HZ/L	SJ-MOSFET	600 V	3 A	1.6 Ω	1 μs
STIPQ5M60T-HZ/L			5 A	1 Ω	1 μs
STGIPQ3H60T-HZ/L(S)	Planar IGBT		3 A	2.15 V	1.5 μs
STGIPQ3HD60-HZ/L			3 A	2.15 V	1 μs
STGIPQ4C60T-HZ/L	TFS IGBT		3 A	1.6 V	1.5 μs
STGIPQ5C60T-HZ/L(S)			5 A	1.65 V	1.5 μs
STGIPQ8C60T-HZ			8 A	2 V	1 μs

NOMENCLATURE



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