

# SLLIMM™ 2<sup>nd</sup> Series

## Small Low-Loss Intelligent Molded Modules



### Intelligent Power Modules: compact and high-performance AC motor drives for simple and rugged designs up to 3 kW

ST's SLLIMM™ 2<sup>nd</sup> series of Intelligent Power Modules now includes trench-gate field-stop (TFS) IGBTs and super-junction MOSFETs in a simple, rugged design that includes both a high-side and a low-side driver.

Thanks to our innovative, flexible silicon technology ensuring outstanding robustness and reliability, SLLIMM 2<sup>nd</sup> series products can cover both low- and full-load applications, with particular focus on home appliance and motor control segments with a 3 kW power range and 20 kHz switching frequency.

#### KEY FEATURES

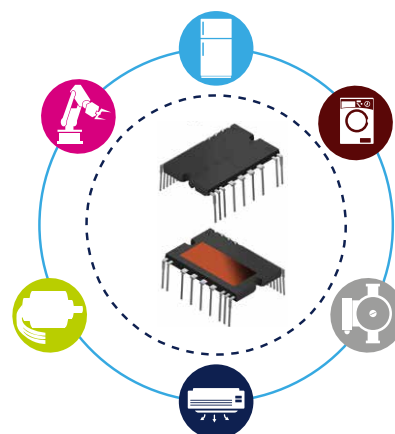
- 600 V, DC rating at 25 °C from 8 to 35 A for IGBTs and 10 and 15 A for SJ-MOSFETs
- Reduced conduction losses
- Maximum junction temperature of 175 °C for IGBTs and 150 °C for SJ-MOSFETs
- Lowest R<sub>th</sub> value on the market for DBC package versions
- Optimized driver and silicon for low EMI
- Internal bootstrap diode
- Separate open emitter outputs
- Onboard NTC thermistor
- Built-in temperature sensor
- Comparator for fault protection
- Shutdown input/fault output
- Isolation rating of 1500 V<sub>RMS/min</sub>

#### KEY BENEFITS

- Easy to drive through microcontroller
- Higher robustness and reliability

#### KEY APPLICATIONS

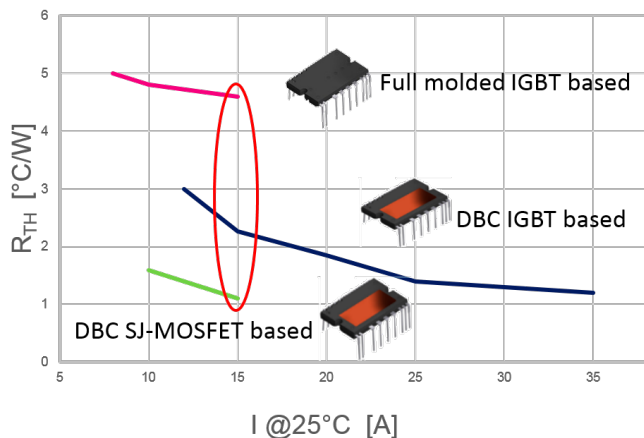
- Refrigerators
- Pumps
- Washing machines
- Air conditioners
- General-purpose inverters (GPI)
- 3-phase inverters for motor drives



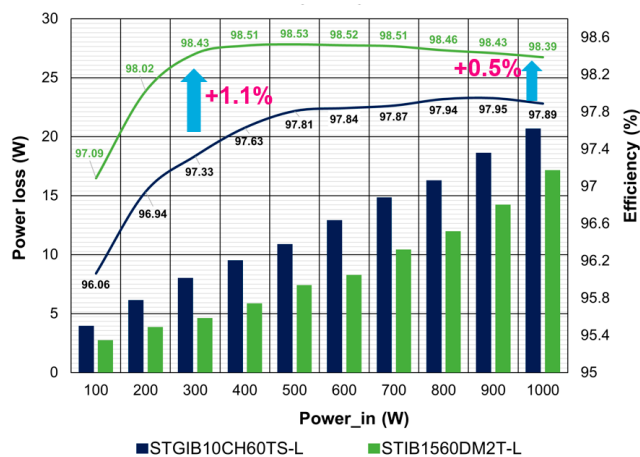
Available in full molded, for cost-effective solution, and in DBC package, for both improved thermal performances and high power application levels.

The SJ MOSFET switch option can reach value of  $R_{TH}$  very low, see fig 1 and on the same time higher efficiency value than the IGBT ones in all the application where best performance at low load condition is mandatory, like AIR CON., see fig 2.

**Fig 1:  $R_{TH}$  VALUE TREND**



**Fig 2: POWER LOSSES AND EFFICIENCY VS INPUT POWER @6.5kHz FAN**



Part Number	Switch technology	Breakdown voltage (V)	$I_c$ @ 25°C (@ 80°C) (A)	Vce(sat) @ $I_c$ 25°C (@ $I_c$ 80°C)(V) / $R_{DSon}$ (typ) (mΩ)	Max $R_{th(j-c)}$ (°C/W)	$t_{scw}$ (μs)		
STGIF5CH60TS-L(E)(X)	IGBT	600	8 (5)	1.7 (1.5)	5.00	5		
STGIF7CH60TS-L(E)(X)			10 (7)	1.7 (1.5)	4.80			
STGIF10CH60TS-L(E)			15 (10)	1.65 (1.5)	4.60			
STGIB8CH60TS-L(E)			12 (8)	1.91 (1.68)	3.00			
STGIB10CH60TS-L(E)			SJ-MOSFET	600	15 (10)	1.65 (1.5)	2.26	5
STGIB15CH60TS-L(E)					20 (15)	1.65 (1.55)	1.85	8
STGIB20M60TS-L(E)					25 (20)	1.75(1.55)	1.40	
STGIB30M60TS-L(E)					35 (30)	1.65(1.55)	1.20	
STIB1060DM2T-L	10	180			1.59	12		
STIB1560DM2T-L	15	150			1.10	12		

F = Full Molded package  
 B = DBC package  
 T = NTC on board  
 S = Temperature sensing

E = Short leads and emitter forward  
 L = Long leads  
 X = Medium leads

