

# 650V HB2 series IGBTs

## Increase overall system efficiency with TO247-4 lead package

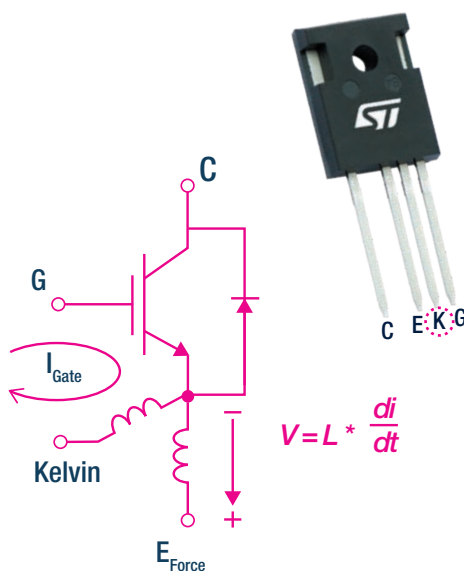


### Excellent switching performance achieved thanks to the extra driving Kelvin pin.

The new HB2 series, belonging to the latest STPOWER TFS IGBT technology, has been enlarged with 50, 75 and 100A devices in TO247-4 (four leads).

The added emitter Kelvin pin separates the power path and the control path, thus reducing the switching losses and increasing the switching speed.

The new TO247-4 packaged products will increase the overall system efficiency for solar, UPS, PFC and other high frequency applications.



#### KEY FEATURES & BENEFITS

- $E_{on}$  switching energy reduction
- Wide frequency ranges from 16 to 60 kHz
- Very low  $V_{CE(sat)}$  (1.55 V typ.)
- Low thermal resistance
- Lower gate charge
- Maximum operating  $T_J$  of 175 °C

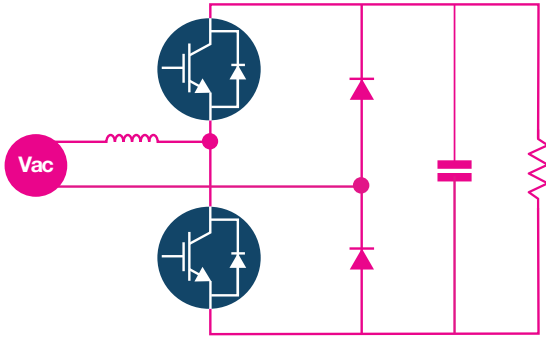
#### KEY APPLICATIONS

- Solar inverters
- UPS
- PFC
- High frequency converters

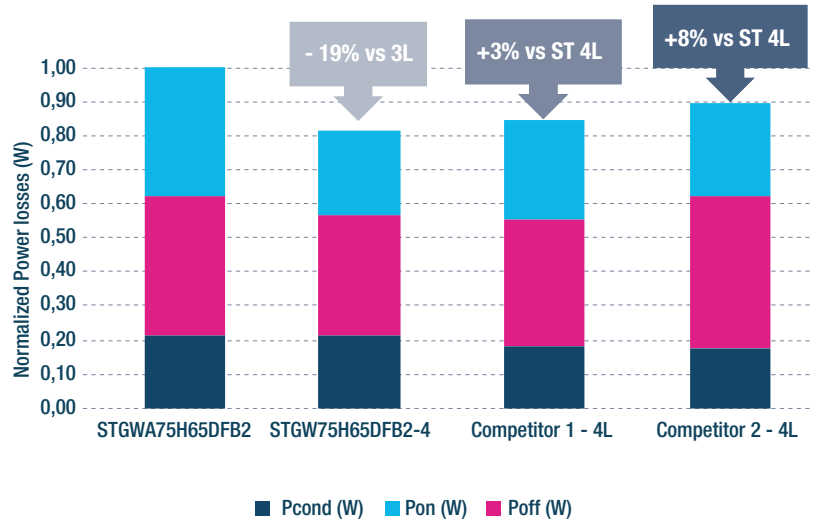
### Application benchmark

The figure below shows a comparison performed between STGWA75H65DFB2-4 (four leads), STGWA75H65DFB2 (TO-247, 3 leads) and other TO247-4 competitors' products. The total power losses on a 4kW Totem Pole PFC application have been simulated:

### Circuit topology



### Estimated Power Losses



### Test conditions

$V_{AC} = 180V$   
 $V_{OUT} = 400V$   
 $f_{SW} = 40kHz$   
 $T_C = 90^\circ C$

As it emerges from the picture, the four-lead package ensures better performance in terms of power losses than the 3L one, moreover the STGWA75H65DFB2-4 shows better performance compared to the analogous competitors' products, too.

Therefore, the new ST HB2 series on TO247-4 package helps designers to maximize system efficiency in high current and high frequency converters.

### Product portfolio

IGBT P/N	$BV_{CES}$	$I_{CN}^{(1)}$	$V_{CE(sat)}^{(2)}$	$E_{OFF}^{(3)}$	$E_{ON}^{(3)}$	Diode Option
	[V]	[A]	[V]	[mJ]	[mJ]	
STGW50H65DFB2-4	650	50	1.55	0.48	0.63	Full-rated diode
STGW75H65DFB2-4		75		0.76	0.99	
STGW100H65FB2-4		100		1.13	1.06	-

<sup>1)</sup> Nominal collector current  
<sup>2)</sup>  $V_{CE(sat)}$  @  $I_{CN}$ ,  $T_C = 25^\circ C$   
<sup>3)</sup>  $E_{OFF}$  &  $E_{ON}$  @  $I_{CN}$ ,  $T_C = 25^\circ C$

