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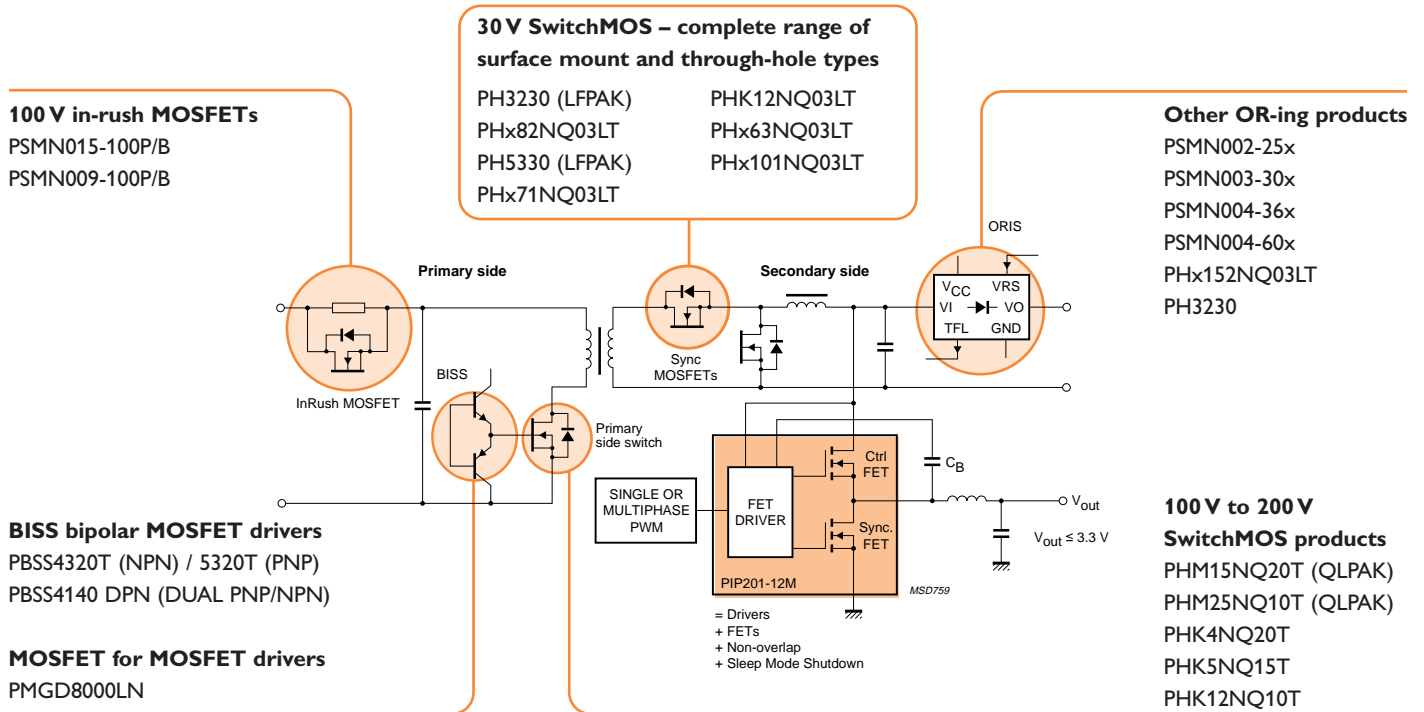
**Cool solutions for  
DC/DC conversion**

**PHILIPS**

# Switch mode solutions

As part of our complete multimarket semiconductors portfolio, Philips has released a number of devices ideal for DC/DC conversion applications.

Check out our web for more product information [www.semiconductors.philips.com/news/infocus/dc\\_overview/](http://www.semiconductors.philips.com/news/infocus/dc_overview/)



## BISS TRANSISTORS

### PBSS4140 - 40 V low $V_{CEsat}$ NPN transistor

Philips continues to push performance barriers of BISS transistors delivering similar performance to SOT23 devices but with significant board space savings.

- Low collector-emitter saturation voltage  $V_{CEsat}$  and corresponding resistance  $R_{CEsat}$
- High collector current capability  $I_C/I_{CM}$  and gain  $h_{FE}$
- Less heat generation leading to higher efficiency

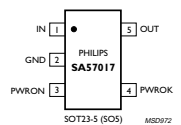
## CapFREE™ LDO

### SA57017 - 150 mA CapFREE™ Low Drop Out Regulator

Next CapFREE generation (low-output voltages)

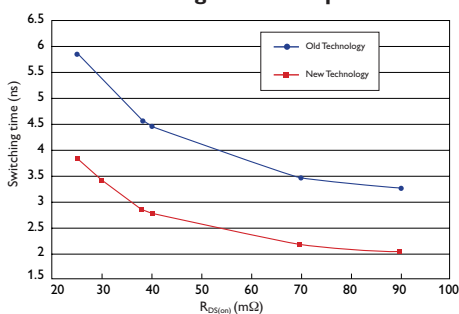
incorporating all features and benefits of SA57000 plus:

- Best-in-class transient response
- Reverse battery protection
- Low preset voltages of 1.6, 1.8, 2.0, 2.2, 2.4 V (any intermediate voltages in 100 mV increments are also possible)

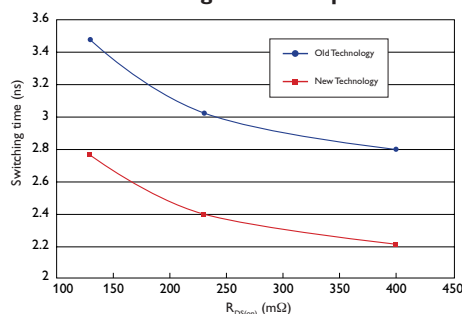


Philips continues to innovate in Low Voltage MOS enabling cooler, smaller and more efficient designs.

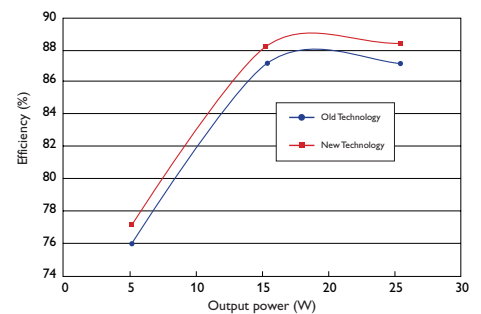
### 100 V - Switching times compared



### 200 V - Switching times compared



### Efficiency testing of 200 V devices in a 48 V forward converter



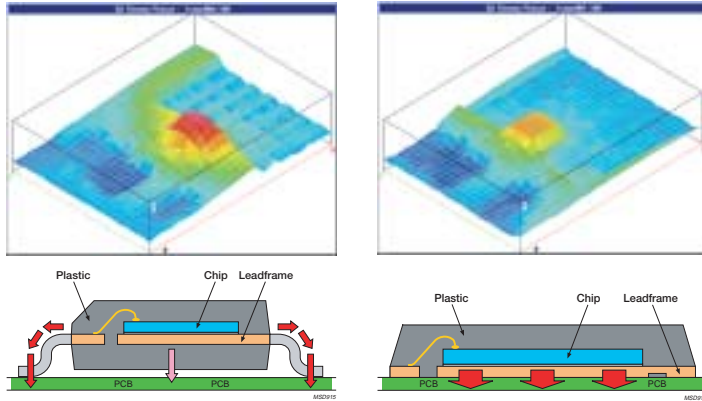
# New QLPACK means cooler and smaller power designs

The power conversion market is driving ever increasing power density and efficiency improvements in package design. Philips is addressing the needs of customers in this key market by equipping the innovative QLPACK package with leading-edge TrenchMOS technology. Occupying a PCB footprint no larger than conventional SO8, QLPACK is significantly thinner yet offers far superior thermal performance, further reinforcing Philips position as a leading developer of application specific power discretes.

QLPACK occupies a PCB footprint no larger than conventional SO8, is significantly thinner and yet offers a far superior thermal performance.



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## Thermal properties

In an SO8 package, the primary thermal pathway is through the thin component legs of the package. Very little heat can pass through the insulating plastic directly under the chip. This results in a high thermal resistance from the device junction to board - typically 20 - 30 K/W.

In contrast, the primary thermal pathway in QLPACK is straight down through the metal leadframe of the package. This is a much more direct pathway and has a typical thermal resistance less than 1.5 K/W - similar to that found in power packages such as DPAK and D<sup>2</sup>PAK, and an enormous improvement on SO8.

## Product overview

Initial new products offered in QLPACK (SOT685) are optimized for primary side switch application in DC/DC converters. (Philips also offers a range of high thermal efficiency devices in LFPACK for secondary switch applications.)

| Type       | R <sub>DS(on)</sub> | Voltage |
|------------|---------------------|---------|
| PHM12NQ20T | 130 mΩ              | 200 V   |
| PHM15NQ20T | 80 mΩ               | 200 V   |
| PHM18NQ15T | 75 mΩ               | 150 V   |
| PHM21NQ15T | 55 mΩ               | 150 V   |
| PHM25NQ10T | 30 mΩ               | 100 V   |
| PHM30NQ10T | 20 mΩ               | 100 V   |

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**PHM15NQ20T**

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**PHM25NQ10T**

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**SA57017**

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**PBSS4140**

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# Philips Semiconductors

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