

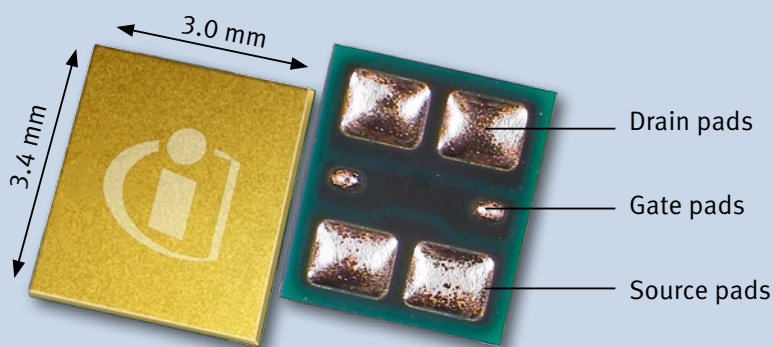


# Blade 3x3

## Pushing the Boundaries for Discrete 25V/30V Power MOSFETs

Blade 3x3 is a discrete MOSFET package with 3.0 x 3.4 mm<sup>2</sup> package outline. With the new and revolutionary Blade packaging concept, Infineon sets a new standard for high performance power packages. This packaging technology doesn't use standard packaging processes like bonding and molding anymore. Interconnects are realized by galvanic processes and the die is protected with a laminate. Blade 3x3 is a source down package with a low thermal resistance to the top side, which allows effective top side cooling. The package footprint with two gate connections and large source and drain pads is optimized for high current handling and easy PCB layout. Using this technology makes it possible to realize products with lowest on state resistances and highest power density without compromising in performance and cooling.

### BLADE 3x3 – footprint



- 3.0 x 3.4 mm<sup>2</sup> footprint with optimized pin out
- Top side cooling capability due to full metall top case:  $R_{thjc-top} = 1.0 \text{ K/W}$
- Junction to bottom thermal resistance:  $R_{thjc-bottom} = 1.6 \text{ K/W}$
- Package height: 0.55 mm

### Features

- Best-in-class on-state resistance
- Low profile (0.55 mm)
- Large drain and source connection pads
- Optimized pin-out
- Low thermal resistance to the package top side
- RoHS compliant and halogen free

### Benefits

- Compact and simplified layout for DC/DC converters
- Optimized layout with lowest loop inductance
- Highest efficiency
- Environmentally friendly

### Applications

- Notebook core, peripheral
- Motherboard core, peripheral
- Server
- Telecom - point of load

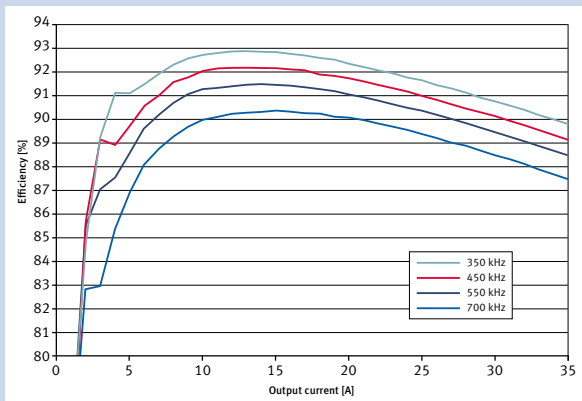


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### Efficiency Measurement

Efficiency measurement of a 1-phase DC/DC converter:  $V_{in}$  12V,  $V_{out}$  1.2V,  $L_{out}$  320 nH,  $T_{ambient}$  25°C, no airflow, no heatsink (included losses: power stage, inductor and controller)

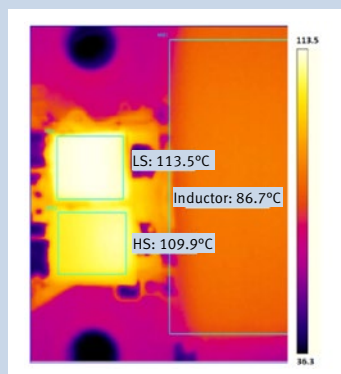
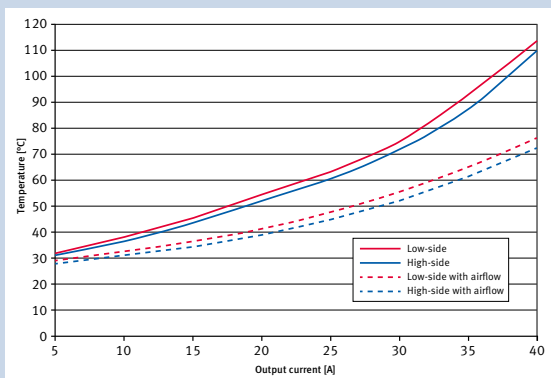


DC/DC converter stage with Blade 3x3 package (driver on backside of the PCB)

### Thermal Measurement

Thermal measurement of high-side and low-side MOSFET in a 1-phase DC/DC converter :

$V_{in}$  12V,  $V_{out}$  1.2 V,  $f_{switch}$  350kHz,  $L_{out}$  320nH, with (250 lfm) and without airflow, no heatsink



### Product Portfolio Blade 3x3

	$V_{DSS}$ [V]	$I_D$ ( $T_c = 25^\circ\text{C}$ ) [A]	$R_{DS(on)}$ max. @ 4.5V [mOhm]	$R_{DS(on)}$ max. @ 10V [mOhm]	$R_{thjc}$ bottom [K/W]	$R_{thjc}$ top [K/W]
BSN011NE2LS	25	50	1,5	1,1	1,6	1,0
BSN011NE2LSI	25	50	1,5	1,1	1,6	1,0
BSN045NE2LS	25	50	6,5	4,5	3,2	1,0
BSN012N03LS	30	50	1,6	1,2	1,6	1,0
BSN012N03LSI	30	50	1,6	1,2	1,6	1,0
BSN048N03LS	30	50	6,6	4,8	3,2	1,0

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