

# Automotive Electronics

## Product Information

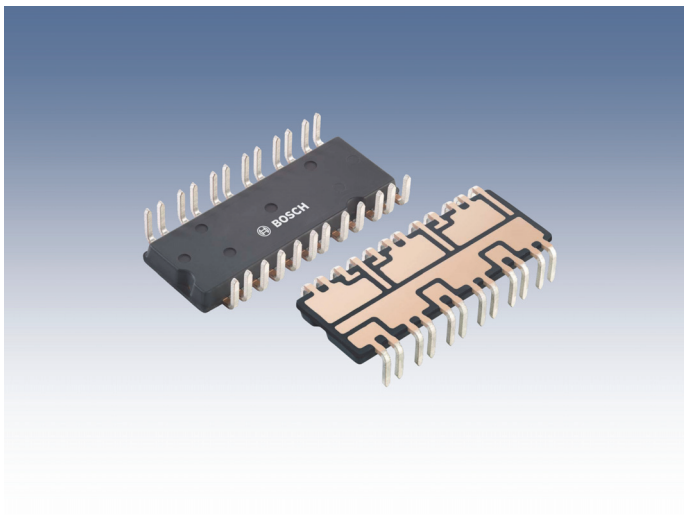
### MB0413A / MR0413A

### MOSFET power modules for Electric Power Steering



**BOSCH**

Invented for life



#### Customer benefits:

- ▶ Robust module combination for compact electric power steering drives
- ▶ Quick mounting
- ▶ Improves system safety and system reliability
- ▶ 50% less space compared to discrete solutions

#### Features

- ▶ High power mold module combination for electric power steering applications
- ▶ Two module approach for high system safety
- ▶ Wirebond-less contacting of MOSFETs for higher reliability
- ▶ Normal level MOSFETs, 40V, N-Channel-Type
- ▶ 100% avalanche tested
- ▶ Quick mounting
- ▶ Improved reliability thanks to just one thermal contact area per module
- ▶ Low inductance layout for reduced voltage overshoot
- ▶ THS (through-hole-soldering) contacts for good mechanical and electrical contact
- ▶ ROHS compliant, halogen-free

#### Product Overview

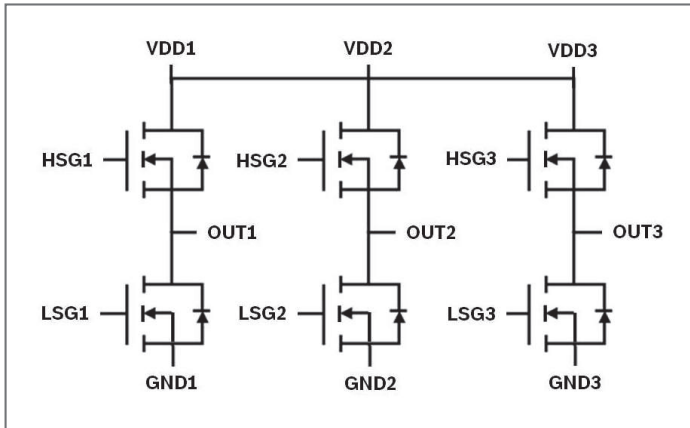
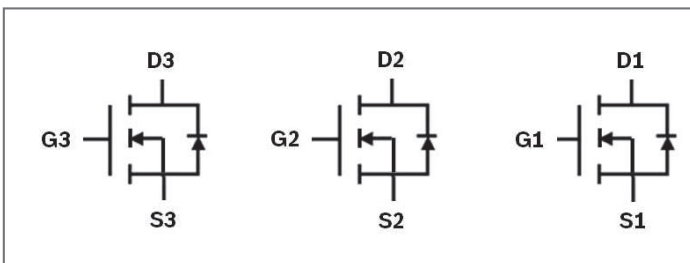
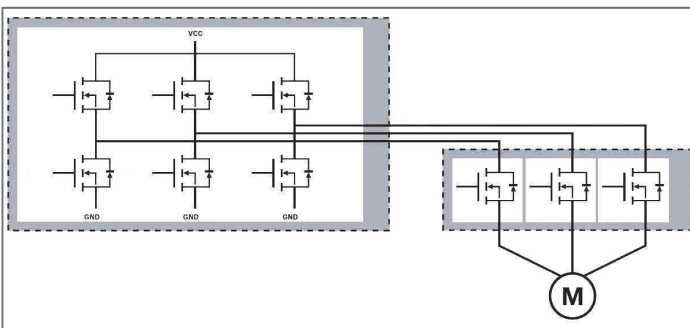
Parameter		Value	
Maximum Drain Source voltage	$V_{DS}$	40	V
DC drain current	$I_D$	130	A
On-state resistance	$R_{on}$	1.6	m $\Omega$
Operating temperature	$T_j$	-40 .. +175	$^{\circ}\text{C}$

The compact MB0413A module is designed to drive 3phase EC motors in electric power steering systems.

The MR0413A module forms an additional safety switch, separating all 3 phases of the steering motor from the power bridge in case of fault conditions.

The modules are specifically designed for environments where high currents have to be handled, space is limited, heat dissipation is critical and high reliability is a must.

Package and Semiconductors have been developed by Bosch, the expert for automotive electronics. MB0413A and MR0413A are part of Bosch's new range of MCPP (Multi-chip Power Package) modules.

**Block Diagram MB0413A**

**Block Diagram MR0413A**

**Typical application**

**Key parameters**

MOSFETs	typ. Value	Unit
Pulsed drain current $I_{D,pulse}$ ( $T_c=25^\circ\text{C}$ )	520	A
Gate source voltage $V_{GS}$	+/- 20	V
Total Gate Charge $Q_g$	119	nC
$R_{th}(j-hs)$	3	K/W
Power dissipation $P_{tot}$ (Junction-Case) ( $T_c = 25^\circ\text{C}$ , $T_{jmax} = 175^\circ\text{C}$ , $R_{th}(j-c) = 0.7\text{ K/W}$ )	180	W
Power dissipation $P_{tot}$ (Junction-Heatsink) ( $T_{hs}=25^\circ\text{C}$ , $T_{jmax} = 175^\circ\text{C}$ , $R_{th}(j-hs)=3\text{ K/W}$ )	50	W

**Package**

Multi Chip Power Package (MCPP) with THS-contacts

**Package size of each module:**

40 mm (L) x 15 (W) x 3.2 mm (H)

**Regional sales contacts**

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