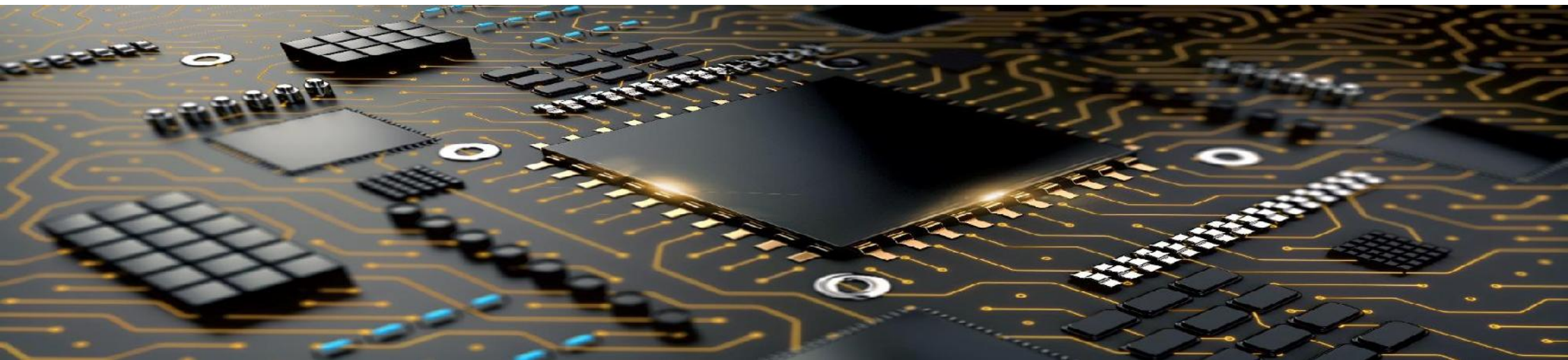




Motor Control Unit Solution | 2025

Applications & Solutions



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Background for Motor Control Units Market

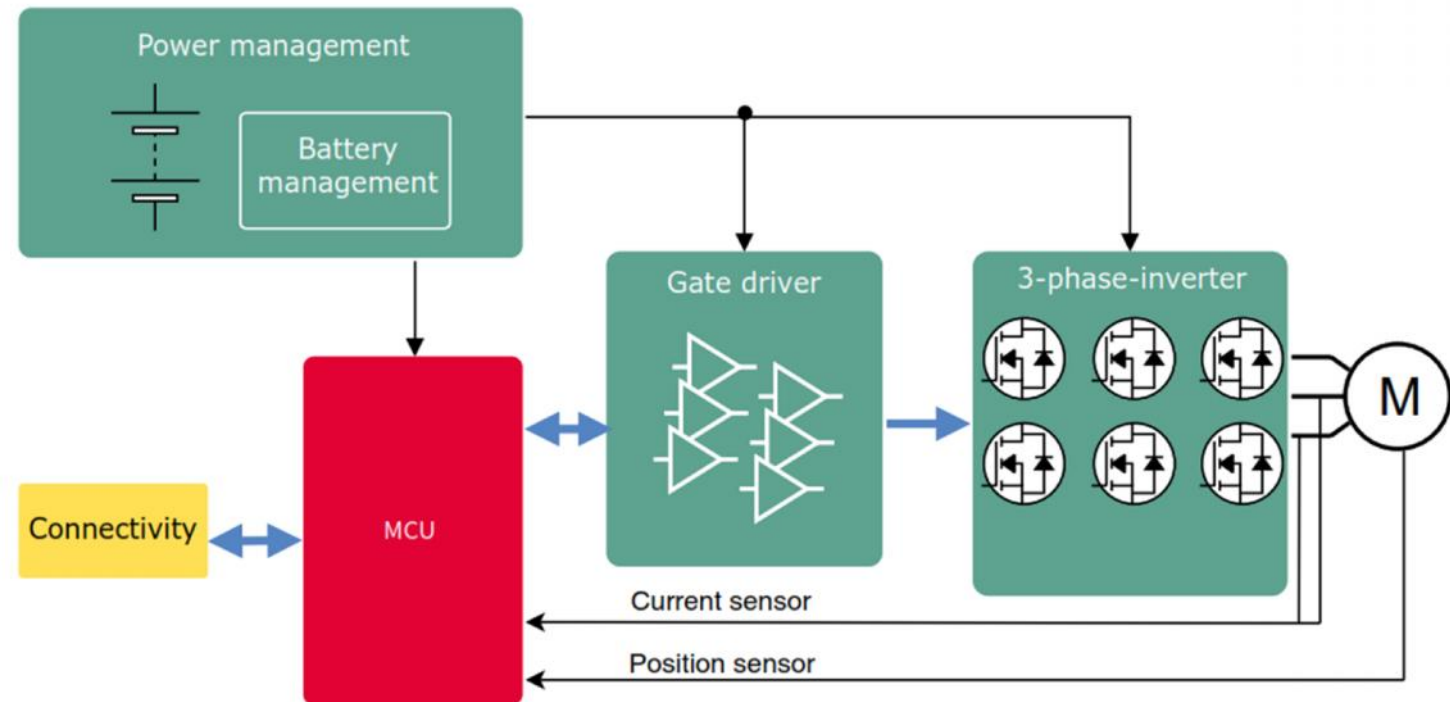


Low power LEV (<3 KW)

- E-scooters (standing, self-balancing and folding types)
- E-bikes
- E-rickshaws, other E-three-wheelers

High power LEV (>3 KW)

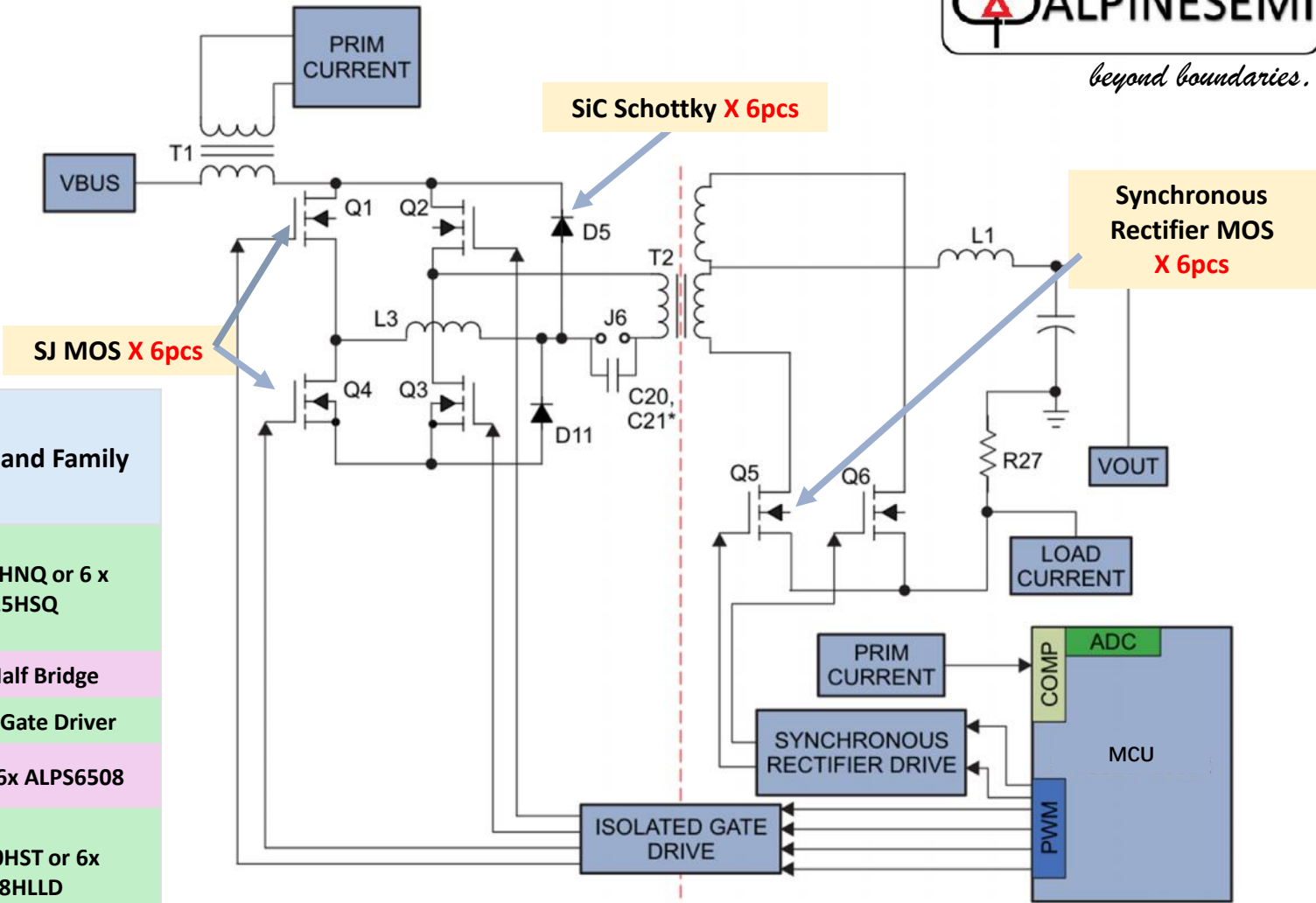
- E-forklifts
- Light utility vehicles (LUVs)
- Low speed electric vehicles (LSEVs / micro EVs)
- E-scooters and E-motorbikes
- E-golf carts



Classic Diagram for Power Discrete in MCU Application (Low Power<3KW)



Product type	Input Connection	Product name and Family
SJ MOSFET	3-phase	6 x ALP65R110HNQ or 6 x ALP65R025HSQ
Isolation Gate Driver		3 x ALP1001 Half Bridge
SR Gate Driver		3 Dual Channel Gate Driver
SiC diode		6x ALPS6006 or 6x ALPS6508
LV MOSFET		6x ALP015N10HST or 6x ALP011N08HLLD



*DC blocking capacitors for VMC operation.

Gate Driver and MOSFET Part List



beyond boundaries...

Application	Voltage class [V]	Configuration	Part number	Source/sink current typ.	Packages	Description	Suitable MOSFET	Function compatible or not	Manufacture's feedback	Sample L/T
Motor Inverter <3kW (<48 V battery)	200 V	High and low-side	IRS2005S	0.29/0.6 A	DSO-8	UVLO, MTON/OFF,max=50ns, 3.3V-15V input	ALPGT06N009 60 V, 0.75 mR, TOLL/ALP007N06N 60 V, 0.75 mR, TOLG/ALP007N06LPR 60 V, 0.7 mR, LFPAK56/ALP016N06HSE 60 V, 1.6 mR, D2PAK	ALPxxx	Pin to Pin	8weeks
	200 V		IRS2011S	1/1 A	DSO-8	UVLO, MTON/OFF,max=20ns, 3.3V-5V input		ALPxxx	Pin to Pin	2weeks
	600 V		2EDL05N06PF	0.36/0.7 A	DSO-8	SOI, UVLO, MTON/OFF,max=60ns, 3.3-15V input, BSD		ALPxxx	Pin to Pin	8weeks
Motor Inverter 3-10KW (48-96 V Battery)	160 V	High and low-side	2ED2738S01G*	4/8 A	DFN10 3x3mm	SOI, integrated BSD, UVLO, separate VSS/COM, thermal pad	ALPG009N08TR 80 V, 0.9 mR, TOLL/ALP011N08HLLD 80 V, 1.35 mQ, TOLT/ALPG015N08LPR 80 V, 1.5 mR, LFPAK56/ALPG007N08HRLD,80 V, 0.7 mR, TOLT	ALPxxx	Function can be compatible, but body size will be bigger than present DFN10. also need to add a outside diode as bootstrap diode on schematic	8weeks if customer approve
	600 V		2EDL23N06PJ	2.3/2.8 A	DSO-14	3.3 V-15 V input, -100 V transient , PGND, SOI, integrated BSD, OCP, UVLO, Enable, fault reporting	ALPG012N10LHR, 100V 1.2mR, LFPAK88/ALPG025N10LPR 100V, 2.5mR, LFPAK56	ALPxxx	Pin to Pin, but need to further review OSAT definition, also need to add a outside diode as bootstrap diode on schematic	8weeks
	600 V		IRS21867S	4/4 A	DSO-8	3-5 V input, MTON/OFF, max=35ns, UVLO, neg. transient robust	ALPG025N10LPR 100V, 2.5mR, LFPAK56	ALPxxx	Pin to Pin	8weeks
	650 V		2ED2181S06F NEW	2.5/2.5A	DSO-8	SOI, integrated BSD, 3.3-15V input, MTON/OFF, max=35ns, -100V transient	ALP015N10HST 100V 1.5mR TOLL/ALP018N10HST 100V 1.8mR	ALPxxx	Pin to Pin, also need to add a outside diode as bootstrap diode on schematic	2weeks
	650 V		2ED2181S06J NEW	2.5/2.5 A	DSO-14	SOI, integrated BSD, 3.3-15V input, MTON/OFF, max=35ns, -100V transient, separate logic and power ground	TOLL/ALPG025N10LPR 100V, 2.5mR, LFPAK56	ALPxxx	Pin to Pin	8weeks
Motor Inverter >10 KW (>96 V Battery)	1200 V	2-ch isolated	2EDB8259F*	5/9 A	DSO-16	3kV basic isolation w. CT technology (UL1577), dead-time control (DTC) and STP, UVLO (4 types), CMTI > 150 V/ns	ALP084N20HSPC 200V 8.4mR TO220C/ALP099N20HSQ 200V 10mR TO247-3L/ALP042N15HXT 150V 4.2mR TOLL	ALPxxx	Need customer to check if it is acceptable without DIS,DT pin	8weeks
	1200 V		2EDB8259Y*	5/9 A	DSO-14			ALPxxx	Need customer to check if it is acceptable without DIS,DT pin	8weeks