



Robust, reliable  
performance

# Motor Driver Product Selector

Our H-bridge, brushed and brushless DC motor drivers offer system designers more efficient motor operation with variable speed and sensorless control for automotive and industrial applications.

## OVERVIEW

Complementing a broad portfolio of MCUs for motion control, NXP's analog and mixed-signal portfolio optimizes integral system performance for continuous operation in harsh environments and applications where high reliability is crucial for success. This analog and mixed-signal portfolio includes low-voltage products designed for both commercial and industrial battery applications, as well as medium-voltage and gate drivers for automotive and industrial applications. Our latest advanced gate driver is designed for high-voltage power IGBTs, including safety functions compliant with ASIL D applications to meet the vehicle electrification trend. These designs use NXP's unique SMARTMOS technology.

AC induction motors (ACIM), permanent magnet synchronous motors (PMSM), brushless DC motors (BLDC) and switched reluctance motors (SR) most effectively meet the high efficiency requirements for these demanding applications. However, brushed DC motors are still used extensively and benefit from more efficient drive circuitry. The current NXP analog and mixed-signal portfolio supports all of these motor types.

## BENEFITS OF SMARTMOS TECHNOLOGY

- ▶ Cost-effective high-voltage (110 V) power analog embedded system process platform
- ▶ Low  $R_{DS(on)}$  \*A (30 mΩ-mm<sup>2</sup>) for thermal efficiency in high-current applications
- ▶ High precision for sensor interface integrated with power applications
- ▶ Advanced isolation capability (-40 V) and robust system transient ESD/EMC immunity
- ▶ Low-power devices to help reduce overall system power consumption
- ▶ Extreme temperature operation for harsh application environments (-40 °C to +175 °C)



## LOW-VOLTAGE MOTOR DRIVER SELECTOR GUIDE TARGETING 2 TO 12 BATTERY BUS APPLICATIONS

Part #	Motor Type	Out	Operation Voltage (V)	Peak Current (A)	LL (V)	Sleep (μA)	Freq. (kHz)	Temp. Range °C	Package Style and (L x W mm) Body Size
MPC17510AEJ	Brushed DC/Actuator Drive	2+1	2.0–15	3.8	4.0–5.5	-	200	-30 to +65	HTSSOP 20 (4.4 x 6.5)
MPC17511EP	Brushed DC/Actuator Drive	2+1	2.0–6.8	3.0	2.7–5.7	-	200	-20 to +65	HVQFN 24 (4 x 4)
MPC17529EJ	Stepper/Brushed DC	4	2.0–6.8	1.4	2.7–5.6	-	200	-20 to +65	HTSSOP 20 (4.4 x 6.5)
MPC17531ATEJ	Stepper/Brushed DC	4	2.0–8.6	1.4	2.7–3.6	2.0	200	-20 to +65	HTSSOP 20 (4.4 x 6.5)
MPC17531ATEP	Stepper/Brushed DC	4	2.0–8.6	1.4	2.7–3.6	2.0	200	-20 to +65	HVQFN 24 (4 x 4)
MC34933EP	Stepper/Brushed DC	4	2.0–7.0	1.4	2.7–5.5	-	200	-20 to +85	HUQFN 16 (3 x 3)
MPC17C724EP	Stepper/Brushed DC	4	2.7–5.5	0.8	2.7–5.5	1.0	200	-20 to +85	HVQFN 16 (3 x 3)

## MEDIUM-VOLTAGE MOTOR DRIVER SELECTOR GUIDE TARGETING 5 TO 24 V BATTERY APPLICATIONS

Part #	Motor Type	Out	Operation Voltage (V)	Peak Current (A)	SPI	Sleep (μA)	Freq. (kHz)	Temp. Range °C	Package Style and (L x W mm) Body Size
MC33886PVW	Brushed DC	2	5.0–28	5.0	-	-	10	-40 to +125	HSOP 20 (11 x 15.9)
MC33887APVW	Brushed DC	2	5.0–28	5.0	-	50	10	-40 to +125	HSOP 20 (11 x 15.9)
MC33887PEK	Brushed DC	2	5.0–28	5.0	-	50	10	-40 to +125	HSOP 54 (17.9 x 7.5)
MC33887PFK	Brushed DC	2	5.0–28	5.0	-	50	10	-40 to +125	HQFN 36 (9 x 9)
MC33926PNB	Brushed DC	2	5.0–28	5.0	-	50	20	-40 to +125	HQFN 32 (8 x 8)
MC33926AES	Brushed DC	2	5.0–28	5.0	-	50	20	-40 to +125	HVQFN 28 (6 x 6)
MC33931EK	Brushed DC	2	5.0–28	5.0	-	50	11	-40 to +125	HSOP 32 (11 x 7.5)
MC33931VW	Brushed DC	2	5.0–28	5.0	-	50	11	-40 to +125	HSOP 44 (15.9 x 11)
MC34931EK	Brushed DC	2	5.0–36	5.0	-	18	11	-40 to +85	HSOP 32 (11 x 7.5)
MC34931SEK	Brushed DC	2	5.0–36	5.0	-	18	20	-40 to +85	HSOP 32 (11 x 7.5)
MC33932EK	Brushed DC/Stepper	4	5.0–28	5.0	-	50	11	-40 to +125	HSOP 54 (17.9 x 7.5)
MC33932VW	Brushed DC/Stepper	4	5.0–28	5.0	-	50	11	-40 to +125	HSOP 44 (15.9 x 11)
MC34932EK	Brushed DC/Stepper	4	5.0–36	5.0	-	18	11	-40 to +85	HSOP 54 (17.9 x 7.5)
MC34932SEK	Brushed DC/Stepper	2	5.0–36	5.0	-	18	20	-40 to +85	HSOP 54 (17.9 x 7.5)
MC33HB2000EK	Brushed DC	2	5.0–36	5.4 / 7.0 / 8.8 / 10.7	Y	50	8.0 SELECT	-40 to +125	HSOP 32 (11 x 7.5)
MC33HB2000FK	Brushed DC	2	5.0–36	5.4 / 7.0 / 8.8 / 10.7	Y	50	8.0 SELECT	-40 to +125	HQFN 32 (8 x 8)
MC33HB2000AES	Brushed DC	2	5.0–36	5.4 / 7.0 / 8.8 / 10.7	Y	50	8.0 SELECT	-40 to +125	HVQFN 28 (6 x 6)
MC33HB2001EK	Brushed DC	2	5.0–36	5.4 / 7.0 / 8.8 / 10.7	Y	50	8.0 SELECT	-40 to +125	HSOP 32 (11 x 7.5)
MC33HB2001FK	Brushed DC	2	5.0–36	5.4 / 7.0 / 8.8 / 10.7	Y	50	8.0 SELECT	-40 to +125	HQFN 32 (8 x 8)
MC33HB2002ES	Brushed DC	2	5.0–36	5.4 / 7.0 / 8.8 / 10.7	Y	50	8.0 SELECT	-40 to +125	HVQFN 28 (6 x 6)

## MOTOR GATE DRIVER AND SWITCH GUIDE TARGETING 5 TO 60 V APPLICATIONS

Part #	Motor Type	Out	Operation Voltage (V)	Gate Drive Current (A)	SPI	Sleep (μA)	Freq. (kHz)	Temp. Range °C	Package Style and (L x W mm) Body Size
MC33883HEG	H-Bridge/DC Brushed	4	5.5–55	1.0	-	10	100	-40 to +125	SO 20 (12.8 x 7.5)
MC33937APEK	Brushless DC	6	6.0–58	1.0	Y	30	20	-40 to +135	HSOP 54 (17.9 x 7.5)
MC34937APEK	Brushless DC	6	6.0–58	1.0	Y	30	20	-40 to +125	HSOP 54 (17.9 x 7.5)
MC33GD3000EP	Brushless DC	6	6.0–60	1.0	Y	30	20	-40 to +125	HVQFN 56 (8 x 8)
MC34GD3000EP	Brushless DC	6	6.0–60	1.0	Y	30	20	-20 to +105	HVQFN 56 (8 x 8)
MC33GD3100EK	PMSM	1	200–1700	1.0	Y	n/a	40	-40 to +150	HSOP 32 (11 x 7.5)
MC33879APEK	Configurable LS/HS Octal Drivers	16	5.5–27.5	1.2	Y	5.0	2.0	-40 to +125	HSOP 32 (11 x 7.5)
MC33880PEG	Configurable LS/HS Octal Drivers	16	5.5–24.5	0.8–2.0	Y	5.0	2.0	-40 to +125	SO 28 (7.5 x 17.93)
MC33880PEW	Configurable LS/HS Octal Drivers	16	5.5–24.5	0.8–2.0	Y	5.0	2.0	-40 to +125	SSOP 32 (11 x 7.5)
MC33996EK	LS Dual-Octal Drivers	16	5.0–27	2.5	Y	10	2.0	-40 to +125	HSOP 32 (11 x 7.5)
MC33999EK	LS Dual-Octal Drivers	16	5.0–27	0.9–2.5	Y	10	2.0	-40 to +125	HSOP 54 (17.9 x 7.5)