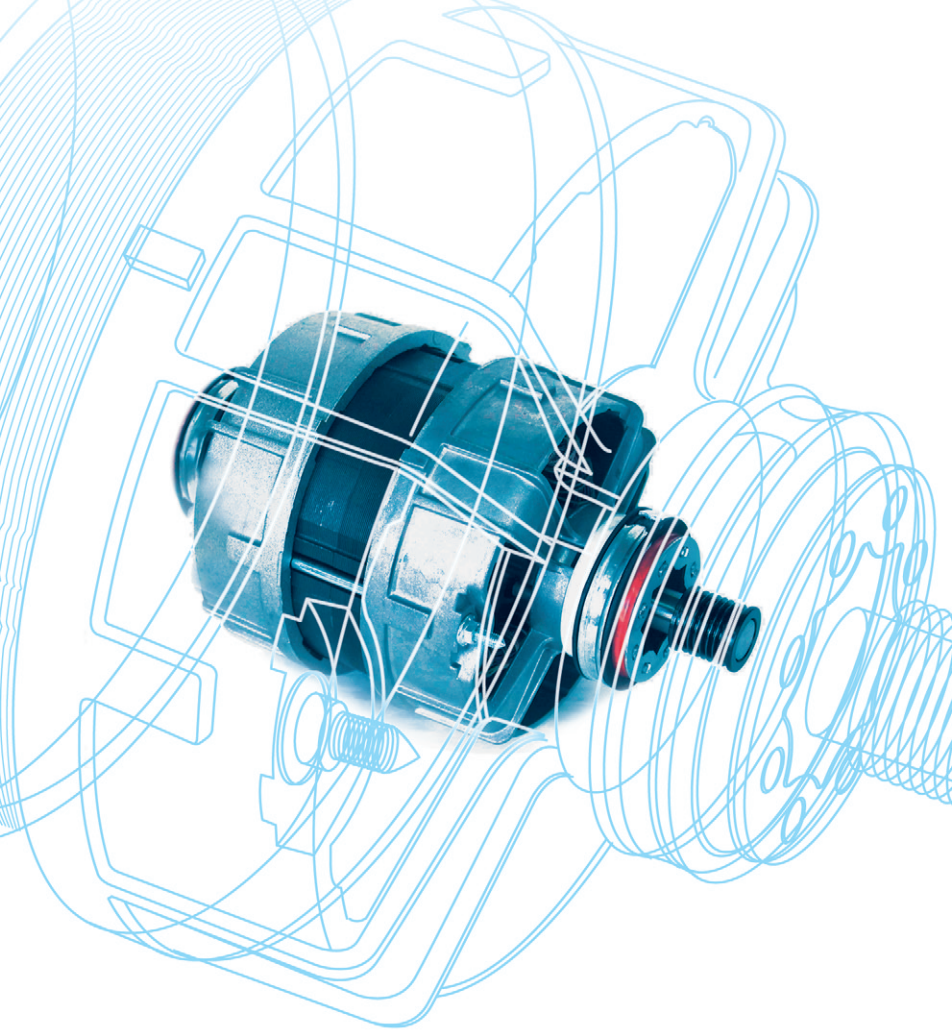
Complete Solutions for Motor Control



Selection Guide

STMicroelectronics

More Intelligent Solutions

8 & 16-BIT STANDARD MICROCONTROLLERS

UNIVERSAL DC MOTOR, UNIVERSAL AC MOTOR, SINGLE PHASE INDUCTION MOTOR

ST6 - General Purpose Control Applications (up to 8 Kbytes address space)

		Part Number	Program Memory Type: Flash	OTP	FAST ROM[1]	ROM	EPROM version	Prog. (Bytes)	RAM (Bytes)	Data E²PROM (Bytes)	A/D Inputs	Timer functions: 16-Bit (IC/OC/PWM)	8-Bit (IC/OC/PWM)	Others	Serial Interface	LVD levels	I/Os (High Current) (5)	Packages	Special Features		App. Notes
8-Bit ST6	16 Pins	ST6200C		●	●	●[2]	●	1K	64		4x8-Bit		1 (0/0/0)	WDG		1	9 (3)	DIP16 SO16 SSOP16	RC oscillator, OSG, ROP, Direct LED/Triac Driving		392
		ST6201C		●	●	●[2]	●	2K	64		4x8-Bit		1 (0/0/0)	WDG		1	9 (3)				414
		ST6203C		●	●	●[2]	●	1K	64		–		1 (0/0/0)	WDG		1	9 (3)				416
		ST6252C		●	●	●[2]	●	2K	128		4x8-Bit		1+1 (1/1/1)	WDG		1	9 (5)		RC oscillator, OSG, Auto-reload timer, ROP, Direct LED/Triac Driving, IC/OC		422
		ST6262C		●	●	●[3]	●	2K	128	64	4x8-Bit		1+1 (1/1/1)	WDG		1	9 (5)				863
	20 Pins	ST6208C		●	●	●[2]	●	1K	64		–		1 (0/0/0)	WDG		1	12 (4)	DIP20 SO20	RC oscillator, OSG, ROP, Direct LED/Triac Driving		419
		ST6209C		●	●	●[2]	●	1K	64		4x8-Bit		1 (0/0/0)	WDG		1	12 (4)				674
		ST6210C		●	●	●[2]	●	2K	64		8x8-Bit		1 (0/0/0)	WDG		1	12 (4)				885
		ST6218C		●		●[2]	●	8K	192		7x8-Bit		1+1 (1/1/1)	WDG	UART	1	12 (8)		RC oscillator, OSG, Auto-reload timer, ROP, Direct LED/Triac Driving, IC/OC		677
		ST6220C		●	●	●[2]	●	4K	64		8x8-Bit		1 (0/0/0)	WDG		1	12 (4)		RC oscillator, OSG, ROP, Direct LED/Triac Driving		431
		ST6253C		●	●	●[2]	●	2K	128		7x8-Bit		1+1 (1/1/1)	WDG	SPI	1	13 (6)		RC oscillator, OSG, Auto-reload timer, ROP, Direct LED/Triac Driving, IC/OC		672
		ST6260C		●	●	●[3]	●	4K	128	128	7x8-Bit		1+1 (1/1/1)	WDG	SPI	1	13 (6)				420
		ST6263C		●	●	●[3]	●	2K	128	64	7x8-Bit		1+1 (1/1/1)	WDG	SPI	1	13 (6)				432
	28 - 42 Pins	ST6215C		●	●	●[2]	●	2K	64		16x8-Bit		1 (0/0/0)	WDG		1	20 (4)	DIP28 SO28 SSOP28	RC oscillator, OSG, ROP, Direct LED/Triac Driving		435
		ST6225C		●	●	●[2]	●	4K	64		16x8-Bit		1 (0/0/0)	WDG		1	20 (4)				669
		ST6228C		●		●[2]	●	8K	192		12x8-Bit		1+1 (1/1/1)	WDG	SPI/UART	1	20 (8)		RC oscillator, OSG, Auto-reload timer, ROP, Direct LED/Triac Driving, IC/OC		670
		ST6255C		●	●	●[2]	●	4K	128		13x8-Bit		1+1 (1/1/1)	WDG	SPI	1	21 (8)		RC oscillator, OSG, Auto-reload timer, ROP, Direct LED/Triac Driving, IC/OC		671
		ST6265C		●	●	●[3]	●	4K	128	128	13x8-Bit		1+1 (1/1/1)	WDG	SPI	1	21 (8)				911
		ST6230B		●		●	●	8K	192	128	16x8-Bit	1 (2/2/2)	1 (0/0/0)	WDG	SPI/UART		20 (4)	DIP28 / SO28	Auto-reload timer, ROP, Direct LED/Triac Driving, IC/OC		1015
		ST6232B		●		●	●	8K	192	128	21x8-Bit	1 (2/2/2)	1 (0/0/0)	WDG	SPI/UART		30 (9)	SDIP42			590
	LCD	ST6240B		●		●	●	8K	216	128	12x8-Bit		2 (0/0/0)	WDG	SPI		24 (4)	QFP80	45x4 Segment LCD	Direct LED/Triac driving, ROP	591
		ST6246B		●		●	●	4K	140	128	8x8-Bit		2 (0/0/0)	WDG	SPI		20 (4)	SDIP56	27x4 Segment LCD		592
																					593
																					913
																					914
																					1016
																					1050
																					1127

ST7 - Industry standard, fast core architecture with innovative peripherals (up to 64K bytes address space)

Part Number	Program Memory Type: Flash	OTP	FAST ROM[1]	ROM	EPROM version	Prog. (Bytes)	RAM (Bytes)	Data E²PROM (Bytes)	A/D Inputs	Timer functions: 16-Bit (IC/OC/PWM)	8-Bit (IC/OC/PWM)	Others	Serial Interface	LVD levels	I/Os (High Current) (5)	Packages	Special Features	App. Notes
ST7 BASELINE																		
ST72104G1	●		●	●		4K	256			1 (2/2/1)		WDG	SPI	3	22 (8)			

8Bit ST7	28 - 32 Pins	**ST72104G2**	●		●	●		8K	256			1 (2/2/1)		WDG	SPI	3	22 (8)	SDIP32 SO28 (Pin to pin compatible)	RC oscillator, clock security system, in-situ programming, ROP, direct LED/Triac driving (upgrade of ST72101/112/113 & ST72251)	985
		ST72216G1	●		●	●		4K	256		6x8-Bit	1 (2/2/1)		WDG	SPI	3	22 (8)			986
		ST72216G1	●		●	●		8K	256		6x8-Bit	2 (4/4/2)		WDG	SPI	3	22 (8)			987
		ST72254G1	●		●	●		4K	256		9x8-Bit	2 (4/4/2)		WDG	SPI/I²C	3	22 (8)			988
	42 - 44 Pins	**ST722454G2**	●		●	●		8K	256		6x8-Bit	2 (4/4/2)		WDG	SPI/I²C	3	22 (8)			989
		ST72314J2	●		●	●		8K	384		6x8-Bit	2 (3/3/2)		WDG, RTC	SPI/SCI	3	32 (4)	SDIP42 TQFP44 (Pin to pin compatible)	RC oscillator, clock security system, in-situ programming, ROP, 4 low power modes with Active-HALT, direct LED/Triac driving, beep[4] (upgrade of ST72121, ST72311J & ST72331J)	1039
		ST72314J4	●		●	●		16K	512		6x8-Bit	2 (3/3/2)		WDG, RTC	SPI/SCI	3	32 (4)			1064
		ST72334J2	●		●	●		8K	384	256	6x8-Bit	2 (3/3/2)		WDG, RTC	SPI/SCI	3	32 (4)			1106
		ST72334J4	●		●	●		16K	512	256	6x8-Bit	2 (3/3/2)		WDG, RTC	SPI/SCI	3	32 (4)			969
	56 - 64 Pins	**ST72314N2**	●		●	●		8K	384		8x8-Bit	2 (3/3/2)		WDG, RTC	SPI/SCI	3	44 (8)	SDIP56 TQFP64 (Pin to pin compatible)	RC oscillator, clock security system, in-situ programming, ROP, 4 low power modes with Active-HALT, direct LED/Triac driving, beep[4] (upgrade of ST72311N & ST72331N)	970
		ST72314N4	●		●	●		16K	512		8x8-Bit	2 (3/3/2)		WDG, RTC	SPI/SCI	3	44 (8)			971
		ST72334N2	●		●	●		8K	384	256	8x8-Bit	2 (3/3/2)		WDG, RTC	SPI/SCI	3	44 (8)			972
		ST72334N4	●		●	●		16K	512	256	8x8-Bit	2 (3/3/2)		WDG, RTC	SPI/SCI	3	44 (8)			973
	OP	**ST72171K2**	●					8K	256		8x8-Bit	1 (2/2/1)	1 (1/2/2)	WDG	SPI/SCI	3	22 (5)	SDIP32 / SO34	3 Op-Amps, programmable gain	974
	ST7 LITE																			976
	16-20 P.	**ST7FLITE05**	●[7]					1.5K	128		5x8-Bit		2 (1/1/1)9)	WDG, RTC	SPI	3	13 (6)	DIP16/SO16	ADC with op-amp, PLL, ROP, ICP, IAP, 1% RC oscillator	979
		ST7FLITE09	●[7]					1.5K	128	128	5x8-Bit		2 (1/1/1)9)	WDG, RTC	SPI	3	13 (6)			980
	28-32 Pins	**ST72260G1**	●[7]			❍		4K	256			2 (4/4/2)		WDG	SPI	3	22 (8)			1041
		ST72262G1	●[7]			❍		4K	256		6x10-Bit	2 (4/4/2)		WDG	SPI	3	22 (8)			1042
		ST72262G2	●[7]			❍		8K	256		6x10-Bit	2 (4/4/2)		WDG	SPI	3	22 (8)	SDIP32/SO28	ROP, ICP, IAP, clock security system, PLL, nested interrupts	1044
		ST72264G1	●[7]			❍		4K	256		6x10-Bit	2 (4/4/2)		WDG	SPI/SCI/I²C	3	22 (8)			1045
		ST72264G2	●[7]			❍		4K	256		6x10-Bit	2 (4/4/2)		WDG	SPI/SCI/I²C	3	22 (8)			1046
	ST7 MID-RANGE																			1047
	32 Pins	**ST72324K2**	●[6]			❍		8K	384		8x10-Bit	2 (3/3/1)11)		WDG, RTC	SPI/SCI	3	24 (10)	SDIP32 TQFP32	ICP, IAP, Nested interrupts, TLI, clock security system, ROP, beep[4]	1078
		ST72324K4	●[6]			❍		16K	512		8x10-Bit	2 (3/3/1)11)		WDG, RTC	SPI/SCI	3	24 (10)			982
		ST72324K6	●[6]			❍		32K	1K		8x10-Bit	2 (3/3/1)11)		WDG, RTC	SPI/SCI	3	24 (10)			1014
	44 Pins	**ST72321J7**	●[6]			❍		48K	1.5K		12x10-Bit	2 (3/3/2)	2 (3/3/2)	WDG, RTC	SPI/SCI/C	3	32 (12)	TQFP44	ICP, IAP, Nested interrupts, TLI, clock security system, ROP, beep[4]	1070
		ST72321J9	●[6]			❍		60K	2K		12x10-Bit	2 (3/3/2)	2 (3/3/2)	WDG, RTC	SPI/SCI/C	3	32 (12)			1179
		ST72324J2	●[6]			❍		8K	384		12x10-Bit	2 (3/3/1)11)		WDG, RTC	SPI/SCI	3	32 (12)	SDIP42 TQFP44		990
		ST72324J4	●[6]			❍		16K	512		12x10-Bit	2 (3/3/1)11)		WDG, RTC	SPI/SCI	3	32 (12)			1150
		ST72324J6	●[6]			❍		32K	1K		12x10-Bit	2 (3/3/1)11)		WDG, RTC	SPI/SCI	3	32 (12)			1151
	64 Pins	**ST72321(AR/R)6**	●[6]			❍		32K	1K		16x10-Bit	2 (4/4/2)	1 (2/4/4)	WDG, RTC	SPI/SCI/C	3	48 (16)	TQFP64 (10x10)/(14x14)	ICP, IAP, Nested interrupts, TLI, clock security system, ROP, beep[4]	
		ST72321(AR/R/M)7	●[6]			❍		48K	1.5K		16x10-Bit	2 (4/4/2)	1 (2/4/4)	WDG, RTC	SPI/SCI/C	3	48 (16)	TQFP64 (10x10)/(14x14)		
		ST72321(AR/R/M)9	●[6]			❍		60K	2K		16x10-Bit	2 (4/4/2)	1 (2/4/4)	WDG, RTC	SPI/SCI/C	3	48 (16)	TQFP80		
	CAN	**ST72521(AR/R)6**	●[6]			❍		32K	1K		16x10-Bit	2 (4/4/2)	2 (4/4/2)	WDG, RTC	SPI/SCI/C/CAN	3	48 (16)	TQFP64 (10x10)		
		ST72521(AR/R/M)7	●[6]			❍		48K	1.5K		16x10-Bit	2 (4/4/2)	2 (4/4/2)	WDG, RTC	SPI/SCI/C/CAN	3	48 (16)	TQFP64 (14x14)		
		ST72521(AR/R/M)9	●[6]			❍		60K	2K		16x10-Bit	2 (4/4/2)	2 (4/4/2)	WDG, RTC	SPI/SCI/C/CAN	3	64 (16)	TQFP80		

UNIVERSAL DC MOTOR, UNIVERSAL AC MOTOR, SINGLE PHASE INDUCTION MOTOR

ST FIVE - Intelligent Controller Unit (ICU) Family Products

		Part Number	Program Memory Type: Flash	OTP	FAST ROM[1)]	ROM	EPROM version	Prog. (Bytes)	RAM (Bytes)	Data E²PROM (Bytes)	A/D Inputs	Timer functions: 16-Bit (IC/OC/PWM)	8-Bit (IC/OC/PWM)	Others	Serial Interface	LVD levels	I/Os (High Current) (5)	Packages	Special Features	App. Notes
8-Bit STFIVE		**ST FIVE 408 OTP Family**																		
	20 - 28 Pins	**ST52T400Fx**	-	●	●	-	●	1K - 8K	128 - 256	-	-	-	2 (2/2/3)	WDG	-	1	13 (13)	SO20/DIP20	14-Bit ADC Single/MultiScan capability Analog Comparator with 16-bit timer PWM up to 78kHz@8Bit 156kHz@7Bit Triac / IGBT Integrated Controller Triac Drive 50mA	1512 1362 1362 1328 1327 1291
		ST52T400Gx	-	●	●	-	●	1K - 8K	128 - 256	-	-	-	2 (2/2/3)	WDG	-	1	21 (21)	SO28/DIP28		
		ST52T440Fx	-	●	●	-	●	1K - 8K	128 - 256	-	4x14-Bit	-	3 (3/3/6)	WDG	-	1	13 (13)	SO20/DIP20		
		ST52T440Gx	-	●	●	-	●	1K - 8K	128 - 256	-	6x14-Bit	-	3 (3/3/6)	WDG	-	1	21 (21)	SO28/DIP28		
		ST52T410Gx	-	●	●	-	●	1K - 4K	128	-	-	-	3 (3/3/6)	WDG	-	-	19 (19)	SO28/DIP28	PWM up to 78kHz @8-Bit 156kHz@7Bit Timers Complementary Outputs ADC Single/MultiScan with Sample & Hold ADC Conversion Time 4us	1295 1221 1255 1298 1264 1222 1254
		ST52T420Gx	-	●	●	-	●	1K - 4K	128	-	8x8-Bit	-	3 (3/3/6)	WDG	-	-	19 (19)	SO28/DIP28		
		ST FIVE 508 OTP																		
	20 - 28 Pins	**ST52T520Fx**	-	●	●	-	●	1K - 8K	256 - 512	-	6x8-Bit	2 (2/2/2)	-	WDG	I^2C	1	14 (14)	SO20/DIP20	PWM up to 78Khz @8-Bit 156Khz @7-Bit Timers Syncronization ADC Conversion Time 4us MultiMaster/MultiSlave I_C up to 400Khz Full Duplex MultiMaster SPI	1112 1113 1115 1147 1114 1146
		ST52T520Gx	●	●	●	-	●	1K - 8K	256 - 512	-	8x8-Bit	2 (2/2/2)	-	WDG	SPI/I^2C	1	22 (22)	SO28/DIP28		
		ST52T521Fx	●	●	●	-	●	1K - 8K	256 - 512	-	-	2 (2/2/2)	-	WDG	I^2C	1	14 (14)	SO20/DIP20		
		ST52T521Gx	●	●	●	-	●	1K - 8K	256 - 512	-	-	2 (2/2/2)	-	WDG	SPI/I^2C	1	22 (22)	SO28/DIP28		

BRUSHLESS PERMANENT MAGNET DC MOTOR, SWITCHED RELUCTANCE MOTOR

ST7 - Industry standard, fast core architecture with innovative peripherals (up to 64K bytes address space)

	Part Number	Program Memory Type: Flash	OTP	FAST ROM[1)]	ROM	EPROM version	Prog. (Bytes)	RAM (Bytes)	Data E²PROM (Bytes)	A/D Inputs	Timer functions: 16-Bit (IC/OC/PWM)	8-Bit (IC/OC/PWM)	Others	Serial Interface	LVD levels	I/Os (High Current) (5)	Packages	Special Features	App. Notes
8-Bit	**ST72141K2**		●		●	●	8K	256		8x8-Bit	2 (4/4/2)		WDG	SPI	1		SDIP32/SO34	Sensorless brushless permanent magnet DC Motor Controller in 6 step mode, emergency input	1082,1083,1129, 1130,1276,1321

THREE-PHASE INDUCTION MOTOR

ST9 - 8/16-Bit high performance core for fast real time management (up to 4 Mbytes address space)

	Part Number	Program Memory Type					Prog. (Bytes)	RAM (Bytes)	Data E²PROM (Bytes)	A/D Inputs	Timer functions			Serial Interface	LVD levels	I/Os (High Current) (5)	Packages	Special Features	App. Notes
		Flash	OTP	FAST ROM[1]	ROM	EPROM version					16-Bit (IC/OC/PWM)	8-Bit (IC/OC/PWM)	Others						
8/16-Bit	ST92141K4		●	●		●	16K	512		6x8-Bit	3 (4/4/3)		WDG	SPI		15 (4)	SDIP32/PSO34	Asynchronous 3-phase Motor Controller with 6 10-Bit PWMs, dead time generator, emergency input, PLL clock	1084, 1277, 1367, 1498, 1499

ST10 - Fast core with advanced interrupt management (up to 10 Mbytes address space)

		Part Number	Program Memory Type					Prog. (Bytes)	RAM (Bytes)	Data E²PROM (Bytes)	A/D Inputs	Timer functions			Serial Interface	LVD levels	I/Os (High Current) (5)	Packages	Special Features	App. Notes
			Flash	OTP	FAST ROM[1]	ROM	EPROM version					16-Bit (IC/OC/PWM)	8-Bit (IC/OC/PWM)	Others						
16-Bit	CAN	ST10R167-Qx						None	4K		16x10-Bit	5		WDG	USART/SSC/CAN		111	PQFP144	ROMless, PEC, CAN, PWM, CAPCOM	
		ST10F168SQx	-					256K	8K		16x10-Bit	5		WDG	USART/SSC/CAN		111			
		ST10F269Z2Qx	-					256K	12K		16x10-Bit	5		WDG	USART/SSC/CAN		111		PEC, CAN, PWM, CAPCOM, MAC	
		ST10F269Z2T6	-					256K	12K		16x10-Bit	5		WDG	USART/SSC/CAN		111	TQFP144	PEC, CAN, PWM, CAPCOM, MAC	

ST FIVE - Intelligent Controller Unit (ICU) Family Products

		Part Number	Program Memory Type					Prog. (Bytes)	RAM (Bytes)	Data E²PROM (Bytes)	A/D Inputs	Timer functions			Serial Interface	LVD levels	I/Os (High Current) (5)	Packages	Special Features	App. Notes
			Flash	OTP	FAST ROM[1]	ROM	EPROM version					16-Bit (IC/OC/PWM)	8-Bit (IC/OC/PWM)	Others						
8-Bit	28 Pins	ST52T420Gx	-	●	●	-	●	1K - 4K	128	-	8x8-Bit	-	3 (3/3/6)	WDG	-	-	19 (19)	SO28/DIP28	External Top Level INT 25ma source/sink per I/O PWM up to 78kHz @8-Bit 156kHz@7Bit Timers Syncronization Timers Complementary Outputs ADC Single/MultiScan with Sample & Hold ADC Conversion Time 4us	1112, 1291
	32 34 Pins	ST52T430Kx	-	●	●	-	●	2K - 8K	256	-	8x8-Bit	-	3 (3/3/6)	WDG	SCI	-	23 (23)	SSO34/SDIP32 TQFP32		

Abbreviations

ADC = Analog to Digital Converter
ART = Auto-Reload Timer
BLPD = Byte Level Protocol Decoder
CAN = Controller Area Network
CAPCOM = Capture Compare
DALI = Digital Adressable Lighting Interface
DSC = Dual Supply Control
DTC = Data Transfer Coprocessor
IAP = In-Application Programming
IC/OC = Input Capture/Output Compare
ICP = In-Circuit Programming
ISP = In-Situ Programming
IC = Inter Integrated Circuit
LCD = Liquid Crystal Display
LIN = Local Interconnect Network
LVD = Low Voltage Detection
MAC = Multiply Accumulator
MC = Motor Control
MFT = Multifunction Timer
OSG = Oscillator Safeguard
PEC = Peripheral Event Controller
PLL = Phase Locked Loop
PVR = Programmabble Voltage Regulator
PWM = Pulse Width Modulation
ROP = Readout Protection
RTC = Real Time Clock Timer
SC = Smart Card
SCI = Serial Communication Interface (UART)
SCR = Smartcard Readed
SPI = Seria Peripheral Interface
SSC = Single-Cycle Switching Support
SSP = Synchronous Serial Port
TBU = Time Base Unit
UART = Universal Asynchronous Receiver Transmitter
USART = Universal Synchr./Asynchr. Receiver Transmitter
USB = Universal Serial Bus
WDG = Watchdog Timer
WWDG = Windows Watchdog Timer

Packages

DIP = Dual In Line
LCC = Leaded Chip Carrier
QFP = Quad Flat Pack
SDIP = Shrink Dual In Line
SO = Small Outline
SSOP = Shrink small outline package
TQFP = Thin Quad Flat Pack

To get more information: * ST Microcontroller Website: http://mcu.st.com
* ST Parametric Search: http://www.st.com/psearch/index.htm
* ST Microcontroller CD-ROM (contact your nearest Sales Office)

Notes

❍ Under development
1. Factory Advanced Service Technique ROM
2. The device exists in low voltage version
3. The device exists in B version only (without LVD and OSG)
4. Audio square wave generator
5. Number of high current pins included in the number of I/O pins
6. HDFlash (High Density Flash)
7. XFlash (Extended Flash)
8. Low voltage version planned: 3.0V to 3.6V
9. 1x8-Bit (1/0/0) and 1x12-Bit (0/0/1)
10. 1x8-Bit (1/0/0) and 1x12-Bit (1/1/4)
11. A second PWM is available but with fixed frequency

8 & 16-BIT STANDARD MICROCONTROLLERS DEVELOPMENT TOOLS

MOTOR CONTROL DEMONSTRATION/DEVELOPMENT TOOLS/APPLICATION NOTES

	MCU Family	Target Product	Target Motor	Salestype	Description	App. Notes
ST	**ST6**	ST6200	Universal Motor	UMC01Eval (Contact ST sales office or distributor)	Demonstration kit to run you own motor. The kit includes universal motor and a control board.	392, 414, 416,422, 863, 419, 674, 885, 1448,1449, 1476
ST	**ST6**	ST6200	Single Phase Asynchronous Induction Compressor	Therm01Eval (Contact ST sales office or distributor)	Demonstration kit to run your own compressor, by replacing the electro-mechanical relay with the digital control board.	
ST	**ST7**	ST72141	3 Phase Permanent Magnet Brushless DC Motor	ST7MTC2 (available from www.kanda.com or ST)	Development kit to configure and run your own motor. This kit includes a 24 V BLDC motor, a control board and a 300 V power board, PC Windows interface, standard software, application builder and programming board.	1082, 1083, 1129, 1130, 1276, 1321
ST	**ST9**	ST92141	3 Phase Asynchronous Induction Motor	ST92141-kit (Contact ST sales office or distributor)	Demonstration kit to run your own motor. The kit includes 300 V Induction Motor (in closed loop), a control and power board, PC Windows interface, standard C software.	1084, 1277, 1367, 1498, 1499
ST	**STFIVE**	ST52T420/T410	Single Phase Asynchronous Induction Motor	ST52MC1/KIT	Demonstration Kit to run your own motor through a patented ST topology for silent and efficient driving. The kit includes a controlboard and all components to be mounted.	1255, 1512, Board Manual
ST	**STFIVE**	ST52T440/T400	Universal and Single Phase Asynchronous Induction Motors	ST52MC3/KIT	Demonstration Kit to run your own motor through a Triac based topology and Viper12 (with ST52 DIP28). The kit includes a control board and all components to be mounted.	1221, 1295, Board Manual
ST	**STFIVE**	ST52T440/T400	Universal and Single Phase Asynchronous Induction Motors	ST52MC4/KIT	Demonstration Kit to run your own motor, through a Triac based topology and a low cost power supply (with ST52 DIP20). The kit includes a control board and all components to be mounted.	1221, 1295, Board Manual

SOFTWARE TOOLS

	MCU Family	C Toolchain	Specific Tools	Real Time Kemel	IDE	Debugger	App. Builder
ST	**ST6**	ST6RAIS-SWC/PC	STREALIZER-II — ST6-FUZZY/PC		Ride	WGDB6	
	ST7		STREALIZER-II		STVD7	WGDB7	
	ST9	ST9P-SWC/V4			STVD9	WGDB9	
	STFIVE	VISUAL FIVE - FSASM - AFM					
Third Party	**STFIVE**				Raisonance	Raisonance	
	ST6	Raisonance	Actum (graphic programming) Advanced Micro Tools (codesign tool)		Raisonance	Raisonance	
	ST7	Hiware, Cosmic	Actum (graphic programming) RistanCase (CASE Tool) emWare (internet enabling technology)	CMX	Hiware Isystem Kanda Cosmic	Hiware Cosmic Isystem Hitex	Kanda
	ST9			CMX			
	ST10	Tasking, Kell		CMX			

ST6 - Hardware Development Tools

	Part Number	Evaluation Board	Starter Kit	Emulator	Dedicated Board	Single Programmer
Pins	**ST6200C**		ST622XC-KIT [1]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E2XC-EPB [3]
	ST6201C		ST622XC-KIT [1]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E2XC-EPB [3]
	ST6203C		ST622XC-KIT [1]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E2XC-EPB [3]

28 Pins	**ST6252C**		ST626XC-KIT [2]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E6XC-EPB [3]
	ST6262C		ST626XC-KIT [2]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E6XC-EPB [2]
20 Pins	**ST6210C**		ST622XC-KIT [1]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E2XC-EPB [3]
	ST6220C		ST622XC-KIT [1]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E2XC-EPB [3]
	ST6253C		ST622XC-KIT [2]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E6XC-EPB [2]
	ST6260C		ST622XC-KIT [2]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E6XC-EPB [2]
	ST6263C		ST622XC-KIT [2]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E6XC-EPB [2]
28-42 Pins	**ST6225C**	ST62-DEMOSAFE [1)4)]	ST622XC-KIT [1]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E2XC-EPB [3]
	ST6265C	ST626X-EVAL [5]	ST622XC-KIT [2]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E6XC-EPB [2]
	ST6230B	ST62-DEMOSAFE [1)4)]	ST63X-KIT [1]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E3X-EPB [3]
	ST6232B		ST63X-KIT [1]	ST62GP-EMU2 [6]	ST62GP-DBE	ST62E3X-EPB [3]
LCD	**ST6240B**		ST6224XB-KIT [1]	ST6240B-EMU2 [6]	ST624XB-DBE	ST62E4XB-EPB [2]
	ST6280B			ST6280-EMU2 [6]	ST62GP-DBE	ST62E8X-EPB [3]

Notes: 1. Add Sufix/110/220 or/UK for the power supply for your region.
2. Add Sufix/EU/US or/UK for the power supply for your region.
3. Add Sufix/110 or/220 for the power supply for your region.
4. Board for demonstrating the robustness of the ST6 in a noisy environment.
5. Validation and trainig board with LEDs, push buttons...
6. Emulators interface with Raisonance's IDE (RIDE).

ST7 - Hardware Development Tools

	Part Number	Evaluation Board	Starter Kit [3]	In-circuit Debugging [4]	Development Kit [4)5)]	Emulator	Active Probe & T.E.B	Single Programmer [5]
ST7 BASELINE	**ST72104**	ST7MDT1-TRAIN [1]	ST7KND1-KIT2 [1]	ST7C254-INDART	ST7MDT1-DVP2 [1]	ST7MDT1-EMU2B	ST7MDT1-DBE2B	ST7MDT1-EPB2 [2]
	ST72215	ST7MDT1-TRAIN [1]	ST7KND1-KIT2 [1]	ST7C254-INDART	ST7MDT1-DVP2 [1]	ST7MDT1-EMU2B	ST7MDT1-DBE2B	ST7MDT1-EPB2 [2]
	ST72216	ST7MDT1-TRAIN [1]	ST7KND1-KIT2 [1]	ST7C254-INDART	ST7MDT1-DVP2 [1]	ST7MDT1-EMU2B	ST7MDT1-DBE2B	ST7MDT1-EPB2 [2]
	ST72254	ST7MDT1-TRAIN [1]	ST7KND1-KIT2 [1]	ST7C254-INDART	ST7MDT1-DVP2 [1]	ST7MDT1-EMU2B	ST7MDT1-DBE2B	ST7MDT1-EPB2 [2]
	ST72311	ST7MDT1-TRAIN [1]	ST7KND2-KIT2 [1]		ST7MDT2-DVP2 [1]	ST7MDT2-EMU2B [7]	ST7MDT2-DBE2B	ST7MDT2-EPB2 [2)8)]
	ST72314	ST7MDT1-TRAIN [1]	ST7KND2-KIT2 [1]	ST7C334-INDART	ST7MDT2-DVP2 [1)6)]	ST7MDT2-EMU2B [7]	ST7MDT2-DBE2B	ST7MDT2-EPB2 [2)8)]
	ST72334	ST7MDT1-TRAIN [1]	ST7KND2-KIT2 [1]	ST7C334-INDART	ST7MDT2-DVP2 [1)6)]	ST7MDT2-EMU2B [7]	ST7MDT10-TEB	ST7MDT2-EPB2 [2)8)]
ST7 LITE	**ST7LITE0**	ST7MDT1-TRAIN	ST7KND2-KIT2 [1]	ST7FLITE0-INDART		ST7MDT10-EMU3	ST7MDT10-TEB	ST7MDT10-EPB [2]
	ST7LITE2					ST7MDT10-EMU3	ST7MDT10-TEB	ST7MDT10-EPB [2]
	ST72264	ST7FOPTIONS-EVAL				ST7MDT10-EMU3	ST7MDT20J-TEB	ST7MDT10-EPB [2]
ST7 MID	**ST72321** (44pins)	ST7MDT1-TRAIN [1]				ST7MDT20J-EMU3	ST7MDT20M-TEB	ST7MDT20J-EPB [2]
	ST72321 (64&80pins)	ST7MDT1-TRAIN [1]				ST7MDT20M-EMU3	ST7MDT20J-TEB	ST7MDT20M-EPB [2]
	ST72324					ST7MDT20J-EMU3		ST7MDT20J-EPB [2]
CAN	**ST72511**	ST7MDT1-TRAIN [1] ST7CAN-DEMO			ST7MDT2-DVP2 [1]	ST7MDT2-EMU2B	ST7MDT20M-TEB	ST7MDT2-EPB [2]
	ST72521	ST7MDT1-TRAIN [1] ST7CAN-DEMO				ST7MDT20M-EMU3		ST7MDT20M-EPB [2]
	ST72561					Third Party only		ST7MDT25-EPB [2]
MC	**ST72141**		ST7MTC2 [1]			ST7MDT5-EMU2B		ST7MDT5-EPB [2]
OP	**ST72171**	ST7MDT6-TRAIN [1]	ST7KND1-KIT2 [1]			ST7MDT5-EMU2B		ST7MDT5-EPB [2]

Notes: 1. Add Suffix/EU/US or/UK for the power supply for your region.
2. Add Suffix/EU or/US for the power supply for your region.
3. Available from ST or from Kanda, www.kanda.com.
4. Emulators interface with STVD7 (ST IDE).
5. These tools interface with STVP7 (ST Visual Programmer).
6. TQFP44 Adapter probe not included: ST7MDT2-DV/TQ44 must be ordered separately.
7. TQFP44 Adapter probe not included: ST7MDT2-PB/TQ44 must be ordered separately.
8. TQFP44 Adapter probe not included, to be ordered separately from Third-Party.

ST9 - Hardware Development Tools

	Part Number	Emulator	Single Programmer
MC	**ST92141**	ST92141-EMU2	ST92E141-EPB [1]

Notes: 1. Add Suffix/EU or/US for the power supply for your region.

POWER DISCRETES

AC SWITCHES

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				Vrrm, Vdrm (V)	It rms (A)	Vtm (V) @ Itm (A)	Igt (mA)		
ACS102-5TA/T1	ACS switch	230V Induction Motor Drive	20	500	0.2	1.1 @ 0.3	5	TO-92/SO-8	1172
ACS108-5SA/SN			50	500	0.8	1.3 @ 1.1	10	TO-92/SOT-223	-
ACS402-5SB4			50	500	4 x 0.2	1.1 @ 0.3	10	TO-92/SOT-223	-
ACS110-7SB2/N			100	700	1	1.3 @ 1.4	10	DIP-8/SOT-223	-
ACS120-7ST			150	700	2	1.3 @ 2.8	10	TO-220AB	-
ACST4-7SB/FP	ACST switch	230V Induction & AC Universal Motor Drives	200	700	4	1.5 @ 5.6	10	DPAK/TO-220FPAB	-
ACST6-7ST/G			250	700	6	1.4 @ 2.1	10	TO-220AB/D²PAK	-
ACST8-8CFP			600	800	8	1.5 @ 11	30	TO-220FPAB	-

TRIACS

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				Vrrm, Vdrm (V)	It rms (A)	Vtm (V) @ Itm (A)	Igt (mA)		
Z00607MA	Standard Triac	230V multiwinding Induction Motor on/off Control	20	600	0.8	1.5 @ 1.1	5	TO-92	301
BTB08-600SW	Logic Level Triac	230V AC Universal Motor Drive	400	600	8	1.55 @ 11	10	TO-220AB	437
BTB08-600CW	Snubberless Triac		500	600	8	1.55 @ 11	35	TO-220AB	428
BTB12-600CW		AC Universal Motor Drive	600	600	12	1.55 @ 17	35	TO-220AB	442
BTB16-600CW			800	600	16	1.55 @ 22.5	35	TO-220AB	439
BTB24-600CW			1200	600	25	1.55 @ 35	35	TO-220AB	439
BTB26-600BW			1200	600	25	1.55 @ 35	50	TOP3	-
T1235-600G	High Performance Triac		600	600	12	1.55 @ 17	35	D²PAK	-
T1635-600G			800	600	16	1.55 @ 22,5	35	D²PAK	533
T2535-600G			1200	600	25	1.55 @ 35	35	D²PAK	-
TPDV640	Alternistor	AC Universal & Single Phase Induction Motor Drives	3000	600	40	1.8 @ 60	200	TOP3	-
MSS50-800	Back to back thyristor module		5000	800	70	1.7 @ 100	50	ISOTOP	-

THYRISTORS (SCRs)

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				Vrrm, Vdrm (V)	It rms (A)	Vtm (V) @ Itm (A)	Igt (mA)		
TS420-600B/H	Sensitive SCR	DC Phase Control for Universal 230V Motor	300	600	4	1.6 @ 8	0.2	DPAK/IPAK	-
TS820-600B/H		DC Phase Control for Universal Motor	600	600	8	1.6 @ 16	0.2	DPAK/IPAK	-
TS1220-600B/H			600	600	12	1.6 @ 24	0.2	DPAK/IPAK	-

DIACs

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				Vbo min (V)	Vbo nom (V)	Vbo max (V)	Ibo max (µA)		
SMDB3	Surface Mount Device Diac	Triac Triggering Device	any	28	32	36	10	SOT-23	-
DB3	Diac		any	28	32	36	50	DO-35	-

IGBT

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				BVces (V)	Icn (A)	Vcesat (V)	Tfall (ns)		
STGD3NB60S (D)	PowerMESH standard speed IGBT (D = available with diode)	Phase control transistor for switched reluctance motor drive	250	600	3	1.3	900	DPAK	1491
STGD7NB60S			500	600	7	1.3	900	DPAK	
STGP10NB60FP			800	600	12	1.4	900	TO-220FP	
STGP10NB60S			800	600	12	1.4	900	TO-220	
STGD3NB60H	PowerMESH high speed IGBT	High frequency transistor for motor drive	250	600	3	2.4	70	DPAK	
STGD7NB60H			500	600	7	2.3	70	DPAK	
STGP20NB60H			1200	600	20	2,3	70	TO-220	
STGW50NB60H			3000	600	50	2,1	100	TO-247	
STGB3NB60HD		Transistor-diode switch for high frequency inverter drive	250	600	3	2,4	70	D^2PAK	
STGB7NB60HD			500	600	7	2.3	70	D^2PAK	
STGP3NB60H(D)	PowerMESH high speed IGBT (D = available with diode)	Transistor-diode switch for high frequency inverter drive	250	600	3	2.3	70	TO-220	
STGP7NB60H(D)			500	600	7	2.3	70	TO-220	
STGP12NB60H(D)			800	600	12	2.3	70	TO-220	
STGW20NB60H(D)			1200	600	20	2.3	70	TO-247	
STGW30NB60H(D)			2000	600	30	2.3	90	TO-247	
STGP3NB60HDFP	PowerMESH high speed IGBT		250	600	3	2.4	70	TO-220FP	
STGP7NB60HDFP			500	600	7	2.3	70	TO-220FP	
STGP12NB60HD			800	600	12	2.3	70	TO-220	
STGY50NB60HD			3000	600	50	2.1	100	Max247	
STGE50NB60HD			3000	600	50	2.1	100	ISOTOP	
STGP3NB60K(D)	PowerMESH short circuit protected IGBT (D = available with diode)		250	600	3	2.4	70	TO-220	
STGP7NB60K(D)			500	600	7	2.3	70	TO-220	
STGD3NB60K	PowerMESH short circuit protected IGBT	High frequency transistor for motor drive	250	600	2	2.4	70	DPAK	
STGD7NB60K			500	600	7	2.3	70	DPAK	
STGP20NB60K			1200	600	20	2.3	75	TO-220	
STGB3NB60KD		Transistor-diode switch for high frequency inverter drive	250	600	3	2.4	70	D^2PAK	
STGB7NB60KD			500	600	7	2.3	70	D^2PAK	
STGP7NB60KDFP			500	600	7	2.3	70	TO-220FP	
STGW20NB60KD			1200	600	20	2.3	75	TO-247	

POWER DISCRETES

POWER MOSFETS

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				BVdss (V)	ID (A)	Rdson (Ohms)			
STT3PFL30L	P-channel PowerMOSFET	Transistor for high frequency inverter drive	15	-30	3	0.165		SOT23-6L	
STT4NF30L	N-channel PowerMOSFET		20	30	4	0.65		SOT23-6L	
STD10PF06	P-channel PowerMOSFET		50	-60	10	0.2		DPAK	
STD12NF06	N-channel PowerMOSFET		60	60	12	0.1		DPAK	
STS4PDF30L	dual P-channel PowerMOSFET		20	-30	4	0.08		SO-8	
STS3PDF30L			10	-30	2	0.165		SO-8	
STS2DNF30L	dual N-channel PowerMOSFET		10	30	2	0.145		SO-8	
STS3DNF30L			15	30	3	0.065		SO-8	
STS7C4F30L	Complementary pair PowerMOSFET		40	-30/30	7	0.022/0.08		SO-8	
STS3C3F30L			15	-30/30	3	0.065/165		SO-8	
STP80NF03L-04	N-channel PowerMOSFET	Transistor for DC motor drive	400	30	80	0.004		TO-220	
STP60NF06L			400	60	60	0.01		TO-220	
STP36NF03L			200	30	36	0.02		TO-220	
STP80NS04Z	Double zener protected PowerMOSFET		400	Clamped	80	0.008		TO-220	
STP60NS04Z			300	Clamped	60	0.012		TO-220	
STD4NB25	N-channel PowerMOSFET	Transistor for high frequency inverter drive	150	250	4	1.1		DPAK	
STP16NB25			500	250	16	0.25		TO-220	
STP12NM50	MDmesh PowerMOSFET	High frequency transistor with fast body diode	500	500	12	0.35		TO-220	
STD5NM50			250	500	5	0.8		DPAK	
STW45NM50FD	FDmesh PowerMOSFET		410	500	45	0.11		TO-247	
STW20NM50FD			240	500	20	0.25		TO-247	
STP20NM50FD			200	500	20	0.25		TO-220	
STPB20NM50FD			200	600	20	0.25		D^2PAK	
STP11NM60FD			200	600	11	0.5		TO-220	

ULTRAFAST RECTIFIER

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				Vrm (V)	If(av)(A)	Vf (V) @ If (A)	trr max (ns)50A/µs		
STTH5R06D	600V Turbo 2	Free wheel for HF 230V Motor Drive	500	600	5	1.8 @ 5	40	TO-220AC	
STTH15R06D			1000	600	15	1.8 @ 15	40	TO-220AC	-
STTA3006CW	600V Turboswitch		2000	600	2 x 15	1.6 @ 15	35 (typ)	TO-247	877
STTA6006TV			3000	600	2 x 30	1.5 @ 30	35 (typ)	ISOTOP	661
STTH803D	300V Turboswitch	Free wheel for HF 120V Motor Drive	500	300	8	1 @ 8	35	TO-220AC	526
STTH2003CF			1000	300	20	1 @ 20	35	ISOWATT220AB	-
STTH3003CW			2000	300	30	1 @ 30	40	TO-247	-
STTH6003TV			3000	300	2 x 30	1 @ 30	55	ISOTOP	-

RECTIFIER BRIDGE

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				Vrm (V)	If(av)(A)	Vf (V) @ If (A)	Ifsm (A)		
STBR406	Rectifier Bridge	Front End AC-DC controlled rectification	300	600	4	1.05 @ 4	120	GBU	-
STBR606			600	600	6	1.05 @ 6	175	GBU	-
BF3510TV			1500	1000	35	1.3 @ 35	300	ISOTOP	-
MDS35-800	Controlled Rectifier Half Bridge		2000	800	80	1.7 @ 80	400	ISOTOP	-
MDS80-800			3000	800	170	1.7 @ 170	700	ISOTOP	-

TRANSIENT VOLTAGE SUPPRESSORS

Part Number	Description	Application Highlights	Power (W)	Electrical Parameters				Packages	App. Notes
				Vrm (V)	Vbr(V) @ 1mA	Vcl (V) @ Ipp (A)	Power (W)		
SMBJ15A-TR	600W Transil™ Diode	Low Voltage DC Front-End or Switch Protection	any	15	16.7	24.4 @ 25.1	600	SMB	-
SMBJ28A-TR				28	31.1	45.4 @ 13.8	600	SMB	-
SMBJ48A-TR				48	53.3	77.4 @ 8.1	600	SMB	-
SMBJ58A-TR				58	64.4	93.6 @ 6.7	600	SMB	-
SMBJ188A-TR				188	209	328 @ 2	600	SMB	-
SMCJ15A-TR	1500W Transil™ Diode			15	16.7	24.4 @ 64	1500	SMC	-
SMCJ188A-TR				188	209	328 @ 4.6	1500	SMC	-
BZW06-376B	600W Transil™ Diode	High Voltage DC Front-End or Triac Protection		376	418	603 @ 1.3	600	F126	444
BZW50-15	5000W Transil™ Diode	Low Voltage DC Front-End or Switch Protection		15	16.6	26.9 @ 186	5000	AG	-
BZW50-27				27	30	48.3 @ 103	5000	AG	-
BZW50-56				56	62.2	99.6 @ 50	5000	AG	-
BZW50-180B				180	200	322 @ 16	5000	AG	-

VIPower

Part Number	Description	Application Highlights		Electrical Parameters			Packages	App. Notes
				BVdss (A)	Id (A)	Total Rdson (O.)		
VND670SP	Double H.S.D. + 2 MOSFET Drivers	Complete H-bridge for DC motor		40	15	0.03	PowerSO-10	
VN770K	Double H.S.D. + 2 OMNIFETs			50	10	0.22	SO-28	
VN771K				50	6	0.035	SO-28	
VN772K				50	5	0.12	SO-28	
VNH2SP30 (*)				41	30	0.017	MultiPowerSO-30	
VNH3SP30 (*)				40	30	0.045	MultiPowerSO-30	
VIPViPer12AS/ADIP	Offline SMPS Smart Switcher	Power Supply for motorcontrol		730	0.32	30	SO-8/DIP8	

(*) In development

SMART POWER and DEDICATED ICs

IGBT/MOSFET DRIVERS

Part Number	Description	# Outputs	VRAIL (V)	VSUP (V)	IOUT (A)	Bootstrap Diodes	Rise/fall time with Inf load	Other Features	Packages	App. Notes
L6384/L6384D	HV Half Bridge Driver	1H + 1L	600	12.5-16.6*	0.4/0.65	Y	70/30nsec	Dead Time Setting, Shut Down, Internal Zener Diode	Minidip/SO8	994, 1299
L6385/L6385D	HV High and Low Side Driver	1H + 1L	600	10.1-17.0	0.4/0.65	Y	50/30nsec	Independent High and Low Side Driver	Minidip/SO8	994, 1299
L6386/L6386D	HV High and Low Side Driver	1H + 1L	600	12.5-17.0	0.4/0.65	Y	50/30nsec	Shut Down Input, Sense Comparator	DIP14/SO14	994, 1299
L6387/L6387D	HV High and Low Side Driver	1H + 1L	600	6.5-17.0	0.4/0.65	Y	50/30nsec	High Side/Low Side Inter-Locking Function	Minidip/SO8	994, 1299
L9380	Triple High Low Side Driver	3H	–	7-18.5		–		Constant Gate Charge/Discharge Current, Progr. Overload Protection	SO20	
L9903	Full Bridge Driver	2H+2L	–	6-20	0,05	–		Progr. Cross Conduction Protection Time, ISO9141 Interface	SO20	
TD300I	Triple Low Side Driver	3L	–	13-16	0.6	–		TTL Inputs	DIP14/SO14	461, 685
TD310I	Triple Low Side Driver	3L	–	4-16	0.6	–		TTL Inputs + stand by	DIP16/SO16	853, 856
TD340	Low Voltage Full Bridge Driver	2H + 2L	–	6.5-20	0.05/0.1	–		1.5MS dead time 5V Serial regulator reset & Watchdig Circuit	SO20	–

UNIPOLAR STEPPER MOTORS

CONTROLLERS

Part Number	Description	# Motor Windings	VSUP (V)	IQ (mA)		Output Signals	Other Features	Packages	App. Notes
L297/L297D	Stepper Motor Controller	4	6	50		TTL	F/H step, cons tant frequency switchmode	DIP20/SO20	468, 470
L6506/L6506D	Motor Current Controller	4	6	25		TTL	Constant frequency switchmode	DIP18/SO20	468, 469

POWER STAGE

Part Number	Description	# Motor Windings	VRAIL (V)	VSUP (V)	IOUT (A)	Internal Diodes	VSAT or RDSON	Other Features	Packages	App. Notes
L603C/4C	Eight Darlington Array	8	70	70	0.4	Y	2 V	Common emitter, open collector	DIP18/SO20	235
L6220	Quad Darling Array	4	46	5	1.8	Y	1.6 V	2 inverting + 2 non-inverting inputs	PowerDIP16	235
L6221AD/AS	Quad Darling Array	4	46	5	1.8	Y	1.6 V	4 non-inverting inputs	SO20/DIP16	235
L6221N	Quad Darling Array	4	60	5	1.8	Y	1.85 V	4 non-inverting inputs	Multiwatt15	235
L6221CD	Quad Darling Array	4	60	5	1.2	Y	1.85 V	4 non-inverting inputs	SO20	235
L702B/N	Quad Darling Array	4	70	70	2	N	1.3 V	4 non-inverting inputs	SO20/DIP16/DIP16	235
ULN200xA/xD1	Seven Darling Array	7	50	50	0.5	Y	1.6 V	Common emitter, open collector	DIP16/SO16	235
ULN206xB	Quad Darling Array	4	35-50	35-50	1.5	Y	1.4 V	Common emitter, common/open collector	PowerDIP16	235
ULN207xB	Quad Darling Array	4	35-50	35-50	1.5	Y	1.4 V	Common emitter, common/open collector	PowerDIP16	235
UNL280xA	Eight Darling Array	8	50	50	0.5	Y	1.6 V	Common emitter, open collector	DIP18	235
ULQ200xA/xD1	Seven Darling Array	7	50	50	0.5	Y	1.4 V	As ULN200xA/xD1 but extended temperature	DIP16/SO16	235
ULQ280xA	Eight Darling Array	8	50	50	0.5	Y	1.6 V	As ULN280xA but extended temperature	DIP18	235

BIPOLAR STEPPER MOTORS

CONTROLLERS

Part Number	Description	# Motor Windings	VSUP (V)	IQ (mA)		Output Signals	Other Features	Packages	App. Notes
L297/L297D	Stepper Motor Controller	2	6	50		TTL	F/H step, constant frequency switchmode	DIP20/SO20	468, 470
L6506/L6506D	Motor Current Controller	2	6	25		TTL	Constant frequency switchmode	DIP18/SO20	468, 469

POWER STAGES

Part Number	Description	# Motor Windings	VRAIL (V)	VSUP (V)	IOUT (A)	Internal Diodes	VSAT or RDSON	Other Features	Packages	App. Notes
L293B/E	Quad Half-Bridge	2	36	36	1	N	1.2/1.4 V	Inhibit function	DIP16/PDIP20	238
L293D/DD	Quad Half-Bridge	2	36	36	0.6	Y	1.2/1.4 V	Inhibit function	SO20/PDIP16	238
L298HN/N/P	Dual Full-Bridge	2	46	5	2	N	1.7/2 V	Inhibit function	MW15H/MW15/SO20	240
L6201/L6201PS	Full-Bridge	1	48	48	1/4	Y	0.3 Ohm	Internal logic supply, cross-conduction protection	SO20/PowerSO20	234
L6202	Full-Bridge	1	48	48	1.5	Y	0.3 Ohm	Internal logic supply, cross-conduction protection	PowerDIP18	279
L6203	Full-Bridge	1	48	48	4	Y	0.3 Ohm	Internal logic supply, cross-conduction protection	Multiwatt11	280
L6204/L6204D	Dual-Full-Bridge	2	48	48	0.5	Y	1.2 Ohm	Internal logic supply, cross-conduction protection	PowerDIP20/SO28	234,279,280,379
L6205N/L6205D/L6205PD	DMOS Dual-Full-Bridge Driver	2	52	52	2.8	Y	0.3 Ohm	Fixed Overcurrent Protection	PDIP20/SO20/PowerSO20	–
L6206N/L6206D/L6206PD	DMOS Dual-Full-Bridge Driver	2	52	52	2.8	Y	0.3 Ohm	Programmable Overcurrent Protection	PDIP24/SO24/PowerSO36	–
L6207N/L6207D/L6207PD	Dual-Full-Bridge Driver with PWM Controller	2	52	52	2.8	Y	0.3 Ohm	Fixed Overcurrent Protection, Constant Toff Switchmode	PDIP24/SO24/PowerSO36	–

MOTOR DRIVERS

Part Number	Description	# Motor Windings	VRAIL (V)	VSUP (V)	IOUT (A)	Internal Diodes	VSAT or RDSON	Other Features	Packages	App. Notes
L6208N/L6208D/L6208PD	DMOS Driver for Bipolar Stepper Motor	2	52	52	2.8	Y	0.3 Ohm	Fixed Overcurrent Protection, constant TOFF switchmode, F/H Step, Fast/Slow Decay	PDIP24/SO24/PowerSO36	1451, 1495
L6219	Bipolar Stepper Motor Driver	2	46	5	0.75	Y	1/1.6 V	F/H/Q step, constant TOFF switchmode	PDIP24	266
L6219DS/DSA	Bipolar Stepper Motor Driver	2	46	5	0.75	Y	1/1.6 V	F/H/Q step, constant TOFF switchmode	SO24	400
L8219P/LP	Bipolar Stepper Motor Driver	2	46	5	1.5	Y	1/2.1 V	F/H/Q step, constant TOFF switchmode	PowerSO36/HSOP28	
L6258E	Bipolar Stepper Motor Driver	2	40	5	1.2	Y	0.6 Ohm	F/H/micro step, constant frequency switchmode	PowerSO36	–
L9925	Bipolar Stepper Motor Driver	2	24	24	0.5	Y	0.8 Ohm	Short-circuit protection	SO28	–
L9930/L9930PD	Bipolar Stepper Motor Driver	2	24	24	0.5	Y	2 Ohm	Fixed Overcurrent Protection, constant TOFF switchmode, F/H Step, Fast/Slow Decay	Multiwatt11/SO20Power	–
L9935	Bipolar Stepper Motor Driver	2	24	5	1.2	Y	0.7 Ohm	Short-circuit and overload/open-load protection, SPI		–
PBL3717A	Bipolar Stepper Motor Driver	1	46	5	1	Y	1.7/2.1 V	F/H/Q step, constant TOFF switchmode	PowerDIP16	
TEA3717DP	Bipolar Stepper Motor Driver	1	40	5	1	Y	1.7/2.3 V	F/H/Q step, constant TOFF switchmode	PowerDIP16	
TEA3718DP/SDP	Bipolar Stepper Motor Driver	1	50	5	1.2	Y	1.2/1.3 V	F/H/Q step, constant TOFF switchmode	PowerDIP16	266, 460
TEA3718FPT/SFP	Bipolar Stepper Motor Driver	1	50	5	1.2	Y	1.2/1.5 V	F/H/Q step, constant TOFF switchmode	SO20	
TEA3718SP	Bipolar Stepper Motor Driver	1	50	5	1.2	Y	1.2/1.5 V	F/H/Q step, constant TOFF switchmode	Multiwatt15	

BRUSH DC MOTORS

CONTROLLER

Part Number	Description	# Motor	VSUP (V)	IQ (mA)		Output Signals	Other Features	Packages	App. Notes
L6506/L6506D	Motor Current Controller	1	6	25		TTL	Costant frequency switchmode	DIP18/SO20	468, 469

POWER STAGES

Part Number	Description	# Motor	VRAIL (V)	VSUP (V)	IOUT (A)	Internal Diodes	VSAT or RDSON	Other Features	Packages	App. Notes
L149	Power Operational Amplifier	1	±20	±20	3	N	3.5 V	G-B product: 200 kHz, cross-conduction protection	Pentawatt	380
L272/L272D/M	Dual Power Operational Amplifier	1 or 2	28	28	1	N	1.5 V	G-B product: 350 kHz	SO16/Minidip/PDIP16	
L2720	Dual Power Operational Amplifier	1 or 2	28	28	1	Y	1/1.5 V	G-B product: 1.2 MHz	PowerDIP16	
L2722	Dual Power Operational Amplifier	1 or 2	28	28	1	Y	1/1.5 V	G-B product: 1.2 MHz	Minidip	
L2724	Dual Power Operational Amplifier	1 or 2	28	28	1	Y	1/1.5 V	G-B product: 1.2 MHz	SIP9	
L2726	Dual Power Operational Amplifier	1 or 2	28	28	1	Y	1/1.5 V	G-B production: 1.2 MHz	SO20	
L293B/D/DD/E	Quad Half-Bridge	2	36	36	1	N	1.2/1.4 V	Inhibit function	PDIP16/DIP16/SO20/DIP20	238
L298HN/N/P	Dual Full-Bridge	2	46	5	2	N	1.7/2 V	Inhibit function	MW15H/MW15/SO20	240
L6201/L6201PS	Full-Bridge	1	48	48	1/4	Y	0.3 Ohm	Internal logic supply, cross-conduction protection	SO20/PowerSO20	
L6202	Full-Bridge	1	48	48	1.5	Y	0.3 Ohm	Internal logic supply, cross-conduction protection	PowerDIP18	234
L6203	Full-Bridge	1	48	48	4	Y	0.3 Ohm	Internal logic supply, cross-conduction protection	Multiwatt11	279
L6204/L6204D	Dual-Full-Bridge	2	48	48	0.5	Y	1.2 Ohm	Internal logic supply, cross-conduction protection	PowerDIP20/SO28	280
L6205N/L6205D/L6205PD	DMOS Dual-Full-Bridge Driver	2	52	52	2.8	Y	0.3 Ohm	Fixed Overcurrent Protection	PDIP20/SO20/PowerSO20	–
L6206N/L6206D/L6206PD	DMOS Dual-Full-Bridge Driver	2	52	52	2.8	Y	0.3 Ohm	Programmable Overcurrent Protection	PDIP24/SO24/PowerSO36	–
L6207N/L6207D/L6207PD	Dual-Full-Bridge Driver with PWM Controller	2	52	52	2.8	Y	0.3 Ohm	Fixed Overcurrent Protection, Constant TOFF Switchmode	PDIP24/SO24/PowerSO36	–

MOTOR DRIVERS

Part Number	Description	# Motor	VRAIL (V)	VSUP (V)	IOUT (A)	Internal Diodes	VSAT or RDSON	Other Features	Packages	App. Notes
L292	DC Motor Driver	1	36	36	2	N	2 V	Switchmode	Multiwatt15	241, 242
L9947H/S	DC Motor Driver	3	16	5	0.5/3	Y	0.25/2.5 Ohm	Microcontroller bidirectionaal bus, one motor at a time	MW15/MW15 in line	–
L9997ND	DC Motor Driver	1	16	16	1.2	Y	0.83 Ohm	Overload/open-load protection	SO20	–
TDA7272A	DC Motor Driver	1	18	18	0.25	Y	1.2/2 V	Linear, speed closed loop, short circuit protection	PowerDIP20	–
L9903	DC Motor Driver	1	40	16	20	N	Not. Appl.	Pre-driver	SO20	–
L9909	DC Motor Driver	1	40	16	0.3	Y	2 Ohm	Load dump protection/25KV ESD	Minidip/SO20	–

BRUSHLESS DC MOTORS

POWER STAGES

Part Number	Description	# Motor	VRAIL (V)	VSUP (V)	IOUT (A)	Internal Diodes	VSAT or RDSON	Other Features	Packages	App. Notes
L6234/L6234PD	Three-phase Bridge	1	52	52	2.8/4	Y	0.3 Ohm	Cross-conduction protection	PDIP20/PowerSO20	1088

MOTOR DRIVERS

Part Number	Description	# Motor	VRAIL (V)	VSUP (V)	IOUT (A)	Internal Diodes	VSAT or RDSON	Other Features	Packages	App. Notes
L6235N/L6235D L6235PD	Three-phase Brushless DC Motor Driver	1	52	52	2.8	Y	0.3 Ohm	Fixed Overcurrent Protection, Hall Effect Logic, Constant TOFF Switchmode, Brake function	PDIP24/SO24/PowerSO36	1545
L7204	Brushless DC Motor Driver	1	14	6	2	Y	1.3 Ohm (total@12 Sink+Source)	Smooth Drive digital architecture, switchmode, sensorless	TSSOP30	–

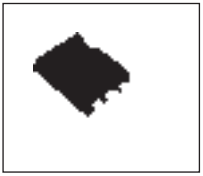
MOTOR COMBINATIONS

MOTOR DRIVERS

Part Number	Description	# Motor	VRAIL (V)	VSUP (V)	IOUT (A)	Internal Diodes	VSAT or RDSON	Other Featur	Packages	App. Notes
L6260J	**Combo Motor Driver**							Register based architecture, 8/10bit D/A converter, UVLO	TQFP64	
	• *Voice Coil/Linear DC Motor*	1	6.5	5	1.5	Y	1/5 Ohm	Linear selectable gain		380
	• *Brushless DC Motor*	1	6.5	5	2	Y	0.4 Ohm	Linear selectable gain, FLL, sensorless		
L6287	**Combo Motor Driver**							ULVO on Vcc, Hall Sensor inputs	SDIP42	380
	• *DC Motor*	1	18	5	1.5	Y	2 Ohm	Constant frequency switchmode, open loop		281
	• *Brushless DC Motor*	1	18	5	2	Y	1/1.6 Ohm	Constant frequency switchmode, speed closed loop		452
L7250	**Combo Motor Driver**							Register based architecture, ISOFET, 10bit ADC voltage regulator and 33MHz serial interface	TQFP64	
	• *Voice Coil/Linear DC Motor*	1	14	6	2.0	Y	0.9 Ohm (total@125C: Sink+Source)	Class A/B, 15bit DAC and ramp loading		
	• *Brushless DC Motor*	1	14	6	2.5	Y	0.9 Ohm (total@125C: Sink+Source)	Smooth Drive digital architecture		
L6269	**Combo Motor Driver**							Register based architecture, and 25MHz serial interface	TQFP44	
	• *Voice Coil/Linear DC Motor*	1	14	6	1.5	Y	1.6 Ohm (total@125C: Sink+Source)	Class A/B, and PWM, 14bit DAC		
	Brushless DC Motor	1	14	6	2.0	Y	1.4 Ohm (total@125C: Sink+Source)	Integrated speed control loop (FLL)		
L6268	**Combo Motor Driver**							Register based architecture, and 25MHz serial interface	TQFP44Slug	
	• *Voice Coil/Linear DC Motor*	1	14	6	1.5	Y	1.6 Ohm (total@125C: Sink+Source)	Class A/B, and PWM, 14bit DAC		
	• *Brushless DC Motor*	1	14	6	2.0	Y	1.4 Ohm (total@125C: Sink+Source)	Integrated speed control loop (FLL)		

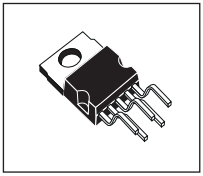
DEDICATED POWER PACKAGES*

Max247

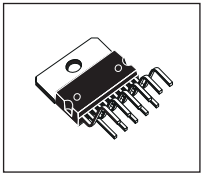


ISOTOP

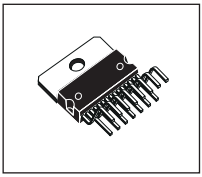
Pentawatt



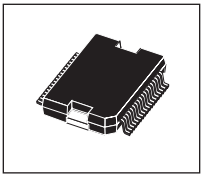
Multiwatt11



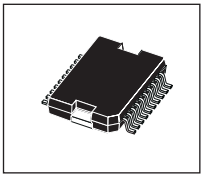
Multiwatt15



PowerSO-36



PowerSO-20



* Short selection of innovative power packages

For selected STMicroelectronics sales offices fax:
France +33 1 55489569; Germany +49 89 4605454; Italy +39 02 8250449; Japan +81 3 57838216; Singapore +65 64820240;
Sweden +46 8 7504950; Switzerland +41 22 9292900; United Kingdom and Eire +44 1628 890391; USA +1 781 861 2678
Full product information at www.st.com

ORDER CODE: SGMOTOR/0502