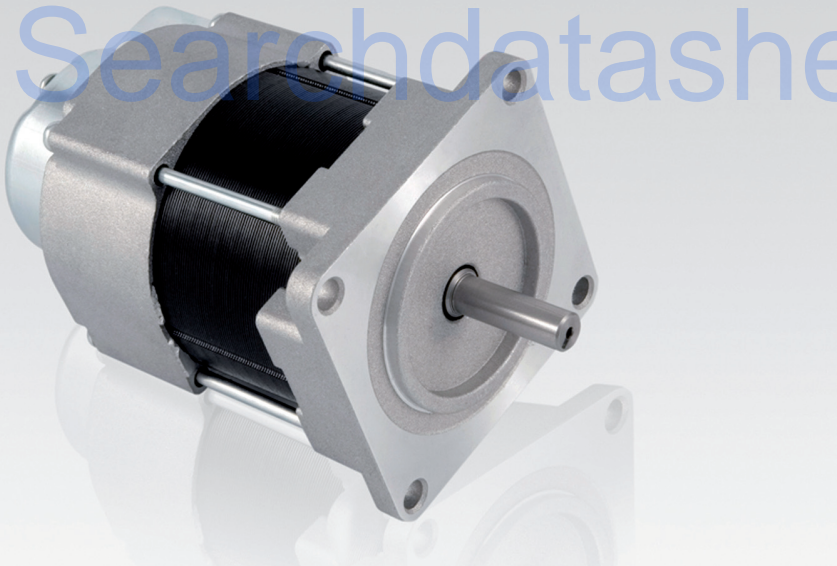


Motor control

Selection guide



January 2009

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Microcontrollers

8-bit microcontroller families

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features |
|---------------------------------------|-------------------|-------------------------|-------------|---------------------|------------|--------------------------|-------------------|---------|-------------------|---|------------------|----------------|--------------------|------------------|
| | | | | | | 12 or 16-bit {IC/OC/PWM} | 8-bit {IC/OC/PWM} | Others | | | | | | |
| STM8S - 8-bit microcontrollers | | | | | | | | | | | | | | |
| 32 pins | STM8S207K6 | • | 32 | 2 K | 1 K | 7x10-bit | 3x16-bit (8/8/11) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 1xUART (IrDA, ISO 7816) | 25(8) | LQFP32, VQFN32 | 3.0 to 5.5 | |
| 44 pins | STM8S207S6 | • | 32 | 2 K | 1 K | 9x10-bit | 3x16-bit (8/8/11) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 34(8) | LQFP44 | 3.0 to 5.5 | |
| | STM8S207S8 | • | 64 | 4 K | 1.5 K | 9x10-bit | 3x16-bit (8/8/11) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 34(8) | LQFP44 | 3.0 to 5.5 | |
| 48 pins | STM8S207C6 | • | 32 | 2 K | 1 K | 10x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 38(9) | LQFP48 | 3.0 to 5.5 | |
| | STM8S207C8 | • | 64 | 4 K | 1.5 K | 10x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 38(9) | LQFP48 | 3.0 to 5.5 | |
| | STM8S207CB | • | 128 | 6 K | 2 K | 10x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 38(9) | LQFP48 | 3.0 to 5.5 | |
| 64 pins | STM8S207R6 | • | 32 | 2 K | 1 K | 16x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 52(9) | LQFP64 | 3.0 to 5.5 | |
| | STM8S207R8 | • | 64 | 4 K | 1.5 K | 16x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 52(9) | LQFP64 | 3.0 to 5.5 | |
| | STM8S207RB | • | 128 | 6 K | 2 K | 16x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 52(9) | LQFP64 | 3.0 to 5.5 | |
| | STM8S208RB | • | 128 | 6 K | 2 K | 16x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816), 1xCAN | 52(9) | LQFP64 | 3.0 to 5.5 | |
| 80 pins | STM8S207MB | • | 128 | 6 K | 2 K | 16x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816) | 68(11) | LQFP80 | 3.0 to 5.5 | |
| | STM8S208MB | • | 128 | 6 K | 2 K | 16x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 2xUART (IrDA, ISO 7816), 1xCAN | 68(11) | LQFP80 | 3.0 to 5.5 | |

Microcontrollers

8-bit microcontroller families (cont'd)

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|---------------------------------------|-------------------|-------------------------|-------------|---------------------|------------|--------------------------|-------------------|---------|-------------------|--|------------------|----------|--------------------|------------------|--|
| | | | | | | 12 or 16-bit {IC/OC/PWM} | 8-bit {IC/OC/PWM} | Others | | | | | | | |
| STM8S - 8-bit microcontrollers | | | | | | | | | | | | | | | |
| 32 pins | STM8S105K4 | • | 16 | 2 K | 1 K | 7x10-bit | 3x16-bit (8/8/11) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 1xUART (IrDA, ISO 7816) | | 25(8) | LQFP32, VQFN32 | 3.0 to 5.5 | |
| | STM8S105K6 | • | 32 | 2 K | 1 K | 7x10-bit | 3x16-bit (8/8/11) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 1xUART (IrDA, ISO 7816) | | 25(8) | LQFP32, VQFN32 | 3.0 to 5.5 | |
| 44 pins | STM8S105S4 | • | 16 | 2 K | 1 K | 9x10-bit | 3x16-bit (8/8/11) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 1xUART (IrDA, ISO 7816) | | 34(8) | LQFP44 | 3.0 to 5.5 | |
| | STM8S105S6 | • | 32 | 2 K | 1 K | 9x10-bit | 3x16-bit (8/8/11) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 1xUART (IrDA, ISO 7816) | | 34(8) | LQFP44 | 3.0 to 5.5 | |
| 48 pins | STM8S105C4 | • | 16 | 2 K | 1 K | 10x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 1xUART (IrDA, ISO 7816) | | 38(9) | LQFP48 | 3.0 to 5.5 | |
| | STM8S105C6 | • | 32 | 2 K | 1 K | 10x10-bit | 3x16-bit (9/9/12) | 1x8-bit | 2xWDG | 1xSPI, 1xI ² C, 1xUART (IrDA, ISO 7816) | | 38(9) | LQFP48 | 3.0 to 5.5 | |

ST7 - 8-bit microcontrollers

ST7 application specific

| | | | | | | | | | | | | | | | |
|----|-----------------|---|----|-----|--|-----------|------------------|----------|------|-------------|---|--------|----------------|------------|---|
| MC | ST7MC1K2 | • | 8 | 384 | | 8x10-bit | 1x16-bit (2/2/1) | 1(1/0/1) | WWDG | LINSCI | 1 | 17(3) | LQFP32, SDIP32 | 4.5 to 5.5 | Sensorless brushless motor control cell, ICD, ICP, IAP, LVD, CSS/PLL, ROP, RTC, nested interrupts |
| | ST7MC1K4 | • | 16 | 768 | | 8x10-bit | 1x16-bit (2/2/1) | 1(1/0/1) | WWDG | LINSCI | 1 | 17(3) | LQFP32, SDIP32 | 4.5 to 5.5 | |
| | ST7MC2S4 | • | 16 | 768 | | 11x10-bit | 2x16-bit (2/2/1) | 1(1/0/1) | WWDG | LINSCI, SPI | 1 | 26(6) | LQFP44 | 4.5 to 5.5 | |
| | ST7MC2R6 | • | 32 | 1 K | | 16x10-bit | 2x16-bit (2/2/2) | 1(2/0/4) | WWDG | LINSCI, SPI | 1 | 44(12) | LQFP64 | 4.5 to 5.5 | |

(1) Audio square-wave generator

Microcontrollers

8-bit microcontroller families (cont'd)

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|-------------------------------------|-----------------|-------------------------|-------------|---------------------|------------|--------------------------|-------------------|----------|-------------------|-------------|------------------|----------|--------------------|------------------|--|
| | | | | | | 12 or 16-bit {IC/OC/PWM} | 8-bit {IC/OC/PWM} | Others | | | | | | | |
| ST7 - 8-bit microcontrollers | | | | | | | | | | | | | | | |
| ST7 application specific | | | | | | | | | | | | | | | |
| MC | ST7MC2S6 | • | 32 | 1 K | | 11x10-bit | 2x16-bit (2/2/1) | 1(1/0/1) | WWDG | LINSCI, SPI | 1 | 26(6) | LQFP44 | 4.5 to 5.5 | Sensorless brushless motor control cell, ICD, ICP, IAP, LVD, CSS/PLL, ROP, RTC, nested interrupts |
| | ST7MC2R7 | • | 48 | 1.5 K | | 16x10-bit | 2x16-bit (2/2/2) | 1(2/0/4) | WWDG | LINSCI, SPI | 1 | 44(12) | LQFP64 | 4.5 to 5.5 | Sensorless brushless motor control cell, ICD, ICP, IAP, LVD, CSS/PLL, ROP, RTC, nested interrupts, beep ¹ |
| | ST7MC2S7 | • | 48 | 1.5 K | | 11x10-bit | 2x16-bit (2/2/1) | 1(1/0/1) | WWDG | LINSCI, SPI | 1 | 26(6) | LQFP44 | 4.5 to 5.5 | Sensorless brushless motor control cell, ICD, ICP, IAP, LVD, CSS/PLL, ROP, RTC, nested interrupts |
| | ST7MC2M9 | • | 60 | 1.5 K | | 16x10-bit | 2x16-bit (2/2/2) | 1(2/0/4) | WWDG | LINSCI, SPI | 1 | 60(12) | LQFP80 | 4.5 to 5.5 | Sensorless brushless motor control cell, ICD, ICP, IAP, LVD, CSS/PLL, ROP, RTC, nested interrupts, beep ¹ |

(1) Audio square-wave generator

Microcontrollers

32-bit microcontroller families

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|--|--------------------|-------------------------|-------------|---------------------|------------|-------------------------|---------------------|--------|-----------------------------------|---|------------------|----------|--------------------|------------------|---|
| | | | | | | 12 or 16-bit (I/OC/PWM) | 8-bit (I/OC/PWM) | Others | | | | | | | |
| STM32 (ARM® Cortex™-M3) - 32-bit microcontrollers | | | | | | | | | | | | | | | |
| 36 pins | STM32F101T4 | • | 16 | 4 K | | 10x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816) | | 26(26) | QFN36 | 2.0 to 3.6 | Access line: 36 MHz CPU speed, EMI (100 and 144 pins), 2-channel DAC, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, -40 to 85 °C |
| | STM32F101T6 | • | 32 | 6 K | | 10x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816) | | 26(26) | QFN36 | 2.0 to 3.6 | |
| | STM32F101T8 | • | 64 | 10 K | | 10x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816) | | 26(26) | QFN36 | 2.0 to 3.6 | |
| 48 pins | STM32F101C4 | • | 16 | 4 K | | 10x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816) | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| | STM32F101C6 | • | 32 | 6 K | | 10x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816) | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| | STM32F101C8 | • | 64 | 10 K | | 10x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| | STM32F101CB | • | 128 | 16 K | | 10x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| 64 pins | STM32F101R4 | • | 16 | 4 K | | 16x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |

Microcontrollers

32-bit microcontroller families (cont'd)

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|--|--------------------|-------------------------|-------------|---------------------|------------|--------------------------|---------------------|--------|--|--|------------------|----------|--------------------|------------------|---|
| | | | | | | 12 or 16-bit {IC/OC/PWM} | 8-bit {IC/OC/PWM} | Others | | | | | | | |
| STM32 (ARM® Cortex™-M3) - 32-bit microcontrollers | | | | | | | | | | | | | | | |
| 64 pins | STM32F101R6 | • | 32 | 6 K | | 16x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | Access line: 36 MHz CPU speed, EMI (100 and 144 pins), 2-channel DAC, Vbat pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, -40 to 85 °C |
| | STM32F101R8 | • | 64 | 10 K | | 16x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F101RB | • | 128 | 16 K | | 16x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F101RC | • | 256 | 32 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F101RD | • | 384 | 48 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F101RE | • | 512 | 48 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |

Microcontrollers

32-bit microcontroller families (cont'd)

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|--|--------------------|-------------------------|-------------|---------------------|------------|--------------------------|---------------------|--------|--|--|------------------|----------|--------------------|------------------|---|
| | | | | | | 12 or 16-bit {IC/OC/PWM} | 8-bit {IC/OC/PWM} | Others | | | | | | | |
| STM32 (ARM® Cortex™-M3) - 32-bit microcontrollers | | | | | | | | | | | | | | | |
| 100 pins | STM32F101V8 | • | 64 | 10 K | | 16x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 80(80) | LQFP100 | 2.0 to 3.6 | Access line: 36 MHz CPU speed, EMI (100 and 144 pins), 2-channel DAC, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, -40 to 85 °C |
| | STM32F101VB | • | 128 | 16 K | | 16x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 80(80) | LQFP100 | 2.0 to 3.6 | |
| | STM32F101T4 | • | 256 | 32 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 80(80) | LQFP100 | 2.0 to 3.6 | |
| | STM32F101VD | • | 384 | 48 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 80(80) | LQFP100 | 2.0 to 3.6 | |
| | STM32F101VE | • | 512 | 48 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 80(80) | LQFP100 | 2.0 to 3.6 | |
| 144 pins | STM32F101ZC | • | 256 | 32 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 112(112) | LQFP144 | 2.0 to 3.6 | |

Microcontrollers

32-bit microcontroller families (cont'd)

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|--|-------------|-------------------------|-------------|---------------------|------------|---------------------------|---------------------|--------|--|--|------------------|----------|--------------------|------------------|---|
| | | | | | | 12 or 16-bit {I/C/OC/PWM} | 8-bit {I/C/OC/PWM} | Others | | | | | | | |
| STM32 (ARM® Cortex™-M3) - 32-bit microcontrollers | | | | | | | | | | | | | | | |
| 144 pins | STM32F101ZD | • | 384 | 48 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 112(112) | LQFP144 | 2.0 to 3.6 | Access line: 36 MHz CPU speed, EMI (100 and 144 pins), 2-channel DAC, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, -40 to 85 °C |
| | STM32F101ZE | • | 512 | 48 K | | 16x12-bit | 6x16-bit (16/16/16) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816) | | 112(112) | LQFP144 | 2.0 to 3.6 | |
| 48 pins | STM32F102C4 | • | 16 | 4 K | | 10x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB | | 36(36) | LQFP48 | 2.0 to 3.6 | USB Access line: 48 MHz CPU speed, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, -40 to 85 °C |
| | STM32F102C6 | • | 32 | 6 K | | 10x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| | STM32F102C8 | • | 64 | 10 K | | 10x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816), USB | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| | STM32F102CB | • | 128 | 16 K | | 10x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816), USB | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| 64 pins | STM32F102R4 | • | 16 | 4 K | | 16x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB | | 51(51) | LQFP64 | 2.0 to 3.6 | |

Microcontrollers

32-bit microcontroller families (cont'd)

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|--|--------------------|-------------------------|-------------|---------------------|------------|--------------------------|---------------------|--------|-----------------------------------|---|------------------|----------|--------------------|------------------|--|
| | | | | | | 12 or 16-bit {IC/OC/PWM} | 8-bit {IC/OC/PWM} | Others | | | | | | | |
| STM32 (ARM® Cortex™-M3) - 32-bit microcontrollers | | | | | | | | | | | | | | | |
| 64 pins | STM32F102R6 | • | 32 | 6 K | | 16x12-bit | 2x16-bit (8/8/8) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB | | 51(51) | LQFP64 | 2.0 to 3.6 | USB Access line: 48 MHz CPU speed, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, -40 to 85 °C |
| | STM32F102R8 | • | 64 | 10 K | | 16x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816), USB | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F102RB | • | 128 | 16 K | | 16x12-bit | 3x16-bit (12/12/12) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816), USB | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| 36 pins | STM32F103T4 | • | 16 | 6 K | | 10x12-bit | 3x16-bit (12/12/14) | | 2 x WDG, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB, CAN | | 26(26) | QFN36 | 2.0 to 3.6 | Performance line: 72 MHz CPU speed, EMI (100 and 144 pins), 2-channel DAC, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, 1 x high-speed USART 4.5 Mbit/s, motor control oriented PWM, 3 x ADC (triple sample and hold capability), -40 to 85 °C or -40 to 105 °C |
| | STM32F103T6 | • | 32 | 10 K | | 10x12-bit | 3x16-bit (12/12/14) | | 2 x WDG, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB, CAN | | 26(26) | QFN36 | 2.0 to 3.6 | |
| | STM32F103T8 | • | 64 | 20 K | | 10x12-bit | 4x16-bit (16/16/18) | | 2 x WDG, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB, CAN | | 26(26) | QFN36 | 2.0 to 3.6 | |
| 48 pins | STM32F103C4 | • | 16 | 6 K | | 10x12-bit | 3x16-bit (12/12/14) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB, CAN | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| | STM32F103C6 | • | 32 | 10 K | | 10x12-bit | 3x16-bit (12/12/14) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 1xI ² C, 2xUSART (IrDA, ISO 7816), USB, CAN | | 36(36) | LQFP48 | 2.0 to 3.6 | |

Microcontrollers

32-bit microcontroller families (cont'd)

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|--|--------------------|-------------------------|-------------|---------------------|------------|--------------------------|---------------------|--------|--|--|------------------|----------|--------------------|------------------|--|
| | | | | | | 12 or 16-bit (IC/OC/PWM) | 8-bit (IC/OC/PWM) | Others | | | | | | | |
| STM32 (ARM® Cortex™-M3) - 32-bit microcontrollers | | | | | | | | | | | | | | | |
| 48 pins | STM32F103C8 | • | 64 | 20 K | | 10x12-bit | 4x16-bit (16/16/18) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 36(36) | LQFP48 | 2.0 to 3.6 | Performance line: 72 MHz CPU speed, EMI (100 and 144 pins), 2-channel DAC, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, 1 x high-speed USART 4.5 Mbit/s, motor control oriented PWM, 3 x ADC (triple sample and hold capability), -40 to 85 °C or -40 to 105 °C |
| | STM32F103CB | • | 128 | 20 K | | 10x12-bit | 4x16-bit (16/16/18) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 36(36) | LQFP48 | 2.0 to 3.6 | |
| 64 pins | STM32F103R4 | • | 16 | 6 K | | 16x12-bit | 3x16-bit (12/12/14) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 2xI ² C, 2xUSART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F103R6 | • | 32 | 10 K | | 16x12-bit | 3x16-bit (12/12/14) | | 2 x WDG, RTC, 24-bit down counter | 1xSPI, 2xI ² C, 2xUSART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F103R8 | • | 64 | 20 K | | 16x12-bit | 4x16-bit (16/16/18) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F103RB | • | 128 | 20 K | | 16x12-bit | 4x16-bit (16/16/18) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| | STM32F103RC | • | 256 | 48 K | | 16x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² S, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 51(51) | LQFP64 | 2.0 to 3.6 | |

Microcontrollers

32-bit microcontroller families (cont'd)

| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|--|--------------------|-------------------------|-------------|---------------------|------------|--------------------------|---------------------|--------|--|--|------------------|----------|--------------------|------------------|--|
| | | | | | | 12 or 16-bit {IC/OC/PWM} | 8-bit {IC/OC/PWM} | Others | | | | | | | |
| STM32 (ARM® Cortex™-M3) - 32-bit microcontrollers | | | | | | | | | | | | | | | |
| 64 pins | STM32F103RD | • | 384 | 64 K | | 16x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 51(51) | LQFP64 | 2.0 to 3.6 | Performance line: 72 MHz CPU speed, EMI (100 and 144 pins), 2-channel DAC, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, 1 x high-speed USART 4.5 Mbit/s, motor control oriented PWM, 3 x ADC (triple sample and hold capability), -40 to 85 °C or -40 to 105 °C |
| | STM32F103RE | • | 512 | 64 K | | 16x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 51(51) | LQFP64 | 2.0 to 3.6 | |
| 100 pins | STM32F103V8 | • | 64 | 20 K | | 16x12-bit | 4x16-bit (16/16/18) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 80(80) | LQFP100, BGA100 | 2.0 to 3.6 | |
| | STM32F103VB | • | 128 | 20 K | | 16x12-bit | 4x16-bit (16/16/18) | | 2 x WDG, RTC, 24-bit down counter | 2xSPI, 2xI ² C, 3xUSART (IrDA, ISO 7816) | | 80(80) | LQFP100, BGA100 | 2.0 to 3.6 | |
| | STM32F103VC | • | 256 | 48 K | | 16x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 80(80) | LQFP100, BGA100 | 2.0 to 3.6 | |
| | STM32F103VD | • | 384 | 64 K | | 16x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 80(80) | LQFP100, BGA100 | 2.0 to 3.6 | |

Microcontrollers

32-bit microcontroller families (cont'd)

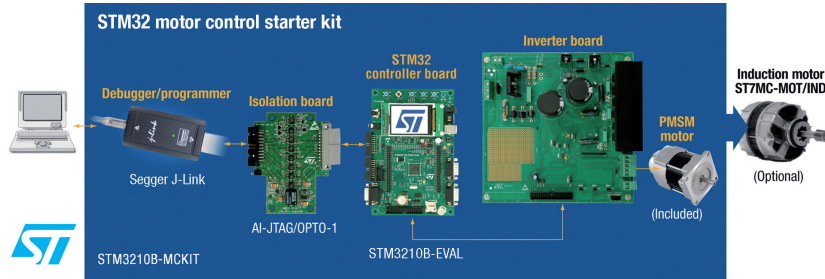
| Part numbers | Flash | Program memory (Kbytes) | RAM (bytes) | Data EEPROM (bytes) | A/D inputs | Timer functions | | | Serial interfaces | LVD levels | I/Os (High sink) | Packages | Supply voltage (V) | Special features | |
|--|--------------------|-------------------------|-------------|---------------------|------------|---------------------------|---------------------|--------|--|--|------------------|----------|--------------------|------------------|--|
| | | | | | | 12 or 16-bit (I/C/OC/PWM) | 8-bit (I/C/OC/PWM) | Others | | | | | | | |
| STM32 (ARM® Cortex™-M3) - 32-bit microcontrollers | | | | | | | | | | | | | | | |
| 100 pins | STM32F103VE | • | 512 | 64 K | | 16x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 80(80) | LQFP100, BGA100 | 2.0 to 3.6 | Performance line: 72 MHz CPU speed, EMI (100 and 144 pins), 2-channel DAC, V _{bat} pin, low-power features, embedded POR, PDR and PVD, 8 MHz and 40 kHz internal RC oscillators, 4-16 MHz main oscillator, dedicated 32 kHz oscillator, 1 x high-speed USART 4.5 Mbit/s, motor control oriented PWM, 3 x ADC (triple sample and hold capability), -40 to 85 °C or -40 to 105 °C |
| | STM32F103ZC | • | 256 | 48 K | | 21x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 112(112) | LQFP144, BGA144 | 2.0 to 3.6 | |
| 144 pins | STM32F103ZD | • | 384 | 64 K | | 21x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 112(112) | LQFP144, BGA144 | 2.0 to 3.6 | |
| | STM32F103ZE | • | 512 | 64 K | | 21x12-bit | 8x16-bit (24/24/28) | | 2 x WDG, RTC, 24-bit down counter, 2x16-bit basic timers | 3xSPI, 2xI ² C, 5xUSART/UART (IrDA, ISO 7816), SDIO, USB, CAN | | 112(112) | LQFP144, BGA144 | 2.0 to 3.6 | |

Microcontrollers

Development tools

STM32 motor control starter kit

Complete development platform with ready-to-run motor control demo for quick, easy motor control feature evaluation with the STM32 (dedicated peripherals, dual ADC, sensorless mode, Cortex™-M3 core). The kit allows rapid implementation of sensor and sensorless vector-based control for three-phase PMSM and AC induction motors. It includes a PMSM motor, motor control board, device-specific evaluation board, opto-isolation board, J-Link (USB/ JTAG), motor control GUI, application and C sources. ST order code: STM3210B-MCKIT



| Part number | Description |
|---------------------|--|
| STM3210B MC library | Optimized, documented C firmware libraries for control of 3-phase PMSM or AC induction brushless motors. In torque or speed control with STM32, sensor mode, sensorless for PMSM. These are the standalone libraries of the STM3210B-MCKIT. |
| AI-JTAG/OPTO-1 | The isolation board included in the STM3210B-MCKIT can also be ordered separately. It provides galvanic isolation between the J-Link from Segger and any high-voltage target board. The isolation board has two JTAG connectors (in/out). Available from distributors and ST sales offices. |
| STM3210B-MCKIT | Demonstration, evaluation and development kit for STM32 includes firmware, LCD user interface, STM3210B-EVAL board (control board), 7 A three-phase inverter board, isolation board (AI-JTAG/OPTO-1), Segger J-Link debugger/programmer and 24 VDC Shinano PMSM motor. Available from distributors and ST sales offices. |
| ST7MC-MOT/IND | 240 V/800 W Selni 3-phase induction motor for use with STM3210B-MCKIT, or with the ST7MC-KIT using induction motor default values (for evaluation purposes). |

ST7MC motor control starter kit

Complete platform for exploring and implementing the motor control features of the ST7MC family. ST order code: ST7MC-KIT/BLDC

Power

Power MOSFETs

| Part Number | Description | Motor type | V_{DSS} (V) | I_D (A) | $R_{DS(on)}$ max @ 10 V (Ω) | Package |
|------------------|---------------|---|---------------|-----------|---|--------------------|
| STV300NH02L | STripFET™ III | Brushed DC motor, brushless DC PMSM, high-frequency PWM universal motor drive, stepper motor | 24 | 280 | 0.0015 | PowerSO-10 |
| STD150NH02LT4/-1 | STripFET III | | 24 | 60 | 0.0035 | DKPAK/IPAK |
| STD100NH02LT4 | STripFET III | | 24 | 60 | 0.0048 | DKPAK |
| STD17NF03LT4 | STripFET II | | 30 | 17 | 0.05 | DKPAK |
| STN4NF03L | STripFET II | | 30 | 6.5 | 0.05 | SOT-223 |
| STD30NF03LT4 | STripFET II | | 30 | 30 | 0.025 | DKPAK |
| STP40NF03L | STripFET II | | 30 | 40 | 0.022 | TO-220 |
| STB55NF03LT4 | STripFET II | | 30 | 55 | 0.013 | D ² PAK |
| STD40NF3LLT4 | STripFET II | | 30 | 40 | 0.011 | DKPAK |
| STL55NH3LL | STripFET III | | 30 | 50 | 0.0105 | PowerFLAT™ 6 x 5 |
| STL60NH3LL | STripFET III | | 30 | 55 | 0.009 | PowerFLAT 6 x 5 |
| STB85NF3LLT4 | STripFET II | | 30 | 85 | 0.008 | D ² PAK |
| STL65N3LLH5 | STripFET III | | 30 | 60 | 0.0075 | PowerFLAT 6 x 5 |
| STD100N3LF3 | STripFET III | | 30 | 80 | 0.0055 | DKPAK |
| STU85NL3H5 | STripFET V | | 30 | 80 | 0.0054 | IPAK |
| STD85NL3H5 | STripFET V | | 30 | 80 | 0.005 | DKPAK |
| STB200NF03T4 | STripFET II | | 30 | 120 | 0.0036 | D ² PAK |
| STL100NH3LL | STripFET III | | 30 | 100 | 0.0035 | PowerFLAT 6 x 5 |

Power

Power MOSFETs (cont'd)

| Part Number | Description | Motor type | V_{DSS} (V) | I_D (A) | $R_{DS(on)}$ max @ 10 V (Ω) | Package |
|----------------|--------------|---|---------------|-----------|---|--------------------|
| STL150N3LLH5 | STripFET V | Brushed DC motor, brushless DC PMSM, high-frequency PWM universal motor drive, stepper motor | 30 | 150 | 0.002 | PowerFLAT 6 x 5 |
| STP62NS04Z | SAFeFET™ | | 33 (clamped) | 62 | 0.015 | T0-220 |
| STP75NS04Z | SAFeFET | | 33 (clamped) | 80 | 0.011 | T0-220 |
| STP100NF04 | STripFET II | | 40 | 120 | 0.0046 | T0-220 |
| STP120NF04 | STripFET II | | 40 | 120 | 0.0046 | T0-220 |
| STP200NF04 | STripFET II | | 40 | 120 | 0.0037 | T0-220 |
| STP200NF04T4 | STripFET II | | 40 | 120 | 0.0037 | T0-220 |
| STP270N4F3 | STripFET III | | 40 | 120 | 0.0029 | T0-220 |
| STB270N4F3 | STripFET III | | 40 | 160 | 0.0025 | D ² PAK |
| STV270N4F3 | STripFET III | | 40 | 200 | 0.0015 | PowerSO-10™ |
| STD60NF55LT4 | STripFET II | | 55 | 60 | 0.015 | DPAK |
| STB60N55F3 | STripFET III | | 55 | 80 | 0.0085 | D ² PAK |
| STD60N55F3 | STripFET III | | 55 | 80 | 0.0085 | DPAK |
| STB140NF55T4 | STripFET II | | 55 | 80 | 0.008 | D ² PAK |
| STP140NF55 | STripFET II | | 55 | 80 | 0.008 | T0-220 |
| STB80NF55-06T4 | STripFET II | | 55 | 80 | 0.0065 | D ² PAK |
| STB150NF55T4 | STripFET II | | 55 | 120 | 0.006 | D ² PAK |
| STP150NF55 | STripFET II | 55 | 120 | 0.006 | T0-220 | |

Power

Power MOSFETs (cont'd)

| Part Number | Description | Motor type | V_{DSS} (V) | I_D (A) | $R_{DS(on)}$ max @ 10 V (Ω) | Package |
|--------------|--------------|---|---------------|-----------|---|--------------------|
| STP180N55F3 | STripFET III | Brushed DC motor, brushless DC PMSM, high-frequency PWM universal motor drive, stepper motor | 55 | 120 | 0.0038 | TO-220 |
| STB180N55F3 | STripFET III | | 55 | 120 | 0.0035 | D ² PAK |
| STV200N55F3 | STripFET III | | 55 | 150 | 0.0025 | PowerSO-10 |
| STV250N55F3 | STripFET III | | 55 | 250 | 0.0022 | PowerSO-10 |
| STD12NF06LT4 | STripFET II | | 60 | 12 | 0.1 | DPAK |
| STD12NF06T4 | STripFET II | | 60 | 12 | 0.1 | DPAK |
| STD20NF06LT4 | STripFET II | | 60 | 20 | 0.04 | DPAK |
| STD20NF06T4 | STripFET II | | 60 | 20 | 0.04 | DPAK |
| STP36NF06 | STripFET II | | 60 | 30 | 0.04 | TO-220 |
| STD30NF06LT4 | STripFET II | | 60 | 28 | 0.028 | DPAK |
| STP45NF06 | STripFET II | | 60 | 38 | 0.028 | TO-220 |
| STD35NF06T4 | STripFET II | | 60 | 35 | 0.02 | DPAK |
| STD35NF06LT4 | STripFET II | | 60 | 35 | 0.0195 | DPAK |
| STB55NF06LT4 | STripFET II | | 60 | 55 | 0.018 | D ² PAK |
| STP55NF06 | STripFET II | | 60 | 55 | 0.018 | TO-220 |
| STD60NF06T4 | STripFET II | | 60 | 60 | 0.016 | DPAK |
| STB60NF06LT4 | STripFET II | | 60 | 60 | 0.014 | D ² PAK |
| STB75NF75LT4 | STripFET II | | 75 | 75 | 0.011 | D ² PAK |

Power

Power MOSFETs (cont'd)

| Part Number | Description | Motor type | V_{DSS} (V) | I_D (A) | $R_{DS(on)}$ max @ 10 V (Ω) | Package |
|--------------|--------------|---|---------------|-----------|---|--------------------|
| STB140NF75T4 | STripFET II | Brushed DC motor, brushless DC PMSM, high-frequency PWM universal motor drive, stepper motor | 75 | 120 | 0.0075 | D ² PAK |
| STP140NF75 | STripFET II | | 75 | 120 | 0.0075 | TO-220 |
| STP160N75F3 | STripFET III | | 75 | 120 | 0.004 | TO-220 |
| STW160N75F3 | STripFET III | | 75 | 75 | 0.004 | TO-247 |
| STB160N75F3 | STripFET III | | 75 | 75 | 0.0037 | D ² PAK |
| STB30NF10T4 | STripFET II | | 100 | 35 | 0.045 | D ² PAK |
| STD25NF10T4 | STripFET II | | 100 | 25 | 0.038 | DPAK |
| STB35NF10T4 | STripFET II | | 100 | 40 | 0.035 | D ² PAK |
| STB40NF10LT4 | STripFET II | | 100 | 40 | 0.033 | D ² PAK |
| STP40NF10L | STripFET II | | 100 | 40 | 0.033 | TO-220 |
| STP40NF12 | STripFET II | | 120 | 40 | 0.032 | TO-220 |
| STB40NF10T4 | STripFET II | | 100 | 40 | 0.028 | D ² PAK |
| STP40NF10 | STripFET II | | 100 | 40 | 0.028 | TO-220 |
| STB60NF10T4 | STripFET II | | 100 | 80 | 0.023 | D ² PAK |
| STP60NF10 | STripFET II | | 100 | 80 | 0.023 | TO-220 |
| STD60N10 | Low voltage | | 100 | 60 | 0.0195 | DPAK |
| STP70N10 | Low voltage | | 100 | 65 | 0.0195 | TO-220 |
| STP80NF10/FP | STripFET II | | 100 | 80 | 0.015 | TO-220/FP |

Power

Power MOSFETs (cont'd)

| Part Number | Description | Motor type | V_{DSS} (V) | I_D (A) | $R_{DS(on)}$ max @ 10 V (Ω) | Package |
|---------------|----------------|---|---------------|-----------|---|--------------------|
| STB80NF10 | STripFET II | Brushed DC motor, brushless DC PMSM, high-frequency PWM universal motor drive, stepper motor | 100 | 80 | 0.015 | D ² PAK |
| STP80NF12 | STripFET II | | 120 | 80 | 0.018 | TO-220 |
| STD17NF25 | STripFET II | Brushless AC PMSM, stepper motor | 250 | 15.7 | 0.165 | DPAK |
| STP12NK30Z | SuperMESH™ | | 300 | 9 | 0.4 | TO-220 |
| STP7NK30Z | SuperMESH | | 300 | 5.7 | 0.9 | DPAK |
| STD4NK50ZD/-1 | SuperFREDmesh™ | | 500 | 3 | 2.7 | DPAK/IPAK |
| STP4NK50ZD | SuperFREDmesh | | 500 | 3 | 2.7 | TO-220 |
| STD6NK50ZT4 | SuperMESH | | 500 | 5.6 | 1.2 | DPAK |
| STB9NK50ZT4 | SuperMESH | | 500 | 7.2 | 0.85 | D ² PAK |
| STP12NM50N | MDmesh™ II | | 500 | 11 | 0.38 | TO-220 |
| STP14NK50Z | SuperMESH | | 500 | 14 | 0.38 | TO-220 |
| STP20NM50FD | FDmesh™ | | 500 | 20 | 0.25 | TO-220 |
| STB21NM60N | MDmesh II | | 600 | 17 | 0.24 | D ² PAK |
| STP21NM50N | MDmesh II | | 500 | 18 | 0.19 | TO-220 |
| STW29NK50ZD | SuperFREDmesh | | 500 | 29 | 0.13 | TO-247 |
| STW45NM50FD | SuperFREDmesh | | 500 | 45 | 0.1 | TO-247 |

Power

Power MOSFETs (cont'd)

| Part Number | Description | Motor type | V_{DSS} (V) | I_D (A) | $R_{DS(on)}$ max @ 10 V (Ω) | Package |
|---------------|---------------|-------------------------------------|---------------|-----------|---|--------------------|
| STY60NM50 | MDmesh II | Brushless AC PMSM, stepper motor | 500 | 60 | 0.05 | Max247™ |
| STD5NK52ZD/-1 | SuperFREDmesh | | 520 | 4.4 | 1.5 | DKPAK/IPAK |
| STP5NK52ZD | SuperFREDmesh | | 520 | 4.4 | 1.5 | TO-220 |
| STB8NM60D | FDmesh | | 600 | 8 | 1 | D ² PAK |
| STP13NK60Z | SuperMESH | | 600 | 13 | 0.55 | TO-220 |
| STP14NK60Z | SuperMESH | | 600 | 13.5 | 0.5 | TO-220 |
| STD11NM60ND | FDmesh II | | 600 | 10 | 0.45 | DKPAK |
| STP15NM60ND | FDmesh II | | 600 | 14 | 0.299 | TO-220 |
| STP21NM60N | MDmesh II | | 600 | 17 | 0.24 | TO-220 |
| STP21NM60ND | FDmesh II | | 600 | 17 | 0.22 | TO-220 |
| STP23NM60ND | FDmesh II | | 600 | 19 | 0.18 | TO-220 |
| STP25NM60ND | FDmesh II | | 600 | 21 | 0.16 | TO-220 |
| STP30NM60ND | FDmesh II | | 600 | 25 | 0.13 | TO-220 |
| STW43NM60ND | FDmesh II | | 600 | 35 | 0.095 | TO-247 |
| STW55NM60ND | FDmesh II | | 600 | 51 | 0.06 | TO-247 |
| STD6N62K3 | SuperMESH3 | | 620 | 1.5 | 1.28 | DKPAK |

Power

IGBTs

| Part number | Description | Breakdown voltage $V_{(br)ces}$ (V) | I_c @ 100 °C (A) | $V_{CE(sat)}$ (V) typ | | Co-packed diode | Package | Motor type |
|----------------|------------------|--|-----------------------|---------------------------------|----------------------------------|--------------------|--------------------|--|
| | | | | @ $V_{GE} = 15$ V $T_J = 25$ °C | @ $V_{GE} = 15$ V $T_J = 125$ °C | | | |
| STGB3NB60SD | Low drop | 600 | 3 | 1.2 @ $I_c = 3$ A | 1.1 @ $I_c = 3$ A | Yes | D ² PAK | High-frequency PWM universal motor drive, single-phase induction motor, three-phase induction motor, brushless DC PMSM, brushless AC PMSM, switched reluctance motor |
| STGD3NB60SD | Low drop | 600 | 3 | 1.2 @ $I_c = 3$ A | 1.1 @ $I_c = 3$ A | Yes | DPAK | |
| STGD7NB60S | Low drop | 600 | 7 | 1.2 @ $I_c = 7$ A | 1.1 @ $I_c = 7$ A | No | DPAK | |
| STGF10NB60S | Low drop | 600 | 7 | 1.35 @ $I_c = 10$ A | 1.25 @ $I_c = 10$ A | No | TO-220 FP | |
| STGB10NB60S | Low drop | 600 | 10 | 1.35 @ $I_c = 10$ A | 1.25 @ $I_c = 10$ A | No | D ² PAK | |
| STGP10NB60S(D) | Low drop | 600 | 10 | 1.35 @ $I_c = 10$ A | 1.25 @ $I_c = 10$ A | No (Yes) | TO-220 | |
| STGF20NB60S | Low drop | 600 | 13 | 1.25 @ $I_c = 20$ A | 1.2 @ $I_c = 20$ A | No | TO-220 FP | |
| STGW35NB60S(D) | Low drop | 600 | 35 | 1.25 @ $I_c = 20$ A | 1.2 @ $I_c = 20$ A | No (Yes) | TO-247 | |
| STGP19NC60SD | Medium frequency | 600 | 20 | 1.55 @ $I_c = 12$ A | 1.35 @ $I_c = 12$ A | Yes | TO-220 | |
| STGF6NC60HD | Very fast | 600 | 4 | 1.9 @ $I_c = 3$ A | 1.7 @ $I_c = 3$ A | Yes | TO-220 FP | |
| STGB6NC60H(D) | Very fast | 600 | 6 | 2.1 @ $I_c = 6$ A | 1.6 @ $I_c = 6$ A | No (Yes) | D ² PAK | |
| STGD6NC60H(D) | Very fast | 600 | 6 | 1.9 @ $I_c = 3$ A | 1.7 @ $I_c = 3$ A | No (Yes) | DPAK | |
| STGP6NC60H(D) | Very fast | 600 | 6 | 1.9 @ $I_c = 3$ A | 1.7 @ $I_c = 3$ A | No (Yes) | TO-220 | |
| STGF7NC60HD | Very fast | 600 | 6 | 1.85 @ $I_c = 7$ A | 1.7 @ $I_c = 7$ A | Yes | TO-220 FP | |
| STGB10NC60HD | Very fast | 600 | 10 | 1.9 @ $I_c = 5$ A | 1.7 @ $I_c = 5$ A | Yes | D ² PAK | |
| STGD10NC60H(D) | Very fast | 600 | 10 | 1.9 @ $I_c = 5$ A | 1.7 @ $I_c = 5$ A | No (Yes) | DPAK | |
| STGF10NC60HD | Very fast | 600 | 10 | 1.9 @ $I_c = 5$ A | 1.7 @ $I_c = 5$ A | Yes | TO-220 FP | |
| STGP10NC60H(D) | Very fast | 600 | 10 | 1.9 @ $I_c = 5$ A | 1.7 @ $I_c = 5$ A | No (Yes) | TO-220 | |

Power

IGBTs (cont'd)

| Part number | Description | Breakdown voltage $V_{(br)CES}$ (V) | I_C @ 100 °C (A) | $V_{CE(sat)}$ (V) typ | | Co-packed diode | Package | Motor type |
|----------------|--------------------------------|--|-----------------------|---------------------------------|----------------------------------|--------------------|--------------------|--|
| | | | | @ $V_{GE} = 15$ V $T_J = 25$ °C | @ $V_{GE} = 15$ V $T_J = 125$ °C | | | |
| STGB7NC60HD | Very fast | 600 | 14 | 1.85 @ $I_C = 7$ A | 1.7 @ $I_C = 7$ A | Yes | D ² PAK | High-frequency PWM universal motor drive, single-phase induction motor, three-phase induction motor, brushless DC PMSM, brushless AC PMSM, switched reluctance motor |
| STGD7NC60H | Very fast | 600 | 14 | 1.85 @ $I_C = 7$ A | 1.7 @ $I_C = 7$ A | No | DPAK | |
| STGP7NC60H(D) | Very fast | 600 | 14 | 1.85 @ $I_C = 7$ A | 1.7 @ $I_C = 7$ A | No (Yes) | TO-220 | |
| STGB19NC60HD | Very fast | 600 | 19 | 1.8 @ $I_C = 12$ A | 1.6 @ $I_C = 12$ A | Yes | D ² PAK | |
| STGF19NC60HD | Very fast | 600 | 19 | 1.8 @ $I_C = 12$ A | 1.6 @ $I_C = 12$ A | Yes | TO-220 FP | |
| STGP19NC60H(D) | Very fast | 600 | 19 | 1.8 @ $I_C = 12$ A | 1.6 @ $I_C = 12$ A | No (Yes) | TO-220 | |
| STGW19NC60HD | Very fast | 600 | 19 | 1.8 @ $I_C = 12$ A | 1.6 @ $I_C = 12$ A | Yes | TO-247 | |
| STGB20NC60V | Very fast | 600 | 30 | 1.8 @ $I_C = 20$ A | 1.7 @ $I_C = 20$ A | No | D ² PAK | |
| STGP20NC60V | Very fast | 600 | 30 | 1.8 @ $I_C = 20$ A | 1.7 @ $I_C = 20$ A | No | TO-220 | |
| STGW20NC60V(D) | Very fast | 600 | 30 | 1.8 @ $I_C = 20$ A | 1.7 @ $I_C = 20$ A | No (Yes) | TO-247 | |
| STGW30NC60VD | Very fast | 600 | 40 | 1.8 @ $I_C = 20$ A | 1.7 @ $I_C = 20$ A | Yes | TO-247 LL | |
| STGW39NC60V(D) | Very fast | 600 | 40 | 1.8 @ $I_C = 30$ A | 1.7 @ $I_C = 30$ A | No (Yes) | TO-247 | |
| STGW40NC60V | Very fast | 600 | 50 | 1.9 @ $I_C = 40$ A | 1.7 @ $I_C = 40$ A | No | TO-247 | |
| STGY40NC60VD | Very fast | 600 | 50 | 1.9 @ $I_C = 40$ A | 1.7 @ $I_C = 40$ A | Yes | Max247 | |
| STGF8NC60KD | Very fast short-circuit rugged | 600 | 4 | 2.2 @ $I_C = 3$ A | 1.8 @ $I_C = 3$ A | Yes | TO-220 FP | |
| STGB8NC60K(D) | Very fast short-circuit rugged | 600 | 8 | 2.2 @ $I_C = 3$ A | 1.8 @ $I_C = 3$ A | No (Yes) | D ² PAK | |
| STGD8NC60KD | Very fast short-circuit rugged | 600 | 8 | 2.2 @ $I_C = 3$ A | 1.8 @ $I_C = 3$ A | Yes | DPAK | |
| STGP8NC60K(D) | Very fast short-circuit rugged | 600 | 8 | 2.2 @ $I_C = 3$ A | 1.8 @ $I_C = 3$ A | No (Yes) | TO-220 | |

Power

IGBTs (cont'd)

| Part number | Description | Breakdown voltage $V_{(br)ces}$ (V) | I_c @ 100 °C (A) | $V_{CE(sat)}$ (V) typ | | Co-packed diode | Package | Motor type |
|----------------|--------------------------------|--|-----------------------|---------------------------------|----------------------------------|--------------------|--------------------|--|
| | | | | @ $V_{GE} = 15$ V $T_J = 25$ °C | @ $V_{GE} = 15$ V $T_J = 125$ °C | | | |
| STGF10NC60KD | Very fast short-circuit rugged | 600 | 6 | 2.2 @ $I_c = 5$ A | 1.8 @ $I_c = 5$ A | Yes | TO-220 FP | High-frequency PWM universal motor drive, single-phase induction motor, three-phase induction motor, brushless DC PMSM, brushless AC PMSM, switched reluctance motor |
| STGD10NC60K(D) | Very fast short-circuit rugged | 600 | 10 | 2.2 @ $I_c = 5$ A | 1.8 @ $I_c = 5$ A | No (Yes) | DPAK | |
| STGP10NC60K(D) | Very fast short-circuit rugged | 600 | 10 | 2.2 @ $I_c = 5$ A | 1.8 @ $I_c = 5$ A | No (Yes) | TO-220 | |
| STGF14NC60KD | Very fast short-circuit rugged | 600 | 7 | 2.0 @ $I_c = 7$ A | 1.8 @ $I_c = 7$ A | Yes | TO-220 FP | |
| STGB14NC60K(D) | Very fast short-circuit rugged | 600 | 14 | 2.0 @ $I_c = 7$ A | 1.8 @ $I_c = 7$ A | No (Yes) | D ² PAK | |
| STGD14NC60K | Very fast short-circuit rugged | 600 | 14 | 2.0 @ $I_c = 7$ A | 1.8 @ $I_c = 7$ A | No | DPAK | |
| STGP14NC60KD | Very fast short-circuit rugged | 600 | 14 | 2.0 @ $I_c = 7$ A | 1.8 @ $I_c = 7$ A | Yes | TO-220 | |
| STGF19NC60KD | Very fast short-circuit rugged | 600 | 10 | 2.0 @ $I_c = 12$ A | 1.8 @ $I_c = 12$ A | Yes | TO-220 FP | |
| STGB19NC60K(D) | Very fast short-circuit rugged | 600 | 20 | 2.0 @ $I_c = 12$ A | 1.8 @ $I_c = 12$ A | No (Yes) | D ² PAK | |
| STGP19NC60K(D) | Very fast short-circuit rugged | 600 | 20 | 2.0 @ $I_c = 12$ A | 1.8 @ $I_c = 12$ A | No (Yes) | TO-220 | |
| STGB30NC60K | Very fast short-circuit rugged | 600 | 26 | 2.1 @ $I_c = 20$ A | 1.9 @ $I_c = 20$ A | No | D ² PAK | |
| STGP30NC60K | Very fast short-circuit rugged | 600 | 26 | 2.1 @ $I_c = 20$ A | 1.9 @ $I_c = 20$ A | No | TO-220 | |
| STGW30NC60KD | Very fast short-circuit rugged | 600 | 28 | 2.1 @ $I_c = 20$ A | 1.9 @ $I_c = 20$ A | Yes | TO-247 | |
| STGW40NC60KD | Very fast short-circuit rugged | 600 | 38 | 2.1 @ $I_c = 30$ A | 1.9 @ $I_c = 30$ A | Yes | TO-247 | |
| STGW30N120KD | Very fast short-circuit rugged | 1200 | 30 | 2.8 @ $I_c = 20$ A | 2.7 @ $I_c = 20$ A | Yes | TO-247 | |

Power

IGBT modules

| Part number | Description | Breakdown voltage $V_{(br)ces}$ (V) | I_c @ 80 °C (A) | $V_{CE(sat)}$ (V) typ | | Package | Motor type |
|----------------------|---|--|----------------------|---------------------------------|----------------------------------|----------|--|
| | | | | @ $V_{GE} = 15$ V $T_J = 25$ °C | @ $V_{GE} = 15$ V $T_J = 125$ °C | | |
| STG3P2M10N60B | 1-phase bridge rectifier + 3-phase inverter | 600 | 10 | 1.85 @ $I_c = 7$ A | 1.7 @ $I_c = 7$ A | SEMIP0P2 | High-frequency PWM universal motor drive, single-phase induction motor, three-phase induction motor, brushless DC PMSM, brushless AC PMSM, switched reluctance motor |
| STG3P3M25N60 | 3-phase inverter | 600 | 25 | 1.85 @ $I_c = 20$ A | 1.7 @ $I_c = 20$ A | SEMIP0P3 | |

AC switches

| Part number | Description | RMS on-state current | V_{rrm}, V_{drm} (V) | V_{tm} (V) @ I_{tm} (A) | I_{gt} (mA) | Package | Motor type |
|----------------------|-------------|----------------------|------------------------|-----------------------------|---------------|-------------------------------|---|
| ACS120-7ST | ACS switch | 2 | 700 | 1.3 @ 2.8 | 10 | TO-220AB | Universal motor, single-phase induction motor |
| ACST4-7SB/FP | ACST switch | 4 | 700 | 1.5 @ 5.6 | 10 | DPAK/TO-220FPAB | Universal motor, single-phase induction motor |
| ACST6-7ST/G | ACST switch | 6 | 700 | 1.4 @ 2.1 | 10 | TO-220AB/D ² PAK | Universal motor, single-phase induction motor |
| ACST8-8CFP/CG | ACST switch | 8 | 800 | 1.5 @ 11 | 30 | TO-220FPAB/D ² PAK | Universal motor, single-phase induction motor |
| ACS102-6TA/T1 | ACS switch | 0.2 | 600 | 1.1 @ 0.3 | 5 | TO-92/SO-8 | Universal motor, single-phase induction motor |
| ACS302-5T3 | ACS switch | 0.2 | 500 | 1.2 @ 0.3 | 5 | SO-20 | Universal motor, single-phase induction motor |
| ACS108-6A/SN | ACS switch | 0.8 | 600 | 1.3 @ 1.1 | 10 | TO-92/SOT-223 | Universal motor, single-phase induction motor |
| ACS110-7SB2/N | ACS switch | 1 | 700 | 1.3 @ 1.4 | 10 | DIP-8/SOT-223 | Universal motor, single-phase induction motor |

Power

Triacs

| Part number | Description | RMS on-state current | V_{rrm}, V_{drm} (V) | V_{tm} (V) @ I_{tm} (A) | I_{gt} (mA) | Package | Motor type |
|--------------------|---------------------------|----------------------|------------------------|-----------------------------|---------------|--------------------|---|
| BTB08-600SW | Logic level Triac | 8 | 600 | 1.55 @ 11 | 10 | TO-220AB | Universal motor, single-phase induction motor |
| BTB08-600CW | Snubberless Triac | 8 | 600 | 1.55 @ 11 | 35 | TO-220AB | Universal motor, single-phase induction motor |
| BTB12-600CW | Snubberless Triac | 12 | 600 | 1.55 @ 17 | 35 | TO-220AB | Universal motor, single-phase induction motor |
| BTB16-600CW | Snubberless Triac | 16 | 600 | 1.55 @ 22.5 | 35 | TO-220AB | Universal motor, single-phase induction motor |
| BTB24-600CW | Snubberless Triac | 25 | 600 | 1.55 @ 35 | 35 | TO-220AB | Universal motor, single-phase induction motor |
| BTB26-600BW | Snubberless Triac | 25 | 600 | 1.55 @ 35 | 50 | TOP3 | Universal motor, single-phase induction motor |
| T1635H-6T | High Tj snubberless Triac | 16 | 600 | 1.85 @ 16 | 35 | TO-220AB | Universal motor, single-phase induction motor |
| T1635H-6I | High Tj snubberless Triac | 16 | 600 | 1.85 @ 16 | 35 | TO-220INS | Universal motor, single-phase induction motor |
| T1035H-6T | High Tj snubberless Triac | 10 | 600 | 1.85 @ 10 | 35 | TO-220AB | Universal motor, single-phase induction motor |
| T1035H-6I | High Tj snubberless Triac | 10 | 600 | 1.55 @ 10 | 35 | TO-220INS | Universal motor, single-phase induction motor |
| T1235-600G | High-performance module | 12 | 600 | 1.55 @ 17 | 35 | D ² PAK | Universal motor, single-phase induction motor |
| T1635-600G | High-performance module | 16 | 600 | 1.55 @ 22.5 | 35 | D ² PAK | Universal motor, single-phase induction motor |
| T2535-600G | High-performance module | 25 | 600 | 1.55 @ 35 | 35 | D ² PAK | Universal motor, single-phase induction motor |
| Z00607MA | Standard Triac | 0.8 | 600 | 1.5 @ 1.1 | 7 | TO-92 | Multiple-winding induction motor (fans) |

Power

Diacs

| Part number | Description | V _{BO} (nom) (V) | V _{BO} min (V) | V _{BO} max (V) | I _{BO} max (μA) | Package | Motor type |
|-------------|-------------|---------------------------|-------------------------|-------------------------|--------------------------|---------|-----------------|
| DB3 | Diac | 32 | 28 | 36 | 50 | D0-35 | Universal motor |

Ultrafast rectifiers

| Part number | Description | IF (av) (A) | V _{rm} (V) | V _f (V) @ I _f (A) | t _{rr} max (ns) 50 A/μs | Package | Motor type |
|-------------|---------------|-------------|---------------------|---|----------------------------------|------------|---|
| STTH3R06 | 600 V Turbo 2 | 3 | 600 | 1.25 @ 3 | 30 | D0-201AD | Three-phase motor |
| STTH506D | 600 V Turbo 2 | 5 | 600 | 1.4 @ 5 | 50 | T0-220AC | Three-phase motor |
| STTH806D | 600 V Turbo 2 | 8 | 600 | 1.4 @ 8 | 50 | T0-220AC | Three-phase motor |
| STTH803D | 300 V | 8 | 300 | 1 @ 8 | 35 | T0-220AC | Three-phase motor |
| STTH506D | 600 V Turbo 2 | 5 | 600 | 1.4 @ 5 | 50 | T0-220AC | Brushed DC motor, three-phase induction motor, brushless DC PMSM, brushless AC PMSM |
| STTH15R06D | 600 V Turbo 2 | 15 | 600 | 1.8 @ 15 | 40 | T0-220AC | Brushed DC motor, three-phase induction motor, brushless DC PMSM, brushless AC PMSM |
| STTH806D | 600 V Turbo 2 | 8 | 600 | 1.4 @ 8 | 50 | T0-220AC | Brushed DC motor, three-phase induction motor, brushless DC PMSM, brushless AC PMSM |
| STTH8L06D | 600 V Turbo 2 | 8 | 600 | 1.05 @ 8 | 105 | T0-220AC | Freewheel for PWM motor drive |
| STTH8L06FP | 600 V Turbo 2 | 8 | 600 | 1.05 @ 8 | 105 | T0-220FPAC | Freewheel for PWM motor drive |
| STTH3006D | 600 V Turbo 2 | 2 x 30 | 600 | 1.4 @ 30 | 70 | T0-220AC | Freewheel for PWM motor drive |

Power

Protection devices - Transil™

| Part number | Description | Power (W) | V_{rm} (V) | V_{br} (V) @ 1mA | V_{cl} (V) @ I_{pp} (A) | Package | Motor type |
|---------------------|-----------------------|-----------|--------------|--------------------|-----------------------------|---------|--|
| SMBJ15A-TR | 600 W Transil diode | 600 | 15 | 16.7 | 24.4 @ 25.1 | SMB | DC inverters, switches or IC protections for all motor types |
| SMBJ28A-TR | 600 W Transil diode | 600 | 28 | 31.1 | 45.4 @ 13.8 | SMB | |
| SMBJ48A-TR | 600 W Transil diode | 600 | 48 | 53.3 | 77.4 @ 8.1 | SMB | |
| SMCJ15A-TR | 1500 W Transil™ diode | 1500 | 15 | 16.7 | 24.4 @ 64 | SMC | |
| SMCJ188A-TR | 1500 W Transil™ diode | 1500 | 188 | 209 | 328 @ 4.6 | SMC | |
| BZW06-376B | 600 W Transil™ diode | 600 | 376 | 418 | 603 @ 1.3 | F126 | |
| SMBJ58A-TR | 600 W Transil diode | 600 | 58 | 67.8 | 121 @ 33 | SMB | |
| SMA6J58-TR | 600 W Transil diode | 600 | 58 | 67.8 | 100 @ 33 | SMA | |
| SMBJ188A-TR | 600 W Transil diode | 600 | 188 | 220 | 388 @ 10.3 | SMB | |
| SMA6J188A-TR | 600 W Transil diode | 600 | 188 | 220 | 323 @ 10.3 | SMA | |

Analog

ASSP for motor control - controllers

| Part number | Package | Supply voltage (V) | Features | Stepping mode | Application |
|--------------|---------|--------------------|--|---------------------------------|-------------|
| L297D | SO-20 | 5 | PWM current controller, stepper motor sequence generator, enable input, reset and home input | Full step, half step, wave mode | Stepper |
| L297 | DIP-20 | 5 | PWM current controller, stepper motor sequence generator, enable input, reset and home input | Full step, half step, wave mode | Stepper |

Analog

ASSP for motor control - controllers (cont'd)

| Part number | Package | Supply voltage (V) | Features | Stepping mode | Application |
|-------------|---------|--------------------|--|---------------|----------------------|
| L6506D | SO-20 | 5 | PWM current controller, enable pin, sync pin | - | DC and stepper motor |
| L6506 | DIP-18 | 5 | PWM current controller, enable pin, sync pin | - | DC and stepper motor |

ASSP for motor control - integrated power stages

| Part number | Package | Description | Supply voltage range (V) | Max RMS current capability (A) | Typ $R_{DS(on)}$ (Ω) | Typ $V_{CE(sat)}$ (V) | Features | Application |
|-------------|--------------------|--------------------------|--------------------------|--------------------------------|-------------------------------|-----------------------|---|----------------------|
| L6201 | SO-20 | DMOS full-bridge driver | 12 to 48 | 1 | 0.3 | - | Cross-conduction protection, thermal shut down, enable pin, sense pin | DC and stepper motor |
| L6201PS | PowersO-20 | DMOS full-bridge driver | 12 to 48 | 4 | 0.3 | - | | DC and stepper motor |
| L6202 | PowerDIP-18 | DMOS full-bridge driver | 12 to 48 | 1.5 | 0.3 | - | | DC and stepper motor |
| L6203 | MULTIWATT11 | DMOS full-bridge driver | 12 to 48 | 4 | 0.3 | - | | DC and stepper motor |
| L293B | DIP-16 | Dual bipolar full-bridge | 4.5 to 36 | 1 each channel | - | 1.2 | Over-temperature protection, chip enable | DC and stepper motor |
| L293E | DIP-20 | Dual bipolar full-bridge | 4.5 to 36 | 1 each channel | - | 1.2 | Over-temperature protection, Chip enable, sense inputs | DC and stepper motor |
| L293D | DIP-16 | Dual bipolar full-bridge | 4.5 to 36 | 0.6 each channel | - | 1.2 | Over-temperature protection, enable facility | DC and stepper motor |
| L293DD | SO-20 | Dual bipolar full-bridge | 4.5 to 36 | 0.6 each channel | - | 1.2 | | DC and stepper motor |
| L2293Q | QFN32L (5x5) | Dual bipolar full-bridge | 2.8 to 36 | 0.6 each channel | - | 1.2 | | DC and stepper motor |
| L298N | MULTIWATT15 Vert. | Dual bipolar full-bridge | 4.8 to 46 | 2 each channel | - | 2 | | DC and stepper motor |
| L298HN | MULTIWATT15 Horiz. | Dual bipolar full-bridge | 4.8 to 46 | 2 each channel | - | 2 | | DC and stepper motor |
| L298P | PowersO-20 | Dual bipolar full-bridge | 4.8 to 46 | 2 each channel | - | 2 | DC and stepper motor | |

Analog

ASSP for motor control - integrated power stages (cont'd)

| Part number | Package | Description | Supply voltage range (V) | Max RMS current capability (A) | Typ $R_{DS(on)}$ (Ω) | Typ $V_{CE(sat)}$ (V) | Features | Application |
|-------------|--------------|-----------------------|--------------------------|--------------------------------|-------------------------------|-----------------------|---|----------------------|
| L6225D | SO-20 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | Over-temperature, overcurrent protection, UVLO, enhanced power package (PD) | DC and stepper motor |
| L6225PD | PowerSO-20 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | | DC and stepper motor |
| L6225N | DIP-20 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | | DC and stepper motor |
| L6226D | SO-24 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | Over-temperature protection, adjustable overcurrent protection, UVLO, enhanced power package (PD) | DC and stepper motor |
| L6226PD | PowerSO-36 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | | DC and stepper motor |
| L6226N | DIP-24 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | | DC and stepper motor |
| L6226Q | QFN32L (5x5) | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | Over-temperature protection, overcurrent protection, UVLO, dual independent PWM current controller, enhanced power package (PD) | DC and stepper motor |
| L6227D | SO-24 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | | DC and stepper motor |
| L6227PD | PowerSO-36 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | | DC and stepper motor |
| L6227N | DIP-24 | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | Over-temperature protection, adjustable overcurrent protection, UVLO, enhanced power package (PD) | DC and stepper motor |
| L6227Q | QFN32L (5x5) | Dual DMOS full-bridge | 8 to 52 | 1.4 each channel | 0.7 | - | | DC and stepper motor |
| L6205D | SO-20 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | Over-temperature protection, adjustable overcurrent protection, UVLO, enhanced power package (PD) | DC and stepper motor |
| L6205PD | PowerSO-20 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | | DC and stepper motor |
| L6205N | DIP-20 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | | DC and stepper motor |
| L6206D | SO-24 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | | DC and stepper motor |
| L6206PD | PowerSO-36 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | | DC and stepper motor |
| L6206N | DIP-24 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | | DC and stepper motor |

Analog

ASSP for motor control - integrated power stages (cont'd)

| Part number | Package | Description | Supply voltage range (V) | Max RMS current capability (A) | Typ $R_{DS(on)}$ (Ω) | Typ $V_{CE(sat)}$ (V) | Features | Application |
|-------------|------------|------------------------|--------------------------|--------------------------------|-------------------------------|-----------------------|--|--------------------------|
| L6207D | SO-24 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | Over-temperature protection, overcurrent protection, UVLO, dual independent PWM current controller, enhanced power package (PD) | DC and stepper motor |
| L6207PD | PowerSO-36 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | | DC and stepper motor |
| L6207N | DIP-24 | Dual DMOS full-bridge | 8 to 52 | 2.8 each channel | 0.3 | - | | DC and stepper motor |
| L6234 | DIP-20 | Three DMOS half-bridge | 7 to 52 | 2.8 each channel | 0.3 | - | Over-temperature protection, cross-conduction protection, input and enable pin available for each channel, enhanced power package (PD) | Three-phase motor driver |
| L6234PD | PowerSO-20 | Three DMOS half-bridge | 7 to 52 | 2.8 each channel | 0.3 | - | | Three-phase motor driver |

ASSP for motor control - drivers

| Part number | Package | Description | Supply voltage range (V) | Max RMS current capability (A) | Typ $R_{DS(on)}$ (Ω) | Features | Stepping mode |
|-------------|--------------|---------------------------------------|--------------------------|--------------------------------|-------------------------------|---|---|
| L6228D | SO-24 | Fully integrated stepper motor driver | 8 to 52 | 1.4 each channel | 0.7 | Over-temperature protection, non-dissipative overcurrent protection, UVLO, dual independent PWM current controller, fast/slow decay mode selection, decoding logic for stepper motor, integrated fast freewheeling diodes | Full step, half step, wave mode, microstepping capability with two 90° sine wave voltage inputs |
| L6228PD | PowerSO-36 | | 8 to 52 | 1.4 each channel | 0.7 | | |
| L6228N | DIP-24 | | 8 to 52 | 1.4 each channel | 0.7 | | |
| L6228Q | QFN32L (5x5) | | 8 to 52 | 1.4 each channel | 0.7 | | |
| L6208D | SO-24 | | 8 to 52 | 2.8 each channel | 0.3 | | |
| L6208PD | PowerSO-36 | | 8 to 52 | 2.8 each channel | 0.3 | | |
| L6208N | DIP-24 | | 8 to 52 | 2.8 each channel | 0.3 | | |

Analog

ASSP for motor control - drivers (cont'd)

| Part number | Package | Description | Supply voltage range (V) | Max RMS current capability (A) | Typ $R_{DS(on)}$ (Ω) | Features | Stepping mode |
|-------------|------------|--|--------------------------|--------------------------------|-------------------------------|---|---------------|
| L6229D | S0-24 | Fully integrated 3 phase BLDC motor driver | 8 to 52 | 1.4 each channel | 0.7 | Over-temperature protection, non-dissipative overcurrent protection, UVLO, PWM current controller, tacho output for speed loop, diagnostic output, brake function, 60 °C and 120 °C Hall effect decoding logic, integrated fast freewheeling diodes | |
| L6229PD | PowerSO-36 | | 8 to 52 | 1.4 each channel | 0.7 | | |
| L6229N | DIP-24 | | 8 to 52 | 1.4 each channel | 0.7 | | |
| L6235D | S0-24 | | 8 to 52 | 2.8 each channel | 0.3 | | |
| L6235PD | PowerSO-36 | | 8 to 52 | 2.8 each channel | 0.3 | | |
| L6235N | DIP-24 | | 8 to 52 | 2.8 each channel | 0.3 | | |

MOSFET/IGBT drivers - triple low-side drivers

| Part number | Package | V_{CC} (V) | Output source / sink current (A) | Features |
|-------------|---------|--------------|----------------------------------|---|
| TD310ID | S0-16 | 18 | 0.6 each channel | Sense comparator, uncommitted op-amp, adjustable UVLO, standby mode, channel paralleling capability |
| TD310IN | DIP-16 | 18 | 0.6 each channel | Sense comparator, uncommitted op-amp, adjustable UVLO, standby mode, channel paralleling capability |

MOSFET/IGBT drivers - single drivers

| Part number | Package | V_{CC} (V) | Output source / sink current (A) | Features |
|-------------|---------|--------------|----------------------------------|--|
| TD220ID | S0-8 | 18 | -1/1 peak, -0.2/0.2 continuous | 3.3 V voltage regulator, UVLO protection, low start-up current |
| TD220IDT | DIP-8 | 18 | -1/1 peak, -0.2/0.2 continuous | 3.3 V voltage regulator, UVLO protection, low start-up current |

Analog

MOSFET/IGBT drivers - single drivers (cont'd)

| Part number | Package | V _{CC} (V) | Output source / sink current (A) | Features |
|-----------------|---------|---------------------|----------------------------------|--|
| TD221ID | SO-8 | 18 | -1/1 peak, -0.2/0.2 continuous | 5 V voltage regulator, UVLO protection, low start-up current |
| TD221IDT | DIP-8 | 18 | -1/1 peak, -0.2/0.2 continuous | 5 V voltage regulator, UVLO protection, low start-up current |
| TD350ID | SO-14 | 28 | 0.75 to 1.2 | UVLO protection, active Miller clamp feature, desaturation detection, fault status output, input compatible with pulse transformer or optocoupler, separate sink and source output |
| TD351ID | SO-8 | 28 | 0.75 to 1.0 | UVLO protection, active Miller clamp feature, input compatible with pulse transformer or optocoupler |
| TD351IN | DIP-8 | 28 | 0.75 to 1.0 | UVLO protection, active Miller clamp feature, input compatible with pulse transformer or optocoupler |
| TD352ID | SO-8 | 28 | 0.75 to 1.0 | UVLO protection, active Miller clamp feature, adjustable and accurate turn-on delay, desaturation detection |
| TD352IN | DIP-8 | 28 | 0.75 to 1.0 | UVLO protection, active Miller clamp feature, adjustable and accurate turn-on delay, desaturation detection |

MOSFET/IGBT drivers - high-voltage half-bridge drivers

| Part number | Package | Output voltage V _{out} (V) | Output source / sink current (mA) | V _{CC} (V) | Deadtime | Features |
|----------------|---------|-------------------------------------|-----------------------------------|---------------------|------------------------------|---|
| L6384ED | SO-8 | 600 | 400 /-650 | 18 | Set by external R 0.5 - 5 ms | Single input plus SD, dual function DT/SD, integrated bootstrap diode, V _{CC} clamp, low-side UVLO |
| L6384E | DIP-8 | 600 | 400 /-650 | 18 | Set by external R 0.5 - 5 ms | |
| L6385ED | SO-8 | 600 | 400 /-650 | 18 | No | Dual inputs, integrated bootstrap diode, high-side and low-side UVLO |
| L6385E | DIP-8 | 600 | 400 /-650 | 18 | No | |
| L6386ED | SO-14 | 600 | 400 /-650 | 18 | Internal 100 ns | Dual inputs, integrated bootstrap diode, high-side (11.9 V) and low-side (12 V) UVLO, sense comparator, dedicated SD pin, two NC pins between OUT and LVG |
| L6386AD | SO-14 | 600 | 400 /-650 | 18 | Internal 100 ns | Dual inputs, integrated bootstrap diode, high-side (9.5 V) and low-side (9.6 V) UVLO, sense comparator, dedicated SD pin, two NC pins between OUT and LVG |

Analog

MOSFET/IGBT drivers - high-voltage half-bridge drivers (cont'd)

| Part number | Package | Output voltage V_{out} (V) | Output source / sink current (mA) | V_{CC} (V) | Deadtime | Features |
|-------------|---------|---------------------------------|--------------------------------------|-----------------|-------------------------------|--|
| L6386E | DIP-14 | 600 | 400 /-650 | 18 | Internal 100 ns | Dual inputs, integrated bootstrap diode, high-side (11.9 V) and low-side (12 V) UVLO, sense comparator, dedicated SD pin, two NC pins between OUT and LVG |
| L6387ED | SO-8 | 600 | 400 /-650 | 18 | Internal 100 ns | Dual inputs, integrated bootstrap diode, low-side UVLO, interlocking logic for cross-conduction prevention |
| L6387E | DIP-8 | 600 | 400 /-650 | 18 | Internal 100 ns | |
| L6388ED | SO-8 | 600 | 400 /-650 | 18 | Fixed 320 ns | Dual inputs, integrated bootstrap diode, high-side and low-side UVLO, 3.3 V, 5 V, 15 V logic compatible, interlocking logic for cross-conduction prevention |
| L6388E | DIP-8 | 600 | 400 /-650 | 18 | Fixed 320 ns | |
| L6390 | DIP-16 | 600 | 270 /-430 | 20 | Adjustable (0.5 to 5 μ s) | Dual out-of-phase inputs, integrated bootstrap diode, 3.3 V, 5 V, 15 V logic compatible, interlocking logic for cross-conduction prevention, comparator for protections, op-amp for advanced current sensing, smart / fast shutdown internal block, dedicated pin for external SD, undervoltage lockout on V_{Boot} and V_{CC} |
| L6390D | SO-16 | 600 | 270 /-430 | 20 | Adjustable (0.5 to 5 μ s) | |
| L6392 | DIP-14 | 600 | 270 /-430 | 20 | Adjustable (0.5 to 5 μ s) | Dual out-of-phase inputs, integrated bootstrap diode, 3.3 V, 5 V, 15 V logic compatible, interlocking logic for cross-conduction prevention, op-amp for advanced current sensing, dedicated pin for external SD, undervoltage lockout on V_{Boot} and V_{CC} |
| L6392D | SO-14 | 600 | 270 /-430 | 20 | Adjustable (0.5 to 5 μ s) | |
| L6393 | DIP-14 | 600 | 270 /-430 | 20 | Adjustable (0.5 to 5 μ s) | Single input, integrated bootstrap diode, 3.3 V, 5 V, 15 V logic compatible, interlocking logic for cross-conduction prevention, comparator for protections, dedicated pin for external SD, undervoltage lockout on V_{Boot} and V_{CC} |
| L6393D | SO-14 | 600 | 270 /-430 | 20 | Adjustable (0.5 to 5 μ s) | |

Power management - voltage regulators

| Part number | Description | Temperature ($^{\circ}$ C) max | I_{out} (A) | Package |
|-------------|--|---------------------------------|---------------|---|
| L78xx | Standard positive-voltage regulator | 150 | 1.5 | TO-220, DPAK, D ² PAK |
| LM317xx | 1.2 V to 37 V adjustable standard positive-voltage regulator | 125 | 1.5 | TO-220, TO-220 isolated, D ² PAK |

Analog

Power management - voltage regulators (cont'd)

| Part number | Description | Temperature (°C) max | I _{out} (A) | Package |
|--------------|---|----------------------|----------------------|----------------------------|
| LD1084/5/6xx | 5/3/1.5 A low-drop positive-voltage regulator | 125 | 5/3/1.5 | TO-220, D ² PAK |
| ST1S10xx | Switching step-down voltage regulator | 85 | 3 | MLP3x3 |

Power management - microprocessor supervisors

| Part number | Description | Watchdog timeout (s) | Reset pulse width min (ms) | Voltage threshold (V) | Temperature range (°C) | Package |
|---------------|---|----------------------|----------------------------|------------------------------|------------------------|---------|
| STM6321xWY6F | Watchdog with open-drain low reset | 1.6 | 140 | 4.63, 4.38, 3.08, 2.93, 2.63 | -40 to +85 | SOT23-5 |
| STM6822xWY6F | Watchdog with open-drain low reset and manual reset | 1.6 | 140 | 4.63, 4.38, 3.08, 2.93, 2.64 | -40 to +85 | SOT23-5 |
| STM6823xWY6F | Watchdog with push-pull low reset and manual reset | 1.6 | 140 | 4.63, 4.38, 3.08, 2.93, 2.65 | -40 to +85 | SOT23-5 |
| STM6824xWY6F | Watchdog with push-pull low reset | 1.6 | 140 | 4.63, 4.38, 3.08, 2.93, 2.66 | -40 to +85 | SOT23-5 |
| STWD100NPWY3F | Watchdog with chip enable with voltage range 2.7 to 5.5 V | 3.4 | 140 | | -40 to +125 | SOT23-5 |

Power management - reset ICs

| Part number | Description | Reset pulse width (ms) | Voltage threshold (V) | Temperature range (°C) | Package |
|--------------|-------------------------|------------------------|------------------------------|------------------------|---------|
| STM809xWX6F | Reset circuit | 140 | 4.63, 4.38, 3.08, 2.93, 2.63 | -40 to +85 | SOT23-3 |
| STM1813xWX6F | Low-power reset circuit | 100 | 4.63, 4.38 | -40 to +105 | SOT23-3 |
| STM1818xWX6F | Low-power reset circuit | 100 | 3.08, 2.93, 2.63 | -40 to +105 | SOT23-3 |

Analog

Power management - voltage detectors

| Part number | Description | Reset pulse width | Voltage threshold | Temperature range (°C) | Package |
|-------------------|----------------------------|-------------------|---------------------------------------|------------------------|---------|
| STM1061Nxy | Low-power voltage detector | | 1.6 V to 5.5 V by increments of 0.1 V | -40 to +85 | SOT23-3 |

Temperature sensors

| Part number | Description | Accuracy | Operating voltage (V) | Operating temperature (°C) | Package |
|-------------------|----------------------------|--------------------------------|-----------------------|----------------------------|---------|
| STLM20W87F | Analog temperature sensor | +/-1.5 °C @ 25 °C | 2.4 to 5.5 | -55 to +130 | SC70-5 |
| STTS75M2 | Digital temperature sensor | +/- 2 °C across - 25 to 100 °C | 2.7 to 5.5 | -55 to + 125 | S0-8 |

Silicon oscillators

| Part number | Description | Frequency (MHz) | Accuracy | Voltage (V) | Temperature range (°C) | Package |
|------------------------|-----------------------------------|-----------------|----------|-------------|------------------------|---------|
| STCL1120YBFCWY5 | High-frequency silicon oscillator | 12 | +/-1.5% | 4.5 to 5.5 | -20 to +85 | SOT23-5 |

Analog

Operational amplifiers

| Part number | Description | Input/output ⁽²⁾ | Supply voltage min-max (V) | Input offset voltage max (mV) | Slew rate typ ($\mu\text{V/s}$) | GBP (typ (MHz)) | I_{cc} typ per operator (mA) | Package |
|---------------|--|-----------------------------|----------------------------|-------------------------------|-----------------------------------|-----------------|---------------------------------------|---------------|
| TSV992 | Low-voltage CMOS input, rail-to-rail op-amp | RR/RR | 2.5 to 5.5 | 1.5/4.5 | 10 | 20 | 0.82 | S08, MS08 |
| TSV994 | Low-voltage CMOS input, rail-to-rail op-amp | RR/RR | 2.5 to 5.5 | 1.5/4.5 | 10 | 20 | 0.82 | S014, TSSOP14 |
| TSH24 | High-performance bipolar op-amp | S-/STD | 3 to 30 | 2.5 | 15 | 25 | 2.15 | DIP14, S014 |
| TSH22 | High-performance bipolar op-amp | S-/STD | 3 to 30 | 2.5 | 15 | 25 | 2.15 | DIP8, S08 |
| TS274 | Micropower op-amp with wide range of input offset voltages | S-/STD | 3 to 16 | 10/5 | 5.5 | 3.5 | 1 | DIP14, S014 |
| TS272 | Micropower op-amp with wide range of input offset voltages | S-/STD | 3 to 16 | 10/5/2 | 5.5 | 3.5 | 1 | DIP8, S08 |

Current-sensing amplifiers

| Part number | Description | Gain | Common-mode operating voltage (V) | Supply voltage operating range (V) | Maximum supply current (μA) | Operating temperature ($^{\circ}\text{C}$) | Package |
|-------------------------------|--|--------------------|-----------------------------------|------------------------------------|--|--|-------------|
| TSC101AIYLT | High-side current-sense amplifier | 20 V/V | 2.8 to 30 | 4 to 24 | 300 | -40 to +125 | SOT23-5 |
| TSC101BIYLT | High-side current-sense amplifier | 50 V/V | 2.8 to 30 | 4 to 24 | 300 | -40 to +125 | SOT23-5 |
| TSC101CIYLT | High-side current-sense amplifier | 100 V/V | 2.8 to 30 | 4 to 24 | 300 | -40 to +125 | SOT23-5 |
| TSC102IY⁽³⁾ | High-side current-sense amplifier plus signal conditioning amplifier | 20 V/V, adjustable | 2.8 to 30 | 3.5 to 5.5 | 450 | -40 to +125 | TSSOP8, S08 |

(2) STD: Standard, S-: single supply, negative rail, RR: rail-to-rail

(3) Full Production Q1 09

Analog

Comparators

| Part number | Description | Input/output ⁽²⁾ | Supply voltage min-max (V) | Input offset voltage max (mV) | Supply current I _{cc} (typ) (μA) | Response time (μs) | Package |
|-------------|-----------------------------------|-----------------------------|----------------------------|-------------------------------|---|--------------------|-------------|
| TS374 | Low-power CMOS voltage comparator | S-/STD | 3 to 16 | 10 | 150 | 0.6 | DIP8, S08 |
| TS372 | Low-power CMOS voltage comparator | S-/STD | 3 to 16 | 10 | 150 | 0.6 | DIP14, S014 |

MEMS

| Part number | Full Scale (g) | V _{dd} (V) | Number of axes | Bandwidth (Hz) | Output ⁽⁵⁾ | Package |
|-------------------------|----------------|---------------------|----------------|---------------------|-----------------------|-----------------------------|
| LIS244AL | ±2 | 3.0 | 2 | 2.0 | Analog | LGA 4x4x1.5 mm ³ |
| LIS244ALH | ±2/±6 | 3.3 | 2 | 2.0 | Analog | LGA 4x4x1.5 mm ³ |
| LIS344AL | ±3.5 | 3.0 | 3 | 2.0 | Analog | LGA 4x4x1.5 mm ³ |
| LIS344ALH | ±2/±6 | 3.3 | 3 | 1.8 | Analog | LGA 4x4x1.5 mm ³ |
| LIS302SG ⁽⁴⁾ | ±2 | 3.3 | 3 | 2.0 | Analog | LGA 3x5x1 mm ³ |
| LIS302DL | ±2/±8 | 2.5 | 3 | 400 ⁽⁶⁾ | Digital (8 bit) | LGA 3x5x0.9 |
| LIS3LV02DL | ±2/±6 | 2.5 | 3 | 2560 ⁽⁶⁾ | Digital (12 bit) | LGA |

(2) STD: Standard, S-: single supply, negative rail, RR: rail-to-rail

(4) Available in two other configurations: LIS302SG2 and LIS302SG3. Differences include calibration/operating voltage and sensitivity values.

(5) Ratiometric to supply voltage

(6) Output data rate (ODR)



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