



## Microcontroller Development Tools

**Development Kits:** • Complete development/prototyping system • Prototyping/demonstration board • In-system Flash programming • In-circuit debugging • MCU configuration wizard

**IDE:** • Source code editor, project manager • Flash programmer • Supports full-speed, non-intrusive in-circuit debug logic • Real-time breakpoints, source-level debug • Conditional memory watch points • Memory and register inspect/modify • Single-step and animated execution modes • Variable watch window

| Digi-Key Part No. | Price Each | Silicon Labs Part No. |
|-------------------|------------|-----------------------|
| 336-1188-ND       | 69.00      | C8051F005DK           |
| 336-1200-ND       | 79.00      | C8051F020DK           |
| 336-1205-ND       | 179.00     | C8051F040DK           |
| 336-1214-ND       | 179.00     | C8051F060DK           |
| 336-1219-ND       | 99.00      | C8051F064EK           |
| 336-1224-ND       | 99.00      | C8051F120DK           |
| 336-1237-ND       | 69.00      | C8051F206DK           |
| 336-1241-ND       | 69.00      | C8051F226DK           |
| 336-1246-ND       | 69.00      | C8051F300DK           |
| 336-1253-ND       | 69.00      | C8051F310DK           |
| 336-1260-ND       | 99.00      | C8051F320DK           |
| 336-1306-ND       | 99.00      | C8051F326DK           |
| 336-1264-ND       | 69.00      | C8051F330DK           |
| 336-1307-ND       | 99.00      | C8051F340DK           |
| 336-1083-ND       | 99.00      | C8051F350DK           |
| 336-1410-ND       | 99.00      | C8051F360DK           |
| 336-1412-ND       | 50.00      | C8051F360-TB          |
| 336-1314-ND       | 99.00      | C8051F410DK           |

| Digi-Key Part No. | Price Each | Silicon Labs Part No. |
|-------------------|------------|-----------------------|
| 336-1317-ND       | 29.00      | C8051F411EK           |
| 336-1526-ND       | 50.00      | C8051F500-TB          |
| 336-1527-ND       | 99.00      | C8051F500DK           |
| 336-1488-ND       | 99.00      | C8051F530ADK          |
| 336-1489-ND       | 50.00      | C8051F530A-TB         |
| 336-1404-ND       | 99.00      | C8051T600DK           |
| 336-1405-ND       | 19.00      | C8051T6005DB          |
| 336-1406-ND       | 29.00      | C8051T6000DB          |
| 336-1430-ND       | 99.00      | C8051F360DK           |
| 336-1443-ND       | 129.00     | C8051T610DK           |
| 336-1464-ND       | 148.75     | C8051T630DK           |
| 336-1465-ND       | 43.75      | C8051T630DB20         |
| 336-1473-ND       | 99.00      | C8051F930DK           |
| 336-1472-ND       | 51.25      | C8051F930-TB          |
| 336-1507-ND       | 49.00      | C8051T610DB24         |
| 336-1505-ND       | 25.00      | C8051T610DB32         |
| 336-1506-ND       | 49.00      | C8051T610DB28         |

| Description                                     | Digi-Key Part No. | Price Each | Silicon Labs Part No. |
|---|-------------------|------------|-----------------------|
| USB Debug Adapter                               | 336-1182-ND       | 35.00      | DEBUGADPTR1-USB       |
| ToolStick User's Guide                          | 336-1278-ND       | 11.63      | TOOLSTICK-EK          |
| Wireless Voice Transceiver Reference Design Kit | 336-1294-ND       | 222.00     | WL-TRANSCVR-RD        |
| Voice Recorder Reference Design Kit             | 336-1315-ND       | 49.00      | VOICE-RECORD-RD       |
| ToolStick Base Adapter                          | 336-1345-ND       | 18.63      | TOOLSTICKBA           |
| ToolStick C8051F320/321 Daughter Card           | 336-1480-ND       | 10.50      | TOOLSTICK321DC        |
| ToolStick C8051F326/327 Daughter Card           | 336-1481-ND       | 10.50      | TOOLSTICK327DC        |
| ToolStick C8051F330 Daughter Card               | 336-1346-ND       | 10.50      | TOOLSTICK330DC        |
| ToolStick C8051F34x Daughter Card               | 336-1482-ND       | 10.50      | TOOLSTICK342DC        |
| ToolStick C8051F362 Daughter Card               | 336-1411-ND       | 10.50      | TOOLSTICK360DC        |
| ToolStick C8051F336 Daughter Card               | 336-1431-ND       | 10.50      | TOOLSTICK336DC        |
| ToolStick C8051F530 Daughter Card               | 336-1487-ND       | 10.50      | TOOLSTICK530ADC       |
| ToolStick C8051F931 Daughter Card               | 336-1474-ND       | 18.63      | TOOLSTICK931DC        |
| University Starter Kit and Book                 | 336-1432-ND       | 55.00      | MCUNIVERSITYKIT       |
| University ToolStick Starter Kit                | 336-1433-ND       | 40.00      | TOOLSTICKUNISK        |
| University ToolStick Daughter Card              | 336-1434-ND       | 25.00      | TOOLSTICKUNIDC        |
| ToolStick Debug Adapter                         | 336-1347-ND       | 9.50       | TOOLSTICKDA           |
| ToolStick Starter Kit                           | 336-1348-ND       | 26.56      | TOOLSTICKSK           |
| ToolStick Adapter Program F300                  | 336-1444-ND       | 69.00      | TOOLSTICK300PP        |
| ToolStick Adapter Program F310                  | 336-1445-ND       | 69.00      | TOOLSTICK310PP        |
| ToolStick Adapter Program F311                  | 336-1446-ND       | 69.00      | TOOLSTICK311PP        |
| ToolStick Adapter Program F316                  | 336-1447-ND       | 69.00      | TOOLSTICK316PP        |

| Description                         | Digi-Key Part No. | Price Each | Silicon Labs Part No. |
|-------------------------------------|-------------------|------------|-----------------------|
| ToolStick Adapter Program F320      | 336-1448-ND       | 69.00      | TOOLSTICK320PP        |
| ToolStick Adapter Program F321      | 336-1449-ND       | 69.00      | TOOLSTICK321PP        |
| ToolStick Adapter Program F326      | 336-1450-ND       | 69.00      | TOOLSTICK326PP        |
| ToolStick Adapter Program F330      | 336-1451-ND       | 69.00      | TOOLSTICK330PP        |
| ToolStick Adapter Program F340      | 336-1452-ND       | 69.00      | TOOLSTICK340PP        |
| ToolStick Adapter Program F360/363  | 336-1483-ND       | 68.75      | TOOLSTICK360PP        |
| ToolStick Adapter Program F410      | 336-1453-ND       | 69.00      | TOOLSTICK410PP        |
| ToolStick Adapter Program F411      | 336-1454-ND       | 69.00      | TOOLSTICK411PP        |
| ToolStick Adapter Program F520      | 336-1455-ND       | 69.00      | TOOLSTICK520PP        |
| ToolStick Adapter Program F530MPP   | 336-1456-ND       | 69.00      | TOOLSTICK530MPP       |
| ToolStick Adapter Program F530TPP   | 336-1457-ND       | 69.00      | TOOLSTICK530TPP       |
| ToolStick Programming Platform F930 | 336-1477-ND       | 68.75      | TOOLSTICK930MPP       |
| ToolStick Programming Platform F930 | 336-1478-ND       | 68.75      | TOOLSTICK930MPP       |
| ToolStick Programming Platform F931 | 336-1479-ND       | 68.75      | TOOLSTICK931PP        |
| Current Sensor Evaluation Board 10A | 336-1425-ND       | 19.95      | SI85XX-EB             |
| CAP TOUCH SENSE Start Kit           | 336-1475-ND       | 36.88      | CAPTOUCHSENSEKIT      |
| CAP TOUCH SENSE Daughter Card       | 336-1476-ND       | 20.00      | CAPTOUCHSENSEDC       |
| ToolStick Daughter Card F500        | 336-1528-ND       | 10.50      | TOOLSTICK502DC        |
| ToolStick Programming Platform F500 | 336-1529-ND       | 68.75      | TOOLSTICK500MPP       |
| ToolStick Adapter Program F500      | 336-1530-ND       | 68.75      | TOOLSTICK500MPP       |
| ToolStick Programming Platform F502 | 336-1531-ND       | 68.75      | TOOLSTICK502MPP       |
| ToolStick Adapter Program F502      | 336-1532-ND       | 68.75      | TOOLSTICK502MPP       |

◆ RoHS Compliant

## Microcontroller Reference Designs

| Description                                  | Digi-Key Part No. | Price Each | Silicon Labs Part No. |
|--|-------------------|------------|-----------------------|
| Digital Compass Reference Design             | 336-1165-ND       | 72.00      | F350-COMPASS-RD       |
| Stepper Motor Reference Design               | 336-1319-ND       | 119.00     | STEPPER-MTR-RD        |
| USB Mass Storage Reference Design            | 336-1320-ND       | 99.00      | USB-MSD-RD            |
| Temperature Compensated RTC Reference Design | 336-1351-ND       | 99.00      | TEMPCOMPATC-RD        |
| Multi-Phase PQL Reference Design             | 336-1323-ND       | 199.00     | MULTIPHSPQL-RD        |
| POE with Voice Transmission Reference Design | 336-1328-ND       | 69.00      | POE-VOICE-RD          |
| Sensorless BLDC Motor Reference Design       | 336-1329-ND       | 119.00     | SLBLDC-MTR-RD         |

## SPI to I<sup>2</sup>C Bridge

A Single-chip SPI to I<sup>2</sup>C bridge and GPIO port expander that allows a SPI master to communicate as an I<sup>2</sup>C master device.

**Features:** • 4-wire SPI bus operates at frequencies up to 1MHz • Fully functional I<sup>2</sup>C master transmit and receive controller • I<sup>2</sup>C data at frequencies configurable up to 400kHz • 255 byte data receive and transmit buffers • Internal oscillator • 2.4V - 3.6V operation • Active LOW interrupt output • 5 volt tolerant I/O pins • 8 general purpose I/O pins

| Description   | Digi-Key Part No. | Price Each | 1    | 25   | 100  | Silicon Labs Part No. |
|---|-------------------|------------|------|------|------|-----------------------|
| SPI-I <sup>2</sup> C Bridge Device and GPIO Port Expander | 336-1324-ND       | 39.00      | 2.26 | 2.56 | 2.13 | CP2120-GM             |
| Evaluation Kit for CP2120                                 | 336-1325-ND       | 39.00      | —    | —    | —    | CP2120EK              |

◆ RoHS Compliant

## AC Current Sensors



The SI85xx products are unidirectional AC current sensors available in full-scale ranges of 5, 10 and 20A. SI85xx products are ideal upgrades for older current-sensing technologies offering size, performance and cost advantages over current transformers. Hall effect devices, DCR circuits and other approaches. The SI 85xx are extremely low loss, adding less than 1.3 mΩ of series resistance and less than 2 nH series inductance in the sensing path at 25°C. Current-sensing terminals are isolated from the other package pins to a maximum voltage of 1000 VDC.

**Features:** • Single-chip AC current sensor/conditioner • Leading-edge noise suppression eliminates need for leading-edge blanking • "Ping-Pong" output version allows one SI85xx to replace low current transformers in full-bridge applications • FAULT output helps safeguard operation • 1000 VDC isolation • Accurate to ±5% of measurement • Large 2 Vpp output pins signal at full scale • High-side or low-side current sensing • -40°C - 125°C operating range (SI85x4/5/6) • Low cost • 120FN package **Applications:** • Power supplies • Motor controls • Lighting equipment • Industrial equipment

| Description          | Out-Put Mode | Current (A) | Digi-Key Part No. | 1    | Price Each | 25  | 100 | Silicon Labs Part No. |
|----------------------|--------------|-------------|-------------------|------|------------|-----|-----|-----------------------|
| IC AC Current Sensor | Single       | 5           | 336-1413-5-ND     | 1.53 | 1.09       | 84  | —   | SI8501-B-GM           |
| IC AC Current Sensor | Single       | 10          | 336-1414-5-ND     | 1.61 | 1.15       | 88  | —   | SI8502-C-GM           |
| IC AC Current Sensor | Single       | 20          | 336-1415-5-ND     | 1.71 | 1.22       | 94  | —   | SI8503-B-GM           |
| IC AC Current Sensor | Single       | 5           | 336-1416-5-ND     | 1.61 | 1.15       | 88  | —   | SI8504-B-IM           |
| IC AC Current Sensor | Single       | 10          | 336-1417-5-ND     | 1.69 | 1.20       | 93  | —   | SI8505-B-IM           |
| IC AC Current Sensor | Single       | 20          | 336-1418-5-ND     | 1.80 | 1.28       | 99  | —   | SI8506-B-IM           |
| IC AC Current Sensor | Dual         | 5           | 336-1419-5-ND     | 2.40 | 1.72       | 132 | —   | SI8511-B-GM           |
| IC AC Current Sensor | Dual         | 10          | 336-1420-5-ND     | 2.52 | 1.80       | 139 | —   | SI8512-B-GM           |
| IC AC Current Sensor | Dual         | 20          | 336-1421-5-ND     | 2.69 | 1.92       | 148 | —   | SI8513-B-GM           |
| IC AC Current Sensor | Dual         | 5           | 336-1422-5-ND     | 2.52 | 1.80       | 139 | —   | SI8514-B-IM           |
| IC AC Current Sensor | Dual         | 10          | 336-1423-5-ND     | 2.65 | 1.89       | 146 | —   | SI8515-B-I            |
| IC AC Current Sensor | Dual         | 20          | 336-1424-5-ND     | 2.83 | 2.02       | 155 | —   | SI8516-BIM            |

## USB to UART Bridge

The CP210x is a single-chip USB to UART bridge that converts data traffic between USB and UART formats. The chip includes a complete USB 2.0 full-speed function controller, bridge control logic and a UART interface with transmit/receive buffers and modem handshake signals. The device also features on-board EEPROM, a voltage regulator, a USB transceiver

and an integrated internal oscillator, eliminating external components generally required in USB applications. System development is further simplified by the CP210x evaluation kit, which includes a complete USB to RS-232 evaluation board and royalty-free device drivers for PC and Macintosh platforms.

| EEPROM (bytes) | RAM (bytes) | Digital Port I/O Pins | Serial Buses       | Internal Osc. | Other  | Package | Digi-Key Part No. | Price Each | Silicon Labs Part No. |
|----------------|-------------|-----------------------|--------------------|---------------|--|---------|-------------------|------------|-----------------------|
| 1024           | 1kB         | —                     | UART to USB Bridge | Yes           | Voltage Regulator host I/O                       | 28-QFN  | 336-1161-ND       | 29.00      | CP2102EK              |
| 1024           | 1kB         | 4                     | UART to USB Bridge | Yes           | Voltage Regulator RS485, Split V <sub>DDIO</sub> | 28-QFN  | 336-1163-ND       | 29.00      | CP2103EK              |

| USB 2.0 (Mbps) | EEPROM | Clock    | UART Baud Rates     | RX/TX Buffer | Package            | Digi-Key Part No. | Price Each | 25   | Silicon Labs Part No. |
|----------------|--------|----------|---------------------|--------------|--------------------|-------------------|------------|------|-----------------------|
| 12             | 512B   | Internal | 300bps to 921.6kbps | 512B         | 28-MLP (5mm x 5mm) | 336-1162-ND       | 5.00       | 4.00 | CP2101-GM             |
| 12             | 1024B  | Internal | 300bps to 921.6kbps | 640B         | 28-MLP (5mm x 5mm) | 336-1160-ND       | 3.98       | 3.19 | CP2102-GM             |
| 12             | 1024B  | Internal | 300bps to 1Mbaits   | 576B / 640B  | 28-QFN (5mm x 5mm) | 336-1164-ND       | 5.36       | 4.29 | CP2103-GM             |

◆ RoHS Compliant

## Ethernet Controllers

The CP220x is a single-chip Ethernet controller containing an integrated IEEE 802.3-compliant Media Access Controller (MAC), a 10 Base-T Physical Layer (PHY), and 8 kB of non-volatile Flash memory available in either a 28-pin QFN (5mm x 5mm), or 48-pin TQFP (9mm x 9mm) package. The on-chip Flash memory may be used to store user constants, web server

content, or can be used as general purpose nonvolatile memory. The Flash is factory pre-programmed with a unique 48-bit MAC address stored in the last six memory locations. Having the unique MAC address stored in the CP220x often removes the necessary serialization step from the product manufacturing process of most embedded systems.

| Flash (kB)                                    | Parallel Host Interface    | Parallel Host Interface Speed | Auto-Negotiation | Pre-Programmed MAC Address | RAM Size                   | LEDs                       | Temperature Range | Package             | Digi-Key Part No. | Price Each | 1    | 25 | Silicon Labs Part No. | Development Kit Part No. |
|---|----------------------------|-------------------------------|------------------|----------------------------|----------------------------|----------------------------|-------------------|---------------------|-------------------|------------|------|----|-----------------------|--------------------------|
| 8   | 8-bit Non-Multiplexed EMIF | 30 Mbps                       | Yes              | Yes                        | 2 kB TX and 4 kB RX Buffer | Separate Link and Activity | -40°C - 85°C      | 48-TQFP (9mm x 9mm) | 336-1312-ND       | 8.44       | 6.75 | —  | CP2200-GQ             | ETHERNETDK               |
| 8   | 8-bit Multiplexed EMIF     | 25 Mbps                       | Yes              | Yes                        | 2 kB TX and 4 kB RX Buffer | Combined Link and Activity | -40°C - 85°C      | 28-QFN (5mm x 5mm)  | 336-1313-ND       | 7.16       | 5.73 | —  | CP2201-GM             | ETHERNETDK               |
| Evaluation Kit for CP2201 Ethernet Controller |                            |                               |                  |                            |                            |                            |                   |                     |                   | 30.00      | —    | —  | CP2201EK              | —                        |

◆ RoHS Compliant

More Product Available Online: [www.digikey.com](http://www.digikey.com)

Toll-Free: 1-800-344-4539 • Phone 218-681-6674 • Fax: 218-681-3380

(T091) 625