# MICROCHIP

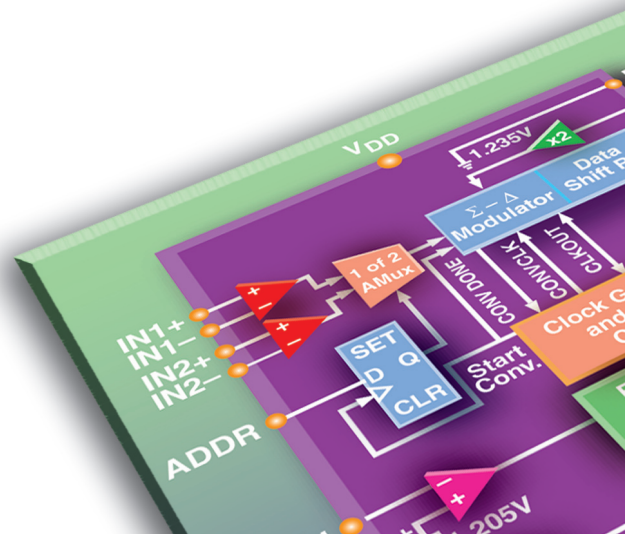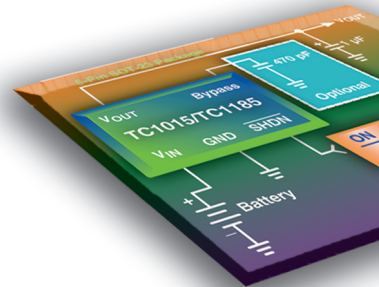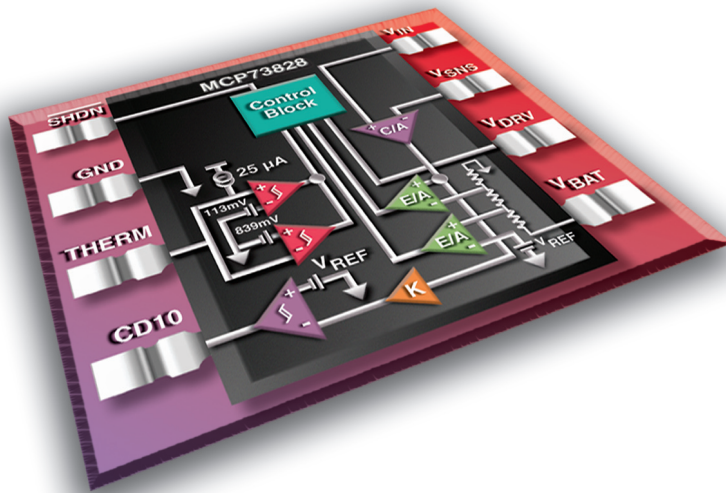# Stand-Alone Analog and Interface Solutions

- Thermal Management
- Power Management
- Battery Management
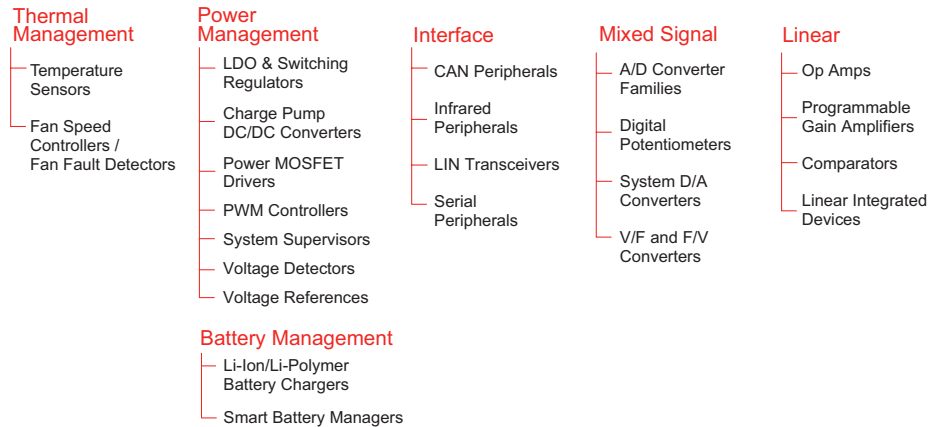- Linear & Mixed-Signal
- Interface Peripherals

# Are you looking for Complete Analog & Interface Design Solutions?

Microchip's integrated analog technology, peripherals and features are engineered to meet today's demanding design requirements. Our broad spectrum of analog products addresses thermal management, power management, battery management, mixed-signal, linear, and interface solutions.

Combined with "Intelligent Analog" microcontrollers, Microchip offers an extensive analog portfolio for thousands of high-performance design applications in the automotive, communications (wireless), consumer, computing and industrial control markets.

Our broad portfolio of stand-alone analog and interface devices offers highly integrated solutions that combine various analog functions in space-saving packages and support a variety of bus interfaces. Many of these devices support functionality that enhances the analog functionality currently available on PIC® microcontrollers.

## Microchip Technology's Stand-Alone Analog & Interface Portfolio

**Thermal Management**
- Temperature Sensors
- Fan Speed Controllers / Fan Fault Detectors

**Power Management**
- LDO & Switching Regulators
- Charge Pump DC/DC Converters
- Power MOSFET Drivers
- PWM Controllers
- System Supervisors
- Voltage Detectors
- Voltage References

**Battery Management**
- Li-Ion/Li-Polymer Battery Chargers
- Smart Battery Managers

**Interface**
- CAN Peripherals
- Infrared Peripherals
- LIN Transceivers
- Serial Peripherals

**Mixed Signal**
- A/D Converter Families
- Digital Potentiometers
- System D/A Converters
- V/F and F/V Converters

**Linear**
- Op Amps
- Programmable Gain Amplifiers
- Comparators
- Linear Integrated Devices

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## Thermal Management Solutions

From temperature measurement to critical over-temperature protection, Microchip's thermal management solutions will help your design operate at an optimal temperature. Ease-of-use, no firmware, high-integration and the ability to work with simple 2-wire fans, are a few of the reasons engineers choose our Fan Speed Controllers and Fan Fault Detectors. Microchip also offers a wide variety of logic, voltage, and serial output temperature sensors to thermally protect your system and ensure real-time temperature measurement and compensation.

### Fan Speed Controllers and Fan Fault Detectors

**TC642**—PWM Fan Speed Controller with Fan Fault Detection

**TC646**—PWM Fan Speed Controller with Fan Fault Detection and Auto-Shutdown

**TC647**—PWM Fan Speed Controller with Fan Fault Detection

**TC648**—PWM Fan Speed Controller with Over-Temperature Detection and Auto-Shutdown

**TC649**—PWM Fan Speed Controller with Fan Fault Detection and Auto-Shutdown

**TC642B**—PWM Fan Speed Controller with Fan Fault Detection and Fan Restart

**TC646B**—PWM Fan Speed Controller with Fan Fault Detection, Auto-Shutdown and Fan Restart

**TC647B**—PWM Fan Speed Controller with Fan Fault Detection and Fan Restart

**TC648B**—PWM Fan Speed Controller with Over-Temperature Detection, Auto-Shutdown and Fan Restart

**TC649B**—PWM Fan Speed Controller with Fan Fault Detection, Auto-Shutdown and Fan Restart

**TC650/651**—Integrated Temperature Sensor and Brushless DC Fan Controller with Over-Temperature Alert

**TC652/653**—Integrated Temperature Sensor and Brushless DC Fan Controller with Fan Fault Detection & Over-Temp Alert

**TC654/655**—Dual SMBus Fan Speed Controller with Fan Fault and Over Temperature Detection

**TC664/665**—Single SMBus Fan Speed Controller with Fan Fault and Over Temperature Detection

**TC670**—SOT-23 Predictive Fan Fault Detector

### Temperature Sensors

**Voltage Output**

**TC1046**—High Precision Temperature-to-Voltage Converter (6.25 mV/°C)

**TC1047/1047A**—High Precision Temperature-to-Voltage Converters (10 mV/°C)

**Logic Output**

**TC6501/2/3/4**—Ultra-Small Temperature Switches with Pin-Selectable Hysteresis

**TC620/621**—5V Dual Trip-Point Temperature Switch

**TC622/624**—Low Cost, Single Trip-Point Temperature Switch

**TC623**—3V Dual Trip-Point Temperature Switch

**Serial Output**

**TC72**—High-Accuracy, 10-bit Digital Thermal Sensor with 4-wire SPI™ Interface

**TC74**—SOT-23 SMBus Digital Temperature Sensor

**TCN75**—Serial Interface Digital Temperature Sensor and Thermal Monitor

**TC77**—High-Accuracy, 13-bit Digital Thermal Sensor with 3-wire SPI Interface

Power Management products from Microchip help drive today's most demanding power supply applications.

## Linear Regulators

Microchip's portfolio of LDOs features ultra low drop-out voltages, 50 mA to 800 mA output currents and small SOT and SC-70 packages options.

**50 mA Output Current**

**TC1014**—CMOS LDO with Shutdown Mode and $V_{REF}$ Bypass Input

**TC1054**—CMOS LDO with Shutdown Mode and ERROR Output

**TC1070**—Adjustable CMOS LDO with Shutdown Mode, 85 mV $V_{Dropout}$

**TC1072**—CMOS LDO with Shutdown Mode, ERROR Output and $V_{REF}$ Bypass Input

**TC1223**—CMOS LDO with Shutdown Mode, 85 mV $V_{Dropout}$

**TC2014**—CMOS LDO with Shutdown Mode and $V_{REF}$ Bypass Input, 45 mV $V_{Dropout}$

**TC2054**—CMOS LDO with Shutdown Mode and ERROR Output, 45 mV $V_{Dropout}$

**80 mA Output Current**

**TC1016**—CMOS SC-70 LDO with Shutdown

**100 mA Output Current**

**TC1015**—CMOS LDO with Shutdown Mode and $V_{REF}$ Bypass Input

**TC1055**—CMOS LDO with Shutdown Mode and ERROR Output

**TC1071**—Adjustable CMOS LDO with Shutdown Mode

**TC1073**—CMOS LDO with Shutdown Mode, ERROR Output and $V_{REF}$ Bypass Input

**TC1224**—CMOS LDO with Shutdown Mode

**TC2015**—CMOS LDO with Shutdown and $V_{REF}$ Bypass Input, 90 mV $V_{Dropout}$

**TC2055**—CMOS LDO with Shutdown and ERROR Output, 90 mV $V_{Dropout}$

**120 mA Output Current**

**TC1188**—MAX8863 Replacement CMOS LDO with Shutdown Mode

**TC1189**—MAX8864 Replacement CMOS LDO with Shutdown Mode and Auto Discharge

**150 mA Output Current**

**TC1017**—CMOS LDO with Shutdown Mode, 50 µA Active Current, SC-70 package

**TC1185**—CMOS LDO with Shutdown Mode and $V_{REF}$ Bypass Input, 50 µA Active Current

**TC1186**—CMOS LDO with Shutdown Mode and ERROR Output, 50 µA Active Current

**TC1187**—Adjustable $V_{OUT}$ CMOS LDO with Shutdown Mode

**TC2185**—CMOS LDO with Shutdown Mode and $V_{REF}$ Bypass

**TC2186**—CMOS LDO with Shutdown Mode and ERROR Output

**180 mA Output Current**

**TC56**—CMOS LDO with Shutdown, 10V $V_{IN}$ Range

**250mA Output Current**

**MCP1700**—1.5 µA Supply Current CMOS LDO

**300 mA Output Current**

**TC1107**—CMOS LDO with Shutdown Mode and $V_{REF}$ Bypass Input

**TC1108**—CMOS LDO in 3-pin SOT-223

**TC1173**—CMOS LDO with Shutdown Mode, ERROR Output, and $V_{REF}$ Bypass Input

**TC1174**—Adjustable CMOS LDO with Shutdown Mode and $V_{REF}$ Bypass Input

**TC1269**—CMOS LDO with Shutdown Mode and $V_{REF}$ Bypass Input

**500 mA Output Current**

**TC1262**—Fixed Output CMOS LDO

**TC1263**—CMOS LDO with Shutdown Mode, ERROR Output and $V_{REF}$ Bypass Input

**TC1268**—Fast Response CMOS LDO with Shutdown Mode, ERROR Output and $V_{REF}$ Bypass Input

**800 mA Output Current**

**TC1264**—Fixed Output CMOS LDO

**TC1265**—CMOS LDO with Shutdown Mode, ERROR Output and $V_{REF}$ Bypass Input

**TC2117**—Fixed Low Dropout CMOS Regulator

## Specialty LDOs

Specialty LDOs are available for unique design requirements.

| | |
|---|---|
| **TC57**—Positive LDO Controller with Shutdown | **TC1266**—200 mA PCI-compliant LDO |
| **TC59**— -10 $V_{IN}$ MAX, 100 µA CMOS LDO | **TC1267**—400 mA PCI-compliant LDO |

## Power MOSFET Drivers

Microchip's Power MOSFET Drivers feature wide range input supply voltages and output currents and offer outstanding latch-up immunity. The portfolio has recently been expanded with the addition of smaller, surface mount power-enhanced packages.

**0.5A Peak Output Current, Low Side Driver**
**TC1410/N**—Single, Inverting/Non-Inverting

**1.0A Peak Output Current, Low Side Driver**
**TC1411/N**—Single, Inverting/Non-Inverting

**1.2A Peak Output Current, Low Side Driver**
**TC1426/7/8**—Dual, Inverting/Non-Inverting/Combo

**TC4467/8/9**—Quad, 2-input Logic Gate Inputs

**1.5A Peak Output Current, Low Side Driver**
**TC4403**—Single, Non-inverting, Floating Load Driver

**TC4426/7/8**—Dual, Inverting/Non-Inverting/Combo, Also Available in High-Performance "A" Version

**2.0A Peak Output Current, Low Side Driver**
**TC1412/N**—Single, Inverting/Non-Inverting

**3.0A Peak Output Current, Low Side Driver**
**TC1413/N**—Single, Inverting/Non-Inverting

**TC4423/24/25**—Dual, Inverting/Non-Inverting/Combo

**6.0A Peak Output Current, Low Side Driver**
**TC4420/29**—Single, Inverting/Non-Inverting

**9.0A Peak Output Current, Low Side Driver**
**TC4421/22**—Single, Inverting/Non-Inverting

**High Side/Low Side Drivers, 1.5 Peak Output Current**
**TC4626/27**—Single, Inverting/Non-Inverting

**TC4431/32**—Single, Inverting/Non-Inverting

## Voltage Detectors

Voltage Detectors with low quiescent current.

| | |
|---|---|
| **MCP111**—1 µA Voltage Detector with Open-Drain Output | **TC52**—Dual Channel Voltage Detector |
| **MCP112**—1 µA Voltage Detector with Push-Pull Output | **TC53**—1 µA Voltage Detector with Output Delay |
| **TC51**—1 µA Voltage Detector with Output Delay | **TC54**—1 µA Operating Current CMOS Voltage Detector |

## PWM Controllers

Our high-speed Pulse Width Modulator circuits were developed for advanced power supply applications particularly when used in conjunction with a PIC® microcontroller

**MCP1630**—PIC® microcontroller "attach" High-Speed Pulse Width Modulator

## Power Management Combo ICs

Our space and cost-saving Combo ICs combine supervisor and regulator functions in one IC.

**TC1300**—CMOS LDO with Shutdown Mode, Bypass and Independent Delay RESET Output

**TC1301**—Dual CMOS LDO (300 mA, 150 mA), with Shutdown Pin, Bypass and Independent RESET Output

**TC1302**—Dual CMOS LDO (300 mA, 150 mA), with Shutdown Pin, Bypass

**TC1305**—Dual, 150 mA CMOS LDO with SelectMode™ Shutdown and Independent RESET Output

**TC1306**—Dual, 150 mA CMOS LDO with SelectMode™ Shutdown and RESET Output

**TC1307**—Quad, 150 mA CMOS LDO with SelectMode™ Shutdown and RESET Output

## Switching Regulators

Choose from a variety of switching frequencies with low supply currents in our Switching Regulator families.

**PFM/PWM Buck Regulators/Controllers**

**MCP1601**—PFM/PWM Step-Down (Buck), 500 mA Synchronous Regulator

**TC105**—PFM/PWM Step-Down (Buck) DC/DC Controller

**TC120**—PFM/PWM Step-Down (Buck) Combination DC/DC Regulator/Controller

**PFM/PWM Boost Regulators/Controllers**

**TC110**—PFM/PWM Step-Up (Boost) DC/DC Controller

**TC115**—PFM/PWM Step-Up (Boost) DC/DC Regulator

**TC125/126**—PFM Step-Up (Boost) DC/DC Regulator

**Boost Controllers**

**MCP1650**—Step-up (Boost) Controller
**MCP1651**—Boost Controller with Low Battery Indicator
**MCP1652**—Boost Controller with Power Good Indicator
**MCP1653**—Boost Controller with Low Battery and Power Good Indicator

## System Supervisors

Microchip's System Supervisors offer excellent low supply current and small packages.

**Power Supply Monitors with RESET Generator for 3.3V and 5V Systems**

**TCM809/810**—Precision CPU Supervisor (SC-70 & SOT-23)

**MCP809/810**—Microcontroller Supervisory Circuit with Push-Pull Output

**TCM811/812**—4-Pin µP RESET Monitors

**TC1270/1271**—4-Pin µP RESET Monitors

**TC1272/73/74**—3-Pin RESET Monitors for 5V Systems

**MCP100**—Microcontroller Supervisory Circuit with Push-Pull Output

**MCP101**—Microcontroller Supervisory Circuit with Push-Pull Output

**MCP120**—3-Pin RESET with Open Drain Output

**MCP130**—3-Pin RESET with Open Drain Output and Internal Pull-up

**Power Supply Monitors with RESET Generator, Watch Dog and Manual Reset**

**TC32M**—3-Pin ECONOMONITOR™ Supervisor

**TC1232**—Microprocessor Monitor

## Charge Pump DC/DC Converters

Our charge pump DC/DC Converters feature inverting and non-inverting voltage doublers and SMT packaging.

**Inverters and Doublers
20 - 45mA Output/$V_{OUT}$ = -$V_{IN}$ or +2$V_{IN}$**

**TC1044S**—1.5V to 12V Input, Boost Frequency Mode Selection (10 kHz/45 kHz)

**TC7660**—1.5V to 10V Input, (10 kHz)

**TC7660H**—1.5V to 10V Input, High Frequency (120 kHz)

**TC7662B**—1.5V to 15V Input, Boost Frequency Mode Selection (10 kHz/35 kHz)

**TC7660S**—1.5V to 12V Input, Boost Frequency Mode Selection (10 kHz/45 kHz)

**TCM828/829**—1.5V to 5.5V Input, (12 kHz/35 kHz)

**TC1219/1220**—1.5V to 5.5V Input with Shutdown (12 kHz/35 kHz)

**TC1221/1222**—1.8V to 5.5V Input with Shutdown (125kHz/750kHz)

**TC1240**—2.5V to 4.0V, Positive Doubling CMOS Charge-Pump Voltage Converter with Shutdown (160kHz)

**TC1240A**—2.5V to 5.5V, Positive Doubling CMOS Charge-Pump Voltage Converter with Shutdown (160kHz)

**TC7662A**—3V to 18V Input (12kHz), $V_{OUT}$ = -$V_{IN}$ or +2 $V_{IN}$

**80 - 100 mA Output Positive Output,
$V_{OUT}$ = -$V_{IN}$ or +2 $V_{IN}$**

**TC962**—3V to 18V Input (12 kHz/24 kHz), 80 mA $I_{OUT}$

**TC1121**—2.4V to 5.5V Input with Shutdown and Frequency Control Selection (10 kHz/200 kHz), 100 mA output

**Multi Function**

**TC682**—2.4V to 5.5V Input/up to 10 mA output current (12 kHz) Converter, $V_{OUT}$ = -2 $V_{IN}$

**Regulated Positive Converters**

**MCP1252/1253**—2.0V to 5.5V Input, 120 mA $I_{OUT}$, Fixed (3.3V or 5.0V), or Adjustable (1.5V to 5.5V) $V_{OUT}$ (650 kHz/1.0 MHz)

# Battery Management

Get high accuracy and longer battery operation for your portable designs with Microchip's battery management products offering low reverse leakage current and a wide range of features in small footprint packages. In addition to Microchip's Battery Chargers, the Company also offers a portfolio of high-accuracy field-programmable smart battery managers. These PowerSmart® devices offer advanced features to maximize battery operating life and reduce PCB footprint, while minimizing overall system cost and improving time-to-market.

## Battery Chargers

**MCP73826**—Single Cell Li-Ion/Li-Polymer Charge Management Controller in SOT-23 Package

**MCP73827**—Single Cell Li-Ion/Li-Polymer Charge Management Controller with Mode Indicator and Charge Current Monitor

**MCP73828**—Single Cell Li-Ion/Li-Polymer Charge Management Controller with Charge Complete Indicator and Temperature Monitor

**MCP73841**—Single Cell Li-Ion/Li-Polymer Charge Management Controller with Charge Status Indicator, Safety Timers and Temperature Monitor

**MCP73842**—Dual Cell Li-Ion/Li-Polymer Charge Management Controller with Charge Status Indicator, Safety Timers and Temperature Monitor

**MCP73843**—Single Cell Li-Ion/Li-Polymer Charge Management Controller with Charge Status Indicator and Safety Timers

**MCP73844**—Dual Cell Li-Ion/Li-Polymer Charge Management Controller with Charge Status Indicator and Safety Timers

**MCP73861**—Fully Integrated Single Cell Li-Ion/Li-Polymer Charge Management Controller with Charge Status Indicator, Safety Timers and Temperature Monitor

**MCP73862**—Fully Integrated Dual Cell Li-Ion/Li-Polymer Charge Management Controller with Charge Status Indicator, Safety Timers and Temperature Monitor

# Interface Solutions

In addition to microcontrollers with integrated CAN ports, Microchip offers peripherals designed to provide flexible, cost-effective options for implementing complete CAN nodes. Products include stand-alone CAN controllers, CAN input/output expanders and high-speed CAN transceivers.

Microchip offers products to enable customers to add infrared connectivity to their embedded applications. Products include infrared encoder/decoders and IrDA® protocol stack controllers.

Continuing its leadership in LIN (Local Interconnect Network) solutions, the recently introduced MCP201 device, a single-chip LIN bus interface transceiver with an integrated voltage regulator, joins the portfolio of LIN microcontrollers and development tools.
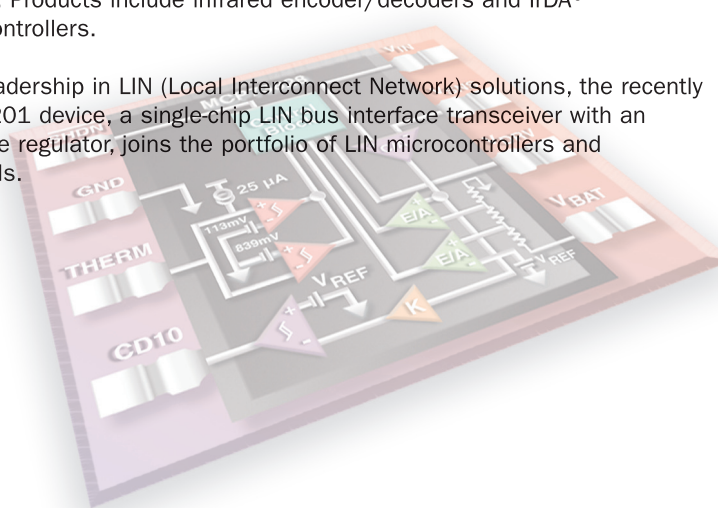
## CAN Peripherals

**MCP2515**—Stand-Alone CAN Controller with SPI™ Interface

**MCP2551**—High-Speed CAN Transceiver

**MCP25020/5**—CAN Input/Output Expander with Digital I/O and 2 PWM Outputs

**MCP25050/5**—CAN Input/Output Expander with Digital I/O, PWM Outputs and A/D Inputs

## Infrared Peripherals

**MCP2120**—IR Encoder/Decoder, hardware/software baud rate selection

**MCP2122**—8-pin IR Encoder/Decoder, 16x clock input

**MCP2140**—Fixed-speed, low-power IrDA protocol handler plus bit encoder/decoder

**MCP2150/5**—IrDA® Protocol Handler plus Bit Encoder/Decoder

## LIN Transceiver

**MCP201**—Single-Chip LIN Bus Interface Transceiver with an Integrated Voltage Regulator

## Other Serial Peripherals

**MCP23016**—16-bit Input/Output Expander

# Mixed-Signal Solutions

High performance combined with low cost and low power consumption make our Analog-to-Digital Converters (A/D Converters) ideal for portable instrumentation, embedded control, and data acquisition applications. Microchip's portfolio includes Successive Approximation Register (SAR) A/D Converters with 10-, 12-, and 13-bit resolutions and sampling rates up to 200 ksps. Also included are Dual Slope A/D Converters with high resolution of up to 17 bits with fully differential inputs, plus BCD and Binary A/D Converters which feature over-range and under-range detection.

Select from low-cost serial D/A Converters, Voltage-to-Frequency Converters (V/F), Frequency-to-Voltage Converters (F/V ), and low dropout precision Voltage References that feature low power and high precision. Rounding out Microchip's Mixed-Signal Family are the Single- and Dual-Channel Digital Potentiometers.

## System Analog-to-Digital Converters

**SAR A/D Converters**

**MCP3001/2/4/8**—10-Bit, SPI Interface, Single/Dual/4/8 Input Channel

**MCP3201/2/4/8**—12-Bit, SPI Interface, Single/Dual/4/8 Input Channel

**MCP3021**—10-Bit, I$^2$C™ Interface, Low Power, SOT-23 Package, Single Channel

**MCP3221**—12-Bit, I$^2$C™ Interface, Low Power, SOT-23 Package, Single Channel

**MCP3301/2/4**—13-Bit, SPI Interface, Single/Dual/4, Differential Input Channel

**Dual Slope A/D Converters**

**TC500/A**—16-Bit/17-Bit Front End

**TC510**—17-Bit Front End

**TC514**—17-Bit Front End with 4 Channel Input MUX

**TC520A**—Serial Interface Adapter for TC500 A/D Converters

**TC530**—17-Bit, Single Input Channel

**TC534**—17-Bit, 4 Input Channel

**TC7109/A**—12-Bit Plus Sign, CMOS Low-Power A/D Converter

**BCD and Binary A/D Converters**

**TC835**—4-1/2 Digit, I²C. Data Acquisition A/D Converter

**TC850**—15-Bit, Fast Integrating, CMOS  A/D Converter

**TC7135**—4-1/2 Digit, A/D Converter

**TC14433/A**—3-1/2 Digit, A/D Converter

### Voltage References

**MCP1525**—2.5V Precision Voltage Reference

**MCP1541**—4.096V Precision Voltage Reference

### System D/A Converters

**TC1320/1**—8/10-bit Digital-to-Analog Converter with Two-Wire Interface

### V/F and F/V Converters

**TC9400/1/2**—Precision V/F and F/V Converters

## Display Analog-to-Digital Converters

**LCD DISPLAY**
**4-1/2 DIGIT**
**TC7129**—Basic 1-Chip DMM with Hold, Low Battery, Over-Range/Under-Range

**3-1/2 DIGIT**
**TC7106/A**—Basic 1-Chip DMM with Internal Reference

**TC7116/A, TC7106/A**—Plus Hold Function

**TC7126/A**—Low Power Basic 1-Chip DMM

**TC7136/A, TC7126/A**—With Improved Reference and Over-Range Recovery

**3-3/4 DIGIT**
**TC820**—DMM plus Frequency Counter and Logic Probe

**Bar Graph**
**TC826**—40 Segment Display with Hold, Over-Range

**LED DISPLAY**
**3-1/2 DIGIT**
**TC7107/A**—Basic 1-Chip DMM with Internal Reference

**TC7117/A, TC7107/A**—Plus Hold Function

## Digital Potentiometers

**MCP41010**—10 Kohm, Single with SPI Interface

**MCP42010**—10 Kohm, Dual with SPI Interface

**MCP41050**—50 Kohm, Single with SPI Interface

**MCP42050**—50 Kohm, Dual with SPI Interface

**MCP41100**—100 Kohm, Single with SPI Interface

**MCP42100**—100 Kohm, Dual with SPI Interface

# Linear Solutions

Microchip's Operational Amplifier family offers one of the lowest $I_Q$ for a given GBWP in the industry. All op amps offer rail-to-rail output with many also offering rail-to-rail input. Microchip's family of low power Comparators offers single, dual or quad amplifiers in space-saving packages.

## Operational Amplifiers

**TC1029**—Dual, Low Power Rail-to-Rail Input/Output

**TC1030**—Quad, Low Power with Shutdown Modes, Rail-to-Rail Input/Output

**TC1034/(35)**—Single, (Single with Shutdown) Low Power (SOT-23 Package), Rail-to-Rail Input/Output

**MCP601/2/(3)/4**—Single/Dual/(Single with Chip Select)/Quad, Rail-to-Rail Output

**MCP606/7/(8)/9**—Single/Dual/(Single with Chip selct)/Quad, Low-Power, Rail-to-Rail Output, $V_{OS}$<250µV

**MCP616/17/(18)/19**—2.3V Single/Dual/(Single with Chip select)/Quad, Rail-to-Rail Output, $V_{OS}$<150 µV

**MCP6001/2/4**—Single/Dual/Quad, 1 MHz 1.8V Dual, Rail-to-Rail Input/Output

**MCP6021/22/(23)/24**—10 MHz Single/Dual/(Single with Chip Select)/Quad, Rail-to-Rail Input/Output

**MCP6041/42/(43)/44**—600nA, 1.4V, 10 kHz, Single/ Dual/ (Single with Chip Select)/Quad, Rail-to-Rail Input/ Output

**MCP6141/42/(43)/44**—600nA, 1.4V, 120 kHz G>10, Single/Dual/(Single with Chip Select)/Quad, Rail-to-Rail Input/Output

**MCP6271/72/(73)/74/(75)**—2 MHz, Single/Dual/ (MCP6273 -Single with Chip Select Shutdown)/Quad/ (MCP6275 - Dual Connected with Chip Select), Rail-to-Rail Input/Output, Extended Temperature

**MCP6281/82/(83)/84/(85)**—5 MHz, Single/Dual/ (MCP6283 -Single with Chip Select Shutdown)/Quad/ (MCP6285 - Dual Connected with Chip Select), Rail-to-Rail Input/Output, Extended Temperature

**MCP6291/92/(93)/94/(95)**—10 MHz, Single/Dual/ (MCP6293 -Single with Chip Select Shutdown)/Quad/ (MCP6295 - Dual Connected with Chip Select), Rail-to-Rail Input/Output, Extended Temperature

## Comparators

Several comparators are offered with low supply voltage (1.8) and low supply current (1 µA). Examples include the **MCP6541, TC1039, TC1038** and the **MCP6546** family of push-pull and open-drain comparators, which are designed for very low power single-supply applications.

The **MCP6541, TC1039,** and **TC1038** families of comparators have a push-pull output that interfaces with CMOS/TTL logic. The output limits supply current surges and dynamic power consumption while switching.

The **MCP6546** family of comparators has an open-drain output that can be pulled up to 10V supply.

The linear building blocks such as **TC1027, TC1039,** and **TC1041,** have integrated reference voltage and shutdown which makes them ideal for low power portable applications.

## Programmable Gain Amplifier

SPI™ Bus programmable amplifiers with built-in Analog Multiplexer

**MCP6S21/2/6/8**—Single/Dual/Hex/Octal, Rail-to-Rail Input/Output, Controlled over SPI™ Port

# Analog Design Development Tools

| Evaluation, Demonstration and Development Kits | | |
|---|---|---|
| **Order #** | **Description** | **Devices Supported** |
| *Thermal Demonstration and Evaluation Tools* | | |
| TC642EV | Fan Controller Evaluation Kit | TC642/B, TC646/B, TC647/B, TC648/B, TC649/B |
| TC642DEMO | Fan Controller Demo Board | |
| TC650DEMO | Fan Controller Demo Board | TC650, TC65 |
| TC652DEMO | Fan Controller Demo Board | TC652, TC653 |
| TC74DEMO | Temperature Demo Kit | TC74 |
| *Mixed Signal Demonstration and Evaluation Tools* | | |
| DVMCPA | MXDEV Analog Evaluation System (Driver Board) | MCP300X, MCP320X, MCP42XXX |
| DV32001A | Single-Dual A/D Evaluation Kit | MCP3001, MCP3002, MCP3201, MCP3202 |
| DV3204A | Quad-Octal A/D Evaluation Kit | MCP3004, MCP3008, MCP3204, MCP3208 |
| TC3400EV | Sigma-Delta Evaluation Kit | TC3400x |
| DV42XXXX | Digital POT Evaluation Kit | MCP42010, MCP42050, MCP42100 |
| *DC/DC Converter Demonstration and Evaluation Tools* | | |
| MCP1252/53EV | Evaluation Kit | MCP1252/53 |
| MCP1601EV | Evaluation Kit | MCP1601 |
| MCP1650EV | Evaluation Kit | MCP1650/51/52/53 |
| *CAN Demonstration and Evaluation Tools* | | |
| DV251001 | MCP2515/2510 CAN Developer's Kit | MCP2515, MCP2510, MCP2551 |
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