

# Microcontroller Supervisor Family

## Product Summary

Microchip's extensive family of low-cost, precision system supervisors and reset circuits support microcontrollers, ASICs, digital signal processors and custom chip sets. The family offers a large variety of reset trip points, output types and package options to cover most application requirements. The breadth of the product line enables Microchip supervisors to cross to virtually all competitors supervisory reset products. The devices are functionally and pinout comparable to products from other analog suppliers.

Noisy environments, unreliable power or battery power in many microcontroller applications may create a variety of system-level problems that can be eliminated with power-on reset or brown-out detect functions found on the supervisors. The power-on reset devices are designed to hold the microcontroller in reset until the supply voltage reaches a predetermined operating level and stabilizes.

This supervisor family protects from brown-out conditions occurring as a result of supply voltage drops below the safe operating level. It eliminates a slowly decaying power supply which causes the microcontroller to begin executing instructions without enough voltage to sustain its SRAM, producing indeterminate results, and helps prevent a runaway system or helps back up critical data during power fluctuations.

Microchip offers supervisors in 3-pin SC-70, 3/5-pin SOT-23, TO-92, 4-pin SOT-143, 8-pin PDIP and 8/16-pin SOIC packages in various pin configurations. It is ideal for embedded control applications such as hand-held instrumentation, telephone hand sets and other battery powered operations.



## Features

- Multiple Trip voltage points range from 1.75-4.72V
- Industry standard pin-outs:
  - SC-70
  - SOT-23
  - SOT-143
  - TO-92
  - SOIC
  - PDIP
- Extended Industrial Temperature (-40°C to +125°C)
- 9 parts include Watchdog Timers

## Related Application Notes

- AN595 Improving the Susceptibility of an Application to ESD
- AN598 Plastic Packaging and the Effects of Surface Mount Soldering Techniques
- AN686 Understanding and Using Supervisory Circuits

## Featured New Products

Device	Reset A			Reset B		WDI Input	MR Input	Vcc Range	I <sub>DD</sub> (µA)	Reset Delay
	Type	Pull-up Resistor	Active Level	Type	Active Level					
MCP1316	Push-Pull	–	Low	–	–	Yes	Yes	1.0-5.5V	5	200 ms
MCP1316M	Open-Drain	Internal	Low	–	–	Yes	Yes	1.0-5.5V	5	200 ms
MCP1317	Push-Pull	–	High	–	–	Yes	Yes	1.0-5.5V	5	200 ms
MP1318	Push-Pull	–	Low	Push-Pull	High	Yes	No	1.0-5.5V	5	200 ms
MCP1318M	Open-Drain	Internal	Low	Push-Pull	High	Yes	No	1.0-5.5V	5	200 ms
MCP1319	Push-Pull	–	Low	Push-Pull	High	No	Yes	1.0-5.5V	5	200 ms
MCP1319M	Open-Drain	Internal	Low	Push-Pull	High	No	Yes	1.0-5.5V	5	200 ms
MCP1320	Open-Drain	External	Low	–	–	Yes	Yes	1.0-5.5V	5	200 ms
MCP1321	Open-Drain	External	Low	Push-Pull	High	Yes	No	1.0-5.5V	5	200 ms
MCP1322	Open-Drain	External	Low	Push-Pull	High	No	Yes	1.0-5.5V	5	200 ms



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## Additional Information:

- Microchip's web site: [www.microchip.com](http://www.microchip.com)
- *Product Selector Guide*, DS00148
- *Stand-Alone Analog and Interface Solutions*, DS21060
- *Microchip's Technical Library CD-ROM*, DS00161
- *Analog & Interface Families Data Book 2002*, DS00207

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Device	Reset A			Reset B		WDI Input	MR Input	Vcc Range	I <sub>DD</sub> (μA)	Reset Delay
	Type	Pull-up Resistor	Active Level	Type	Active Level					
MCP100	Push-Pull	–	Low	–	–	–	–	1.0-5.5V	32	350 ms
MCP101	Push-Pull	–	High	–	–	–	–	1.0-5.5V	33	350 ms
MCP102	Push-Pull	–	Low	–	–	–	–	1.0-5.5V	1	120 ms
MCP103	Open-Drain	External	Low	–	–	–	–	1.0-5.5V	1	120 ms
MCP120	Open-Drain	External	Low	–	–	–	–	1.0-5.5V	34	350 ms
TC1232	Open-Drain	External	Low/High	–	–	Yes	–	4.5-5.5V	50	250 ms
TC1270	Push-Pull	–	Low	–	–	–	Yes	1.2-5.5V	7	140 ms
TC1271	Push-Pull	–	High	–	–	–	Yes	1.2-5.5V	7	140 ms
TC1272	Push-Pull	–	Low	–	–	–	–	1.2-5.5V	30	100 ms
TC1273	Open-Drain	–	Low	–	–	–	–	1.2-5.5V	30	100 ms
TC1274	Open-Drain	–	Low	–	–	–	–	1.2-5.5V	30	100 ms
TC1275	Push-Pull	–	Low	–	–	–	–	1.2-5.5V	28	100 ms
TC1276	Open-Drain	–	Low	–	–	–	–	1.2-5.5V	28	100 ms
TC1277	Push-Pull	–	Low	–	–	–	–	1.2-5.5V	28	100 ms
TC1278	Open-Drain	–	High	–	–	–	–	1.2-5.5V	30	100 ms
TC1279	Open-Drain	–	Low	–	–	–	–	1.2-5.5V	30	100 ms
MCP130	Open-Drain	Internal	Low	–	–	–	–	1.0-5.5V	35	350 ms
MCP131	Open-Drain	Internal	Low	–	–	–	–	1.0-5.5V	1	120 ms
MCP1316	Push-Pull	–	Low	–	–	Yes	Yes	1.0-5.5V	5	200 ms
MCP1316M	Open-Drain	Internal	Low	–	–	Yes	Yes	1.0-5.5V	5	200 ms
MCP1317	Push-Pull	–	High	–	–	Yes	Yes	1.0-5.5V	5	200 ms
MP1318	Push-Pull	–	Low	Push-Pull	High	Yes	No	1.0-5.5V	5	200 ms
MCP1318M	Open-Drain	Internal	Low	Push-Pull	High	Yes	No	1.0-5.5V	5	200 ms
MCP1319	Push-Pull	–	Low	Push-Pull	High	No	Yes	1.0-5.5V	5	200 ms
MCP1319M	Open-Drain	Internal	Low	Push-Pull	High	No	Yes	1.0-5.5V	5	200 ms
MCP1320	Open-Drain	External	Low	–	–	Yes	Yes	1.0-5.5V	5	200 ms
MCP1321	Open-Drain	External	Low	Push-Pull	High	Yes	No	1.0-5.5V	5	200 ms
MCP1322	Open-Drain	External	Low	Push-Pull	High	No	Yes	1.0-5.5V	5	200 ms
TC32M	Open-Drain	–	Low	–	–	Yes	–	4.5-5.5V	50	500 ms
TCM809	Open-Drain	–	Low	–	–	–	–	1.2-5.5V	17	140 ms
TCM810	Push-Pull	–	High	–	–	–	–	1.2-5.5V	17	140 ms
TCM811	Push-Pull	–	Low	–	–	–	–	1.2-5.5V	6	140 ms
TCM812	Push-Pull	–	High	–	–	–	–	1.2-5.5V	6	140 ms

[www.microchip.com/analog](http://www.microchip.com/analog)

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