CAT1161, CAT1162 & CAT1163

Supervisory Circuits with I²C Serial EEPROM Memory and Watchdog Protection

BENEFITS

- Single chip solution
  - Supervisor
  - Serial 16Kbit EEPROM memory with write protection
  - Watchdog
- Data Integrity
  - Hardware write protection pin, WP
  - Low V_{CC} write lockout protection
- System recovery from power brownouts
- Recover from "stuck" systems
- Controlled power up and power down of microcontrollers
- High density: 16Kbits
- 1 million write cycles
- Low standby power : 40µA @ 3.3V

FEATURES

- 16Kbit EEPROM Memory
  - Hardware write protect (WP)
  - I²C interface
  - Built-in inadvertent write protection, V_{CC} lockout
  - 16-byte page write buffer
  - 2.7V to 6V operation
- Five Reset Threshold Options for 5V, 3.3V and 3V systems
- Dual active low and active high reset outputs
- 200ms reset period
- Watchdog timer
  - 1.6 second period
  - Monitors SDA line (CAT1161)
  - Independent watchdog input (CAT1163)
  - Low cost CAT1162 without watchdog

FLASH • Serial EEPROM • Parallel EEPROM • NVRAM • Digitally Programmable Potentiometers • Microprocessor Supervisors

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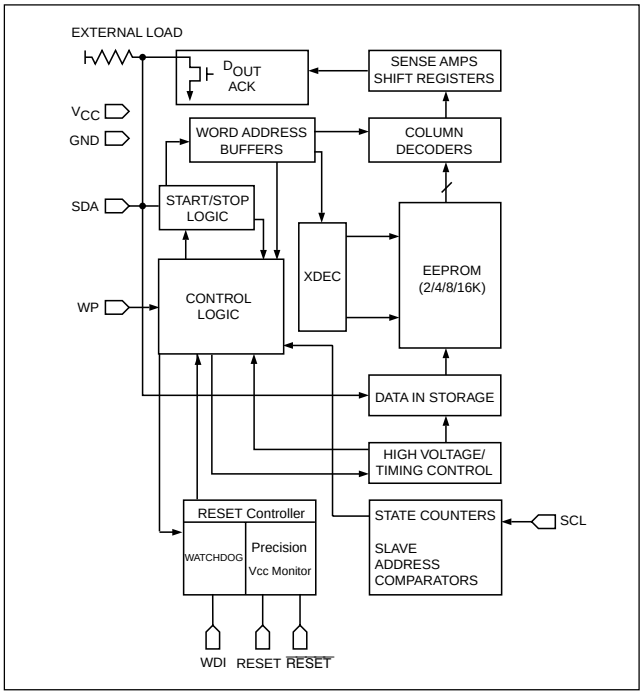
CAT1163 with Independent Watchdog Input



DESCRIPTION

The CAT116x Supervisory Circuits with Serial EEPROM memory are part of Catalyst Semiconductor's advanced AE² ™ (Analog EEPROM) product offering. The three-member family features versions with dual polarity reset outputs, watchdog capability, and I²C interfaced 16Kbit serial EEPROM memory with hardware write protection. Five reset threshold voltage options support 5-volt, 3.3-volt and 3-volt powered systems. Reset threshold voltage options are 5 percent and 10 percent for 5-volt and 3.3-volt systems, and 10 percent for 3-volt systems.

CAT116x devices have two memory protection features. A hardware write protection signal on the WP pin sets the entire array into a READ only mode. In addition, a low voltage supply lockout circuit inhibits writes to the serial EEPROM.

All CAT116x devices detect power-up, power-down and brownout power states. Whenever the supply voltage is below the reset threshold, reset signals become active. Reset signals are valid for power supply voltages down to 1 volt. During power-up or after a brownout condition, the reset signals remain active for a minimum of 130 milliseconds and a maximum of 270 milliseconds. Unlike simple supervisory circuits, each Catalyst device has both an active high and an active low reset pin. In addition, a reset pin can serve as an input pin. For example, a mechanical switch can be connected to a reset pin as a manual reset. The CAT116x will debounce the signal.

Customer Service & Technical Support Hotline 800-258-5991

The Catalyst CAT1161 and CAT1163 have increased system-monitoring capability. Even with the correct power supply voltage, a system can become locked in an unwanted state. A system can become frozen or "stuck" in a non-operating state when hardware fails or software bugs occur. For such cases, the watchdog circuit on the CAT1161 and CAT1163 will detect when a system has failed and issue a system-reset signal.

The CAT1161 and CAT1163 devices integrate a 1.6-second watchdog timer on-chip. The watchdog timer monitors a signal for activity. Any activity on the monitored pin will cause the timer to restart its 1.6-second count. If no activity is detected on a monitored signal during the watchdog period, the watchdog timer "times-out" and the reset signals become active.

The CAT1161 watchdog timer monitors the Serial/Data Address (SDA) line internally, thus eliminating an external PC board trace. The CAT1163 watchdog input (WDI) pin can monitor any external signal. The low-cost CAT1162 does not have watchdog capability.

SELECTION GUIDE

CATALYST DEVICE	EE MEMORY	WATCHDOG TIMER	WATCHDOG INPUT
CAT1161	16Kbits	Yes	SDA
CAT1162	16Kbits	No	No Watchdog
CAT1163	16Kbits	Yes	Independent, WDI

FIVE RESET VOLTAGE OPTIONS

Part Dash Number	Minimum Threshold	Maximum Threshold
-45	4.50	4.75
-42	4.25	4.50
-30	3.00	3.15
-28	2.85	3.00
-25	2.55	2.70

CATALYST

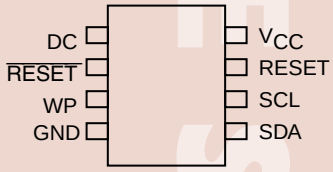
CAT1161/1162/1163

APPLICATIONS

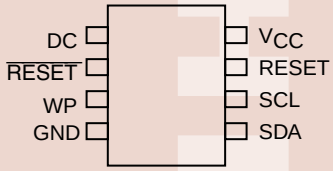
- Industrial control
- Power meters
- ATE
- Smart instruments
- Medical equipment
- Embedded control systems
- Office equipment
- White goods
- Automotive
- Wireless communications

PACKAGE OPTIONS

- 8-lead DIP and SOIC



CAT1161/1162



CAT1163

FEATURE SHEET

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Document No. 7010, Rev. B, 10/22/02

CAT1161/1162/1163
REQUEST FORM
Samples & Literature

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QUESTIONNAIRE **WWW.CATALYST-SEMICONDUCTOR.COM**

Please take a moment to answer the brief questions below. Questions marked with an asterisk (*) are required fields for processing your sample requests. Thank you for your support and for making Catalyst Semiconductor your choice for chip technology!

* 1) Will this information be used for a project that will be in production.... ❑ Now ❑ Next 2 – 6 months ❑ Next 7 – 12 months ❑ 13 – 18 months

* 2) What is the name of your project?_____

3) What is your role on this project? ❑ Designer ❑ Component Engineer ❑ Purchasing ❑ Project Manager ❑ Other

4) What do you expect your annual usage to be? ❑ 100k–1 Million Units ❑ 10k–100k Units ❑ 1k–10k Units ❑ Fewer than 1k Units

* 5) What is the primary end-use of this product? ❑ Motor control ❑ Computer systems & peripherals ❑ Data communications ❑ Entertainment ❑ Wireless communications ❑ Home appliances ❑ Industrial control ❑ Medical ❑ Power ❑ Telecomm ❑ Test ❑ PDAs ❑ Handheld instruments ❑ Other_____

PRODUCT NUMBER	DESCRIPTION	PACKAGE	TEMPERATURE RANGE	THRESHOLD VOLTAGE	DATA SHEET	SAMPLE QTY
CAT1163	16K, WDI Input	☐ 8-lead DIP ☐ 8-lead SOIC	☐ Commercial ☐ Industrial	☐ 4.5V to 4.75V ☐ 3.0V to 3.15V ☐ 2.55V to 2.7V ☐ 4.25V to 4.5V ☐ 2.85V to 3.0V	☐	☐ _____
CAT1161	16K, SDA Watchdog Input	☐ 8-lead DIP ☐ 8-lead SOIC	☐ Commercial ☐ Industrial	☐ 4.5V to 4.75V ☐ 3.0V to 3.15V ☐ 2.55V to 2.7V ☐ 4.25V to 4.5V ☐ 2.85V to 3.0V	☐	☐ _____
CAT1162	16K, No Watchdog	☐ 8-lead DIP ☐ 8-lead SOIC	☐ Commercial ☐ Industrial	☐ 4.5V to 4.75V ☐ 3.0V to 3.15V ☐ 2.55V to 2.7V ☐ 4.25V to 4.5V ☐ 2.85V to 3.0V	☐	☐ _____

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