



## Diodes, Inc.'s New Product Announcement, May 2, 2008

### Microprocessor Supervisory and Re-set ICs for Digital Systems

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#### Designed for Microprocessor or Microcontroller based electronic systems:

The APX8XX series supports the increasing demand to monitor microprocessor or micro-controller based systems such as computers, instruments, embedded systems and sophisticated electronic devices.

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#### Benefits

- The APX809/810 are microprocessor ( $\mu$ P) supervisory circuits used to monitor the power supplies in  $\mu$ P and digital systems. They provide excellent circuit reliability and low cost by eliminating external components and adjustments when used with +5V, +3.3V, +3.0V powered circuits.
- The APX823/24/25A are a family of supervisors that provides circuit initialization and timing supervision for DSP or processor based systems.

#### APX809/10/23/24/25A Product Highlights

APX8xx Series consists of the parts listed below (provided with data sheet links):

- **APX809** [http://www.diodes.com/datasheets/APX809\\_APX810.pdf](http://www.diodes.com/datasheets/APX809_APX810.pdf)
- **APX810** [http://www.diodes.com/datasheets/APX809\\_APX810.pdf](http://www.diodes.com/datasheets/APX809_APX810.pdf)
- **APX823** [http://www.diodes.com/datasheets/APX823\\_824\\_825A.pdf](http://www.diodes.com/datasheets/APX823_824_825A.pdf)
- **APX824** [http://www.diodes.com/datasheets/APX823\\_824\\_825A.pdf](http://www.diodes.com/datasheets/APX823_824_825A.pdf)
- **APX825A** [http://www.diodes.com/datasheets/APX823\\_824\\_825A.pdf](http://www.diodes.com/datasheets/APX823_824_825A.pdf)

The APX8xx series offers both Manual Reset and Watchdog Timer inputs addressing the broad requirements of today's intelligent electronic portable devices, which use Microprocessors or Microcontrollers in their applications.

- **APX809:** 3 Pin Device; Preprogram threshold voltages - Reset Active Low output.
- **APX810:** 3 Pin Device; Preprogram threshold voltages - Reset Active High output.
- **APX823:** 5 Pin Device; Active Low with Power-on reset generator, Manual reset and Watchdog Timer Input.
- **APX824:** 5 Pin Device – Active Low or High with Power-on reset generator and Watchdog Timer Input.
- **APX825A:** 6 Pin Device – Active Low or High with Power-on reset generator, Manual Reset and Watchdog Timer Input.

The APX8xx devices operate from 1.0V to 5.5V making them ideal for single cell battery applications.

#### Availability

- Samples: NOW Available!
- Production Quantity Lead Time: 8 - 10 weeks
- Data Sheet Available NOW at: [www.diodes.com](http://www.diodes.com)

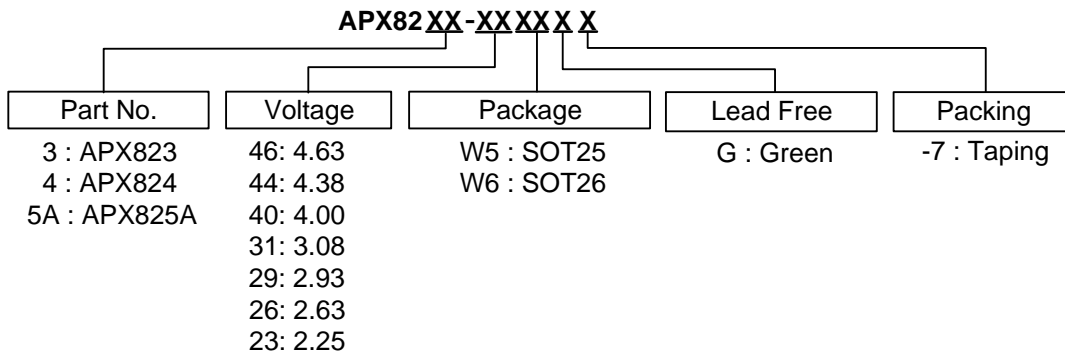
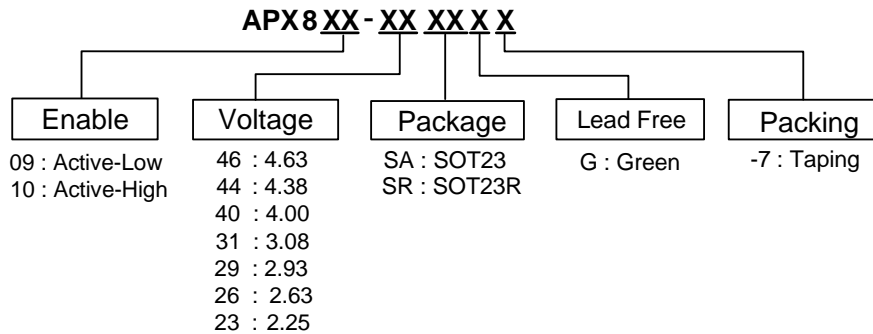
## Key Features

- **Supply Voltage Range: 1V to 5.5V for APX809/10/23/24/25A:**
  - Suitable for use in mobile or handheld devices powered by a wide range of batteries from the 1-cell lithium-ion type to the 2-cell alkaline/zinc type
  - Meets Industrial Temperature Range: -40°C to +85°C
  
- **Precision Monitoring:**
  - APX809 and APX810 offer precision monitoring of power supply voltages from +2.5V, +3V, +3.3V and +5V.
  
- **RESET Preprogrammed Threshold Voltages:**
  - APX8xx Series offers the following preprogrammed threshold Voltages;
  - 2.25V – 2.63V – 2.93v – 3.08V – 4.0V – 4.38V – 4.63V
  
- **Power-on Reset:**
  - APX823/24/25A integrates a power-on reset generator with fixed delay time of 200ms.
  
- **Manual Reset:**
  - APX823 and APX824 offer manual reset input – For applications that require multiple supplies such as 3.3V or 5V, if either one of these supplies loses regulation the whole system would need to be restarted. The MR input enables the uncommitted supply to be controlled and reset manually without shutting down the whole system.
  
- **Watchdog Timer:**
  - APX823, APX824 and APX825A offer a watchdog timer input.
    - Microprocessor based systems use WDI; they provide protection against rogue software and other abnormalities that cause software execution not to run properly.
    - The WDI is a re-startable timer whose output changes starts on timeouts, re-setting the microprocessor or generating an interrupt.
  
  - APX825A is a superset of the industry standard MAX825 – it has Watchdog timer and Manual Reset input – Maxim only offers Manual Reset – Not WDI.

## Package Options

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|----------------------------|--|
| ▪ <b>APX809 and APX810</b> | SOT-23L – RoHs Compliant with Green Compound |
| ▪ <b>APX823 and APX824</b> | SOT-25L – RoHs Compliant with Green Compound |
| ▪ <b>APX825A</b>           | SOT-26L – RoHs Compliant with Green Compound |

## Ordering Information



## Competitive Comparison Matrix

### APX823 – APX824 – APX825A

Part No.	Feature	Operating Input Voltage	Vth Voltage	Delay Time	Output Current	Package
APX823/24 DIODES	Reset IC	1.1V to 5.5V	2.25 to 4.63V	200 mS	20mA	SOT-25
APX825A DIODES	Reset IC	1.1V to 5.5V	2.25 to 4.63V	200mS	20mA	SOT-26
MAX823/24 MAXIM	Reset IC	1.0V to 5.5V	2.63 to 4.63V	200 mS	20mA	SOT-25
MAX825 MAXIM	Reset IC	1.0V to 5.5V	2.63 to 4.63V	200mS	20mA	SOT-25

Note: No companies other than Diodes, Inc. and Maxim manufacture the APX823/24/25.

## Competitive Comparison Matrix

### APX809 - APX810

Part No.	Feature	Operating Input Voltage	Vth Voltage	Delay Time	Output Current	Package
APX809/810 DIODES	Reset IC	1.0V to 5.5V	2.25 to 4.63V	240 mS	500mA	SOT-23L
MAX809/810 MAXIM	Reset IC	1.0V to 5.5V	2.25 to 4.63V	240 mS	500mA	SOT-23L

### Additional Competitors for APX809 and 810: All are pin to pin compatible

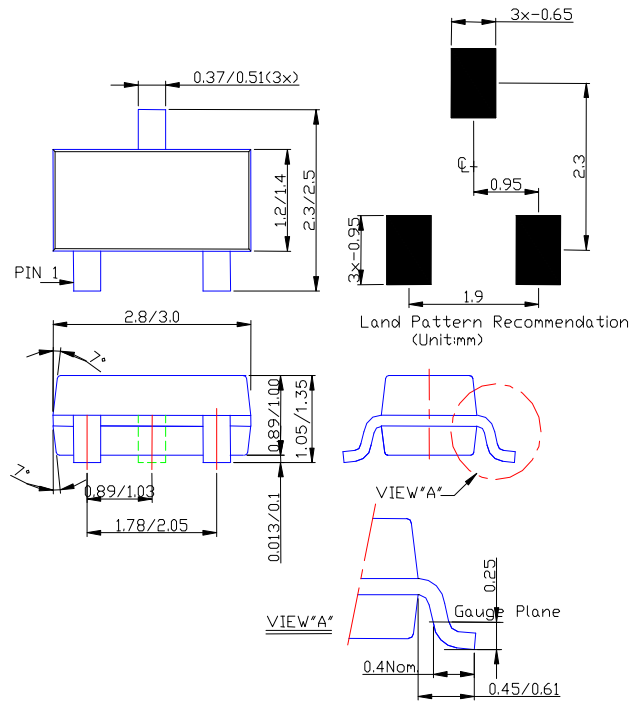
Analog Devices Catalyst Micrel Microchip National Philips OnSemi STMicro Taiwan Semi TI	ADM809 and ADM810 CAT809 and CAT810 MIC809 and MIC810 TCM809 and TCM 810 MCP809 and MCP810 MAY809 and MAY810 MAX809 and MAX810 STM809 and STM810 TSP809 and TSP810 TPS3809
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<b>APX809</b> <b>APX810</b> <b>APX823</b> <b>APX824</b> <b>APX825A</b>	MAXIM MAX809 MAXIM MAX810 MAXIM MAX823 MAXIM MAX824 MAXIM MAX825	Pin-for-pin Pin-for-pin Pin-for-pin Pin-for-pin Pin-for-pin (Extra pin for WDI)
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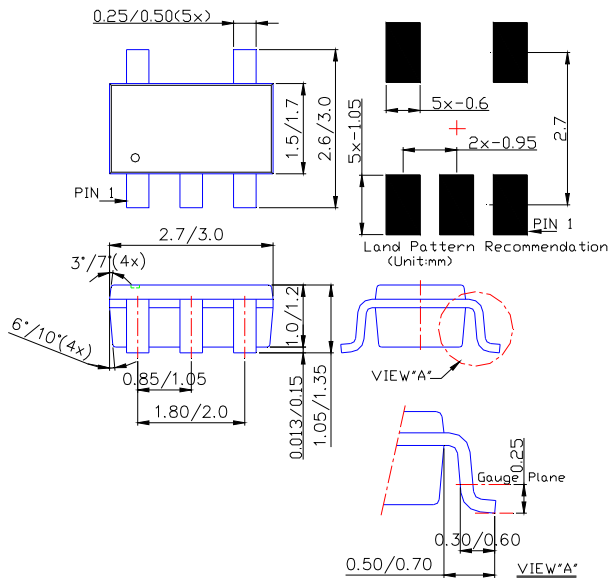
## Package Outline Dimensions (mm)

### Package Type:

(1) SOT-23 or SOT-23R (Different Pin Out) for APX809 and APX810

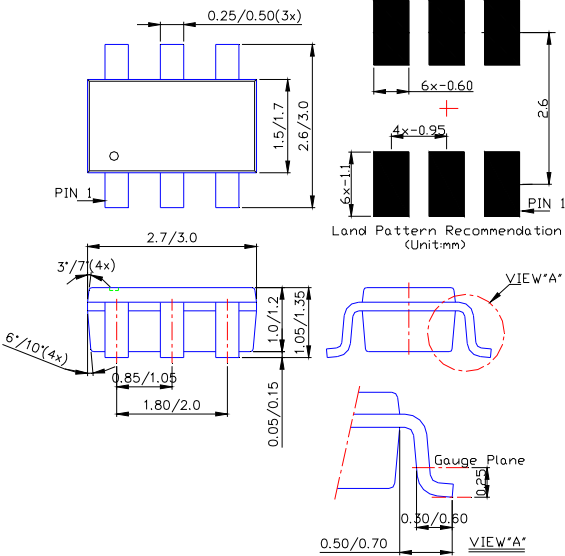


(2) SOT-25L for APX823 and APX824



For more information, contact the Sales Dept at **Diodes, Inc.** Tel (805) 446-4800 / Fax (805) 446-4850 [www.diodes.com](http://www.diodes.com)

(3) SOT-26L for APX825A



Note: Please refer to Diodes, Inc.'s package outline dimensions document AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf>