



# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

MAX6701-MAX6708

## General Description

The MAX6701-MAX6708 microprocessor ( $\mu$ P) supervisory circuits reduce the complexity and components required to monitor power-supply functions in  $\mu$ P systems. These devices significantly improve system reliability and accuracy compared to separate ICs or discrete components.

The MAX6701-MAX6708 family provides four functions: a reset output during power-up, power-down and brownout conditions; an independent watchdog output that goes low if the watchdog input has not been toggled within 1.6s; a 0.62V threshold detector for power-fail warning; and an active-low manual reset input.

The MAX6701-MAX6708 family offers several pinout options to accommodate a variety of multivoltage microprocessor supervision applications.

The MAX6701/MAX6702/MAX6703 monitor three supply voltages (one fixed threshold and two adjustable) to drive a single reset output and include a manual reset input and a watchdog timer with an independent output. The MAX6704 monitors a single supply voltage to drive complementary reset outputs and includes an independent adjustable power fail in/power fail out comparator, a manual reset input, and a reset based watchdog timer. The MAX6705/MAX6706/MAX6707 monitor a single supply voltage to drive a single reset output and include an independent adjustable power fail in/power fail out comparator, a manual reset input, and a watchdog timer with an independent output. The MAX6708 is the same as the MAX6704 but without the watchdog timer function.

## Applications

Computers  
 Controllers  
 Intelligent Instruments  
 Automotive Systems  
 Critical  $\mu$ P Power Monitoring  
 White Goods  
 Networking  
 Telecommunications

*Typical Operating Circuit appears at end of data sheet.*

## Features

- ◆ Small 8-Pin SOT23 Package
- ◆ Precision Monitoring of +5.0V, +3.3V, +3.0V, +2.5V Supply Voltages
- ◆ 140ms Reset Timeout Delay
- ◆ Power Fail Input with Independent Output; Monitors Inputs Down to 0.62V (MAX6704-MAX6708)
- ◆ Dual Adjustable Reset Input for Triple Voltage Monitoring (MAX6701/MAX6702/MAX6703)
- ◆ 1.6s Watchdog Timeout Period (MAX6701-MAX6707)
- ◆ Independent Watchdog Output (MAX6701/MAX6702/MAX6703/MAX6705/MAX6706/MAX6707)
- ◆ Manual Reset Input
- ◆ Four Reset Output Stage Options
  - Active-Low Push-Pull (MAX6701, MAX6705)
  - Active-Low Open-Drain (MAX6703, MAX6707)
  - Active-High Push-Pull (MAX6702, MAX6706)
  - Dual Active-Low/High Push-Pull (MAX6704, MAX6708)
- ◆ Guaranteed Reset Valid to  $V_{CC} = 1V$
- ◆ Immune to Short Negative  $V_{CC}$  Transients
- ◆ Low Cost, Few External Components

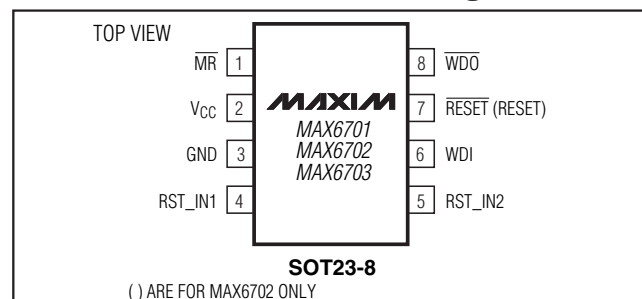
## Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE
MAX6701_KA-T	-40°C to +125°C	SOT23-8
MAX6702_KA-T	-40°C to +125°C	SOT23-8
MAX6703_KA-T	-40°C to +125°C	SOT23-8

Insert the desired suffix letter (from the Threshold Suffix Guide table) into the blank to complete the part number. All devices must be ordered in increments of 2500 pieces. Sample stock is typically held on standard versions only. Contact factory for availability.

*Ordering Information continued at end of data sheet.*

## Pin Configurations



*Pin Configurations continued at end of data sheet.*



# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

## ABSOLUTE MAXIMUM RATINGS

V <sub>CC</sub> .....	-0.3V to +6.0V	Continuous Power Dissipation (T <sub>A</sub> = +70°C)	
Open-Drain RESET, WDO, PFO .....	-0.3V to +6.0V	8-Pin SOT23 (derate 8.9mW/°C above +70°C).....	714mW
Push-Pull RESET, RESET, WDO, PFO .....	-0.3V to (V <sub>CC</sub> + 0.3V)	Operating Temperature Range .....	-40°C to +125°C
MR, WDI, PFI, RST_IN1, RST_IN2 .....	-0.3V to (V <sub>CC</sub> + 0.3V)	Junction Temperature .....	+150°C
Input Current (V <sub>CC</sub> ).....	20mA	Storage Temperature Range .....	-65°C to +150°C
Output Current (RESET, RESET, PFO, WDO) .....	20mA	Lead Temperature (soldering, 10s) .....	+300°C

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## ELECTRICAL CHARACTERISTICS

(V<sub>CC</sub> = +4.25V to +5.5V for L/M versions, V<sub>CC</sub> = +2.55V to +3.6V for the T/S/R versions, V<sub>CC</sub> = +2.1V to +2.75V for the Z/Y versions. T<sub>A</sub> = -40°C to +125°C, unless otherwise specified. Typical values are at T<sub>A</sub> = +25°C.) (Note 1)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS	
Operating Voltage Range	V <sub>CC</sub>	T <sub>A</sub> = 0°C to +125°C	1.0		5.5	V	
		T <sub>A</sub> = -40°C to +125°C	1.2		5.5		
Supply Current MR Unconnected	I <sub>CC</sub>	V <sub>CC</sub> < 5.5V, no load		12	25	$\mu$ A	
		V <sub>CC</sub> < 3.6V, no load		9	20		
		V <sub>CC</sub> < 3.6V, no load (MAX6708 only)		6	20		
V <sub>CC</sub> Reset Threshold (V <sub>CC</sub> falling)	V <sub>TH</sub>	MAX670_L	T <sub>A</sub> = -40°C to +85°C	4.50	4.63	4.75	V
			T <sub>A</sub> = -40°C to +125°C	4.47		4.78	
		MAX670_M	T <sub>A</sub> = -40°C to +85°C	4.25	4.38	4.50	
			T <sub>A</sub> = -40°C to +125°C	4.22		4.53	
		MAX670_T	T <sub>A</sub> = -40°C to +85°C	3.00	3.08	3.15	
			T <sub>A</sub> = -40°C to +125°C	2.97		3.17	
		MAX670_S	T <sub>A</sub> = -40°C to +85°C	2.85	2.93	3.00	
			T <sub>A</sub> = -40°C to +125°C	2.83		3.02	
		MAX670_R	T <sub>A</sub> = -40°C to +85°C	2.55	2.63	2.70	
			T <sub>A</sub> = -40°C to +125°C	2.53		2.72	
		MAX670_Z	T <sub>A</sub> = -40°C to +85°C	2.25	2.32	2.38	
			T <sub>A</sub> = -40°C to +125°C	2.24		2.40	
		MAX670_Y	T <sub>A</sub> = -40°C to +85°C	2.12	2.19	2.25	
			T <sub>A</sub> = -40°C to +125°C	2.11		2.27	
Reset Threshold Temperature Coefficient	$\Delta V_{TH}$			60		ppm/°C	
V <sub>CC</sub> to Reset Output Delay		V <sub>CC</sub> falling at 10mV/ $\mu$ s		12		$\mu$ s	
Reset Timeout Period	t <sub>RP</sub>	T <sub>A</sub> = -40°C to +85°C	140	200	280	ms	
		T <sub>A</sub> = -40°C to +125°C	120		300		
PFI, RST_IN1, RST_IN2 Threshold		V <sub>CC</sub> = 1.8V to 5.5V	T <sub>A</sub> = -40°C to +85°C	602	618	634	mV
			T <sub>A</sub> = -40°C to +125°C	593		642	
PFI, RST_IN1, RST_IN2 Hysteresis				6		mV	

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## ELECTRICAL CHARACTERISTICS (continued)

( $V_{CC} = +4.25V$  to  $+5.5V$  for L/M versions,  $V_{CC} = +2.55V$  to  $+3.6V$  for the T/S/R versions,  $V_{CC} = +2.1V$  to  $+2.75V$  for the Z/Y versions.  $T_A = -40^\circ C$  to  $+125^\circ C$ , unless otherwise specified. Typical values are at  $T_A = +25^\circ C$ .) (Note 1)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
PFI, RST_IN1, RST_IN2 Leakage Current		(Note 2)	$T_A = -40^\circ C$ to $+85^\circ C$	-50	+50	nA
			$T_A = -40^\circ C$ to $+125^\circ C$	-200	+200	
PFI to $\overline{PFO}$ Delay	tPF			1		$\mu s$
MR Input Voltage	$V_{IL}$			$0.3 \times V_{CC}$		V
	$V_{IH}$		$0.7 \times V_{CC}$			
$\overline{MR}$ Minimum Input Pulse			1			$\mu s$
$\overline{MR}$ Glitch Rejection				100		ns
$\overline{MR}$ to Reset Delay	tMD			200		ns
$\overline{MR}$ Pullup Resistance			25	50	75	k $\Omega$
Watchdog Timeout Period	tWD	$T_A = -40^\circ C$ to $+85^\circ C$	1.12	1.6	2.4	s
		$T_A = -40^\circ C$ to $+125^\circ C$	0.96		2.52	
WDI Pulse Width	tWDI	(Note 2)	50			ns
WDI Input Voltage	$V_{IL}$			$0.3 \times V_{CC}$		V
	$V_{IH}$		$0.7 \times V_{CC}$			
WDI Input Current	I <sub>WDI</sub>	WDI = 0 or $V_{CC}$	-1		+1	$\mu A$
$\overline{RESET}$ , $\overline{WDO}$ Output Low (Push-Pull or Open-Drain)	$V_{OL}$	$V_{CC} \geq 1.0V$ , I <sub>SINK</sub> = 50 $\mu A$ , output asserted ( $T_A = 0^\circ C$ to $+125^\circ C$ )			0.3	V
		$V_{CC} \geq 1.2V$ , I <sub>SINK</sub> = 100 $\mu A$ , output asserted			0.3	
		$V_{CC} \geq 2.55V$ , I <sub>SINK</sub> = 1.2mA, output asserted			0.3	
		$V_{CC} \geq 4.25V$ , I <sub>SINK</sub> = 3.2mA, output asserted			0.4	
PFO Output Low (Push-Pull or Open-Drain)	$V_{OL}$	$V_{CC} \geq 1.80V$ , I <sub>SINK</sub> = 200 $\mu A$ , output asserted			0.3	V
		$V_{CC} \geq 2.55V$ , I <sub>SINK</sub> = 1.2mA, output asserted			0.3	
		$V_{CC} \geq 4.25V$ , I <sub>SINK</sub> = 3.2mA, output asserted			0.4	
$\overline{RESET}$ , $\overline{WDO}$ , $\overline{PFO}$ Output High (Push-Pull Only)	$V_{OH}$	$V_{CC} \geq 2.7V$ , I <sub>SINK</sub> = 500 $\mu A$ , output not asserted	$0.8 \times V_{CC}$		V	
		$V_{CC} \geq 4.75V$ , I <sub>SINK</sub> = 800 $\mu A$ , output not asserted	$0.8 \times V_{CC}$			
$\overline{RESET}$ , $\overline{WDO}$ , $\overline{PFO}$ Output Open-Drain Leakage Current	I <sub>LKG</sub>	$V_{CC} > V_{TH}$ , output not asserted			1.0	$\mu A$
RESET Output High (Push-Pull Only)	$V_{OH}$	$V_{CC} \geq 1.0V$ , I <sub>SOURCE</sub> = 1 $\mu A$ , reset asserted ( $T_A = 0^\circ C$ to $+125^\circ C$ )	$0.8 \times V_{CC}$		V	
		$V_{CC} \geq 1.2V$ , I <sub>SOURCE</sub> = 50 $\mu A$ , reset asserted	$0.8 \times V_{CC}$			
		$V_{CC} \geq 2.55V$ , I <sub>SOURCE</sub> = 500 $\mu A$ , reset asserted	$0.8 \times V_{CC}$			
		$V_{CC} \geq 4.25V$ , I <sub>SOURCE</sub> = 800 $\mu A$ , reset asserted	$0.8 \times V_{CC}$			

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## ELECTRICAL CHARACTERISTICS (continued)

( $V_{CC}$  = +4.25V to +5.5V for L/M versions,  $V_{CC}$  = +2.55V to +3.6V for the T/S/R versions,  $V_{CC}$  = +2.1V to +2.75V for the Z/Y versions.  $T_A$  = -40°C to +125°C, unless otherwise specified. Typical values are at  $T_A$  = +25°C.) (Note 1)

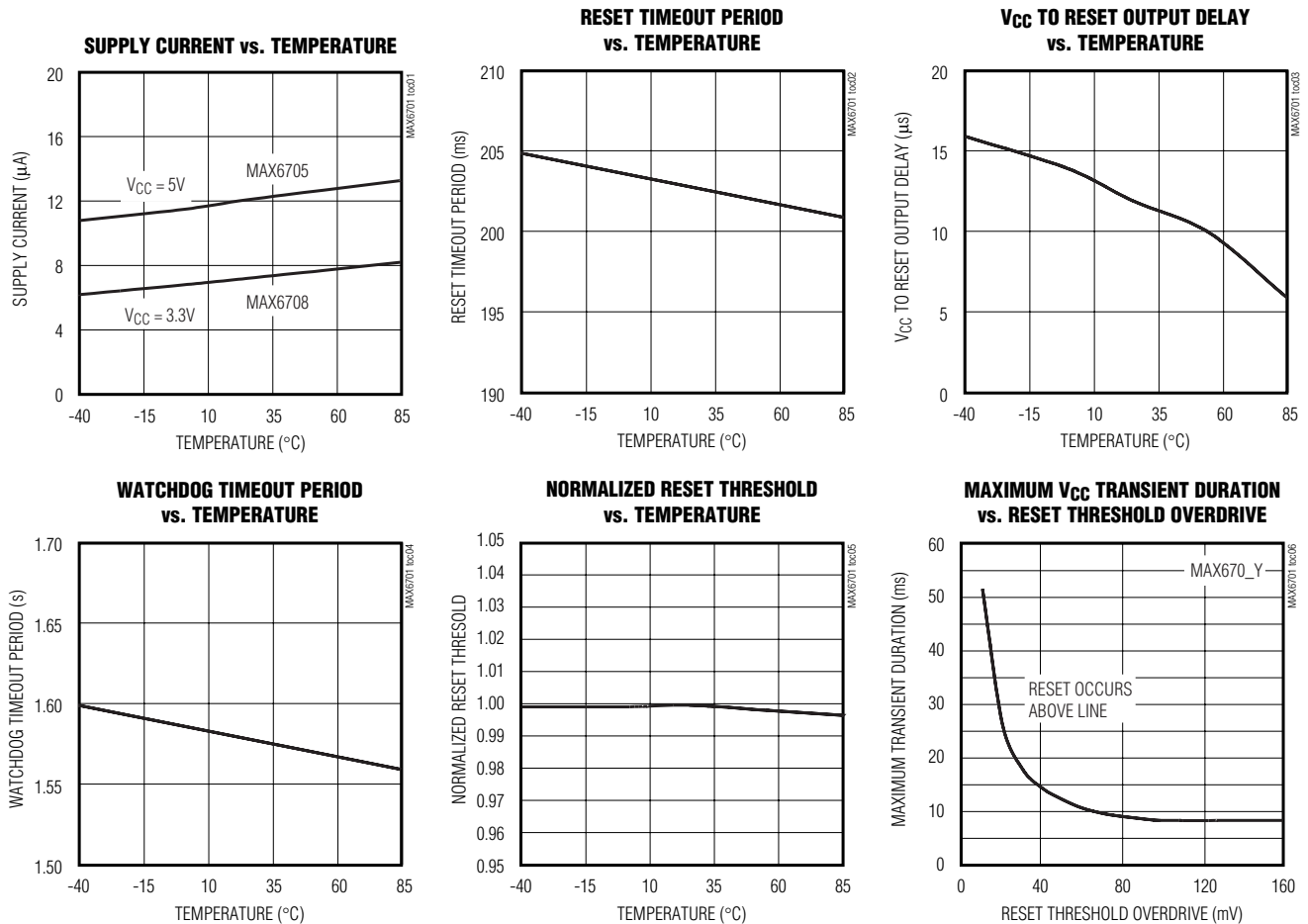
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
RESET Output Low (Push-Pull Only)	$V_{OL}$	$V_{CC} \geq 2.7V$ , $I_{SINK} = 1.2mA$ , reset not asserted			0.3	V
		$V_{CC} \geq 4.75V$ , $I_{SINK} = 3.2mA$ , reset not asserted			0.4	

**Note 1:** Over temperature limits are guaranteed by design and not production tested. Devices are tested at  $T_A$  = +25°C.

**Note 2:** Guaranteed by design. Not production tested.

## Typical Operating Characteristics

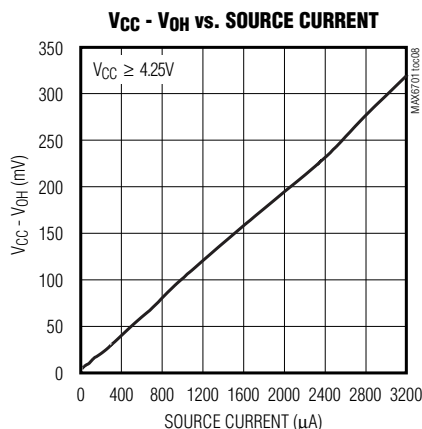
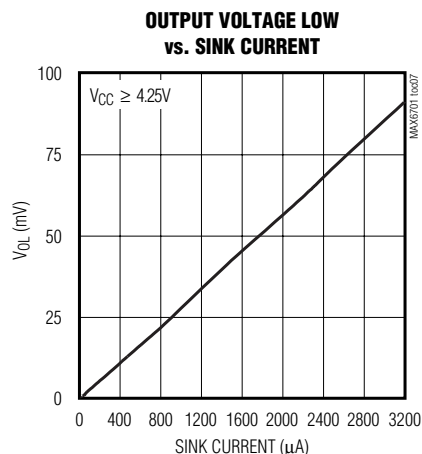
( $T_A$  = +25°C, unless otherwise noted.)



# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

## Typical Operating Characteristics (continued)

( $T_A = +25^\circ\text{C}$ , unless otherwise noted.)



## Pin Description

MAX6701 MAX6702 MAX6703	MAX6704	MAX6705 MAX6706 MAX6707	MAX6708	NAME	FUNCTION
1	1	1	1	$\overline{\text{MR}}$	Active-Low, Manual Reset Input, Internal 50k $\Omega$ Pullup to $V_{CC}$ . Pull low to force a reset. Reset remains active as long as $\overline{\text{MR}}$ is low and for the reset timeout period after $\overline{\text{MR}}$ goes high. Leave unconnected or connect to $V_{CC}$ if unused.
2	2	2	2	$V_{CC}$	Supply Voltage for MAX6701-MAX6708 and Input for Primary Reset Threshold Monitor. Push-pull outputs are powered by $V_{CC}$ .
3	3	3	3	GND	Ground
—	4	4	4	PFI	Power Fail Voltage Monitor Input. High-impedance input for internal power fail comparator. Connect this pin to an external resistive divider network to set the reset threshold voltage; 0.62V (typ) threshold. Connect to GND or $V_{CC}$ when not used.
—	5	5	5	$\overline{\text{PFO}}$	Power Fail Monitor Output. Open-drain or push-pull active-low. $\overline{\text{PFO}}$ goes low when PFI is less than 0.62V.
6	6	6	—	WDI	Watchdog Input. If WDI remains high or low for longer than the watchdog timeout period, the internal watchdog timer runs out and $\overline{\text{WDO}}$ is asserted on the MAX6704 (resets are asserted for the reset timeout period). The internal watchdog timer clears whenever reset is asserted, or WDI sees a rising or falling edge. The watchdog function cannot be disabled.
—	—	—	6	N.C.	No Connection

# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

## Pin Description (continued)

MAX6701 MAX6702 MAX6703	MAX6704	MAX6705 MAX6706 MAX6707	MAX6708	NAME	FUNCTION
7	7	7	7	$\overline{\text{RESET}}$	Active-Low Reset Output (Open-Drain or Push-Pull). $\overline{\text{RESET}}$ changes from high to low when the $V_{CC}$ input drops below the selected reset threshold (or RST_IN1/RST_IN2 for the MAX6701/MAX6702/MAX6703), $\overline{\text{MR}}$ is pulled low, or the watchdog triggers a reset (MAX6704 only). $\overline{\text{RESET}}$ remains low for the reset timeout period after the reset conditions are terminated.
8	—	8	—	$\overline{\text{WDO}}$	Active-Low Watchdog Output (Open-Drain or Push-Pull). $\overline{\text{WDO}}$ is asserted whenever the watchdog times out and does not deassert until the watchdog is cleared. $\overline{\text{WDO}}$ also asserts when $V_{CC}$ or RST_IN_ are below reset thresholds or MR is pulled low. WDO deasserts after a valid WDI transition (without a reset timeout period).
7*	8	7*	8	RESET	Active-High Reset Output (Push-Pull). RESET changes from low to high when the $V_{CC}$ input drops below the selected reset threshold (or RST_IN1/RST_IN2 for MAX6701/MAX6702/MAX6703), $\overline{\text{MR}}$ is pulled low, or the watchdog triggers a reset (MAX6704 only). RESET remains high for the reset timeout period after the reset conditions are terminated. *RESET active-high for the MAX6702/MAX6706.
4	—	—	—	RST_IN1	Input for User Adjustable $V_{CC2}$ Monitor. High-impedance input for second internal reset comparator. Connect this pin to an external resistive-divider network to set the reset threshold voltage; 0.62V (typ) threshold. Connect to $V_{CC}$ when not used. Reset is asserted when either $V_{CC}$ , RST_IN1, or RST_IN2 are below threshold.
5	—	—	—	RST_IN2	Input for User Adjustable $V_{CC3}$ Monitor. High-impedance input for third internal reset comparator. Connect this pin to an external resistive-divider network to set the reset threshold voltage; 0.62V (typ) threshold. Connect to $V_{CC}$ when not used. Reset is asserted when either $V_{CC}$ , RST_IN1, or RST_IN2 are below threshold.

## Detailed Description

### Reset Output

A microprocessor's ( $\mu$ P's) reset input starts the  $\mu$ P in a known state. The MAX6701–MAX6708 assert reset during power-up and prevent code execution errors during power-down or brownout conditions.

On power-up, once  $V_{CC}$  reaches 1V,  $\overline{\text{RESET}}$  is a guaranteed logic low of 0.4V or less. As  $V_{CC}$  rises,  $\overline{\text{RESET}}$

stays low. After  $V_{CC}$  rises above the reset threshold, an internal timer holds  $\overline{\text{RESET}}$  low for about 200ms.  $\overline{\text{RESET}}$  pulses low whenever  $V_{CC}$  dips below the reset threshold, including brownout conditions. If a brownout occurs in the middle of a previously initiated reset pulse, the pulse continues for at least another 140ms. On power-down, once  $V_{CC}$  falls below the reset threshold,  $\overline{\text{RESET}}$  stays low and is guaranteed to be 0.4V or less, until  $V_{CC}$  drops below 1V.

# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

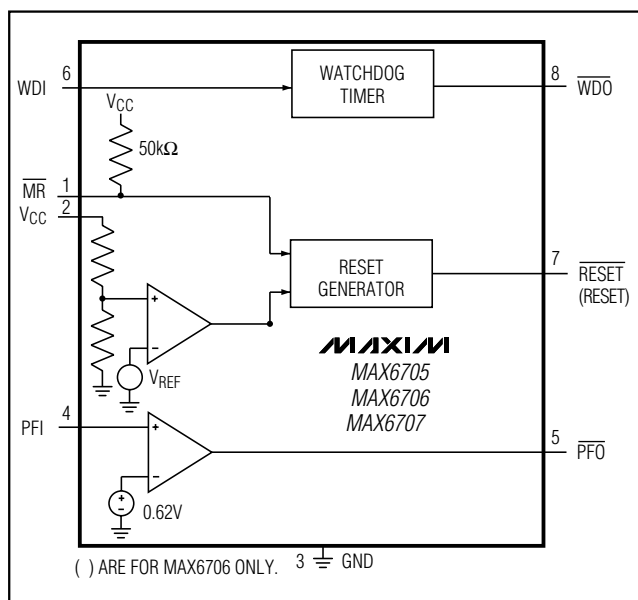


Figure 1. MAX6705/MAX6706/MAX6707 Block Diagram

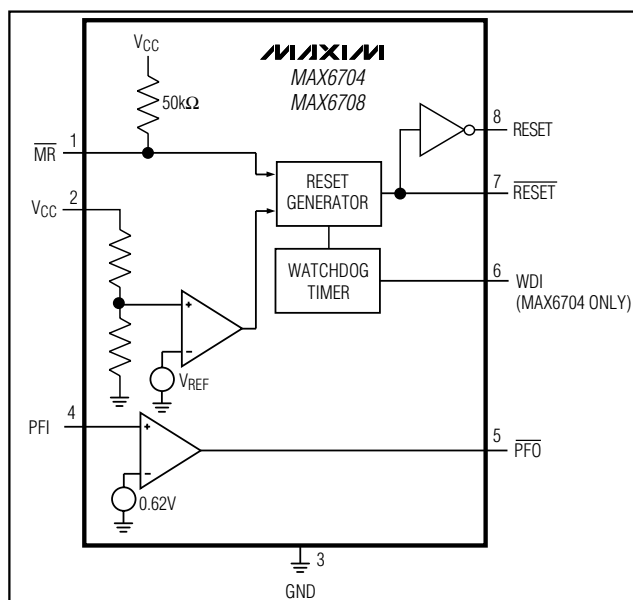


Figure 2. MAX6704/MAX6708 Block Diagram

The MAX6702/MAX6704/MAX6706/MAX6708 active-high RESET output is simply the complement of the  $\overline{\text{RESET}}$  output, and is guaranteed to be valid with  $V_{CC}$  down to 1V. (See Figure 4.)

### Watchdog Timer

The MAX6701-MAX6707 watchdog circuit monitors the  $\mu$ P's activity. If the  $\mu$ P does not toggle the watchdog input (WDI) within 1.6s,  $\overline{\text{WDO}}$  goes low. When  $\overline{\text{RESET}}$  is asserted, the watchdog timer stays cleared and does not count. As soon as reset is released, the timer will start counting.  $\overline{\text{WDO}}$  deasserts after a valid transition is detected at WDI. Pulses as short as 50ns can be detected.

Typically,  $\overline{\text{WDO}}$  will be connected to the nonmaskable interrupt (NMI) input of a  $\mu$ P. When  $V_{CC}$  drops below the reset threshold,  $\overline{\text{WDO}}$  will go low whether or not the watchdog timer has timed out yet. Normally this would trigger an NMI, but  $\overline{\text{RESET}}$  goes low simultaneously, and thus overrides the NMI.

The MAX6704 watchdog circuit does not have an independent watchdog output ( $\overline{\text{WDO}}$ ). If the  $\mu$ P does not toggle the watchdog input within 1.6s, the MAX6704 will assert a reset output pulse for the reset timeout period. (See Figure 5.)

### Manual Reset

The manual reset input ( $\overline{\text{MR}}$ ) allows reset to be triggered by a pushbutton switch. The switch is effectively

debounced by the reset pulse width.  $\overline{\text{MR}}$  is CMOS logic compatible, so it can be driven by an external logic line.  $\overline{\text{MR}}$  can be used to force a watchdog timeout to generate a reset pulse in the MAX6701-MAX6708. Simply connect  $\overline{\text{WDO}}$  to  $\overline{\text{MR}}$ .

### Power-Fail Comparator

The uncommitted power-fail comparator can be used for various purposes because its noninverting input and output are externally available. The inverting input is internally connected to a 0.62V reference. To build an early warning circuit for power failure, connect the PFI pin to a voltage divider (see *Typical Operating Circuit*). Choose the voltage-divider ratio so that the voltage at PFI falls below 0.62V just before the regulator drops out. Use  $\overline{\text{PFO}}$  to interrupt the  $\mu$ P so it can prepare for an orderly power-down. The low input current at this pin allows for large resistor values in the divider.

### Reset-In Information

The MAX6701/MAX6702/MAX6703 include two adjustable reset inputs for monitoring up to a total of three system voltages (including  $V_{CC}$ ). The thresholds for the monitored RST\_IN supplies are externally set with resistor-divider networks (Figure 6). The reset output is asserted if any of the monitored supplies ( $V_{CC}$ , RST\_IN1, or RST\_IN2) go below its specified threshold and remain asserted for the reset timeout period after all supplies are above their thresholds.

# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

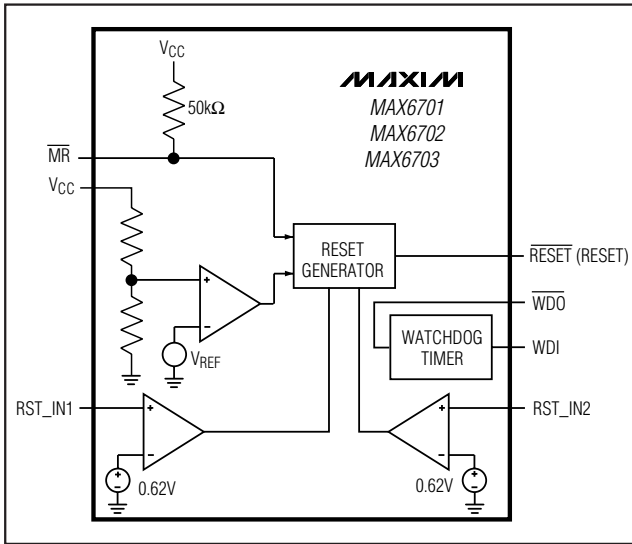


Figure 3. MAX6701/MAX6702/MAX6703 Block Diagram

## Applications Information

### Ensuring a Valid $\overline{\text{RESET}}$ Output Down to $V_{CC} = 0$

When  $V_{CC}$  falls below 1V, the MAX6701–MAX6708  $\overline{\text{RESET}}$  output no longer sinks current—it becomes an open circuit. High-impedance CMOS logic inputs can drift to undetermined voltages if left undriven. If a pull-down resistor is added to the  $\overline{\text{RESET}}$  pin as shown in Figure 7, any stray charge or leakage currents will be drained to ground, holding  $\overline{\text{RESET}}$  low. A resistor value (R1) is not critical; 100k $\Omega$  is large enough not to load  $\overline{\text{RESET}}$  and small enough to pull  $\overline{\text{RESET}}$  to ground. This application works for push-pull output only (not for open-drain resets).

### Monitoring Other System Voltages

Other systems can be monitored by connecting a voltage divider to PFI and adjusting the ratio appropriately. In noisy systems, a capacitor between PFI and GND will reduce the power-fail circuit's sensitivity to high-frequency noise on the line being monitored. Reset can be asserted on other voltages in addition to the  $V_{CC}$  supply line. Connect  $\overline{\text{PFO}}$  to  $\overline{\text{MR}}$  to initiate a reset output pulse when PFI drops below 0.62V. Figure 8 shows the MAX6701–MAX6708 configured to assert a reset output when the secondary supply falls below the reset threshold.

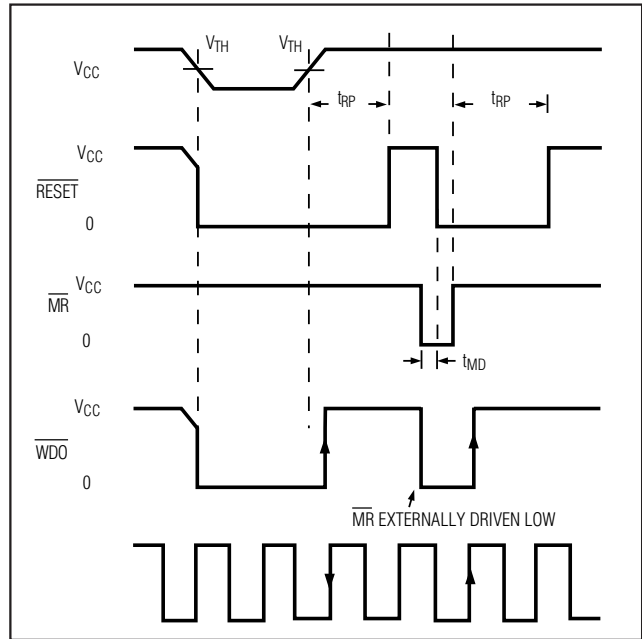


Figure 4. MAX6705/MAX6706/MAX6707  $\overline{\text{RESET}}$ ,  $\overline{\text{MR}}$ ,  $\overline{\text{WDO}}$ , and  $\overline{\text{WDI}}$  Timing. The MAX6706  $\overline{\text{RESET}}$  output is the inverse of the  $\overline{\text{RESET}}$  shown.

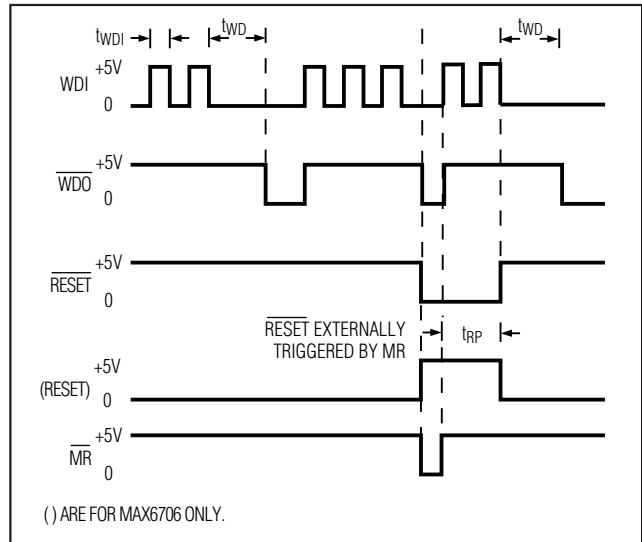


Figure 5. MAX6705/MAX6706/MAX6707 Watchdog Timing



# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

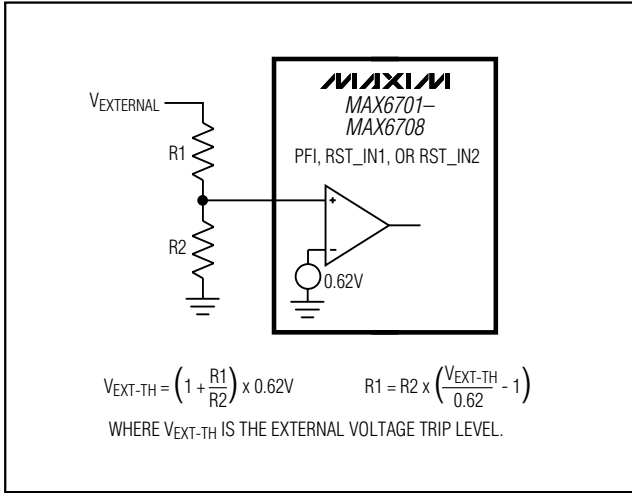


Figure 6. Calculating Adjustable Voltage Thresholds

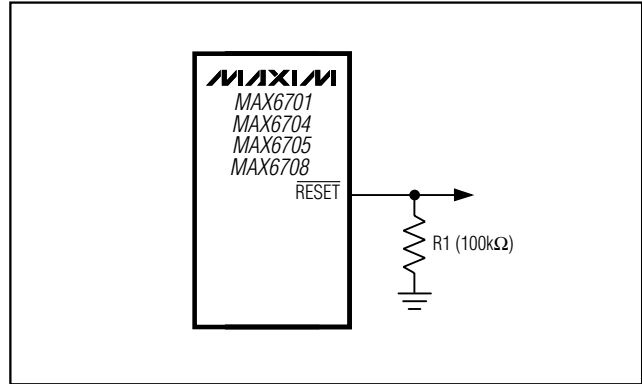


Figure 7.  $\overline{RESET}$  Valid to Ground Circuit

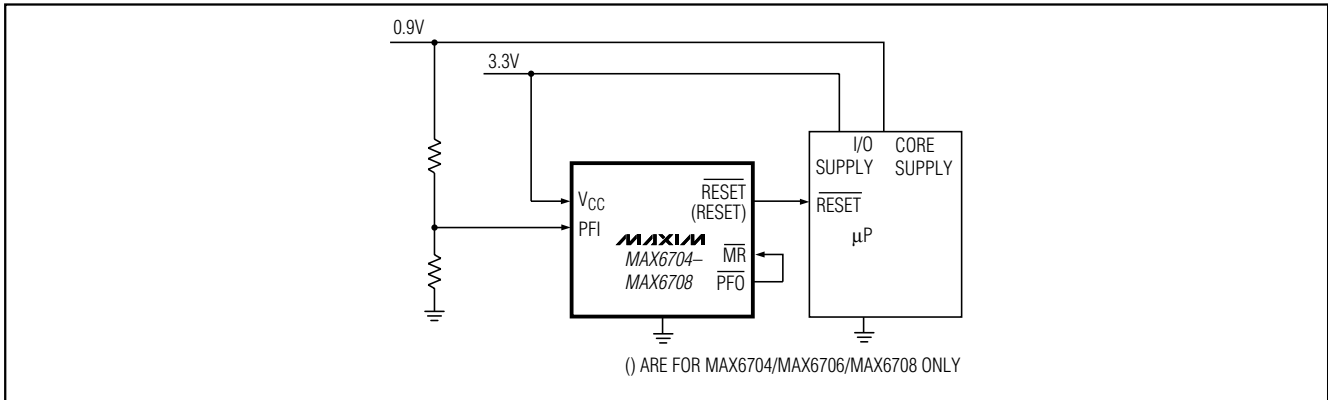


Figure 8. Monitoring Other System Voltages

## Threshold Suffix Guide

SUFFIX	RESET THRESHOLD (V)
<b>L</b>	4.63
M	4.38
T	3.08
<b>S</b>	2.93
<b>R</b>	2.63
<b>Z</b>	2.32
Y	2.19

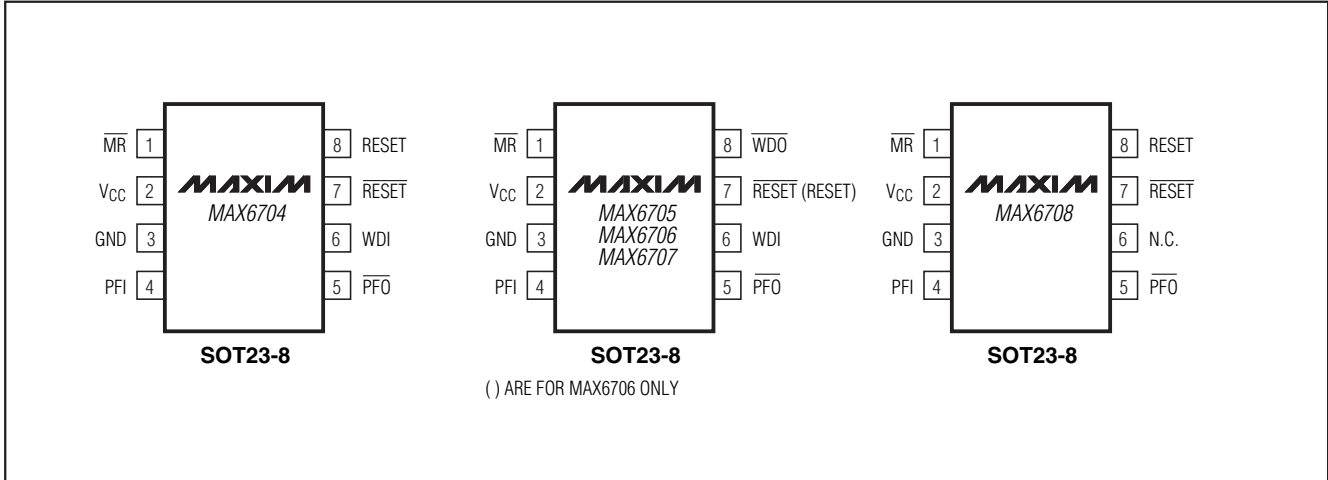
Bold indicates standard version.

## Ordering Information (continued)

PART	TEMP. RANGE	PIN-PACKAGE
<b>MAX6704_KA-T</b>	-40°C to +125°C	SOT23-8
<b>MAX6705_KA-T</b>	-40°C to +125°C	SOT23-8
<b>MAX6706_KA-T</b>	-40°C to +125°C	SOT23-8
<b>MAX6707_KA-T</b>	-40°C to +125°C	SOT23-8
<b>MAX6708_KA-T</b>	-40°C to +125°C	SOT23-8

# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

## Pin Configurations (continued)



## Selector Guide

PART	RESE $\bar{T}$ PP-LOW	RESET PP-HIGH	RESE $\bar{T}$ OD-LOW	WDI	WDO	PFI, PFO	RST_IN1, RST_IN2
MAX6701	✓			✓	✓ PP		✓
MAX6702		✓		✓	✓ PP		✓
MAX6703			✓	✓	✓ OD		✓
MAX6704	✓	✓		✓		✓ PP	
MAX6705	✓			✓	✓ PP	✓ PP	
MAX6706		✓		✓	✓ PP	✓ PP	
MAX6707			✓	✓	✓ OD	✓ OD	
MAX6708	✓	✓				✓ PP	

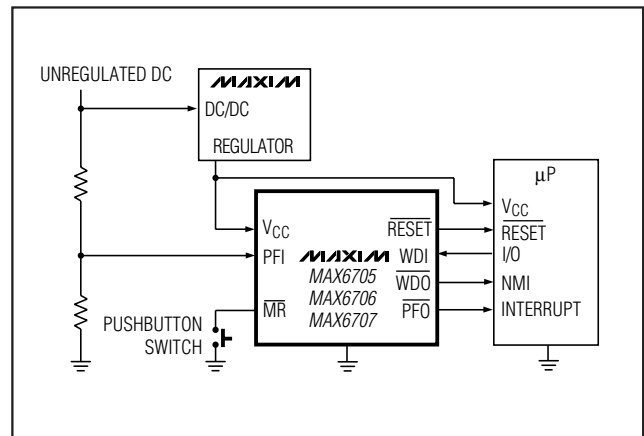
PP = Push-Pull OD = Open-Drain

## Chip Information

TRANSISTOR COUNT: 716

PROCESS: BiCMOS

## Typical Operating Circuit

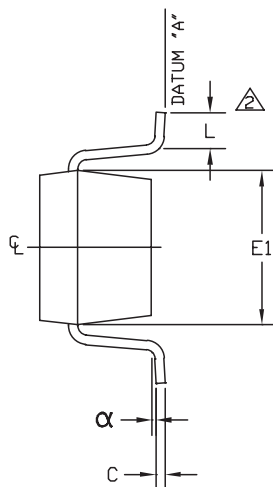
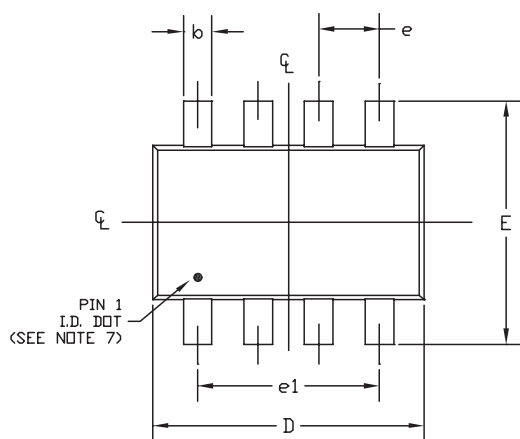


# Low-Voltage, SOT23 $\mu$ P Supervisors with Power Fail In/Out, Manual Reset, and Watchdog Timer

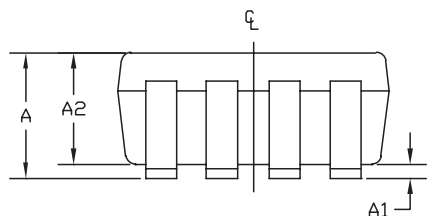
## Package Information

**MAX6701-MAX6708**

SOT23, 8L, EPS



SYMBOL	MIN	MAX
A	0.90	1.45
A1	0.00	0.15
A2	0.90	1.30
b	0.28	0.45
C	0.09	0.20
D	2.80	3.00
E	2.60	3.00
E1	1.50	1.75
L	0.10	0.60
e	0.65 ref	
e1	1.95 ref	
$\alpha$	0°	10°



**NOTE:**

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2.  $\triangle$  FOOT LENGTH MEASURED REFERENCE TO FLAT FOOT SURFACE PARALLEL TO DATUM "A".
3. PACKAGE OUTLINE EXCLUSIVE OF MOLD FLASH & METAL BURR.
4. PACKAGE OUTLINE INCLUSIVE OF SOLDER PLATING.
5. EIAJ REF. NUMBER SC-74 (6 LEAD VERSION)
6. COPLANARITY 4 MILS. MAX.
7. PIN 1 I.D. DOT IS 0.3 MM  $\varnothing$  MIN. LOCATED ABOVE PIN 1.

<b>MAXIM</b>			
<small>PROPRIETARY INFORMATION</small>			
<small>TITLE:</small>			
PACKAGE OUTLINE, SOT 23, 8L			
<small>APPROVAL</small>	<small>DOCUMENT CONTROL NO.</small>	<small>REV</small>	<small>1/1</small>
	21-0078	B	

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