



Maxim > Products > [Supervisors, Voltage Monitors, Sequencers] [Military/Aerospace]

MAX690A, MAX692A, MAX802L, MAX802M, MAX805L

Microprocessor Supervisory Circuits

Industry-Standard, Full-Function uP Supervisor

Description

The MAX690A/MAX692A/MAX802L/MAX802M/MAX805L reduce the complexity and number of components required for power-supply monitoring and battery-control functions in microprocessor (μ P) systems. They significantly improve system reliability and accuracy compared to separate ICs or discrete components.

These parts provide four functions:

- 1) A reset output during power-up, power-down, and brownout conditions.
- 2) Battery-backup switching for CMOS RAM, CMOS μ P, or other low-power logic.
- 3) A reset pulse if the optional watchdog timer has not been toggled within 1.6sec.
- 4) A 1.25V threshold detector for power-fail warning or low-battery detection, or to monitor a power supply other than +5V.

The parts differ in their reset-voltage threshold levels and reset outputs. The MAX690A/MAX802L/MAX805L generate a reset pulse when the supply voltage drops below 4.65V, and the MAX692A/MAX802M generate a reset below 4.40V. The MAX802L/MAX802M guarantee power-fail accuracies to $\pm 2\%$. The MAX805L is the same as the MAX690A except that RESET is provided instead of active-low RESET.

All parts are available in 8-pin DIP and SO packages. The MAX690A/MAX802L are pin compatible with the MAX690 and MAX694. The MAX692A/MAX802M are pin compatible with the MAX692.

Key Features

Applications/Uses

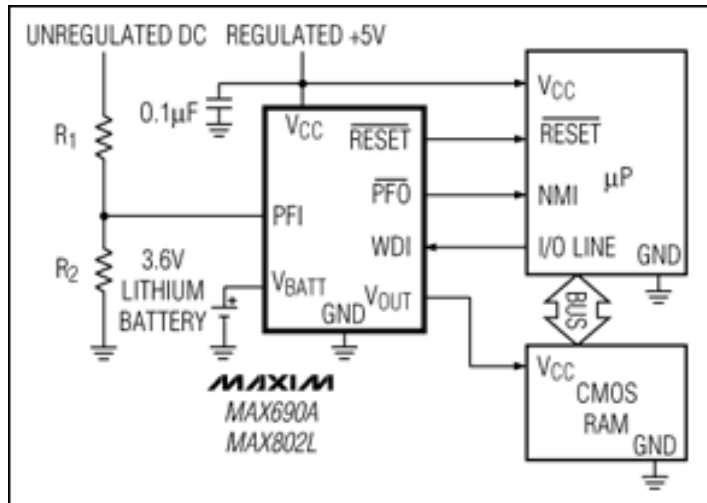
- Precision Supply-Voltage Monitor:
 - 4.65V for MAX690A/MAX802L/MAX805L
 - 4.40V for MAX692A/MAX802M
- Reset Time Delay -200ms
- Watchdog Timer -1.6sec Timeout
- Battery-Backup Power Switching
- 200 μ A Quiescent Supply Current
- 50nA Quiescent Supply Current in Battery-Backup Mode
- Voltage Monitor for Power-Fail or Low-Battery Warning
- Power-Fail Accuracy Guaranteed to $\pm 2\%$ (MAX802L/M)
- Guaranteed RESET-bar Assertion to $V_{CC} = 1V$
- 8-Pin SO and DIP Packages
- Underwriters Laboratories (UL®) Recognized

Key Specifications: Battery Backup Circuits										
Part Number	Reset Threshold Range (V)	Active-Low Reset Output	Active-High Reset Output	Max. I_{CC} (μ A)	Features	RoHS Available	Industry Qualified	Package	Operating Temp. Range ($^{\circ}$ C)	
MAX690A	3.3 to 5.5	Push-Pull	-	350	<ul style="list-style-type: none"> • Adjustable Reset Input • Power Fail Comparator • Watchdog 	Yes	MIL-STD-883B	Ceramic DIP/8 PDIP/8 SOIC/8	-55 to +125 -40 to +85 0 to +70	
MAX692A		Push-Pull	-				MIL-STD-883B	Ceramic DIP/8 PDIP/8 SOIC/8	-55 to +125 -40 to +85 0 to +70	
MAX802L		Push-Pull	-				-	PDIP/8 SOIC/8	-40 to +85 0 to +70	
MAX802M		Push-Pull	-				-	PDIP/8 SOIC/8	-40 to +85 0 to +70	
MAX805L		-	Push-Pull				MIL-STD-883B	Ceramic DIP/8 PDIP/8 SOIC/8	-55 to +125 -40 to +85 0 to +70	
See All Battery Backup Circuits (86)										

Notes:

**This pricing is BUDGETARY, for comparing similar parts. Prices are in U.S. dollars and subject to change. Quantity pricing may vary substantially and international prices may differ due to local duties, taxes, fees, and exchange rates. For volume-specific prices and delivery, please see the [price and availability page](#) or contact an authorized distributor.

Diagram



Typical Operating Circuit

Evaluation Kits

none

Design Guides

[Microprocessor Supervisory \(PDF\)](#)

Reliability Reports

Show FIT data for:

Request Reliability Report for:

[Underwriters Laboratories \(UL®\) Recognized](#)

Software/Models

none

Ordering Information

Notes:

1. Other options and links for purchasing parts are listed at:
2. [Didn't Find What You Need?](#) Ask our applications engineers. Expert assistance in finding parts, usually within one business day.
3. Part number suffixes: T or T&R = tape and reel; + = RoHS/lead-free; # = RoHS/lead-exempt. More: See [Full Data Sheet](#) or [Part Naming Conventions](#).
4. * Some packages have variations, listed on the drawing. "PkgCode/Variation" tells which variation the product uses. Note that "+", "#", "-" in the part number suffix describes RoHS status. Package drawings may show a different suffix character.

Devices: 1-71 of 71

MAX690A	Free Sample	Buy	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX690AEJA			Ceramic DIP; 8 pin; Dwg: 21-0045 (PDF) Use pkgcode/variation: J8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX690AMJA			Ceramic DIP; 8 pin; Dwg: 21-0045 (PDF) Use pkgcode/variation: J8-2*	-55°C to +125°C	RoHS/Lead-Free: No Materials Analysis
MAX690AMJA/883B			Ceramic DIP; 8 pin; Dwg: 21-0045 (PDF) Use pkgcode/variation: J8-2*	-55°C to +125°C	RoHS/Lead-Free: No Materials Analysis
MAX690AC/D					See data sheet
MAX690ACPA			PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8-1*	0°C to +70°C	RoHS/Lead-Free: No Materials Analysis
MAX690ACPA+			PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8+1*	0°C to +70°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX690AEPA+			PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8+1*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX690AEPA			PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8-1*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX690ACSA-T			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	0°C to +70°C	RoHS/Lead-Free: No Materials Analysis

MAX690ACSA			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	0°C to +70°C	RoHS/Lead-Free: No Materials Analysis
MAX690ACSA+			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8+2*	0°C to +70°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX690ACSA+T			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8+2*	0°C to +70°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX690AESA+			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX690AESA+T			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX690AESA			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX690AESA-T			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX692A	Free Sample	Buy	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX692AEJA			Ceramic DIP; 8 pin; Dwg: 21-0045 (PDF) Use pkgcode/variation: J8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX692AMJA			Ceramic DIP; 8 pin; Dwg: 21-0045 (PDF) Use pkgcode/variation: J8-2*	-55°C to +125°C	RoHS/Lead-Free: No Materials Analysis
MAX692AMJA/883B			Ceramic DIP; 8 pin; Dwg: 21-0045 (PDF) Use pkgcode/variation: J8-2*	-55°C to +125°C	RoHS/Lead-Free: No Materials Analysis
MAX692AC/D					See data sheet
MAX692ACPA			PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8-1*	0°C to +70°C	RoHS/Lead-Free: No Materials Analysis
MAX692ACPA+			PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8+1*	0°C to +70°C	RoHS/Lead-Free: Lead Free Materials Analysis



Microprocessor Supervisory Circuits

MAX690A/MAX692A/MAX802L/MAX802M/MAX805L

General Description

The MAX690A/MAX692A/MAX802L/MAX802M/MAX805L reduce the complexity and number of components required for power-supply monitoring and battery-control functions in microprocessor (μ P) systems. They significantly improve system reliability and accuracy compared to separate ICs or discrete components.

These parts provide four functions:

- 1) A reset output during power-up, power-down, and brownout conditions.
- 2) Battery-backup switching for CMOS RAM, CMOS μ P, or other low-power logic.
- 3) A reset pulse if the optional watchdog timer has not been toggled within 1.6sec.
- 4) A 1.25V threshold detector for power-fail warning or low-battery detection, or to monitor a power supply other than +5V.

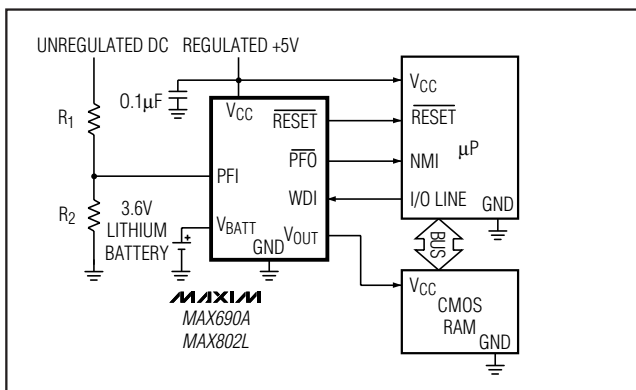
The parts differ in their reset-voltage threshold levels and reset outputs. The MAX690A/MAX802L/MAX805L generate a reset pulse when the supply voltage drops below 4.65V, and the MAX692A/MAX802M generate a reset below 4.40V. The MAX802L/MAX802M guarantee power-fail accuracies to $\pm 2\%$. The MAX805L is the same as the MAX690A except that RESET is provided instead of $\overline{\text{RESET}}$.

All parts are available in 8-pin DIP and SO packages. The MAX690A/MAX802L are pin compatible with the MAX690 and MAX694. The MAX692A/MAX802M are pin compatible with the MAX692.

Applications

- Battery-Powered Computers and Controllers
- Intelligent Instruments
- Automotive Systems
- Critical μ P Power Monitoring

Typical Operating Circuit



Features

- ◆ Precision Supply-Voltage Monitor:
4.65V for MAX690A/MAX802L/MAX805L
4.40V for MAX692A/MAX802M
- ◆ Reset Time Delay – 200ms
- ◆ Watchdog Timer – 1.6sec Timeout
- ◆ Battery-Backup Power Switching
- ◆ 200 μ A Quiescent Supply Current
- ◆ 50nA Quiescent Supply Current in Battery-Backup Mode
- ◆ Voltage Monitor for Power-Fail or Low-Battery Warning
- ◆ Power-Fail Accuracy Guaranteed to $\pm 2\%$ (MAX802L/M)
- ◆ Guaranteed $\overline{\text{RESET}}$ Assertion to $V_{CC} = 1V$
- ◆ 8-Pin SO and DIP Packages

Ordering Information

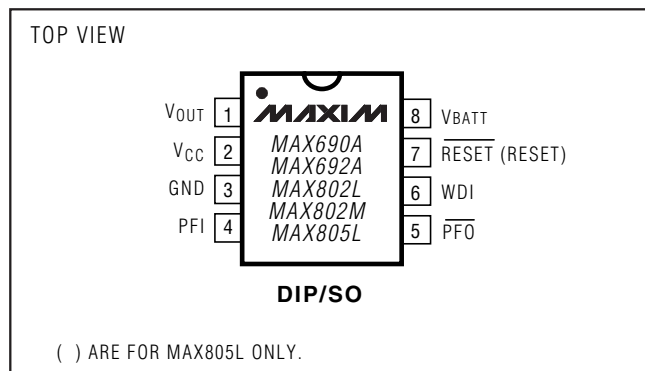
PART	TEMP. RANGE	PIN-PACKAGE
MAX690ACPA	0°C to +70°C	8 Plastic DIP
MAX690ACSA	0°C to +70°C	8 SO
MAX690AC/D	0°C to +70°C	Dice*
MAX690AEP A	-40°C to +85°C	8 Plastic DIP
MAX690AES A	-40°C to +85°C	8 SO
MAX690AMJA	-55°C to +125°C	8 CERDIP**

Ordering Information continued on last page.

* Dice are specified at $T_A = +25^\circ\text{C}$

** Contact factory for availability and processing to MIL-STD-883. Devices in PDIP and SO packages are available in both leaded and lead-free packaging. Specify lead free by adding the + symbol at the end of the part number when ordering. Lead free not available for CERDIP package.

Pin Configurations



Microprocessor Supervisory Circuits

MAX690A/MAX692A/MAX802L/MAX805L

ABSOLUTE MAXIMUM RATINGS

Terminal Voltage (with respect to GND)		Rate of Rise, V_{CC} , V_{BATT}	100V/ μ s
V_{CC}	-0.3V to 6.0V	Continuous Power Dissipation	
V_{BATT}	-0.3V to 6.0V	Plastic DIP (derate 9.09mW/ $^{\circ}$ C above +70 $^{\circ}$ C)	727mW
All Other Inputs (Note 1)	-0.3V to (V_{CC} + 0.3V)	SO (derate 5.88mW/ $^{\circ}$ C above +70 $^{\circ}$ C)	471mW
Input Current		CERDIP (derate 8.00mW/ $^{\circ}$ C above +70 $^{\circ}$ C)	640mW
V_{CC}	200mA	Operating Temperature Ranges:	
V_{BATT}	50mA	MAX69_AC_, MAX80_C_	0 $^{\circ}$ C to +70 $^{\circ}$ C
GND	20mA	MAX69_AE_, MAX80_E_	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Output Current		MAX69_AMJA, MAX805LMJA	-55 $^{\circ}$ C to +125 $^{\circ}$ C
V_{OUT}	Short-Circuit Protected for up to 10sec	Storage Temperature Range	-65 $^{\circ}$ C to +160 $^{\circ}$ C
All Other Outputs	20mA	Lead Temperature (soldering, 10sec)	+300 $^{\circ}$ C

Note 1: The input voltage limits on PFI and WDI may be exceeded if the current into these pins is limited to less than 10mA.

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_{CC} = 4.75V to 5.5V for MAX690A/MAX802L/MAX805L, V_{CC} = 4.5V to 5.5V for MAX692A/MAX802M, V_{BATT} = 2.8V, T_A = T_{MIN} to T_{MAX} , unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Operating Voltage Range, V_{CC} , V_{BATT} (Note 2)		MAX69_AC, MAX802_C	1.0		5.5	V
		MAX805LC	1.1		5.5	
		MAX69_AE/M, MAX80_E	1.2		5.5	
Supply Current (Excluding I_{OUT})	I_{SUPPLY}	MAX69_AC, MAX802_C		200	350	μ A
		MAX69_AE/M, MAX802_E, MAX805LE/M		200	500	
I_{SUPPLY} in Battery-Backup Mode (Excluding I_{OUT})		V_{CC} = 0V, V_{BATT} = 2.8V	T_A = +25 $^{\circ}$ C	0.05	1.0	μ A
			T_A = T_{MIN} to T_{MAX}		5.0	
V_{BATT} Standby Current (Note 3)		$5.5V > V_{CC} > V_{BATT} + 0.2V$	T_A = +25 $^{\circ}$ C	-0.1	0.02	μ A
			T_A = T_{MIN} to T_{MAX}	-1.0	0.02	
V_{OUT} Output		I_{OUT} = 5mA	V_{CC} - 0.05	V_{CC} - 0.025		V
		I_{OUT} = 50mA	V_{CC} - 0.5	V_{CC} - 0.25		
V_{OUT} in Battery-Backup Mode		I_{OUT} = 250 μ A, $V_{CC} < V_{BATT} - 0.2V$	$V_{BATT} - 0.1$	$V_{BATT} - 0.02$		V
Battery Switch Threshold, V_{CC} to V_{BATT}		$V_{CC} < V_{RT}$	Power-up	20		mV
			Power-down	-20		
Battery Switchover Hysteresis			40			mV
Reset Threshold	V_{RT}	MAX690A, MAX802L, MAX805L	4.50	4.65	4.75	V
		MAX692A, MAX802M	4.25	4.40	4.50	
		MAX802L, T_A = +25 $^{\circ}$ C, V_{CC} falling	4.55		4.70	
		MAX802M, T_A = +25 $^{\circ}$ C, V_{CC} falling	4.30		4.45	
Reset Threshold Hysteresis			40			mV
Reset Pulse Width	t_{RS}		140	200	280	ms
\overline{RESET} Output Voltage		I_{SOURCE} = 800 μ A	I_{SINK} = 3.2mA	V_{CC} - 1.5		V
		MAX69_AC, MAX802_C, V_{CC} = 1.0V	I_{SINK} = 50 μ A			
MAX69_AE/M, MAX802_E, V_{CC} = 1.2V, I_{SINK} = 100 μ A						

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ELECTRICAL CHARACTERISTICS (continued)

($V_{CC} = 4.75V$ to $5.5V$ for MAX690A/MAX802L/MAX805L, $V_{CC} = 4.5V$ to $5.5V$ for MAX692A/MAX802M, $V_{BATT} = 2.8V$, $T_A = T_{MIN}$ to T_{MAX} , unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
RESET Output Voltage		MAX805LC, $I_{SOURCE} = 4\mu A$, $V_{CC} = 1.1V$	0.8			V
		MAX805LE/M, $I_{SOURCE} = 4\mu A$, $V_{CC} = 1.2V$	0.9			
		MAX805L, $I_{SOURCE} = 800\mu A$	$V_{CC} - 1.5$			
		MAX805L, $I_{SINK} = 3.2mA$			0.4	
Watchdog Timeout	t_{WD}		1.00	1.60	2.25	sec
WDI Pulse Width	t_{WP}	$V_{IL} = 0.4V$, $V_{IH} = (0.8)(V_{CC})$	50			ns
WDI Input Threshold (Note 4)		$V_{CC} = 5V$	Logic low		0.8	V
			Logic high	3.5		
WDI Input Current		WDI = V_{CC}		50	150	μA
		WDI = 0V	-150	-50		
PFI Input Threshold		MAX69_A, MAX805L, $V_{CC} = 5V$	1.20	1.25	1.30	V
		MAX802_C/E, $V_{CC} = 5V$	1.225	1.250	1.275	
PFI Input Current			-25	0.01	25	nA
\overline{PFO} Output Voltage		$I_{SOURCE} = 800\mu A$	$V_{CC} - 1.5$			V
		$I_{SINK} = 3.2mA$			0.4	

Note 2: Either V_{CC} or V_{BATT} can go to 0V, if the other is greater than 2.0V.

Note 3: "-" = battery-charging current, "+" = battery-discharging current.

Note 4: WDI is guaranteed to be in an intermediate, non-logic level state if WDI is floating and V_{CC} is in the operating voltage range. WDI is internally biased to 35% of V_{CC} with an input impedance of 50k Ω .

MAX690A/MAX692A/MAX802L/MAX802M/MAX805L

Microprocessor Supervisory Circuits

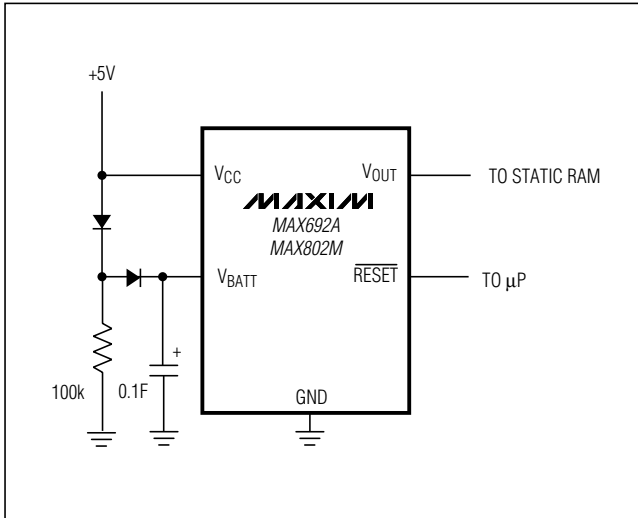


Figure 5. Using a SuperCap™ as a Backup Power Source with the MAX692A/MAX802M and a +5V ±10% Supply

When V_{BATT} connects to V_{OUT} , backup mode is activated and the internal circuitry is powered from the battery (Table 1). When V_{CC} is just below V_{BATT} , the current drawn from V_{BATT} is typically 30μA. When V_{CC} drops to more than 1V below V_{BATT} , the internal switchover comparator shuts off and the supply current falls to less than 1μA.

Applications Information

Using a SuperCap™ as a Backup Power Source

SuperCaps are capacitors with extremely high capacitance values, on the order of 0.1F. Figure 4 shows a SuperCap used as a backup power source. Do not allow the SuperCap's voltage to exceed the maximum reset threshold by more than 0.6V. In Figure 4's circuit, the SuperCap rapidly charges to within a diode drop of V_{CC} . However, after a long time, the diode leakage current will pull the SuperCap voltage up to V_{CC} . When using a SuperCap with the MAX690A/MAX802L/MAX805L, V_{CC} may not exceed $4.75V + 0.6V = 5.35V$.

Use the SuperCap circuit of Figure 5 with a MAX692A or MAX802M and a ±10% supply. This circuit ensures that the SuperCap only charges to $V_{CC} - 0.5V$. At the maximum V_{CC} of 5.5V, the SuperCap charges up to 5.0V, only 0.5V above the maximum reset threshold—well within the requisite 0.6V.

™SuperCap is a trademark of Baknor Industries.

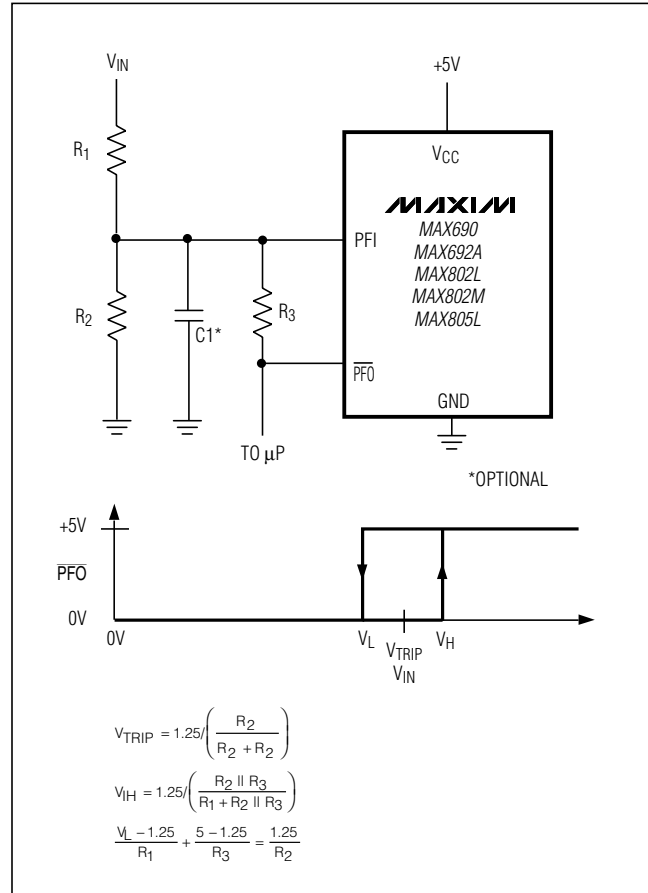


Figure 6. Adding Hysteresis to the Power-Fail Comparator

Allowable Backup Power-Source Batteries

Lithium batteries work very well as backup batteries due to very low self-discharge rates and high energy density. Single lithium batteries with open-circuit voltages of 3.0V to 3.6V are ideal. Any battery with an open-circuit voltage less than the minimum reset threshold plus 0.3V can be connected directly to the V_{BATT} input of the MAX690A/MAX692A/MAX802L/MAX802M/MAX805L with

Table 2. Allowable Backup-Battery Voltages

(see Using a SuperCap as a Backup Power Source section for use with a SuperCap)

PART NO.	MAXIMUM BACKUP-BATTERY VOLTAGE (V)
MAX690A/ MAX802L/MAX805L	4.80
MAX692A/ MAX802M	4.55

Microprocessor Supervisory Circuits

μP Supervisory Circuits

Part Number	Nominal Reset Threshold (V)	Minimum Reset Pulse Width (ms)	Nominal Watchdog Timeout Period (sec)	Backup-Battery Switch	CE - Write Protect	Power-Fail Comparator	Manual-Reset Input	Watch-dog Output	Low-Line Output	Active-High Reset	Battery-On Output
MAX690A/692A	4.65/4.40	140	1.6	✓		✓					
MAX691A/693A	4.65/4.40	140/adj.	1.6/adj.	✓	✓/10ns	✓		✓	✓	✓	✓
MAX696	Adj.	35/adj.	1.6/adj.	✓		✓		✓	✓	✓	✓
MAX697	Adj.	35/adj.	1.6/adj.		✓	✓		✓	✓	✓	
MAX700	4.65/adj.	200	-				✓			✓	
MAX703/704	4.65/4.40	140	-	✓		✓	✓				
MAX705/706	4.65/4.40	140	1.6			✓	✓	✓			
MAX706P	2.63	140	1.6			✓	✓	✓		✓	
MAX706R/S/T	2.63/2.93/ 3.08	140	1.6			✓	✓	✓			
MAX707/708	4.65/4.40	140	-			✓	✓			✓	
MAX708R/S/T	2.63/2.93/ 3.08	140	-			✓	✓			✓	
MAX709L/M/ R/S/T	4.65/4.40/ 2.63/2.93/3.08	140	-								
MAX791	4.65	140	1	✓	✓/10ns	✓	✓	✓	✓	✓	✓
MAX792L/M/ R/S/T	4.65/4.40/ 2.63/2.93/3.08	140	1		✓/10ns	✓	✓	✓	✓	✓	
MAX800L/M	4.60/4.40	140	1.6/adj.	✓	✓/10ns	✓/±2%		✓	✓	✓	✓
MAX802L/M	4.60/4.40	140	1.6	✓		✓/±2%					
MAX805L	4.65	140	1.6	✓		✓				✓	
MAX813L	4.65	140	1.6			✓	✓	✓		✓	
MAX820L/M/ R/S/T	4.65/4.40/ 2.63/2.93/3.08	140	1		✓/10ns	✓/±2%	✓	✓	✓	✓	
MAX1232	4.37/4.62	250	0.15/0.60/1.2				✓			✓	
MAX1259	-	-	-	✓		✓					

MAX690A/MAX692A/MAX693A/MAX696/MAX697/MAX700/MAX703/MAX704/MAX705/MAX706/MAX706P/MAX706R/S/T/MAX707/MAX708/MAX708R/S/T/MAX709L/M/MAX709R/S/T/MAX791/MAX792L/M/MAX792R/S/T/MAX800L/M/MAX802L/M/MAX805L/MAX813L/MAX820L/M/MAX820R/S/T/MAX1232/MAX1259

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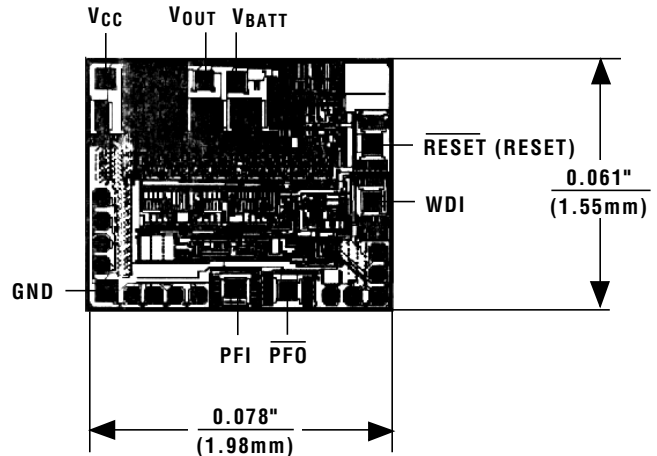
Ordering Information (continued)

PART	TEMP. RANGE	PIN-PACKAGE
MAX692ACPA	0°C to +70°C	8 Plastic DIP
MAX692ACSA	0°C to +70°C	8 SO
MAX692AC/D	0°C to +70°C	Dice*
MAX692AEPA	-40°C to +85°C	8 Plastic DIP
MAX692AESA	-40°C to +85°C	8 SO
MAX692AMJA	-55°C to +125°C	8 CERDIP**
MAX802LCPA	0°C to +70°C	8 Plastic DIP
MAX802LCSA	0°C to +70°C	8 SO
MAX802LEPA	-40°C to +85°C	8 Plastic DIP
MAX802LESA	-40°C to +85°C	8 SO
MAX802MCPA	0°C to +70°C	8 Plastic DIP
MAX802MCSA	0°C to +70°C	8 SO
MAX802MEPA	-40°C to +85°C	8 Plastic DIP
MAX802MESA	-40°C to +85°C	8 SO
MAX805LCPA	0°C to +70°C	8 Plastic DIP
MAX805LCSA	0°C to +70°C	8 SO
MAX805LC/D	0°C to +70°C	Dice*
MAX805LEPA	-40°C to +85°C	8 Plastic DIP
MAX805LESA	-40°C to +85°C	8 SO
MAX805LMJA	-55°C to +125°C	8 CERDIP**

* Dice are specified at $T_A = +25^\circ\text{C}$.

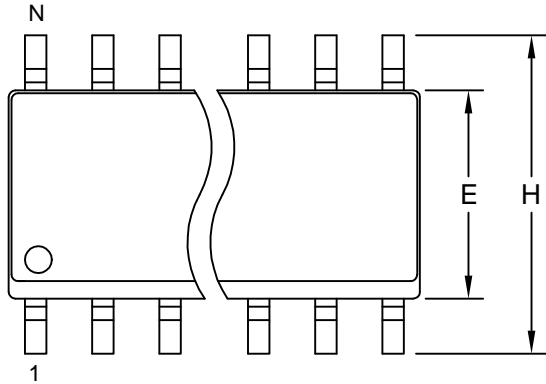
** Contact factory for availability and processing to MIL-STD-883. Devices in PDIP and SO packages are available in both leaded and lead-free packaging. Specify lead free by adding the + symbol at the end of the part number when ordering. Lead free not available for CERDIP package.

Chip Topography

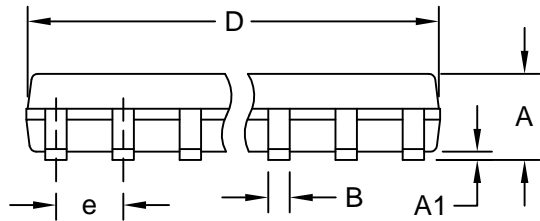


() ARE FOR MAX805L ONLY.
TRANSISTOR COUNT: 573;
SUBSTRATE MUST BE LEFT UNCONNECTED.

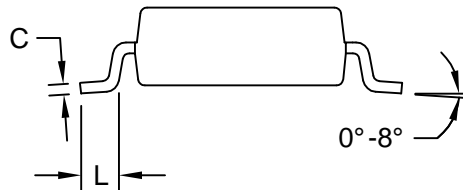
Maxim cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim product. No circuit patent licenses are implied. Maxim reserves the right to change the circuitry and specifications without notice at any time.



TOP VIEW



FRONT VIEW



SIDE VIEW

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.053	0.069	1.35	1.75
A1	0.004	0.010	0.10	0.25
B	0.014	0.019	0.35	0.49
C	0.007	0.010	0.19	0.25
e	0.050 BSC		1.27 BSC	
E	0.150	0.157	3.80	4.00
H	0.228	0.244	5.80	6.20
L	0.016	0.050	0.40	1.27

VARIATIONS:

DIM	INCHES		MILLIMETERS		N	MS012
	MIN	MAX	MIN	MAX		
D	0.189	0.197	4.80	5.00	8	AA
D	0.337	0.344	8.55	8.75	14	AB
D	0.386	0.394	9.80	10.00	16	AC

NOTES:

1. D&E DO NOT INCLUDE MOLD FLASH.
2. MOLD FLASH OR PROTRUSIONS NOT TO EXCEED 0.15mm (.006").
3. LEADS TO BE COPLANAR WITHIN 0.10mm (.004").
4. CONTROLLING DIMENSION: MILLIMETERS.
5. MEETS JEDEC MS012.
6. N = NUMBER OF PINS.

PROPRIETARY INFORMATION			
TITLE: PACKAGE OUTLINE, .150" SOIC			
APPROVAL	DOCUMENT CONTROL NO. 21-0041	REV. B	1/1