



General Description

The MAX811 is low-power microprocessor (μ P) supervisory circuits used to monitor power supplies in μ P and digital systems.

They provide excellent circuit reliability and low cost by eliminating external components and adjustments when used with 5V-powered or 3V-powered circuits.

The MAX811 also provide a debounced manual reset input.

The only difference between the two devices is that the MAX811 has an active-low RESET output (which is guaranteed to be in the correct state for VCC down to 1V).

Reset thresholds are available for operation with a variety of supply voltages.

Features

- Precision Monitoring of 3V, 3.3V, and 5V Power-Supply Voltages
- 140ms Min Power-On Reset Pulse Width
- Guaranteed Over Temperature
- Guaranteed RESET Valid to VCC = 1V
- SOT-143 package

Selection Table

Part No	Detectable Voltage	Package
MAX810L	4.63V	SOT-143
MAX810M	4.38V	
MAX810T	3.08V	
MAX810S	2.93V	
MAX810R	2.63V	

Pin Assignment



Pin 1

SOT-143

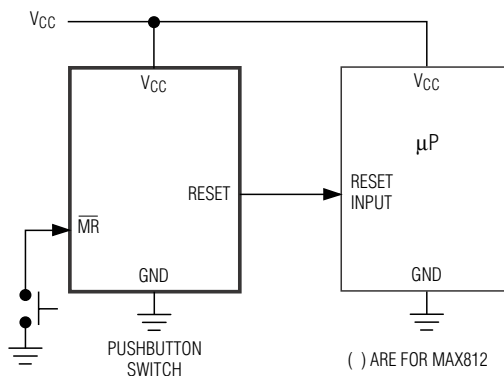
PIN NO	PIN NAME	FUNCTION
1	GND	Ground
2	RESET	Active-Low Reset Output
3	MR	Manual Reset Input
4	VCC	Supply Voltage

Applications

- Computers
- Controllers
- Intelligent Instruments
- Portable/Battery-Powered Equipment



Application Circuits



Absolute Maximum Ratings

Input Voltage-0.3V to 6.0V Storage Temperature-40°C to 125°C

Operating Temperature-40°C to 85°C

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Thermal Information

Symbol	Parameter	Max.	Unit
θ_{JA}	Thermal Resistance (Junction to Ambient) (Assume no ambient airflow, no heat sink)	260	°C/W
P_D	Power Dissipation	0.32	W

Note: P_D is measured at $T_a = 25^\circ\text{C}$

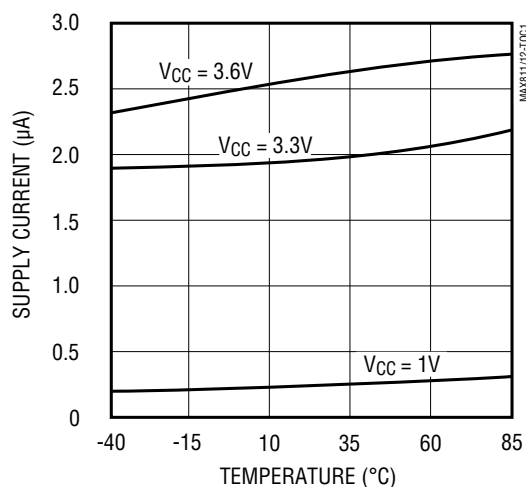


Electrical Characteristics

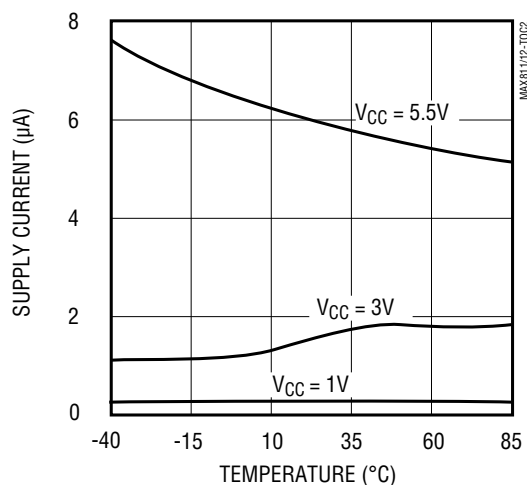
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_{CC}	Input Voltage (V_{CC}) Range	$T_A=25^{\circ}\text{C}$	1.2		5.5	V
I_{SS}	Supply Current	MAX811L/M: $V_{CC}<5.5\text{V}$ MAX811R/S/T: $V_{CC}<3.6\text{V}$		6 2.7	15 10	μA
V_{DET}	Reset Threshold	MAX811L: $T_A=25^{\circ}\text{C}$	4.54	4.63	4.72	V
		MAX811M: $T_A=25^{\circ}\text{C}$	4.30	4.38	4.46	
		MAX811T: $T_A=25^{\circ}\text{C}$	3.03	3.08	3.14	
		MAX811S: $T_A=25^{\circ}\text{C}$	2.88	2.93	2.98	
		MAX811R: $T_A=25^{\circ}\text{C}$	2.58	2.63	2.68	
	Reset Threshold Stability			30		Ppm/ $^{\circ}\text{C}$
	V_{CC} to Reset Delay	$V_{OD}=125\text{mV}$, MAX811L/M: $V_{OD}=125\text{mV}$, MAX811R/S/T:		40 20		μs
t_{RP}	Reset Threshold Tempco	$V_{CC}=V_{TH}(\text{MAX})$	140		560	ms
t_{MR}	MR Minimum Pulse Width Tempco		10			μs
	MR Glitch Immunity			100		ns
t_{MD}	MR to Reset Propagation Delay			0.5		μs
V_{IH}	MR Input Threshold	$V_{CC}>V_{TH}(\text{MAX})$, MAX811L/M	2.3			V
V_{IL}					0.8	
V_{IH}		$V_{CC}>V_{TH}(\text{MAX})$, MAX811R/S/T	$0.7 \times V_{CC}$			
V_{IL}					$0.25 \times V_{CC}$	
t_{MD}	MR Pull-Up Resistance		10	20	30	$\text{k}\Omega$
V_{OL}	RESET Output Voltage Low	MAX811L/M: $V_{CC}=V_{TH} \text{ min}$, $I_{SINK}=1.2\text{mA}$ MAX811R/S/T: $V_{CC}=V_{TH} \text{ min}$, $I_{SINK}=3.2\text{mA}$ $I_{SINK}=50\mu\text{A}$, $V_{CC}>1.0\text{V}$			0.4 0.3	V
V_{OH}	RESET Output Voltage High	MAX811L/M only, $I_{SOURCE}=150\mu\text{A}$ MAX811R/S/T only, $I_{SOURCE}=150\mu\text{A}$ $V_{CC}>V_{TH}(\text{MAX})$	$0.8 V_{CC}$ $V_{CC}-1.5$			V



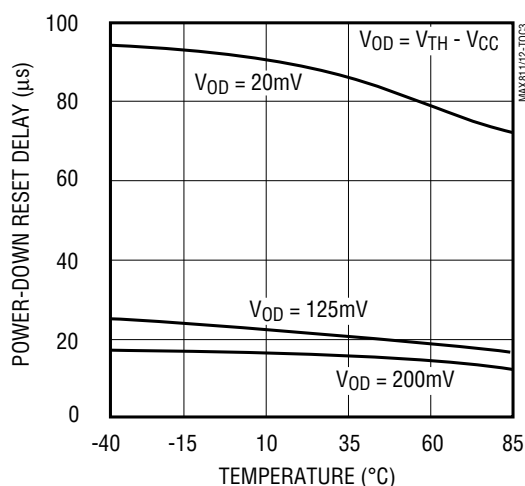
Typical Characteristics



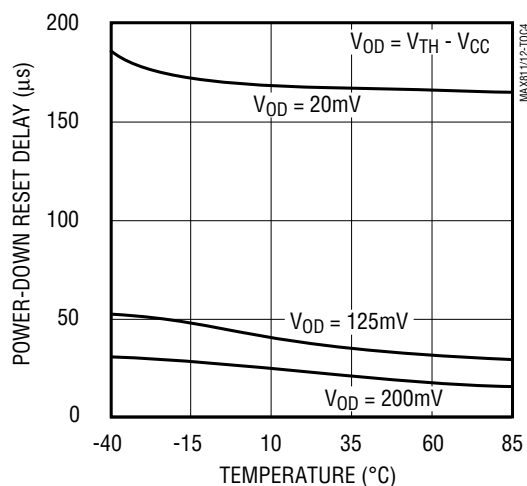
Supply Current vs Temperature
(No Load, MAX811R/S/T)



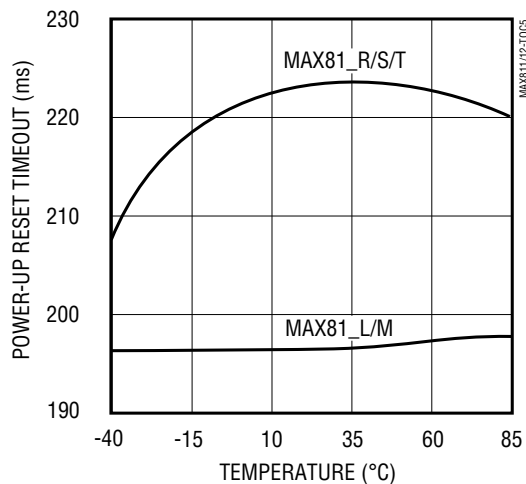
Supply Current vs Temperature
(No Load, MAX811L/M/I)



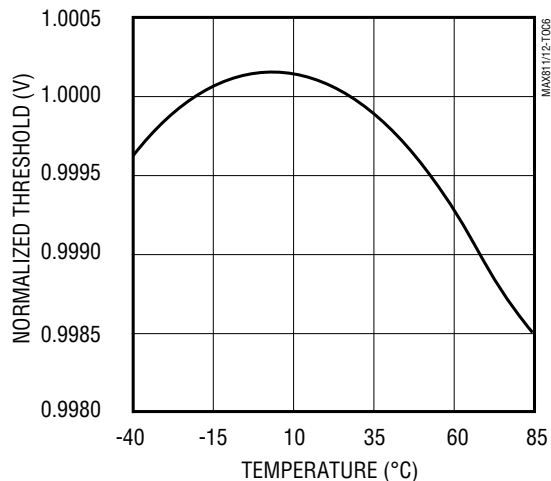
Power-Down Reset Delay vs
Temperature and (MAX811R/S/T)



Power-Down Reset Delay vs
Temperature and (MAX811L/M)



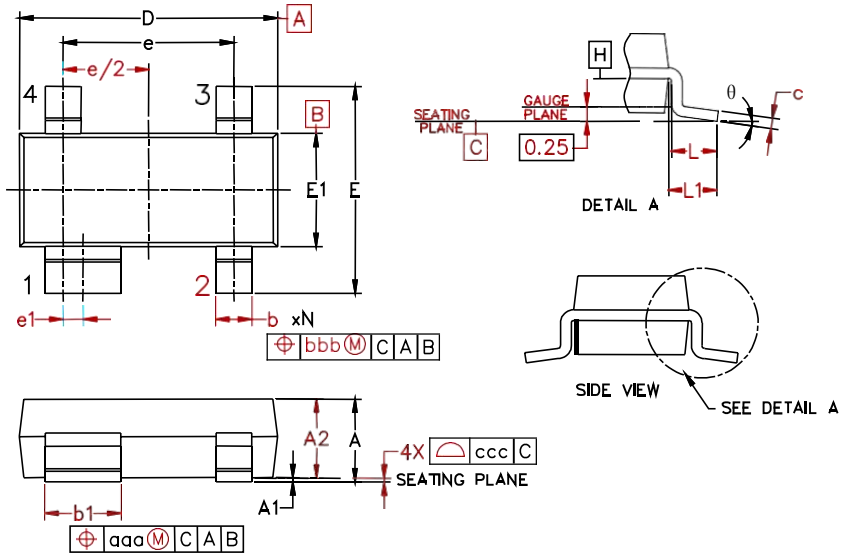
Power-Up Reset Timeout vs
Temperature



Normalized Reset Threshold vs
Temperature



SOT-143 Package Outline Dimensions



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.031	-	0.048	0.80	-	1.22
A1	0.000	-	0.008	0.013	-	0.15
A2	0.020	0.035	0.042	0.75	0.90	1.07
b	0.011	-	0.020	0.30	-	0.51
b1	0.029	-	0.037	0.76	-	0.94
c	0.003	-	0.008	0.08	-	0.20
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.92 BSC		
e1	0.008			0.20 BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	(0.021)			(0.54)		
N	4			4		
θ	0°	-	8°	0°	-	8°
aaa	0.006			0.15		
bbb	0.008			0.20		
ccc	0.004			0.10		



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