



General Description

The MAX810 series are highly accurate, low power consumption voltage detectors, manufactured using CMOS and laser trimming technologies.

A delay circuit is built-in to each detectors.

Detect voltage is extremely accurate with minimal temperature drift.

Since the delay circuit is built-in, peripherals are unnecessary and high density mounting is possible.

Pin Assignment



SOT-23

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VCC	Input voltage pin
3	Reset	Reset pin

Features

- Low power consumption
- Low temperature coefficient
- Built-in delay circuit: 200ms
- High input voltage (up to 6V)
- Output voltage accuracy: tolerance $\pm 2\%$
- SOT-23 package

Applications

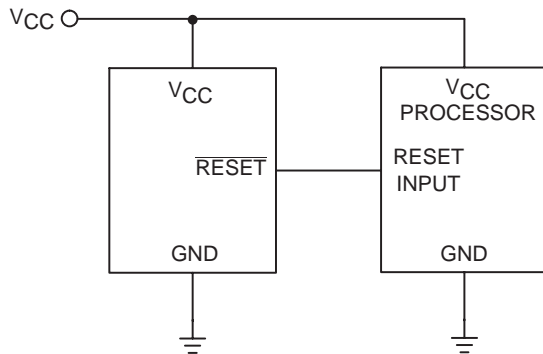
- Computers
- Embedded Systems
- Power on reset circuits
- Battery Powered Equipment
- Critical uP Power Supply Monitoring

Selection Table

Part No	Detectable Voltage	Delay Time	Tolerance	Package
MAX810L	4.63V	200ms	$\pm 2\%$	SOT-23
MAX810M	4.38V		$\pm 2\%$	
MAX810J	4.00V		$\pm 2\%$	
MAX810T	3.08V		$\pm 2\%$	
MAX810S	2.93V		$\pm 2\%$	
MAX810R	2.63V		$\pm 2\%$	



Application Circuits



Absolute Maximum Ratings

Input Voltage-0.3V to VCC+0.3V 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	0.23	W

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

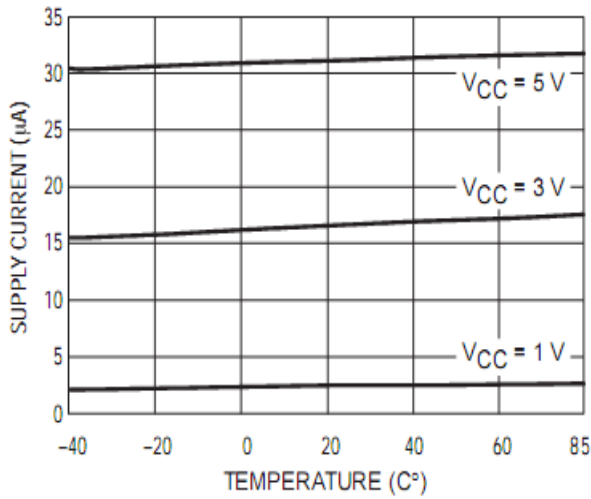


Electrical Characteristics

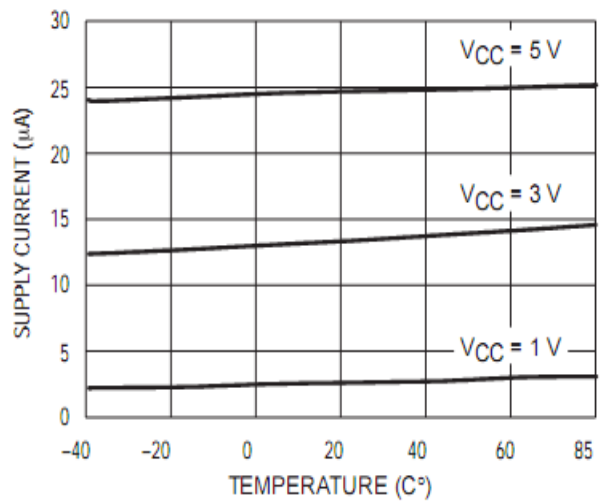
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _{CC}	Input Voltage (V _{CC}) Range	TA=25°C	1.2		5.5	V
I _{SS}	Supply Current	MAX810L/M/J:VCC < 5.5V MAX810R/S/T:VCC < 3.6V		24 17	60 50	μA
V _{DET}	Reset Threshold	MAX810L:TA=25°C	4.56	4.63	4.70	V
		MAX810M:TA=25°C	4.31	4.38	4.45	
		MAX810J:TA=25°C	3.93	4.00	4.06	
		MAX810T:TA=25°C	3.04	3.08	3.11	
		MAX810S:TA=25°C	2.89	2.93	2.96	
		MAX810R:TA=25°C	2.59	2.63	2.66	
	Reset Threshold Stability			30		Ppm/ °C
	V _{CC} to Reset Delay	V _{CC} = V _{TH} to V _{TH} -100mV		20		us
V _{OL}	RESET Output Voltage Low	MAX810L/M/J:VCC=V _{TH} min, I _{SINK} =1.2mA MAX810R/S/T:VCC=V _{TH} min, I _{SINK} =3.2mA			0.4 0.3	V
V _{OH}	RESET Output Voltage High	1.8 < V _{CC} < V _{TH} min, I _{SOURCE} =150uA	0.8 V _{CC}			V



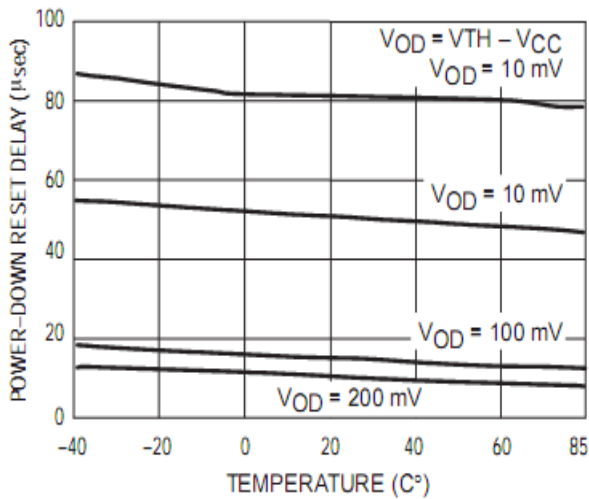
Typical Characteristics



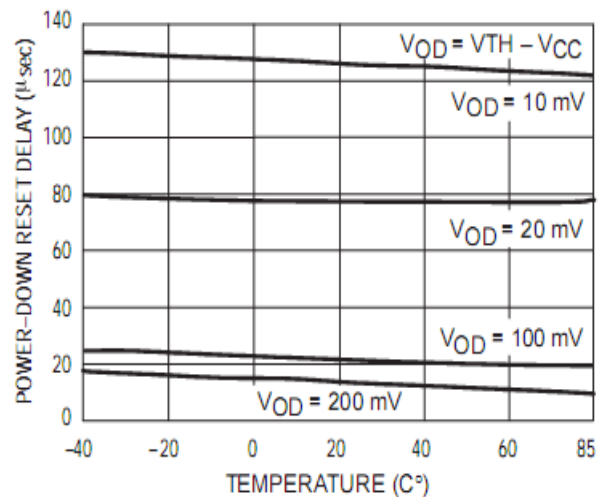
Supply Current vs Temperature
(No Load, MAX810R/S/T)



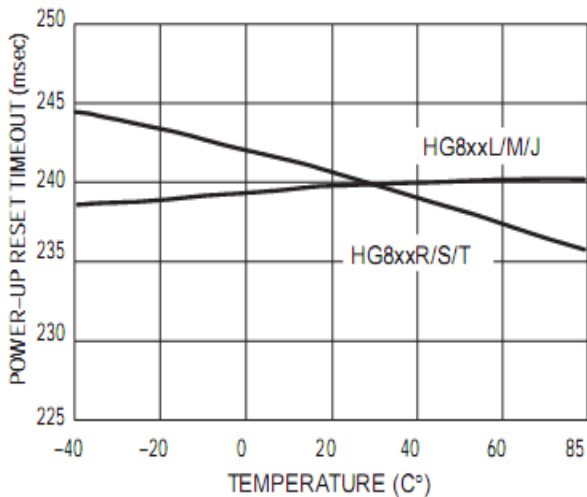
Supply Current vs Temperature
(No Load, MAX810L/M/J)



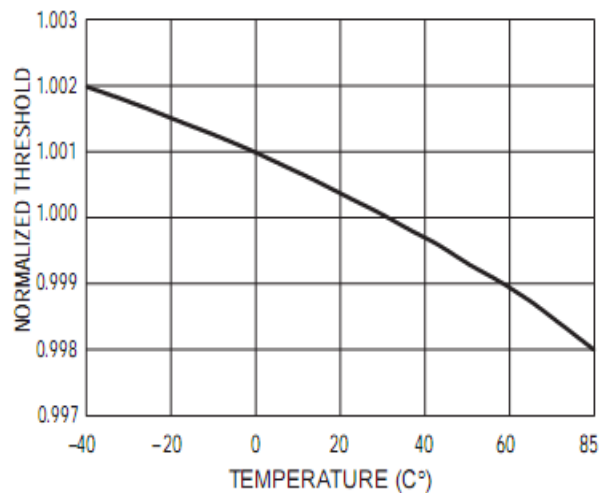
Power-Down Reset Delay vs
Temperature and Overdrive (MAX810R/S/T)



Power-Down Reset Delay vs
Temperature and Overdrive (MAX810L/M/J)



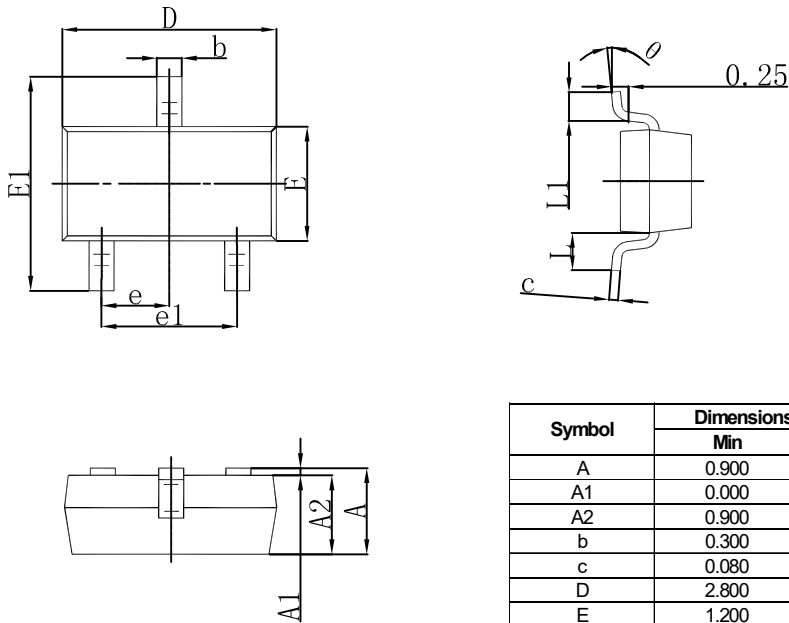
Power-Up Reset Timeout vs
Temperature



Normalized Reset Threshold vs
Temperature

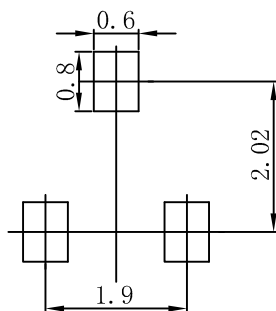


SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.



Attention

- Any and all HUA XUAN YANG ELECTRONICS products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your HUA XUAN YANG ELECTRONICS representative nearest you before using any HUA XUAN YANG ELECTRONICS products described or contained herein in such applications.
- HUA XUAN YANG ELECTRONICS assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein.
- Specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- HUA XUAN YANG ELECTRONICS CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all HUA XUAN YANG ELECTRONICS products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of HUA XUAN YANG ELECTRONICS CO.,LTD.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. HUA XUAN YANG ELECTRONICS believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the HUA XUAN YANG ELECTRONICS product that you intend to use.