



Description

The SE810 is a cost-effective system supervisor Integrated Circuit (IC) designed to monitor VCC in digital and mixed signal systems and provide a warning signal when the system power supply is out of working range, and a reset signal to the host processor when necessary. No external components are required.

The reset output is driven active within 20µsec of VCC falling through the reset voltage threshold. Reset is maintained active for a 150mSec(typ) after VCC rises above the reset threshold. The SE810 has an active-high RESET output.

The SE810 is characterized for operation from -40oC to 125oC, junction temperature. The SE810 is optimized to reject fast transient glitches on the VCC line. Low supply current of 7µA (V_{CC}=3.3V) makes these devices suitable for battery powered applications. The output voltages range from 1.7V to 4.5V in 100mV increments. Standard voltage versions are 2.30, 2.63, 2.93, 3.08, 4.0, 4.38, and 4.63V.

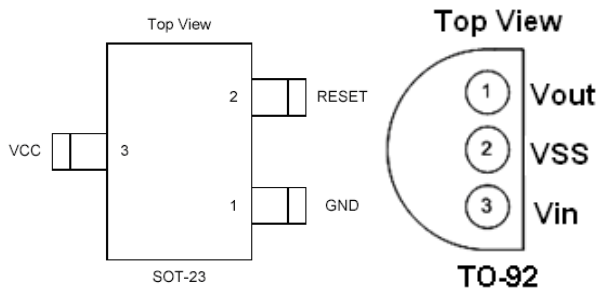
Features

- Precision V_{CC} Monitor for 2.8V, 3.0V, 3.3V, and 5.0V Supplies
- 150mSec typical RESET Output Delay.
- Low 7µA Supply Current typical.
- V_{CC} Transient Immunity
- Small SOT-23 Package and TO-92 Package
- No External Components
- ESD rating is 7KV(HBM).
- Wide Operating Temperature: -40°C to 125°C
- 100% Lead (Pb)-Free

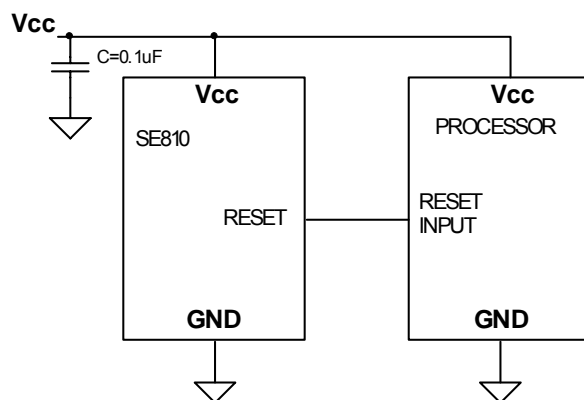
Application

- Computers
- Embedded systems
- Battery powered equipment
- Critical µP power supply monitoring

Pin Configuration



Application Diagram





Ordering/Marking Information (SOT23)

Ordering Information	Marking Information	The "x" denotes a suffix for V _{CC} threshold. The last character is the batch number. A dot on top right corner is for lead-free process.
SE810xS	S810xa*	
Suffix	Reset V_{CC} threshold(V)	
L	4.63	
M	4.38	
J	4.00	
T	3.08	
S	2.93	
R	2.63	

Ordering/Marking Information (TO92)

Ordering Information	Marking Information	XXXX is the batch number. Lead-free package is indicated by LF after XXXX.
SE810Z	SE810Z XXXX-LF	
Suffix	Reset V_{CC} threshold(V)	
Z	2.30	

Absolute Maximum Ratings⁽¹⁾

Parameter	Symbol	Value	Units
Input Voltage	V _{CC}	5.5	V
Output Voltage	RESET	-0.3 to (V _{CC} + 0.3)	V
Input Current		20	mA
Output Current	I _{OUT}	20	mA
Power Dissipation	P _D	Internally Limited ⁽³⁾	
Output Short Circuit Duration		Infinite	
Thermal Resistance, Junction-to-Ambient	Θ _{JA}	230	°C/W
Operating Temperature Range	T _A	-40~+125	°C
Lead Temperature (Soldering, 10 sec.)		260	°C
Junction Temperature	T _J	-40 to +125	°C
Storage Temperature	T _S	-60 to +150	°C

Operating Rating⁽²⁾

Parameter	Symbol	Value	Units
Supply Input Voltage	V _{CC}	+2.0V to +5.5	V
Junction Temperature	T _J	-40 to +125	°C



Electrical Characteristics

V_{CC}=5V for L/M/J ;3.3V for T/S ;3.0V for R ,T_A = 25°C, unless otherwise specified.

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V _{CC}	Input Voltage		2.0		5.5	V
I _{CC}	Supply Current		--	7	10	μA
V _{TH}	Reset Threshold	SE810L-4.63V	4.51	4.63	4.75	V
		SE810M-4.38V	4.27	4.38	4.49	
		SE810J-4.00V	3.90	4.00	4.10	
		SE810T-3.08V	3.00	3.08	3.16	
		SE810S-2.93V	2.85	2.93	3.00	
		SE810R-2.63V	2.56	2.63	2.70	
		SE810R-2.30V	2.18	2.25	2.33	
	Reset Threshold Temperature Coefficient ⁽⁴⁾		--	30	--	ppm/°C
	V _{CC} to Reset Delay V _{CC} = V _{TH} to (V _{TH} – 100mV)		--	20	--	μsec
	Reset Active Timeout Period		--	150		msec
V _{OL}	RESET Output Voltage Low	I _{SINK} = 1.2mA	--	--	0.4	V
V _{OH}	RESET Output Voltage High	I _{SOURCE} = 800μA	0.8V _{CC}	--	--	V

PIN DESCRIPTION:

Pin No.	Symbol	Description
1	GND	Ground
2	RESET	RESET output remains high while V _{CC} is below the reset voltage threshold and for 150msec(typ) after V _{CC} rises above reset threshold
3	V _{CC}	Supply Voltage (typ.)

Note 1: Exceeding the absolute maximum rating may damage the device.

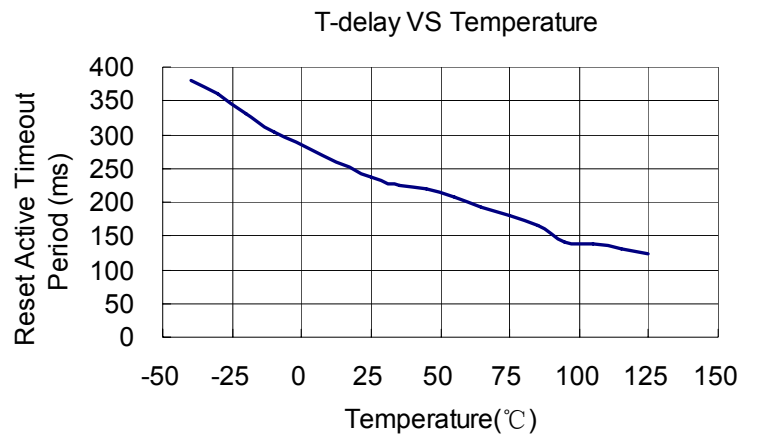
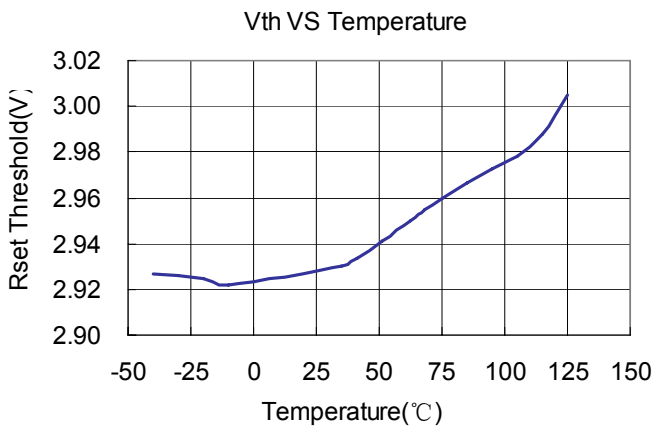
Note 2: The device is not guaranteed to function outside its operating rating.

Note 3: The maximum allowable power dissipation at any T_A (ambient temperature) is calculated using: P_{D(MAX)} = (T_{J(MAX)} – T_A)/θ_{JA}. Exceeding the maximum allowable power dissipation will result in excessive die temperature, and the regulator will go into thermal shutdown. See “Thermal Consideration” section for details

Note 4: RESET threshold temperature coefficient is the worst case voltage change divided by the total temperature range.

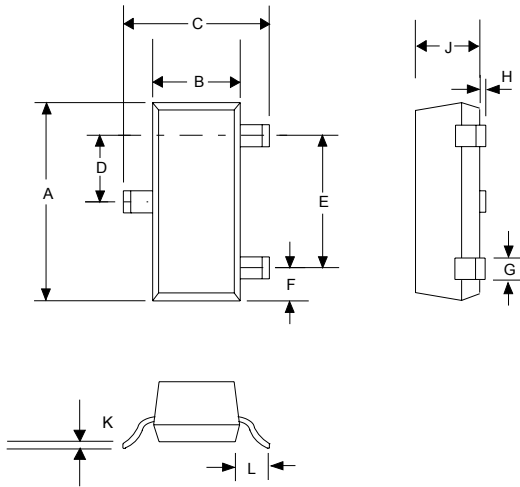


Typical Performance Characteristics



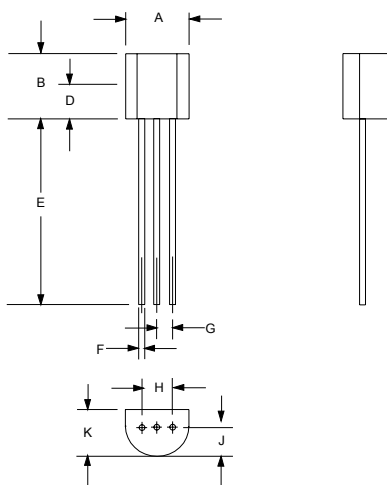


OUTLINE DRAWING SOT-23



DIMENSIONS				
DIM ^N	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.110	0.120	2.80	3.04
B	0.047	0.055	1.20	1.40
C	0.083	0.104	2.10	2.64
D	0.035	0.040	0.89	1.03
E	0.070	0.080	1.78	2.05
F	0.018	0.024	0.45	0.60
G	0.015	0.020	0.37	0.51
H	0.0005	0.004	0.013	0.10
J	0.034	0.040	0.887	1.02
K	0.003	0.007	0.085	0.18
L	-	0.027	-	0.69

OUTLINE DRAWING TO-92



DIMENSIONS				
DIM ^N	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.445	5.207
B	0.170	0.210	4.318	5.334
E	0.500	0.610	12.70	15.50
F	0.016	0.021	0.407	0.533
G	0.045	0.055	1.143	1.397
H	0.095	0.105	2.413	2.667
J	0.080	0.105	2.032	2.667
K	0.125	0.165	3.175	4.191



Contact Information

Seaward Electronics Incorporated – China

Section B, 2nd Floor, ShangDi Scientific Office Complex, #22 Shangdi Xinxu Rd

Haidian District, Beijing 100085, China

Tel: 86-10-8289-5700/01/05

Fax: 86-10-8289-5706

Email: sales@seawardinc.com.cn

Seaward Electronics Corporation – Taiwan

2F, #181, Sec. 3, Minguan East Rd,

Taipei, Taiwan R.O.C

Tel: 886-2-2712-0307

Fax: 886-2-2712-0191

Email: sales@seawardinc.com.tw

Seaward Electronics Incorporated – North America

1512 Centre Pointe Dr.

Milpitas, CA95035, USA

Tel: 1-408-821-6600

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