



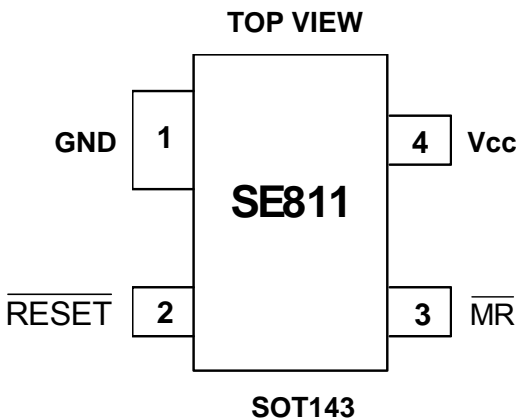
Description

The SE811 is a cost-effective system supervisor Integrated Circuit (IC) designed to monitor V_{CC} 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 SE811 also provides a manual reset input.

The reset output is driven active within 20 μ sec of V_{CC} falling through the reset voltage threshold. \overline{RESET} is maintained active after V_{CC} rises above the \overline{RESET} threshold. The SE811 has an active-low \overline{RESET} output. The output of the SE809 is guaranteed valid down to $V_{CC}=1V$.

The SE811 is characterized for operation from -40°C to 125°C, junction temperature. The SE811 is optimized to reject fast transient glitches on the V_{CC} line. Low supply current of 7 μ A ($V_{CC}=3.3V$) 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.

Pin Configuration



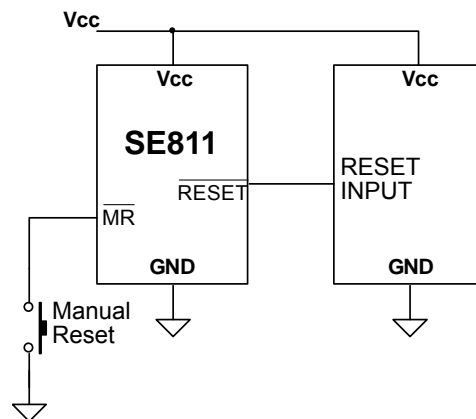
Features

- Precision V_{CC} Monitor for 2.8V, 3.0V, 3.3V, and 5.0V Supplies
- 150mSec typical \overline{RESET} Output Delay.
- \overline{RESET} Output Guaranteed to $V_{CC}=1.0V$
- Low 7 μ A Supply Current typical.
- V_{CC} Transient Immunity
- Manual reset input.
- 4-Pin SOT-143 Package
- No External Components
- ESD rating is 2KV(HBM).
- Wide Operating Temperature: -40°C to 125°C
- 100% Lead (Pb)-Free

Application

- Computers
- Embedded systems
- Battery powered equipment
- Critical μ P power supply monitoring

Application Diagram





Ordering/Marking Information (SOT143)

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.
SE811xS	S811xa'	
Suffix	Reset V_{CC} threshold(V)	
L	4.63	
M	4.38	
J	4.00	
T	3.08	
S	2.93	
R	2.63	

Absolute Maximum Ratings⁽¹⁾

Parameter	Symbol	Value	Units
Input Voltage	V _{CC}	5.5	V
Manual Reset Input	\overline{MR}	-0.3 to (V _{CC} + 0.3)	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

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	SE811L-4.63V SE811M-4.38V SE811J-4.00V SE811T-3.08V SE811S-2.93V SE811R-2.63V SE811R-2.30V	4.51 4.27 3.90 3.00 2.85 2.56 2.18	4.63 4.38 4.00 3.08 2.93 2.63 2.25	4.75 4.49 4.10 3.16 3.00 2.70 2.33	V
	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} = 3mA	--	--	0.4	V
V _{OH}	RESET Output Voltage High	I _{SOURCE} = 800μA	0.8V _{CC}	--	--	V
T _{mr}	$\overline{\text{MR}}$ Minimum Pulse Width		10			μsec
T _{md}	$\overline{\text{MR}}$ to RESET Propagation Delay			1		μsec
	$\overline{\text{MR}}$ Input Threshold	V _{LOW}			0.25V _{CC}	V
		V _{HIGH}	Open(High-Z)			V



PIN DESCRIPTION:

Pin No.	Symbol	Description
1	GND	Ground
2	$\overline{\text{RESET}}$	$\overline{\text{RESET}}$ output remains low while Vcc is below the reset voltage threshold and for 150mSec(typ) after Vcc rises above reset threshold
3	$\overline{\text{MR}}$	Manual Reset Input. A logic low on $\overline{\text{MR}}$ asserts. Reset remains asserted as long as $\overline{\text{MR}}$ is low and for 150ms after $\overline{\text{MR}}$ returns high. It can be driven from a TTL or CMOS-logic line, Or shorted to ground with a switch. Leave Open if unused.
4	Vcc	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: $P_{D(MAX)} = (T_{J(MAX)} - T_A) / \theta_{JA}$. 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.



Application Hints

General Description

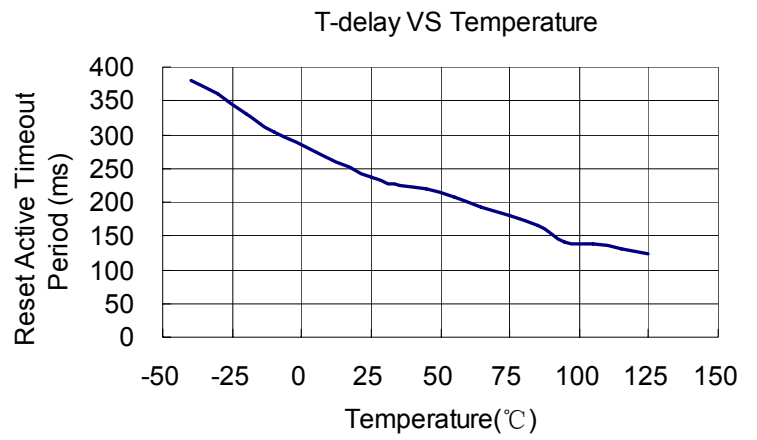
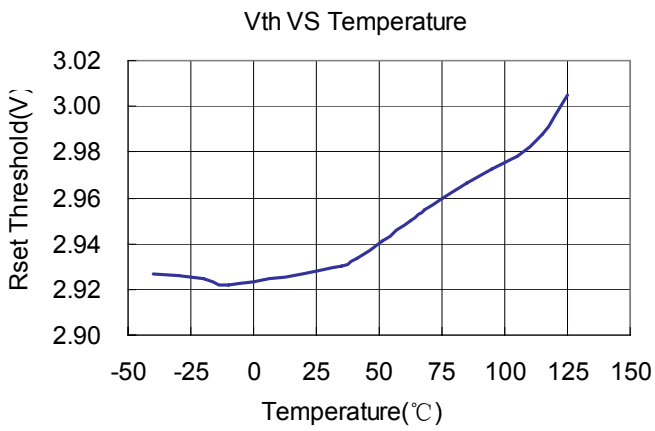
SE811 is the extension of SE809 family. It provide the same basic function as SE809, plus the additional \overline{MR} function. The detailed operation of \overline{MR} function is described below.

Manual Reset Input

Many μ P-based products require manual reset capability, allowing the operator, a test technician, or external logic circuitry to initiate a reset. A logic low on \overline{MR} will trigger the reset process. Reset remains asserted as long as \overline{MR} is low and for 150ms after \overline{MR} returns high. Leave open if unused. Connect a normally open momentary switch from \overline{MR} to GND to create a manualreset function; external debounce circuitry is not required. If \overline{MR} is driven from long cables or if the device is used in a noisy environment, connecting a 0.1 μ F capacitor from \overline{MR} to ground provides additional noise immunity. It is important that the \overline{MR} pin is not connected to Vcc in applications.

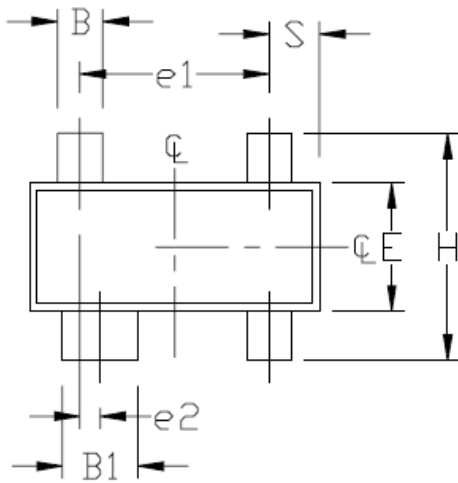


Typical Performance Characteristics





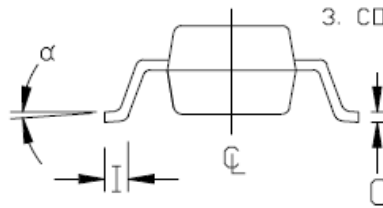
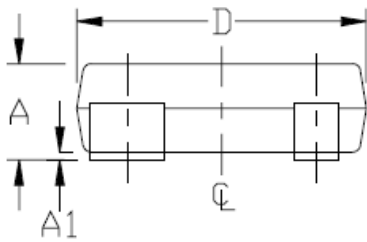
OUTLINE DRAWING SOT-143



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.031	0.047	0.787	1.194
A1	0.001	0.005	0.025	0.127
B	0.014	0.022	0.356	0.559
B1	0.030	0.038	0.762	0.965
C	0.0034	0.006	0.086	0.152
D	0.105	0.120	2.667	3.048
E	0.047	0.055	1.194	1.397
e1	0.071	0.079	1.803	2.007
e2	0.008	BSC	0.200	BSC
H	0.082	0.098	2.083	2.489
I	0.004	0.012	0.102	0.305
S	0.018	0.024	0.450	0.600
α	0°	8°	0°	8°

NOTES:

1. D&E DO NOT INCLUDE MOLD FLASH.
2. MOLD FLASH OR PROTRUSIONS NOT TO EXCEED .15mm (.006")
3. CONTROLLING DIMENSION: MILLIMETER





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, Minquan 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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