DESCRIPTION

A4811A is a series of high precision voltage detector with ultra-low current consumption (4.5uA typ. at Vin = 3.0V) and a built-in delay circuit. It can work at very low voltage, which makes it perfect for system reset.

A4811A is composed of high precision voltage reference, comparator, delay circuit, output driver and resistor array. Internally preset detect voltage has a low temperature drift and requires no external trimming. Only CMOS type is available.

The A4811A is available in SOT-23S package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23S	E3S	A4811AE3SR-XXXDC
		A4811AE3SVR-XXXDC
Note	V: Halogen free Package XXX: Detector Voltage 263=2.63V; 293=2.93V D: Delay Time=200ms C: CMOS R: Tape & Reel SPQ: 3,000pcs/Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

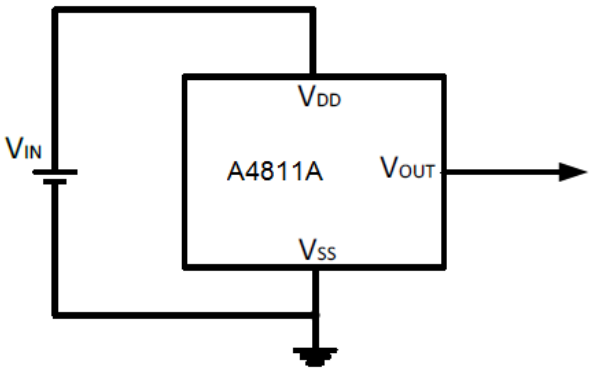
FEATURES

- High-Precision Detection Voltage: ±3%
- Detection Voltage: 2.63V and 2.93V
- Built-in Power on Reset Delay Time circuit: Refer to Selection Guide
- Operating Voltage Range: 1.2V~6.0V
- Ultra-low current consumption : 4.5uA typ. (at V_{IN}=3.0V)
- Output Forms: CMOS (Active High)
- Available in SOT-23S Package

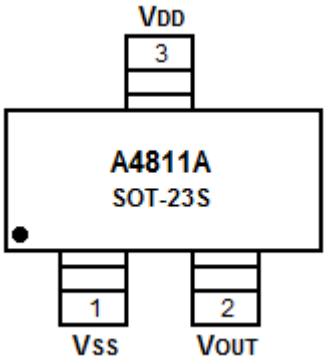
APPLICATION

- Power monitor for portable equipment such as PDA, DSC, Mobile phone,Notebook,MP3
- CPU and Logic Circuit Reset
- Battery Checker
- Battery Back-up Circuit
- Power Failure Detector

TYPICAL APPLICATION



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	V_{SS}	GND Pin
2	V_{OUT}	Voltage detection output pin
3	V_{DD}	Supply Voltage Input

ABSOLUTE MAXIMUM RATINGS

Input Voltage		-0.3V~8V
Output Voltage range		-0.3V~8V
Maximum Output current		70mA
T_A, Ambient Temperature		-40℃~85℃
Power Dissipation	SOT-23S	250mW
T_S, Storage Temperature		-40℃~105℃
Lead Temperature & Time		260℃,10s

Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

Parameter	MIN	Recommended	MAX	Units
Input Voltage Range	1.2		6	V
Ambient Temperature	-40	25	85	℃

ELECTRICAL CHARACTERISTICS

A4811AE3SR-263DC

T_{OPT} = 25℃,unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Detector Threshold	$-V_{DET}$		2.551	2.63	2.709	V
Current Consumption	I_{SS}	V_{DD}=4.63V		4.5	10	μA
Maximum Operating Voltage	V_{DDH}				10	V
Minimum Operating Voltage	V_{DDL}			0.5		V
Output Current	I_{OUT}	Nch V_{DS}=0.5V , V_{DD}=4.5V	10	20		mA

NOTE1: This device is tested at T_A=25℃, over temperature limits guaranteed by design only.

NOTE2: The parameter is guaranteed by design.

A4811AE3SR-293DC

T_{OPT} = 25℃,unless otherwise specified.

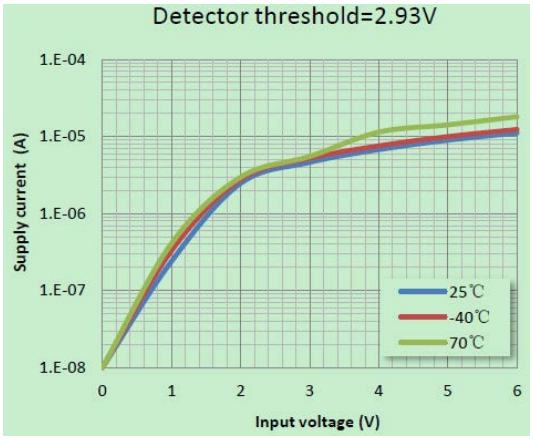
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Detector Threshold	$-V_{DET}$		2.842	2.93	3.018	V
Current Consumption	I_{SS}	V_{DD}=4.93V		4.5	10	μA
Maximum Operating Voltage	V_{DDH}				10	V
Minimum Operating Voltage	V_{DDL}			0.5		V
Output Current	I_{OUT}	Nch V_{DS}=0.5V , V_{DD}=4.5V	10	20		mA

ELECTRICAL CHARACTERISTICS BY OUTPUT DELAY TIME

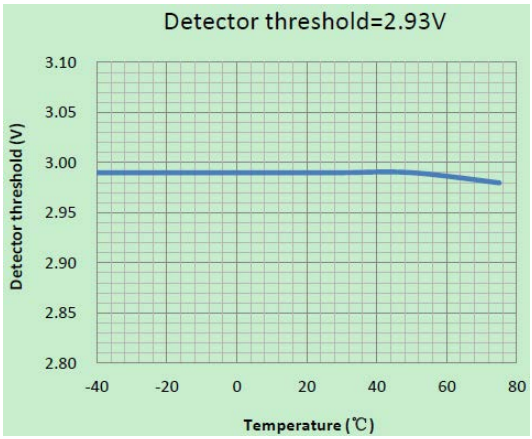
Part Number	Test Condition	Output Delay Time			Unit
		Min.	Typ.	Max.	
A4811AE3SR-XXXDC	V_{DD}=1.0V to V_{DET}+1.0V	180	200	220	ms

TYPICAL PERFORMANCE CHARACTERISTICS

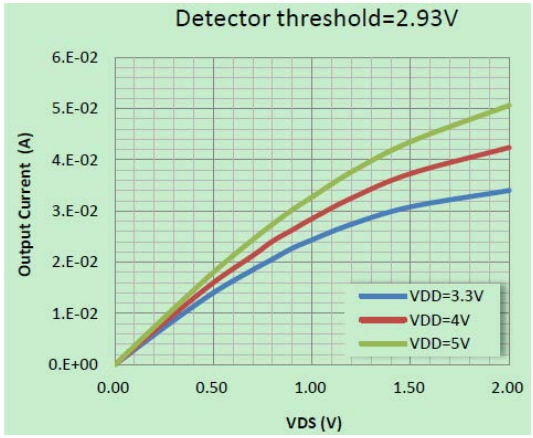
1. Supply current vs. Input voltage



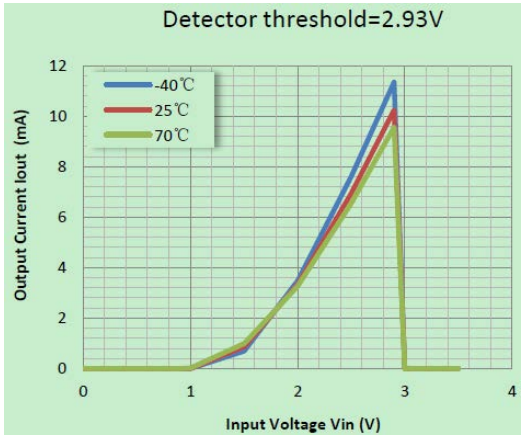
2. Detector Threshold vs. Temperature



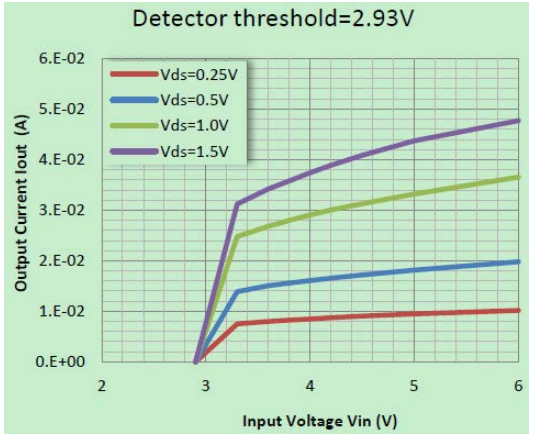
3. NCH Driver Output Current vs. V_{DS}



4. PCH Driver Output Current vs. Input Voltage

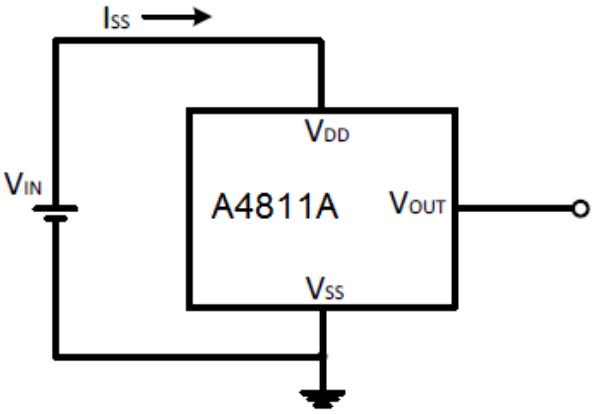


5. NCH Driver Output Current vs. Input Voltage

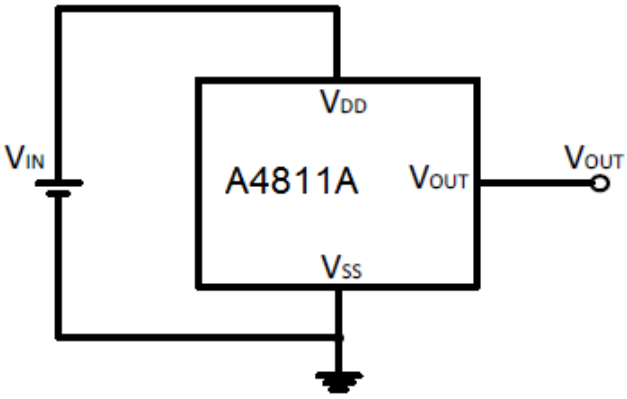


TEST CIRCUIT

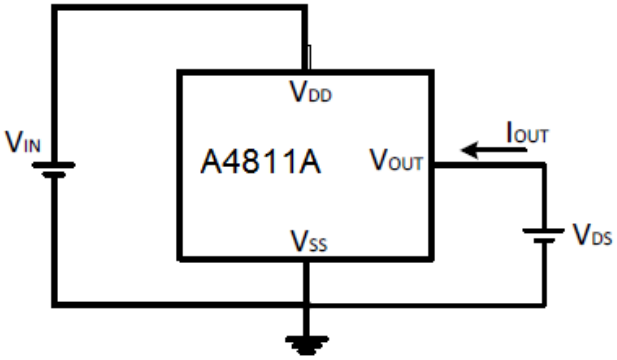
1. Supply current test circuit



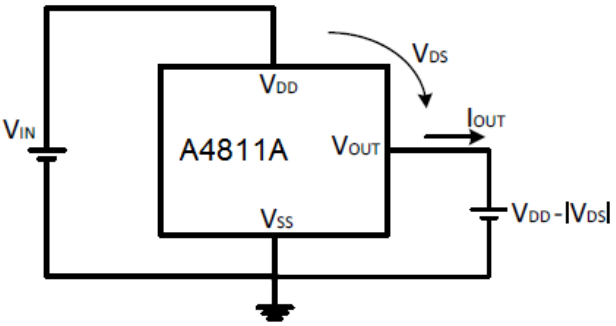
2. Detector threshold test circuit



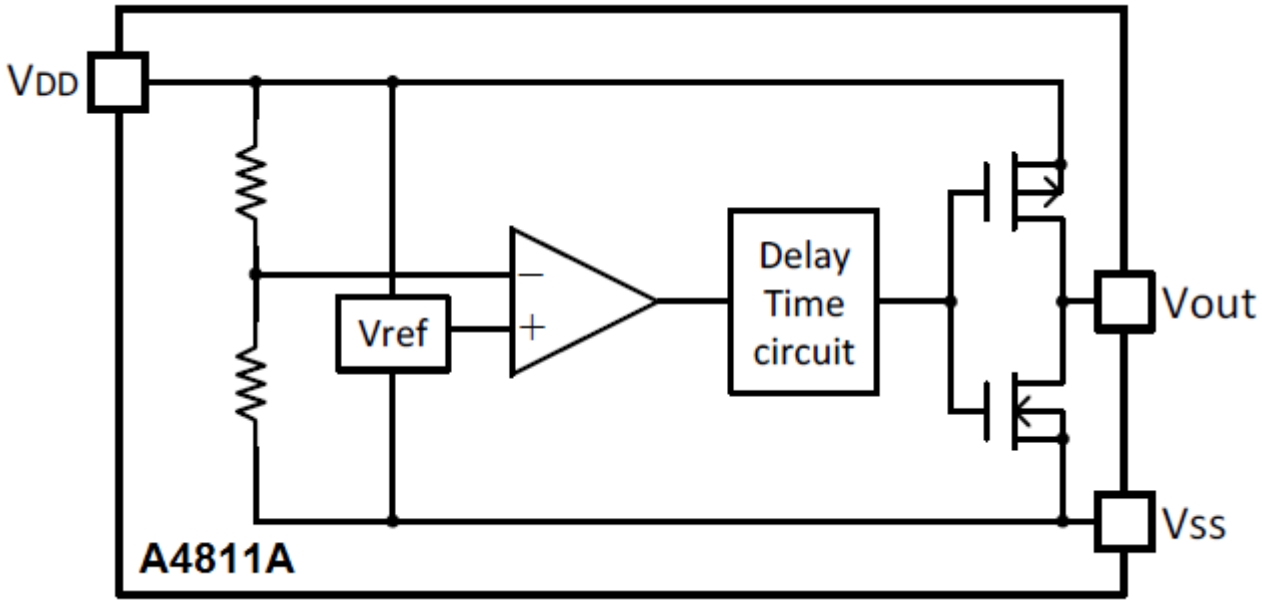
3. NCH Drive Output Current Test Circuit



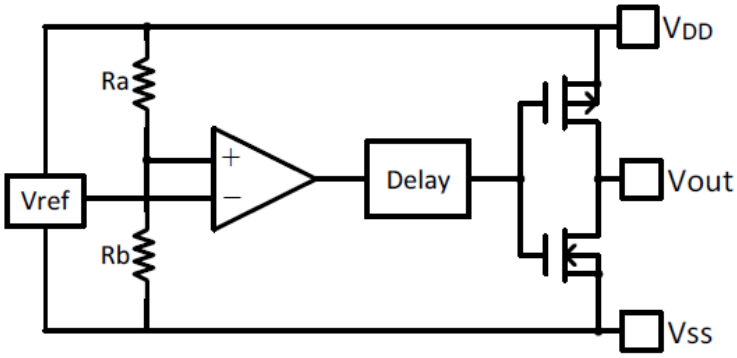
4. PCH Drive Output Current Test Circuit



BLOCK DIAGRAM

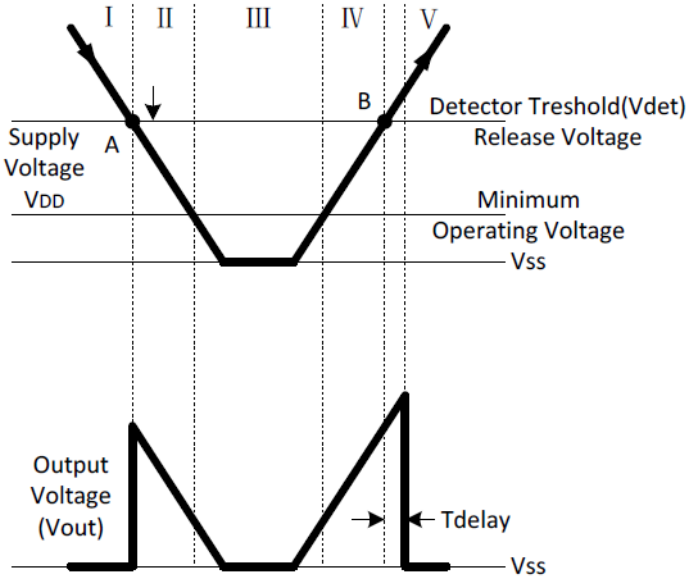


FUNCTION DESCRIPTION



High precision low temperature co-efficiency reference voltage is applied to the negative input of a comparator. Input voltage, divided by resistor array of Ra and Rb, is applied to the positive input of the comparator. Output of the comparator passes a delay circuit and a series of buffer to drive the output CMOS pair.

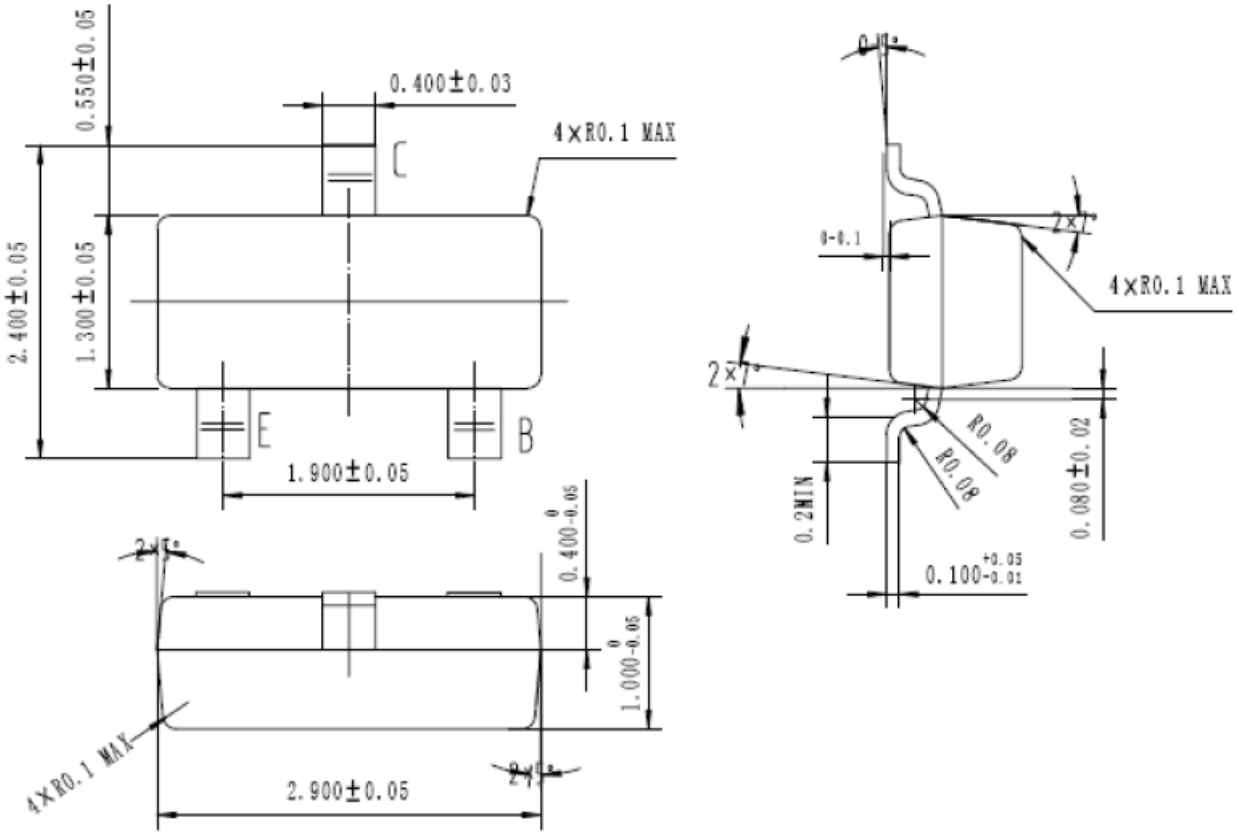
$$V_{DET} = V_{REF}*(1+Ra/Rb)$$



No.	Operation status	Output status
I	$V_{DD}>V_{DET}$	Output voltage equals to GND level
II	V_{DD} drops below V_{DET}	Output voltage is equal to the supply voltage
III	V_{DD} drops further below V_{DDL}	Output voltage is undefined
IV	V_{DD} rises above V_{DDL}	Output voltage equals to supply voltage
V	V_{DD} rises above V_{DET}	Output voltage equals to GND level after Tdelay

PACKAGE INFORMATION

Dimension in SOT-23S (Unit: mm)



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