



## DESCRIPTION

The A4805 is a series of high voltage high-precision voltage detectors developed using standard CMOS process. The detection voltage is fixed internally with an accuracy of  $\pm 2.4\%$ . Two output forms, Nch open-drain output, are available low current consumption and miniature package lineup can meet demand from the portable device applications.

A4805 is available in SOT89-3 package.

## FEATURES

- Low current consumption  $3\mu\text{A typ.}(V_{\text{IN}}=8\text{V})$
- High-precision detection voltage  $\pm 2.4\%$
- Operating voltage range  $-0.3\text{ V to }22\text{ V}$
- Detection voltage  $2.4\text{ V to }7.0\text{ V}$  ( $0.1\text{V step}$ )
- Output form Nch open-drain output (Active Low)
- Available in SOT89-3 package

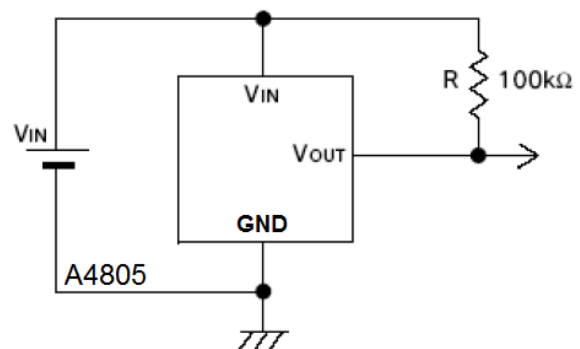
## APPLICATION

- Battery checkers
- Power failure detectors
- Power monitor for portable equipments such as pagers, calculators, electronic notebooks and remote controllers.
- Constant voltage power monitor for cameras, video equipments and communication devices.
- Power monitor for microcomputers and reset for CPUs.

## ORDERING INFORMATION

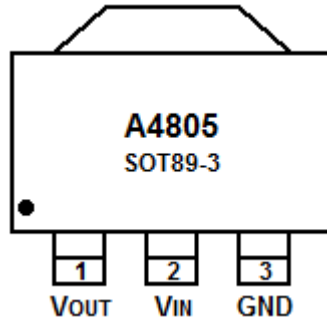
Package Type	Part Number	
SOT89-3	K3	A4805K3R-XXN A4805K3VR-XXN
Note	XX: Detect Voltage 39=3.9V, 45=4.5V N: N-channel open drain R: Tape & Reel V: Halogen free Package	
AiT provides all RoHS products Suffix "V" means Halogen free Package		

## TYPICAL APPLICATION





## PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	V <sub>OUT</sub>	Voltage detection output pin
2	V <sub>IN</sub>	Voltage input pin
3	GND	GND Pin

## ABSOLUTE MAXIMUM RATINGS

T<sub>A</sub> = 25°C

V <sub>IN</sub> , Power Supply Voltage		22V
I <sub>OUT</sub> , Output Current		50mA
V <sub>OUT</sub> , Output Voltage	N-ch	V <sub>SS</sub> -0.3V ~22V
P <sub>D</sub> , Power Dissipation	SOT89-3	500mW
T <sub>OPR</sub> , Operation Ambient Temperature		-40°C~+85°C

Stresses beyond may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



## ELECTRICAL CHARACTERISTICS

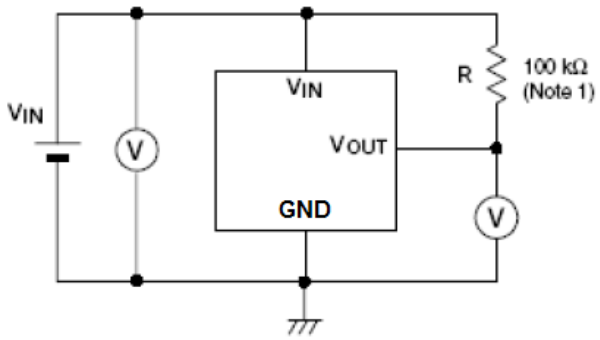
$V_{DF(T)} = 2.4 \text{ to } 7.0\text{V} \pm 2.4\%$   $T_A = 25^\circ\text{C}$

Parameter	Symbol	Conditions		Min	Typ.	Max	Unit	Test circuit
Detection Voltage	$V_{DF}$			$V_{DF}$ x0.976	$V_{DF}$	$V_{DF}$ x1.024	V	1
Release Voltage	$V_{HYS}$			$V_{DF}$ x0.02	$V_{DF}$ x0.05	$V_{DF}$ x0.08	V	1
Current Consumption	$I_{SS}$	$V_{IN} = 8\text{V}$			3	5.6	$\mu\text{A}$	2
Output Sink Current	$I_{OL}$	$V_{DD} = 3.0\text{V}$	$V_{OUT} = 0.3\text{V}$	0.8	1.5		mA	3
		$V_{DD} = 3.3\text{V}$	$V_{OUT} = 0.33\text{V}$	1	2			
		$V_{DD} = 3.6\text{V}$	$V_{OUT} = 0.36\text{V}$	1.2	2.5			
		$V_{DD} = 4.1\text{V}$	$V_{OUT} = 0.41\text{V}$	6.0	11.5			
Temperature Coefficient		$-40 \sim +85^\circ\text{C}$			$\pm 100$		ppm/ $^\circ\text{C}$	

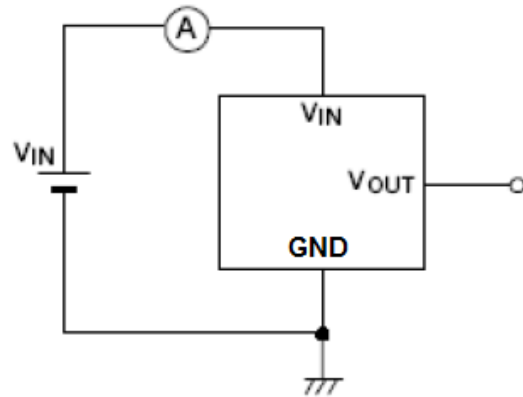


## TEST CIRCUIT

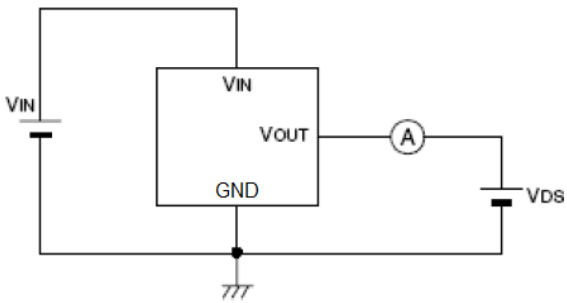
Circuit 1



Circuit 2



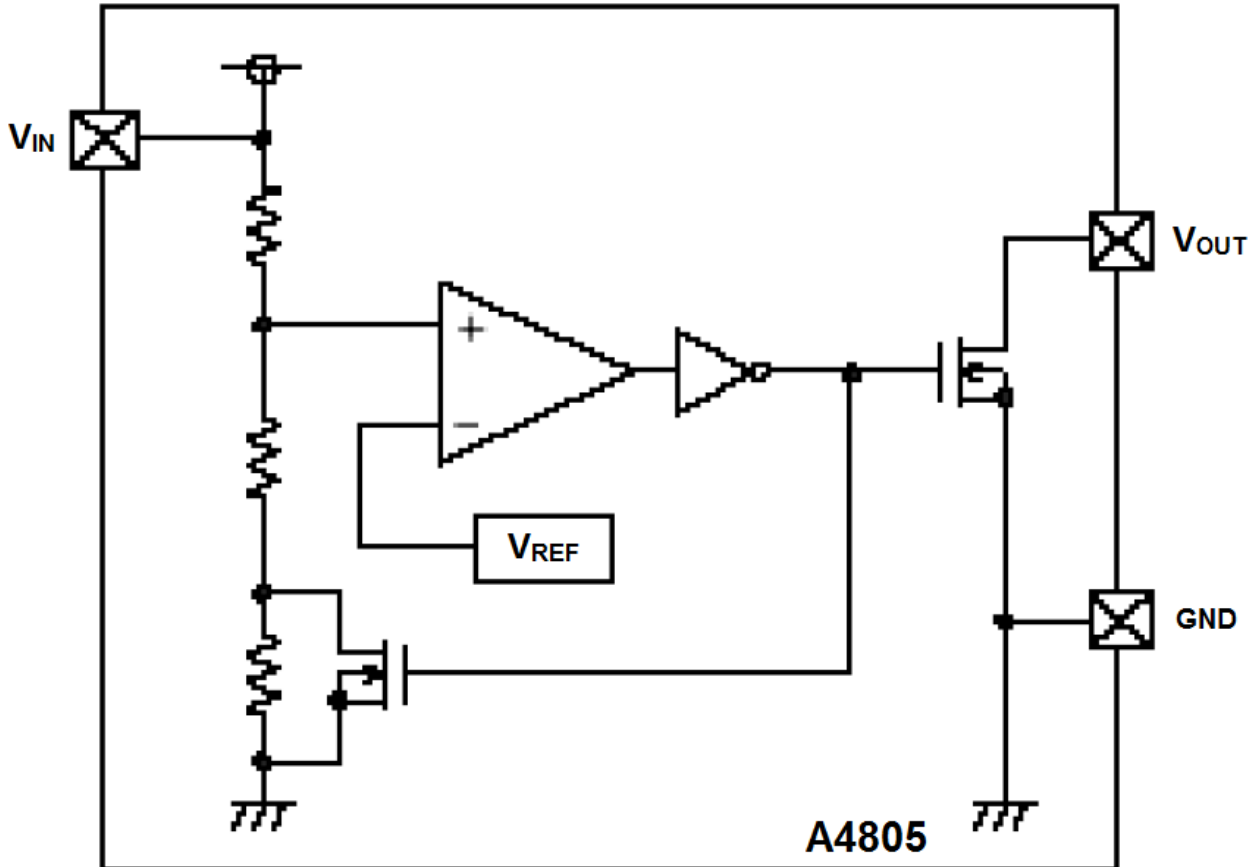
Circuit 3



Note1 : The resistor is selected according the custom's system



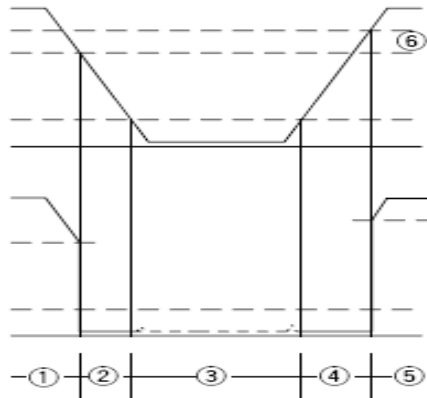
**BLOCK DIAGRAM**



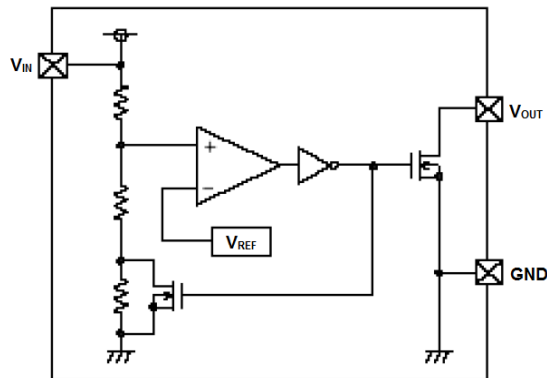


## DETAILED INFORMATION

### Timing Chart



### Operation

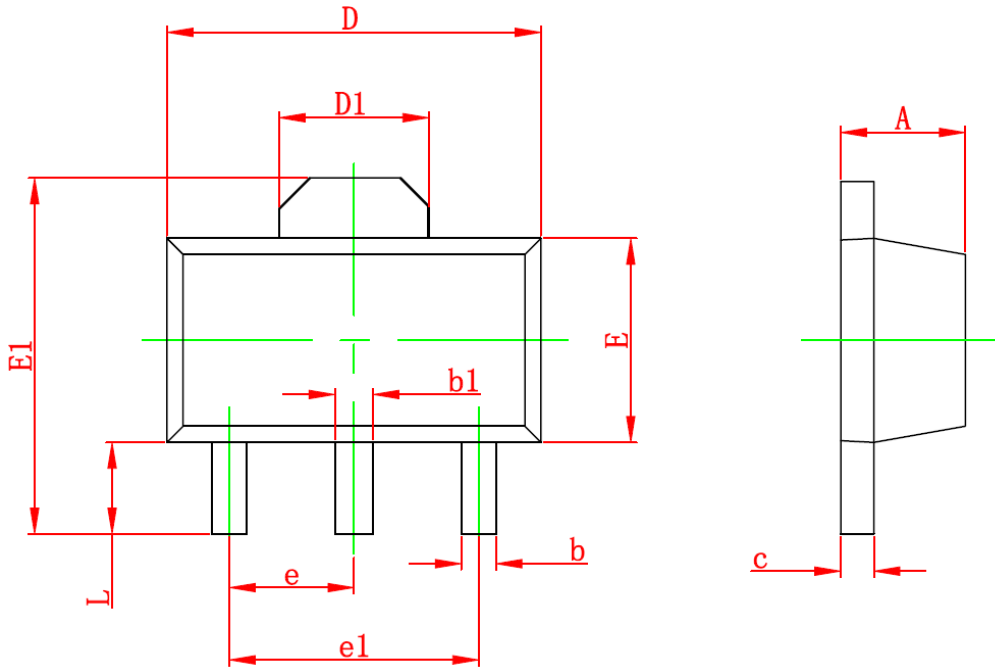


- 1-1. When the power supply voltage ( $V_{DD}$ ) is higher than the release voltage ( $V_{DF}$ ), the Nch transistor is OFF,  $V_{OUT}$  is pull up by external resistor to high logic.
- 1-2. When the power supply voltage ( $V_{DD}$ ) is lower than the release voltage ( $V_{DF}$ ), the Nch transistor is ON,  $V_{OUT}$  is low.
- 1-3. When the  $V_{DD}$  falls below the minimum operating voltage, the output becomes undefined.
- 1-4. The  $V_{SS}$  level appears when the  $V_{DD}$  rises above the minimum operating voltage. The  $V_{SS}$  level still appears even when the  $V_{DD}$  surpasses  $-V_{DF}$ , as long as it does not exceed the release voltage  $+V_{DF}$ .
- 1-5. When the  $V_{DD}$  rises above  $+V_{DF}$  the Nch transistor becomes OFF,  $V_{OUT}$  is pull up by external resistor to high logic.



## PACKAGE INFORMATION

Dimension in SOT89-3 Package (Unit: mm)



Symbol	Min	Max
A	1.400	1.600
b	0.320	0.520
b1	0.400	0.580
c	0.350	0.440
D	4.400	4.600
D1	1.550 REF	
E	2.300	2.600
E1	3.940	4.250
e	1.500 TYP	
e1	3.000 TYP	
L	0.900	1.200



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