

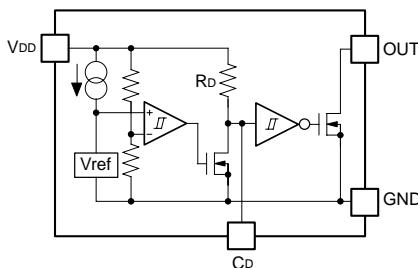
The R3112x Series are CMOS-based voltage detector ICs with the built-in output delay circuit, which can operate at low voltage. The delay time can be set with an external capacitor.

### FEATURES

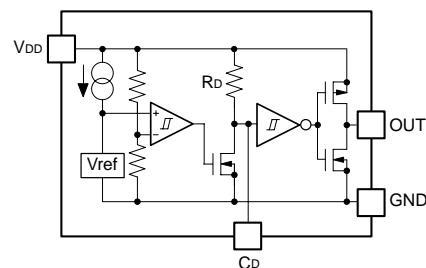
- Supply Current ( $I_{SS1}$ ) ..... Typ. 0.5 $\mu$ A ( $V_{DD}=-V_{DET}+1V$ , R3112x15x)
- Operating Voltage Range ( $V_{DD}$ ) ..... 0.7V to 6.0V ( $T_{opt}=25^{\circ}C$ )
- Detector Threshold Range ( $-V_{DET}$ ) ..... 0.9V to 5.0V (internally fixed)
- Output Delay ..... Typ. 100ms delay set with a 0.022 $\mu$ F external capacitor
- Reset Signal ..... "L"
- Detector Threshold Accuracy .....  $\pm 2\%$
- Temp. coeff. of Detector Threshold ..... Typ.  $\pm 100\text{ppm}/^{\circ}\text{C}$
- Two Output Types ..... Nch. Open Drain and CMOS
- Packages ..... SON1612-6, SC-82AB, SC-88A, SOT-23-5

### BLOCK DIAGRAMS

**R3112xxxxA**  
(Nch. open drain output)



**R3112xxxxC**  
(CMOS output)



### SELECTION GUIDES

Package	Quantity per Reel	Part No.
SON1612-6	4,000 pcs	R3112Dxx1*-TR-F
SC-82AB	3,000 pcs	R3112Qxx1*-TR-F
SC-88A	3,000 pcs	R3112Qxx2*-TR-F
SOT-23-5	3,000 pcs	R3112Nxx1*-TR-F

xx : Specify the detector threshold within the range 0.9V (09) to 5.0V (50) in 0.1V steps.

\* : Select the output type from (A) Nch. open drain or (C) CMOS.

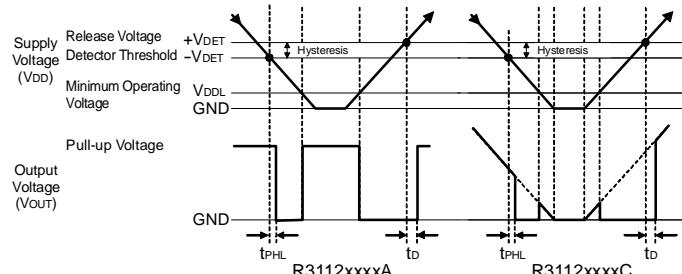
### PACKAGES (Top View)

SON1612-6	SC-82AB	SC-88A	SOT-23-5
1 OUT	1 V <sub>DD</sub>	1 V <sub>DD</sub>	1 OUT
2 GND	2 GND	2 NC	2 V <sub>DD</sub>
3 C <sub>D</sub>	3 C <sub>D</sub>	3 GND	3 GND
4 NC	4 OUT	4 C <sub>D</sub>	4 NC
5 GND		5 OUT	5 C <sub>D</sub>
6 V <sub>DD</sub>			

### APPLICATIONS

- Microcontroller and logic circuit reset
- Battery checker
- Window comparator
- Wave shaping circuit
- Battery back-up circuit
- Power failure detector

### TIMING CHART



### HOW TO DETERMINE DELAY TIME

Letting the capacity of an external capacitor  $C_D$  (F), the delay time ( $t_d$ ) is found from the following equation:

$$t_d = 0.69 \times 6.5 \times 10^6 \times C_D \text{ (s)}$$



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Ricoh continually strives to promote customer satisfaction, and shares the achievements of its management quality improvement program with people and society.



■Ricoh awarded ISO 14001 certification.  
The Ricoh Group was awarded ISO 14001 certification, which is an international standard for environmental management systems, at both its domestic and overseas production facilities. Our current aim is to obtain ISO 14001 certification for all of our business offices.

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Ricoh completed the organization of the Lead-free production for all of our products. After Apr. 1, 2006, we will ship out the lead free products only. Thus, all products that will be shipped from now on comply with RoHS Directive.