

## VOLTAGE DETECTOR

### ■ GENERAL DESCRIPTION

The NJU7700/01 is a low quiescent current voltage detector featuring high precision detection voltage. The detection voltage is fixed internally with an accuracy of 1.0%. NJU7700 is Nch. Open Drain and NJU7701 of output form is a C-MOS output.

### ■ PACKAGE OUTLINE

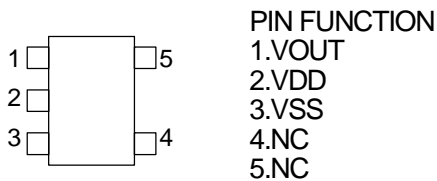


NJU7700/01F

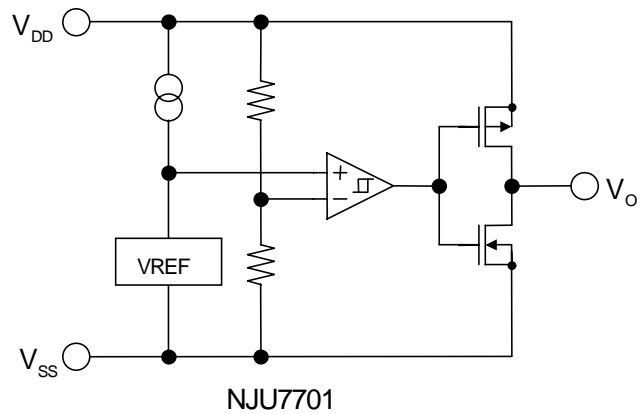
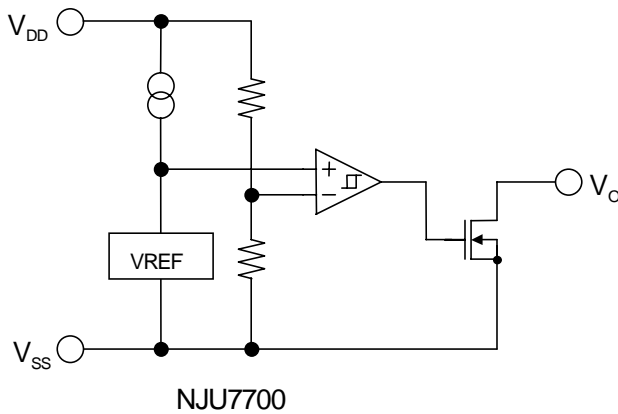
### ■ FEATURES

- High Precision Detection Voltage                       $\pm 1.0\%$
- Low Quiescent Current                                      0.8 $\mu$ A typ.
- Detection Voltage Range                                    1.3~6.0V(0.1V Step)
- Output Circuit Form                                         NJU7700: Nch. Open Drain type  
    NJU7701: C-MOS Output
- Package Outline    MTP5 (SOT-23-5)

### ■ PIN CONFIGURATION



### ■ EQUIVALENT CIRCUIT



### ■ DETECTION VOLTAGE RANK LIST

| Device Name   | V <sub>DET</sub> | Device Name   | V <sub>DET</sub> |
|---------------|------------------|---------------|------------------|
| NJU7700/01F13 | 1.3V             | NJU7700/01F28 | 2.8V             |
| NJU7700/01F21 | 2.1V             | NJU7700/01F42 | 4.2V             |
| NJU7700/01F22 | 2.2V             | NJU7700/01F43 | 4.3V             |
| NJU7700/01F23 | 2.3V             | NJU7700/01F45 | 4.5V             |
| NJU7700/01F27 | 2.7V             | NJU7700/01F06 | 6.0V             |

# NJU7700/01

## ■ NJU7700

### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER             | SYMBOL           | RATINGS                  | UNIT |
|-----------------------|------------------|--------------------------|------|
| Input Voltage         | V <sub>DD</sub>  | +10                      | V    |
| Output Voltage        | V <sub>OUT</sub> | V <sub>SS</sub> -0.3~+10 | V    |
| Output Current        | I <sub>OUT</sub> | 50                       | mA   |
| Power Dissipation     | P <sub>D</sub>   | 200                      | mW   |
| Operating Temperature | T <sub>opr</sub> | -40 ~ +85                | °C   |
| Storage Temperature   | T <sub>stg</sub> | -40 ~ +125               | °C   |

### ■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

| PARAMETER                                 | SYMBOL                   | TEST CONDITION                        | MIN.                                  | TYP.                      | MAX.                      | UNIT   |    |
|---|--------------------------|---------------------------------------|---------------------------------------|---------------------------|---------------------------|--------|----|
| Detection Voltage                         | V <sub>DET</sub>         |                                       | -1.0%                                 | -                         | +1.0%                     | V      |    |
| Hysteresis Voltage                        | V <sub>HYS</sub>         |                                       | V <sub>DET</sub><br>×0.03             | V <sub>DET</sub><br>×0.05 | V <sub>DET</sub><br>×0.08 | V      |    |
| Quiescent Current                         | I <sub>SS</sub>          | V <sub>DD</sub> =V <sub>DET</sub> +1V | V <sub>DET</sub> =1.3V~1.7V Version   | -                         | 0.5                       | 1.0    | uA |
|   |                          |                                       | V <sub>DET</sub> =1.8V~6.0V Version   | -                         | 0.8                       | 1.6    |    |
| Output Current                            | I <sub>OUT</sub>         | Nch, V <sub>DS</sub> =0.5V            | V <sub>DD</sub> =1.2V                 | 0.75                      | 2.0                       | -      | mA |
|   |                          |                                       | V <sub>DD</sub> =2.4V (≥2.7V Version) | 4.5                       | 7.0                       | -      |    |
| Output Leak Current                       | I <sub>LEAK</sub>        | V <sub>DD</sub> =V <sub>OUT</sub> =9V | -                                     | -                         | 0.1                       | uA     |    |
| Detection Voltage Temperature Coefficient | Δ V <sub>DET</sub> / ΔTa | Ta=0 ~ +85°C                          | -                                     | ±100                      | -                         | ppm/°C |    |
| Operating Voltage (*note 1)               | V <sub>DD</sub>          | R <sub>L</sub> =100kΩ                 | 0.8                                   | -                         | 9                         | V      |    |

\*note 1 : The minimum Operating Voltage(V<sub>OPL</sub>) indicates the same value of the output voltage(V<sub>OUT</sub>) on condition that V<sub>OUT</sub> becomes 10% or less of the input voltage(V<sub>DD</sub>).

■ NJU7701

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER             | SYMBOL           | RATINGS                                     | UNIT |
|-----------------------|------------------|---|------|
| Input Voltage         | V <sub>DD</sub>  | +10   | V    |
| Output Voltage        | V <sub>OUT</sub> | V <sub>SS</sub> -0.3 ~ V <sub>DD</sub> +0.3 | V    |
| Output Current        | I <sub>OUT</sub> | 50  | mA   |
| Power Dissipation     | P <sub>D</sub>   | 200   | mW   |
| Operating Temperature | T <sub>opr</sub> | -40 ~ +85                                   | °C   |
| Storage Temperature   | T <sub>stg</sub> | -40 ~ +125                                  | °C   |

■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

| PARAMETER                                 | SYMBOL                   | TEST CONDITION                        | MIN.   | TYP.                      | MAX.                      | UNIT   |    |
|---|--------------------------|---------------------------------------|--|---------------------------|---------------------------|--------|----|
| Detection Voltage                         | V <sub>DET</sub>         |                                       | -1.0%  | —                         | +1.0%                     | V      |    |
| Hysteresis Voltage                        | V <sub>HYS</sub>         |                                       | V <sub>DET</sub><br>×0.03                    | V <sub>DET</sub><br>×0.05 | V <sub>DET</sub><br>×0.08 | V      |    |
| Quiescent Current                         | I <sub>SS</sub>          | V <sub>DD</sub> =V <sub>DET</sub> +1V | V <sub>DET</sub> =1.3V~1.7V Version          | —                         | 0.5                       | 1.0    | μA |
|   |                          |                                       | V <sub>DET</sub> =1.8V~6.0V Version          | —                         | 0.8                       | 1.6    |    |
| Output Current                            | I <sub>OUT</sub>         | Nch, V <sub>DS</sub> =0.5V            | V <sub>DD</sub> =1.2V                        | 0.75                      | 2.0                       | —      | mA |
|   |                          |                                       | V <sub>DD</sub> =2.4V (≥2.7V Version)        | 4.5                       | 7.0                       | —      |    |
|   |                          | Pch, V <sub>DS</sub> =0.5V            | V <sub>DD</sub> =4.8V (≤3.9V Version)        | 2.0                       | 3.5                       | —      |    |
|   |                          |                                       | V <sub>DD</sub> =6.0V<br>(4.0V~5.6V Version) | 2.5                       | 4.0                       | —      |    |
|   |                          |                                       | V <sub>DD</sub> =8.4V (≥5.7V Version)        | 3.0                       | 5.0                       | —      |    |
| Detection Voltage Temperature Coefficient | Δ V <sub>DET</sub> / ΔTa | Ta=0 ~ +85°C                          | —  | ±100                      | —                         | ppm/°C |    |
| Operating Voltage (*note 1)               | V <sub>DD</sub>          | R <sub>L</sub> =100kΩ                 | 0.8  | —                         | 9                         | V      |    |

\*note 1 : The minimum Operating Voltage(V<sub>OPL</sub>) indicates the same value of the output voltage(V<sub>OUT</sub>) on condition that V<sub>OUT</sub> becomes 10% or less of the input voltage(V<sub>DD</sub>).

[CAUTION]

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