# VOLTAGE DETECTOR

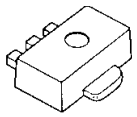
## ■ GENERAL DESCRIPTION

The NJU7719 is a low quiescent current voltage detector featuring high precision detection voltage.

The detection voltage is internally fixed with an accuracy of 1.0%.

NJU7719 is Nch. Open Drain output type.

## ■ PACKAGE OUTLINE

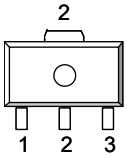


NJU7719U/U1

## ■ FEATURES

- High Precision detection Voltage ±1.0%
- Low Quiescent Current 0.8μA typ.
- Detection Voltage Range 1.3 ~ 6.0V(0.1V step)
- Output Configuration Nch. Open Drain Type
- Package Outline SOT-89-3

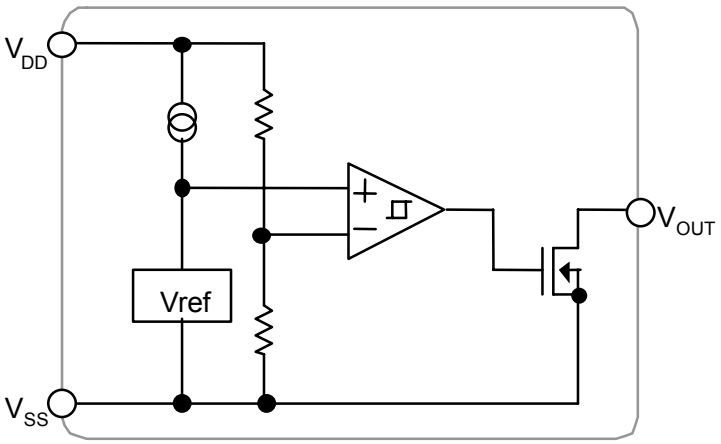
## ■ PIN CONFIGURATION




NJU7719U/U1

PIN FUNCTION
1. $V_{DD}$
2. $V_{SS}$
3. $V_{OUT}$

## ■ EQUIVALENT CIRCUIT




## ■ DETECTION VOLTAGE RANK LIST

| Device Name | $V_{DET}$ | Device Name | $V_{DET}$ |
|---|---|---|---|
| NJU7719U/U1-21 | 2.1V | NJU7719U/U1-34 | 3.4V |
| NJU7719U/U1-23 | 2.3V | NJU7719U/U1-39 | 3.9V |
| NJU7719U/U1-27 | 2.7V | NJU7719U/U1-42 | 4.2V |
| NJU7719U/U1-29 | 2.9V | NJU7719U/U1-45 | 4.5V |
| NJU7719U/U1-32 | 3.2V | | |

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Input Voltage | $V_{DD}$ | +10 | V |
| Output Voltage | $V_{OUT}$ | $V_{SS}$-0.3 ~ +10 | V |
| Output Current | $I_{OUT}$ | 50 | mA |
| Power Dissipation | $P_D$ | 350(*1) | mW |
| Operating Temperature | Topr | −40 ~ +85 | °C |
| Storage Temperature | Tstg | −40 ~ +125 | °C |

(*1): Device itself

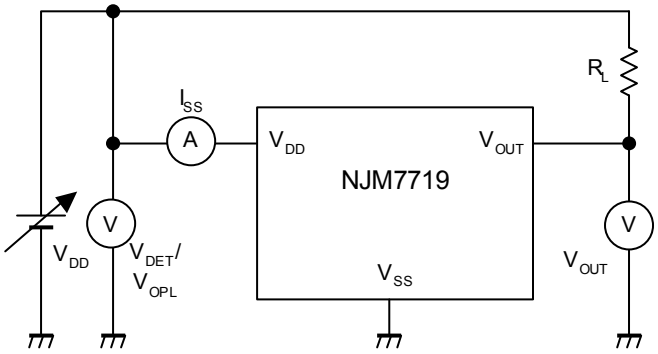
■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

| PARAMETER | SYMBOL | TEST CONDITION | | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| Detection Voltage | $V_{DET}$ | | | -1.0% | – | +1.0% | V |
| Hysterisis Voltage | $V_{HYS}$ | | | $V_{DET}$ ×0.03 | $V_{DET}$ ×0.05 | $V_{DET}$ ×0.08 | V |
| Quiescent Current | $I_{SS}$ | $V_{DD}$=$V_{DET}$+1V | $V_{DET}$=1.3V~1.7V Version | – | 0.5 | 1.0 | μA |
| | | | $V_{DET}$=1.8V~6.0V Version | – | 0.8 | 1.6 | μA |
| Output Current | $I_{OUT}$ | Nch,$V_{DS}$=0.5V | $V_{DD}$=1.2V | 0.75 | 2.0 | – | mA |
| | | | $V_{DD}$=2.4V (≥2.7V Version) | 4.5 | 7.0 | – | mA |
| Output Leak Current | $I_{LEAK}$ | $V_{DD}$=$V_{OUT}$=9V | | – | – | 0.1 | μA |
| Detection Voltage Temperature Coefficient | $\Delta V_{DET}/\Delta Ta$ | Ta=0 ~ +85°C | | – | ±100 | – | ppm/°C |
| Operating Voltage (*2) | $V_{DD}$ | $R_L$=100kΩ | | 0.8 | – | 9 | V |

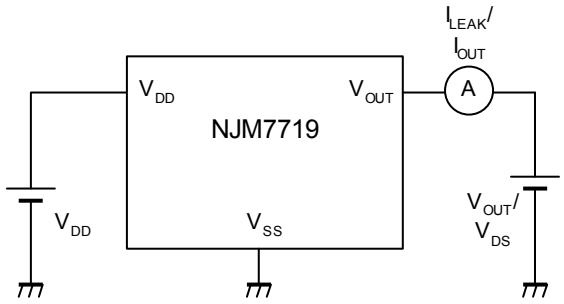
(*2): The minimum Operating Voltage($V_{OPL}$) indicates the same value of the output voltage($V_{OUT}$) on condition that $V_{OUT}$ becomes 10% or less of the input voltage($V_{DD}$).

## ■ TEST CIRCUIT

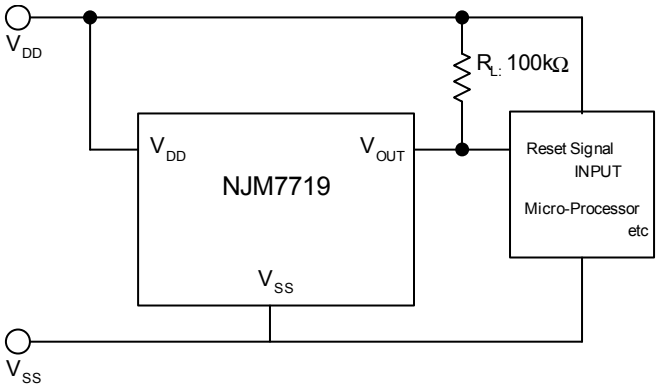
① COMMON TEST CIRCUIT




② Output Current/Output Leak Current TEST CIRCUIT

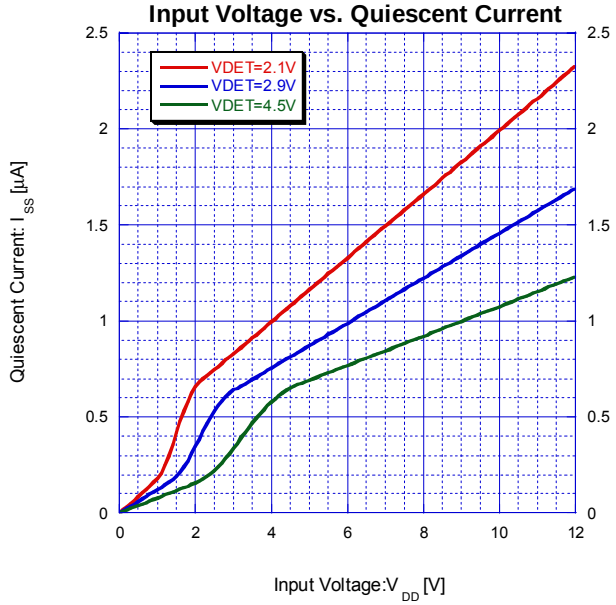



## ■ TYPICAL APPLICATION

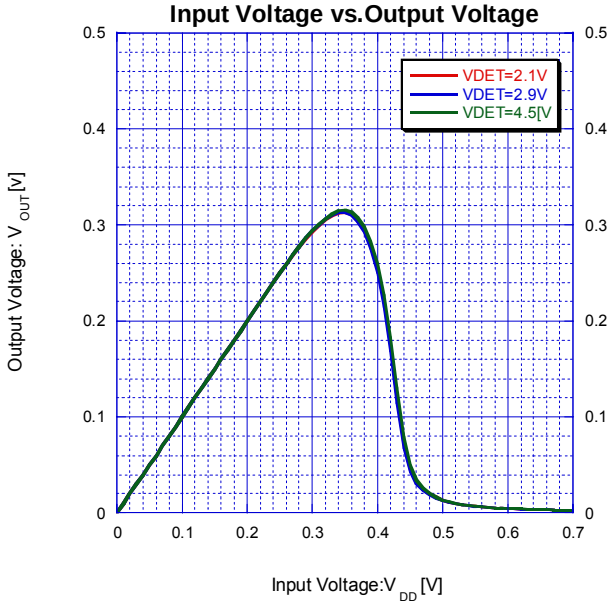


## ■ TYPICAL CHARACTERISTICS

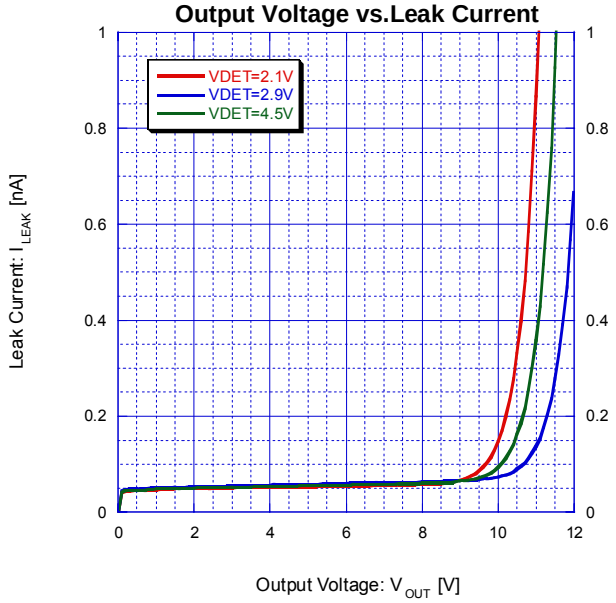
**NJU7719**
**Input Voltage vs. Quiescent Current**



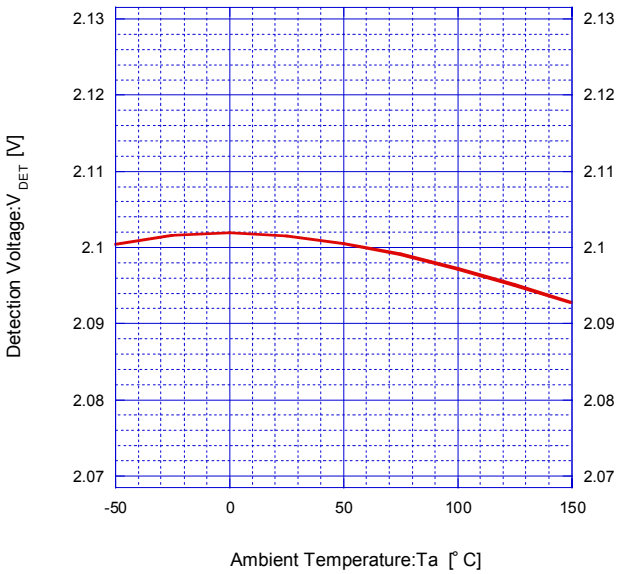

**NJU7719**
**Input Voltage vs.Output Voltage**




**NJU7719**
**Output Voltage vs.Leak Current**

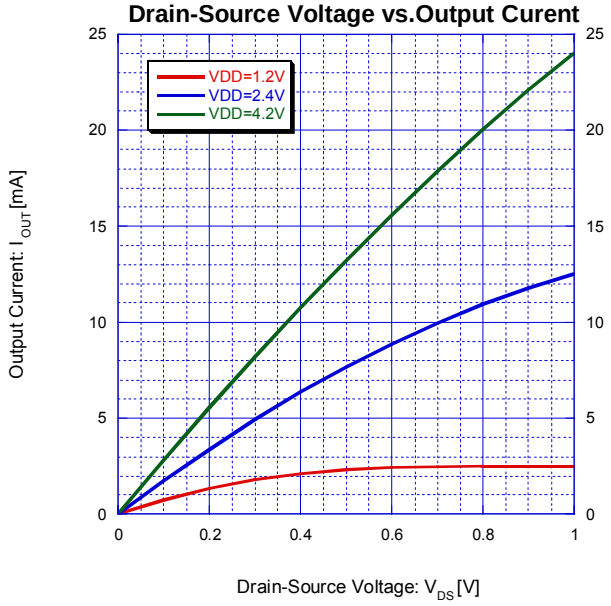



**NJU7719U21**
**Detection Voltage vs.Ambient Temperature**

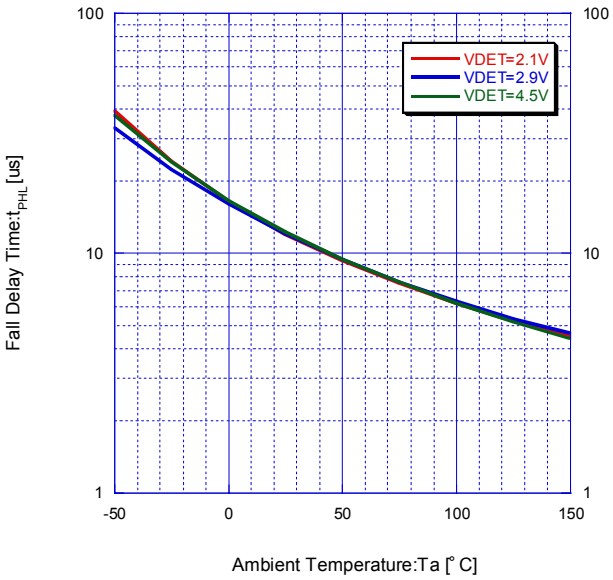


## ■ TYPICAL CHARACTERISTICS

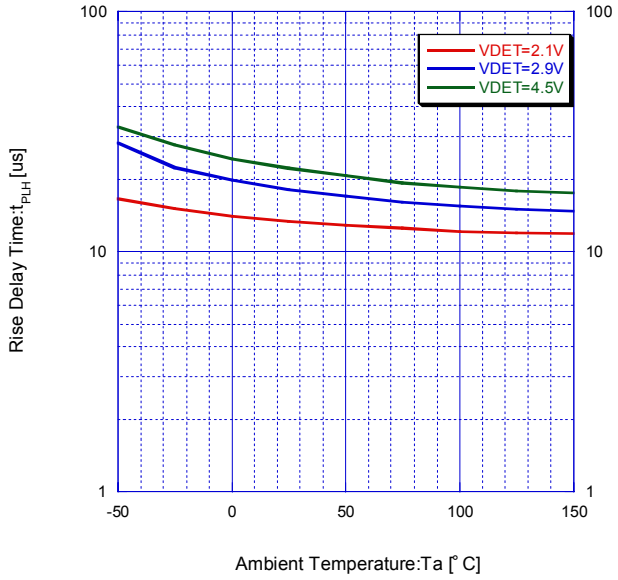
**NJU7719**
**Drain-Source Voltage vs.Output Curent**



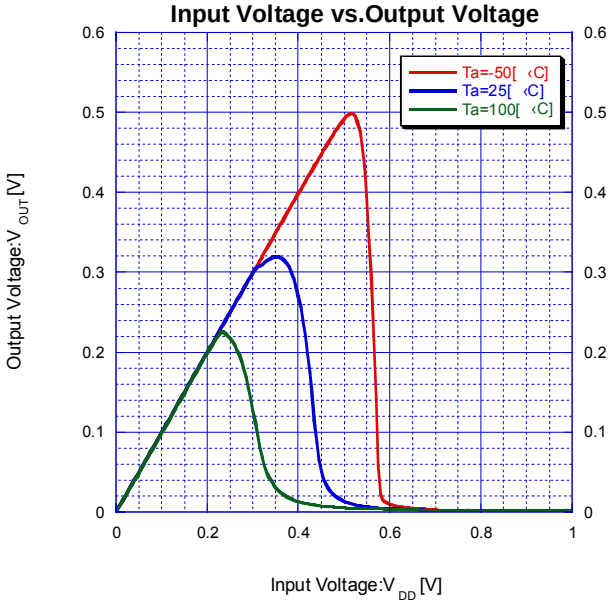

**NJU7719**
**Ambient Temperature vs.Fall Delay Time**



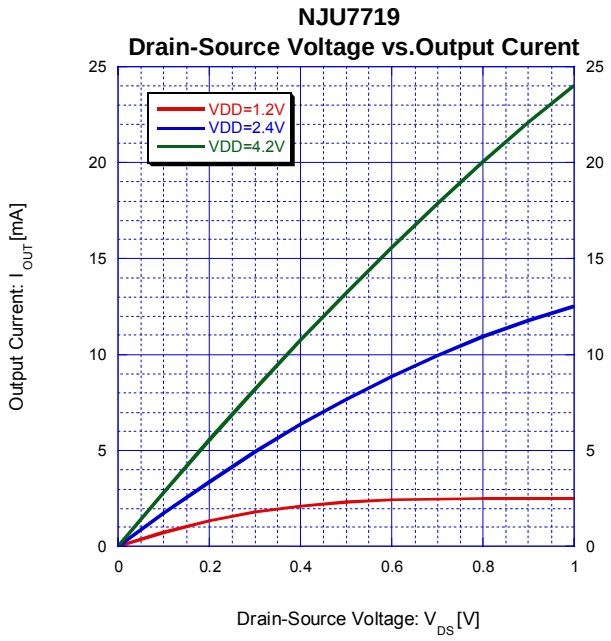

**NJU7719**
**Ambient Temperature vs.Rise Delay Time**




**NJU7719**
**Input Voltage vs.Output Voltage**



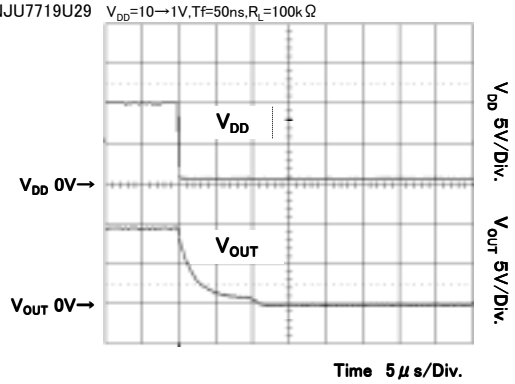
■ TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS

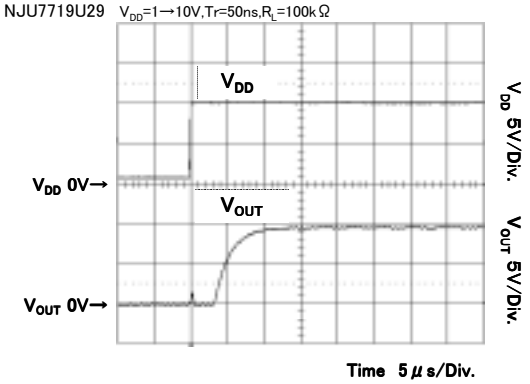
Transient Response

NJU7719U29 $V_{DD}$=10→1V,Tf=50ns,$R_L$=100kΩ




Transient Response

NJU7719U29 $V_{DD}$=1→10V,Tr=50ns,$R_L$=100kΩ



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