

VOLTAGE DETECTOR

■ GENERAL DESCRIPTION

The NJU7702/03 is a high precision and low quiescent current voltage detector.

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

The NJU7702/03 are useful for preventing malfunction of microcomputer or DSP etc. through detect a drop in voltage of battery or power supply.

NJU7702 is Nch. Open Drain and NJU7703 is a C-MOS output type.

Small packaging makes NJU7702 and NJU7703 suitable for space conscious applications.

■ PACKAGE OUTLINE



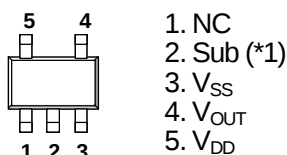
NJU7702/03F

■ FEATURES

- High Precision Detection Voltage $\pm 1.0\%$
- Low Quiescent Current $0.8\mu\text{A typ. (V}_{\text{DET}} = 3\text{V version})$
- Detection Voltage Range $1.3\sim 6.0\text{V}(0.1\text{V Step})$
- Output Configuration
NJU7702: Nch. Open Drain type
NJU7703: C-MOS Output type
- CMOS Technology
- Package Outline SOT-23-5

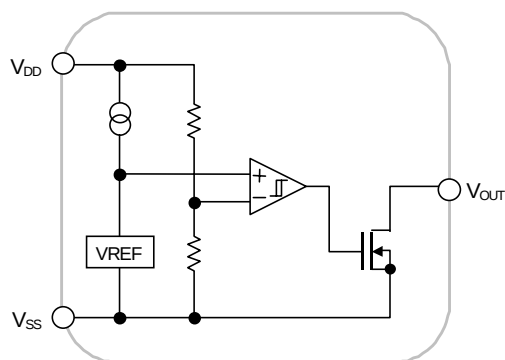
■ PIN CONFIGURATION

NJU7702/03F

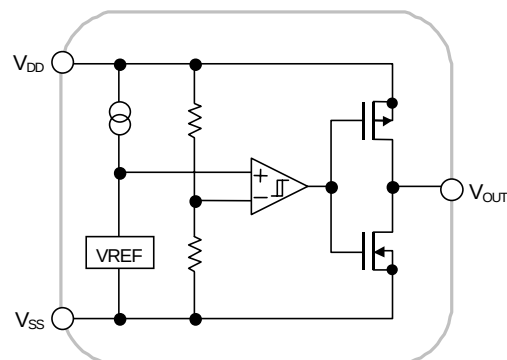


(*1): Connect Sub terminal to GND.

■ EQUIVALENT CIRCUIT



NJU7702



NJU7703

NJU7702/03

■ DETECTION VOLTAGE RANK LIST

3Device Name	V _{DET}
NJU7702/03F13	1.3V
NJU7702/03F27	2.7V
NJU7702/03F28	2.8V
NJU7702/03F03	3.0V
NJU7702/03F31	3.1V
NJU7702/03F42	4.2V
NJU7702/03F06	6.0V

■ NJU7702

■ 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	200(*2)	mW
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +125	°C

(*2) : Device itself

■ ELECTRICAL CHARACTERISTICS

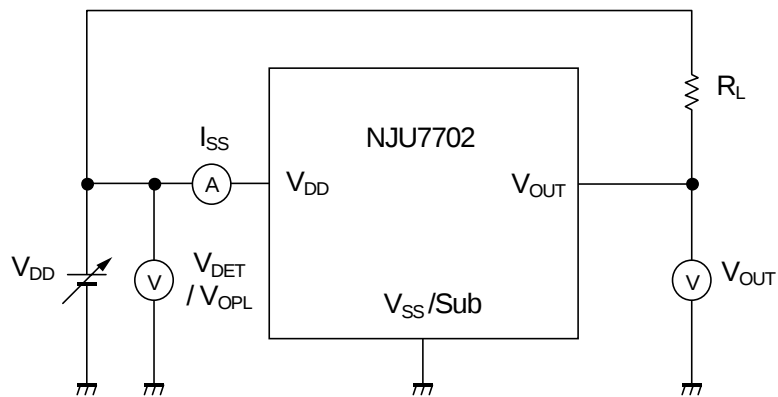
(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Detection Voltage	V _{DET}			-1.0%	—	+1.0%	V
Hysteresis 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	Δ V _{DET} /ΔTa	Ta=0 ~ +85°C		—	±100	—	ppm/°C
Operating Voltage (*3)	V _{DD}	R _L =100kΩ		0.8	—	9	V

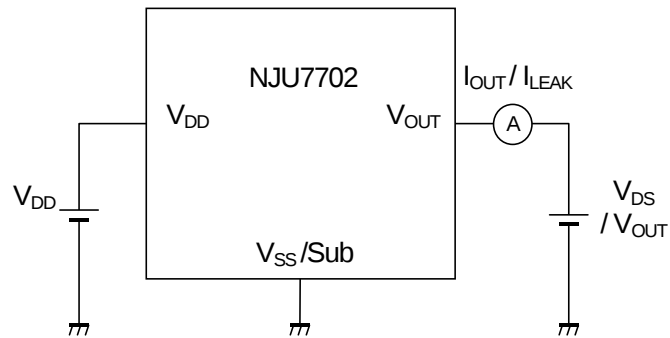
(*3): The minimum Operating Voltage(V_{OPL}) indicates the same value of the input voltage(V_{DD}) on condition that V_{OUT} becomes 10% or less of the input voltage(V_{DD}).

■ TEST CIRCUIT

① COMMON TEST CIRCUIT

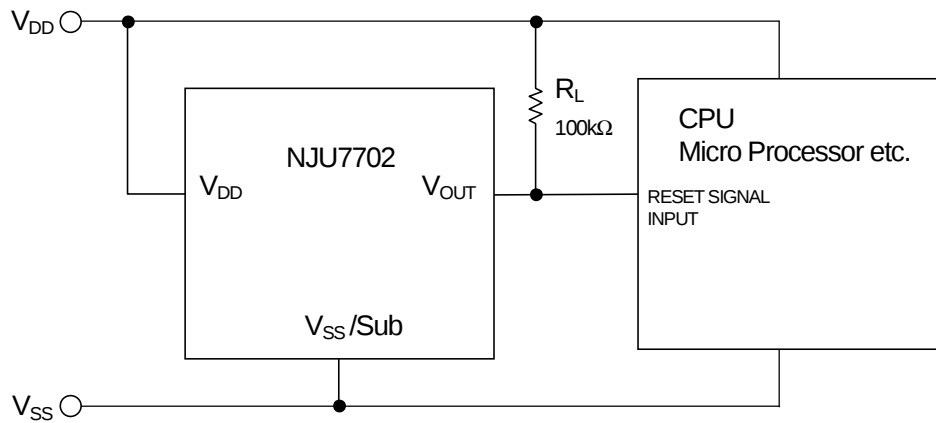


② OUTPUT CURRENT/OUTPUT LEAK CURRENT TEST CIRCUIT

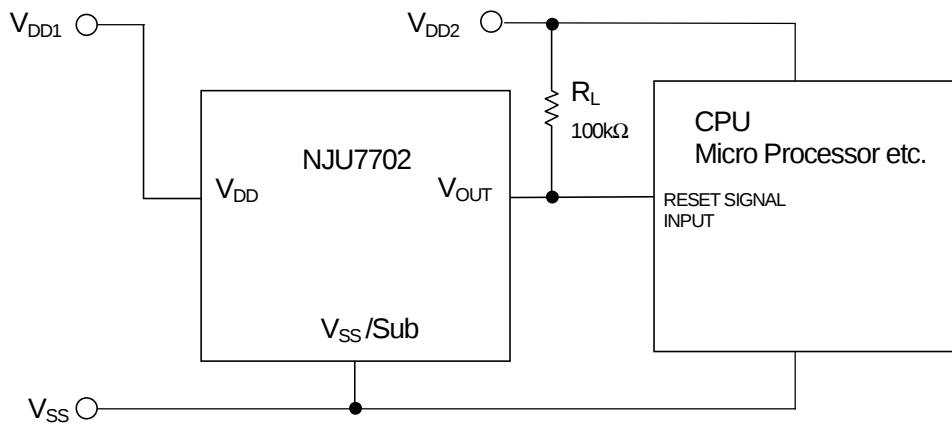


■ TYPICAL APPLICATION

① In case of using one power supply.



② In case of using two power supply.



■ NJU7703

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{DD}	+10	V
Output Voltage	V_{OUT}	$V_{SS}-0.3 \sim V_{DD}+0.3$	V
Output Current	I_{OUT}	50	mA
Power Dissipation	P_D	200(*4)	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +125	°C

(*4) : Device itself

■ ELECTRICAL CHARACTERISTICS

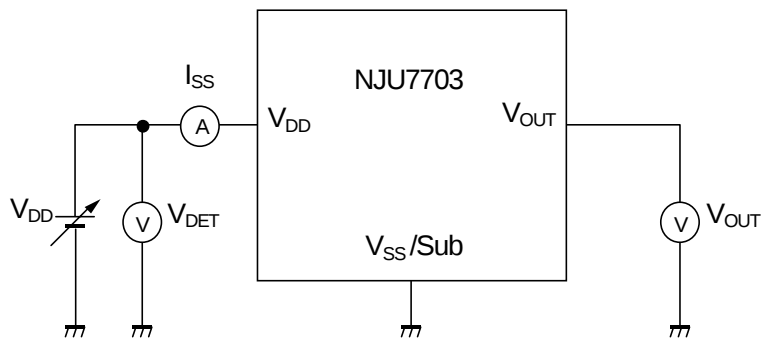
(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Detection Voltage	V _{DET}			-1.0%	—	+1.0%	V
Hysteresis 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
		Pch, V _{DS} =0.5V	V _{DD} =4.8V (≤3.9V Version)	2.0	3.5	—	mA
			V _{DD} =6.0V (4.0V~5.6V Version)	2.5	4.0	—	mA
			V _{DD} =8.4V (≥5.7V Version)	3.0	5.0	—	mA
Detection Voltage Temperature Coefficient	Δ V _{DET} /ΔTa	Ta=0 ~ +85°C		—	±100	—	ppm/°C
Operating Voltage (*5)	V _{DD}	R _L =100kΩ		0.8	—	9	V

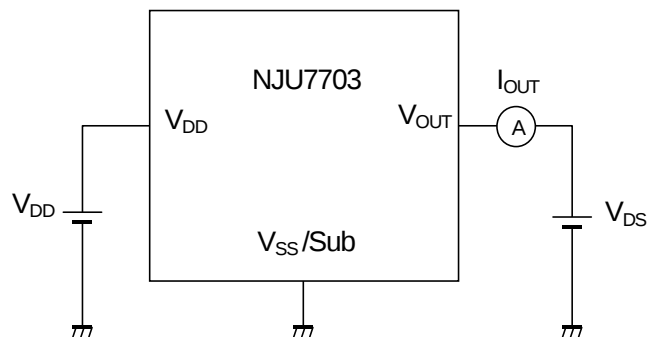
(*5): The minimum Operating Voltage(V_{OPL}) indicates the same value of the input voltage(V_{DD}) on condition that V_{OUT} becomes 10% or less of the input voltage(V_{DD}).

■ TEST CIRCUIT

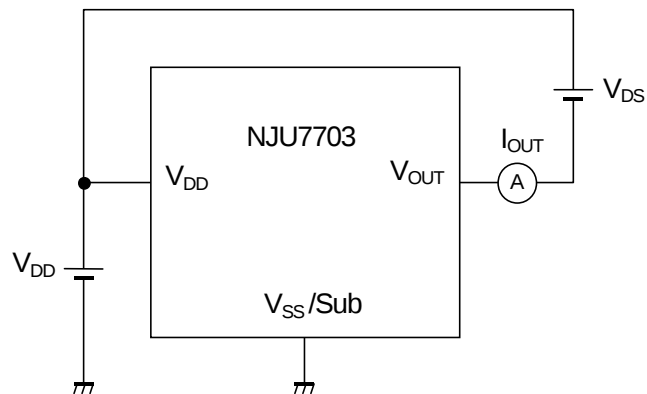
① COMMON TEST CIRCUIT



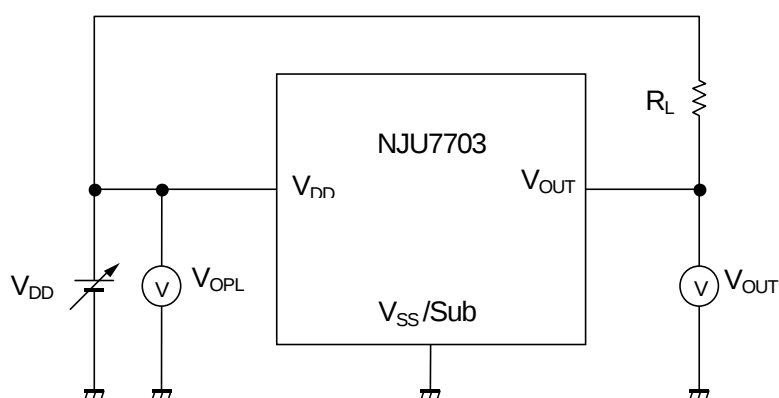
② Nch OUTPUT CURRENT TEST CIRCUIT



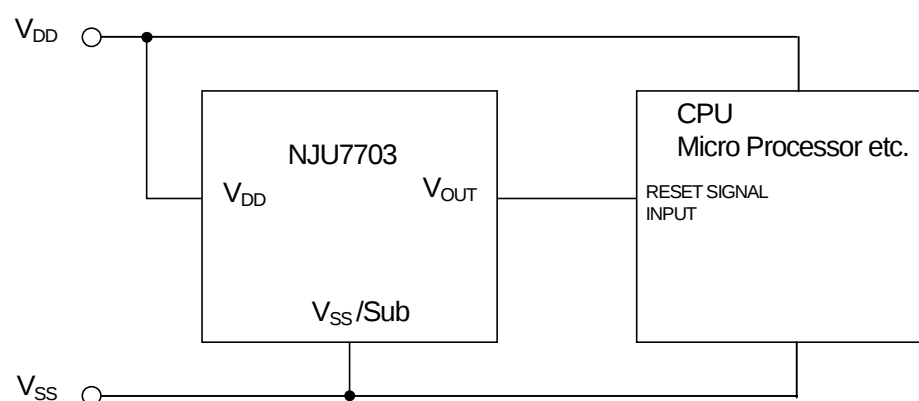
③ Pch OUTPUT CURRENT TEST CIRCUIT



④ MINIMUM OPERATING VOLTAGE TEST CIRCUIT

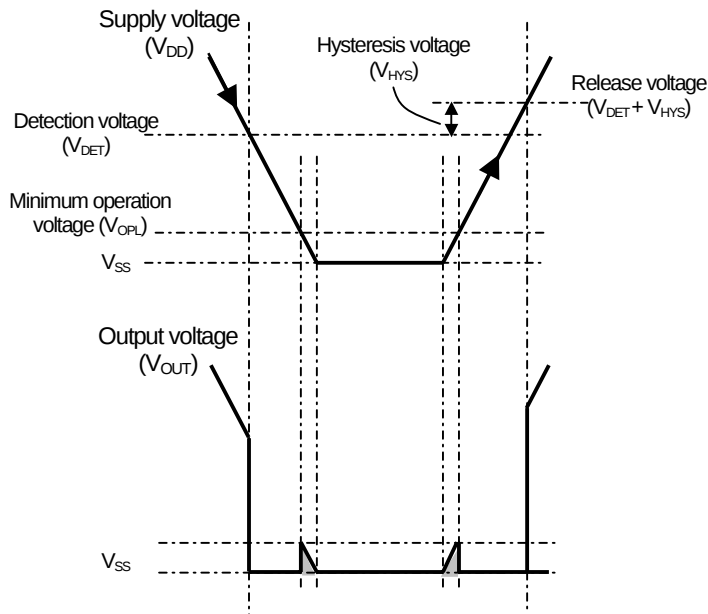


■ TYPICAL APPLICATION



■ FUNCTIONAL DESCRIPTION

(1) Basic operation



(1) When supply voltage (V_{DD}) drops below detection voltage (V_{DET}), Output voltage (V_{OUT}) changes "H" to "L" to alert reset state.

(2) The reset state is kept while V_{DD} is lower than release voltage. The release voltage is a sum of V_{DET} and Hysteresis voltage (V_{HYS}). Please refer to the (*7) below.

(3) When V_{DD} becomes higher than the release voltage, then V_{OUT} changes from "L" to "H" to resume normal state.

(*7) V_{HYS} is to avoid unstable V_{OUT} state caused by rapid voltage change at nearby V_{DET} .

(*8): C-MOS output product (NJU7703) : When V_{DD} less than V_{OPL} , V_{OUT} is free of the shaded region.

[CAUTION]

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[NJR:](#)

[NJU7703F27-TE1](#) [NJU7703F13-TE1](#) [NJU7703F42-TE2](#) [NJU7702F28-TE1](#) [NJU7703F06-TE1](#) [NJU7702F03-TE1](#)
[NJU7702F13-TE1](#) [NJU7702F42-TE2](#) [NJU7702F42-TE1](#) [NJU7703F03-TE1](#) [NJU7703F28-TE1](#) [NJU7702F06-TE1](#)
[NJU7702F27-TE1](#)



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.