

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



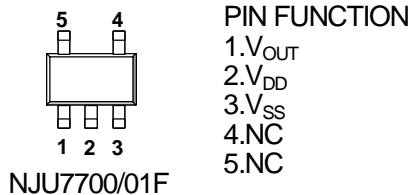
NJU7700/01F

■ FEATURES

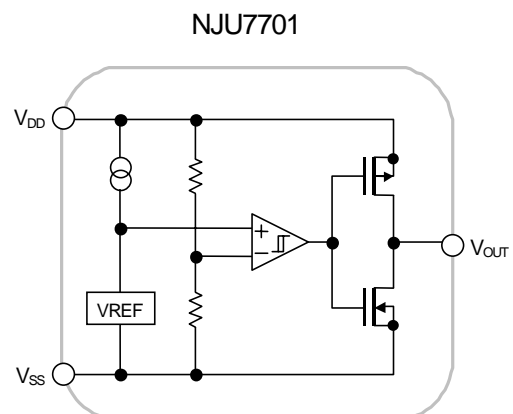
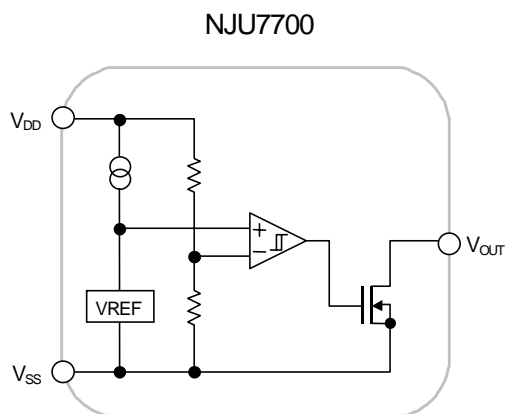
- High Precision Detection Voltage $\pm 1.0\%$
- Low Quiescent Current 0.8 μ A typ.
- Detection Voltage Range 1.3–6.0V(0.1V Step)
- Output Circuit Form NJU7700: Nch. Open Drain type
NJU7701: C-MOS Output

- CMOS Technology
- Package Outline SOT-23-5 (MTP5)

■ PIN CONFIGURATION



■ EQUIVALENT CIRCUIT



■ DETECTION VOLTAGE RANK LIST

Device Name	V _{DET}	Device Name	V _{DET}	Device Name	V _{DET}	Device Name	V _{DET}
NJU7700/01F13	1.3V	NJU7700/01F23	2.3V	NJU7700/01F34	3.4V	NJU7700/01F43	4.3V
NJU7700/01F15	1.5V	NJU7700/01F25	2.5V	NJU7700/01F35	3.5V	NJU7700/01F44	4.4V
NJU7700/01F19	1.9V	NJU7700/01F27	2.7V	NJU7700/01F36	3.6V	NJU7700/01F45	4.5V
NJU7700/01F20	2.0V	NJU7700/01F03	3.0V	NJU7700/01F38	3.8V	NJU7700/01F47	4.7V
NJU7700/01F21	2.1V	NJU7700/01F31	3.1V	NJU7700/01F04	4.0V	NJU7700/01F55	5.5V
NJU7700/01F22	2.2V	NJU7700/01F33	3.3V	NJU7700/01F42	4.2V	NJU7700/01F06	6.0V

NJU7700/01

■ NJU7700

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

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

■ ELECTRICAL CHARACTERISTICS

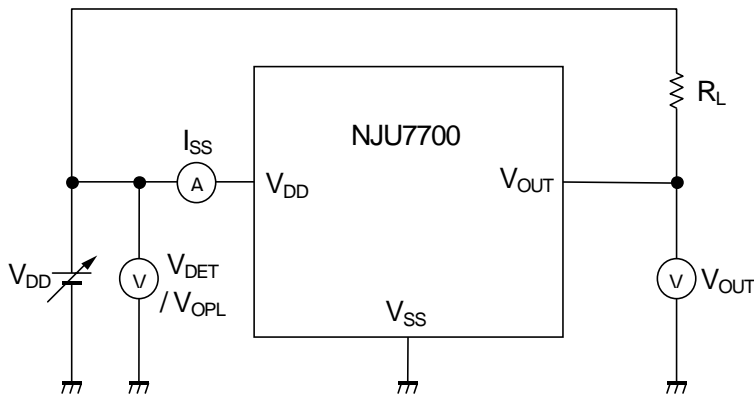
(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Detection Voltage	V_{DET}		-1.0%	-	+1.0%	V	
Hysteresis Voltage	V_{HYS}		$V_{DET} \times 0.03$	$V_{DET} \times 0.05$	$V_{DET} \times 0.08$	V	
Quiescent Current	I_{SS}	$V_{DD}=V_{DET}+1V$	$V_{DET}=1.3V\sim 1.7V$ Version	-	0.5	1.0	μA
			$V_{DET}=1.8V\sim 6.0V$ Version	-	0.8	1.6	μA
Output Current	I_{OUT}	Nch, $V_{DS}=0.5V$	$V_{DD}=1.2V$	0.75	2.0	-	mA
			$V_{DD}=2.4V$ ($\geq 2.7V$ 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 (*note 1)	V_{DD}	$R_L=100k\Omega$	0.8	-	9	V	

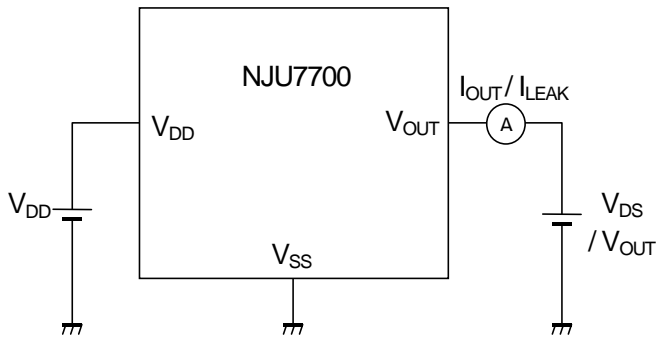
(*note 1): The minimum Operating Voltage(V_{OPL}) indicates the same value of the output voltage(V_{OUT}) on condition that V_{OUT} becomes 10% or less of the input voltage(V_{DD}).

■ TEST CIRCUIT

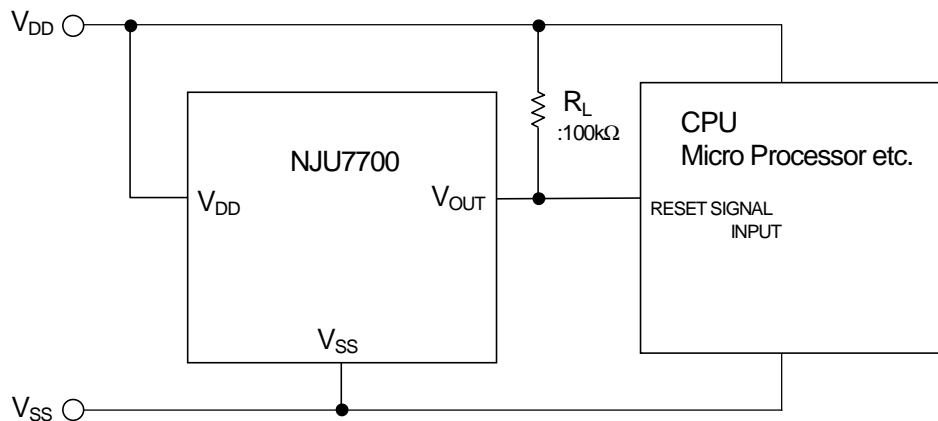
① COMMON TEST CIRCUIT



② OUTPUT CURRENT/OUTPUT LEAK CURRENT TEST CIRCUIT



■ TYPICAL APPLICATION



NJU7700/01

■ NJU7701

■ 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	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS

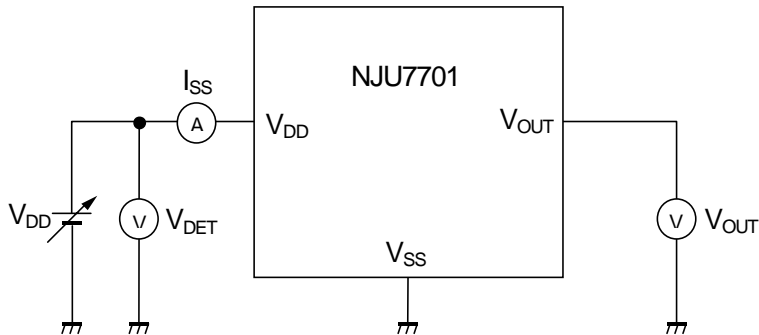
(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Detection Voltage	V_{DET}		-1.0%	-	+1.0%	V	
Hysteresis Voltage	V_{HYS}		$V_{DET} \times 0.03$	$V_{DET} \times 0.05$	$V_{DET} \times 0.08$	V	
Quiescent Current	I_{SS}	$V_{DD}=V_{DET}+1V$	$V_{DET}=1.3V \sim 1.7V$ Version	-	0.5	1.0	μA
			$V_{DET}=1.8V \sim 6.0V$ Version	-	0.8	1.6	μA
Output Current	I_{OUT}	Nch, $V_{DS}=0.5V$	$V_{DD}=1.2V$	0.75	2.0	-	mA
			$V_{DD}=2.4V$ ($\geq 2.7V$ Version)	4.5	7.0	-	mA
			$V_{DD}=4.8V$ ($\leq 3.9V$ Version)	2.0	3.5	-	mA
		Pch, $V_{DS}=0.5V$	$V_{DD}=6.0V$ (4.0V~5.6V Version)	2.5	4.0	-	mA
			$V_{DD}=8.4V$ ($\geq 5.7V$ Version)	3.0	5.0	-	mA
Detection Voltage Temperature Coefficient	$\Delta V_{DET} / \Delta Ta$	$Ta=0 \sim +85^\circ C$	-	± 100	-	ppm/°C	
Operating Voltage (*note 1)	V_{DD}	$R_L=100k\Omega$	0.8	-	9	V	

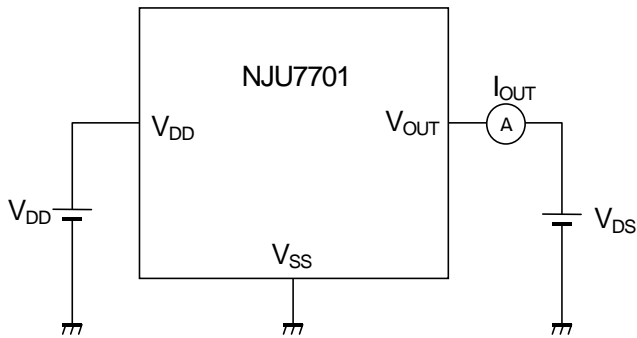
(*note 1): The minimum Operating Voltage(V_{OPL}) indicates the same value of the output voltage(V_{OUT}) on condition that V_{OUT} becomes 10% or less of the input voltage(V_{DD}).

■ TEST CIRCUIT

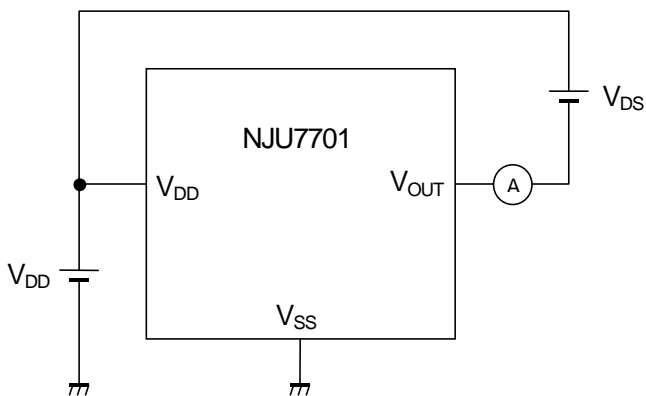
① COMMON TEST CIRCUIT



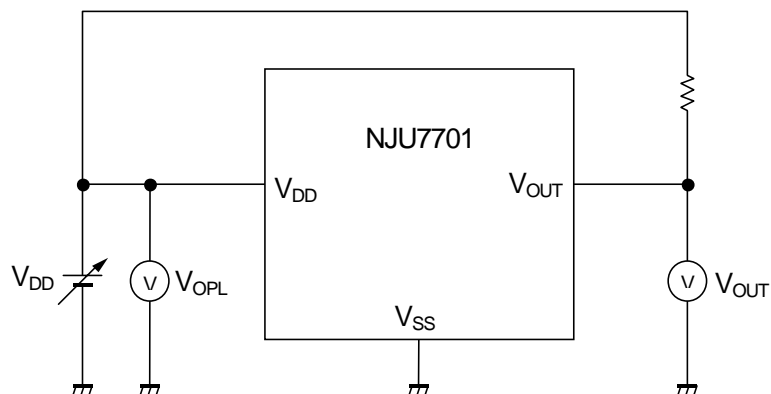
② Nch OUTPUT CURRENT TEST CIRCUIT



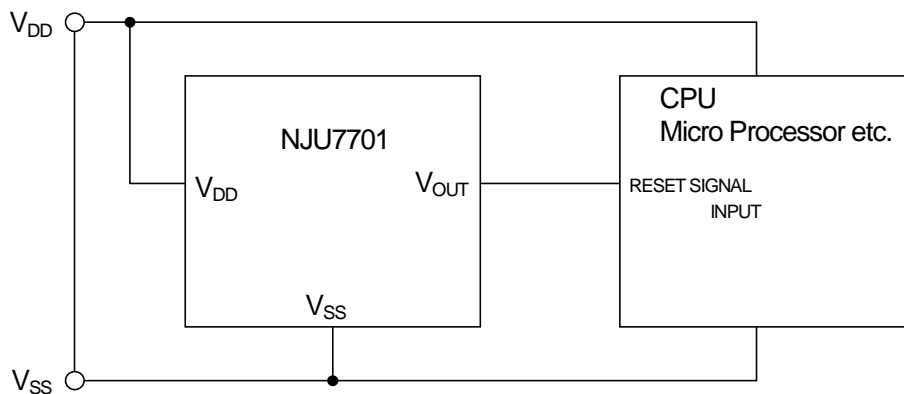
③ Pch OUTPUT CURRENT TEST CIRCUIT



④ MINIMUM OPERATING VOLTAGE TEST CIRCUIT



■ TYPICAL APPLICATION



[CAUTION]

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