

2ch VOLTAGE DETECTOR

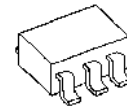
■ GENERAL DESCRIPTION

The NJU7710/11 is a 2ch low quiescent current voltage detector featuring high precision detection voltage.

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

NJU7710 is Nch. Open Drain and NJU7711 is a C-MOS output type.

■ PACKAGE OUTLINE



NJU7710/11F

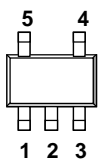


NJU7710/11F3

■ FEATURES

- High Precision detection Voltage $\pm 1.0\%$
- Low Quiescent Current $0.8\mu\text{A typ. (per 1CH)}$
- Detection Voltage Range $1.3\sim 6.0\text{V}(0.1\text{V step})$
- Output Configuration
NJU7710: Nch. Open Drain Type
NJU7711: C-MOS Output Type
- Package Outline SOT-23-5 / SC88A

■ PIN CONFIGURATION



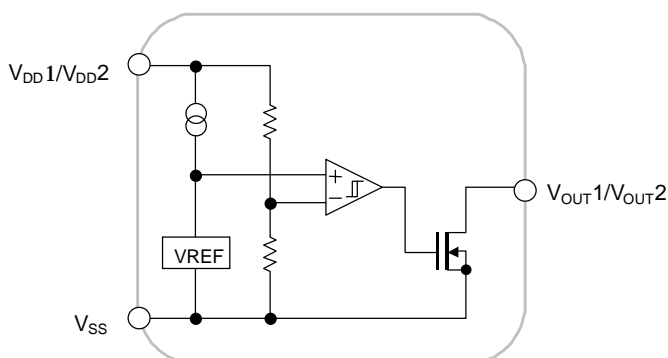
PIN FUNCTION

1. V_{OUT1}
2. V_{SS}
3. V_{DD1}
4. V_{DD2}
5. V_{OUT2}

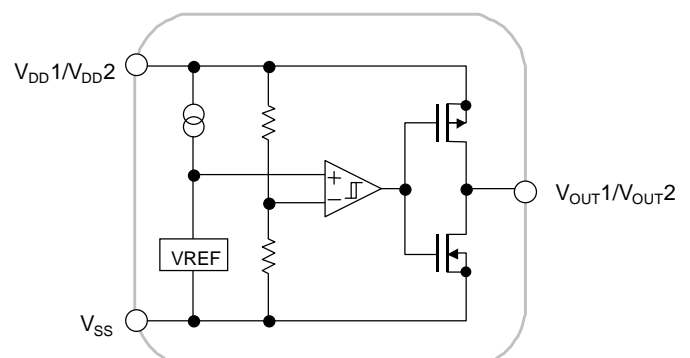
NJU7710F/F3, NJU7711F/F3

■ EQUIVALENT CIRCUIT

NJU7710



NJU7711



NJU7710/11

■ DETECTION VOLTAGERANK LIST

NJU7710

Device Name	Package	V _{DET}	
		CH1	CH2
NJU7710F1524*	SOT-23-5	1.5V	2.4V
NJU7710F2318*		2.3V	1.8V
NJU7710F0435		4.0V	3.5V
NJU7710F4227		4.2V	2.7V
NJU7710F0613*		6.0V	1.3V
NJU7710F3-1524	SC88A	1.5V	2.4V
NJU7710F3-2318		2.3V	1.8V
NJU7710F3-0435		4.0V	3.5V
NJU7710F3-4227		4.2V	2.7V
NJU7710F3-0613		6.0V	1.3V

*Maintenance devices are not recommended for new designs

NJU7711

Device Name	Package	V _{DET}	
		CH1	CH2
NJU7711F4219	SOT-23-5	4.2V	1.9V
NJU7711F4227		4.2V	2.7V
NJU7711F0613		6.0V	1.3V
NJU7711F3-4219	SC88A	4.2V	1.9V
NJU7711F3-4227		4.2V	2.7V
NJU7711F3-0613		6.0V	1.3V

■ NJU7710

■ 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	SOT-23-5	350(*1)	mW
			200(*2)	
		SC88A	250(*1)	
Operating Temperature	Topr	-40 ~ +85		°C
Storage Temperature	Tstg	-40 ~ +125		°C

(*1) : Mounted on glass epoxy board based on EIA/JEDEC. (114.3x76.2x1.6mm: 2Layers)

(*2) : Device itself

■ ELECTRICAL CHARACTERISTICS

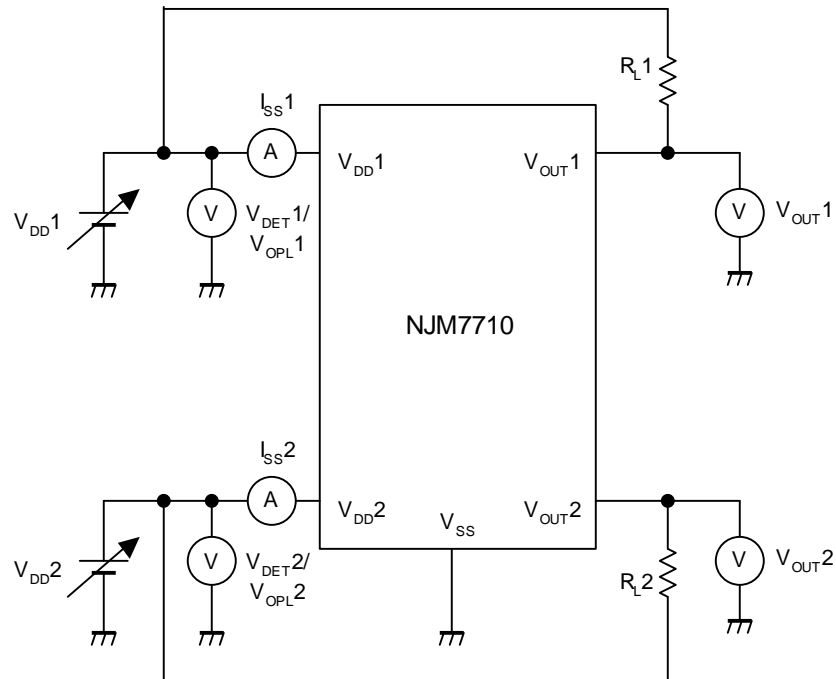
(CH1/2 common characteristics, Ta=25°C)

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	ΔV _{DET} /ΔTa	Ta=0 ~ +85°C		—	±100	—	ppm/°C
Operating Voltage (*3)	V _{DD}	R _L =100kΩ		0.8	—	9	V

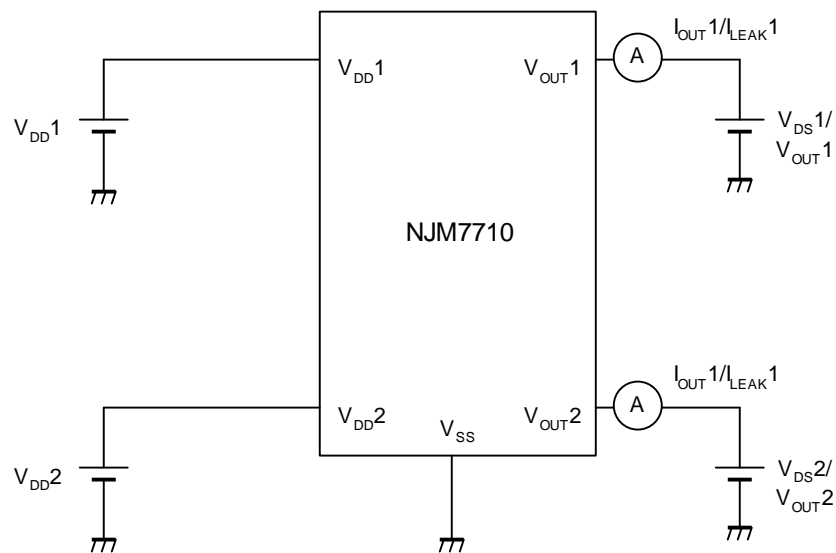
(*3): The minimum Operating Voltage(V_{OPL}) indicates the same value of the input voltage(V_{DD}) on condition that V_{OUT} becomes 10% or less of the input voltage(V_{DD}).

■ TEST CIRCUIT

① COMMON TEST CIRCUIT

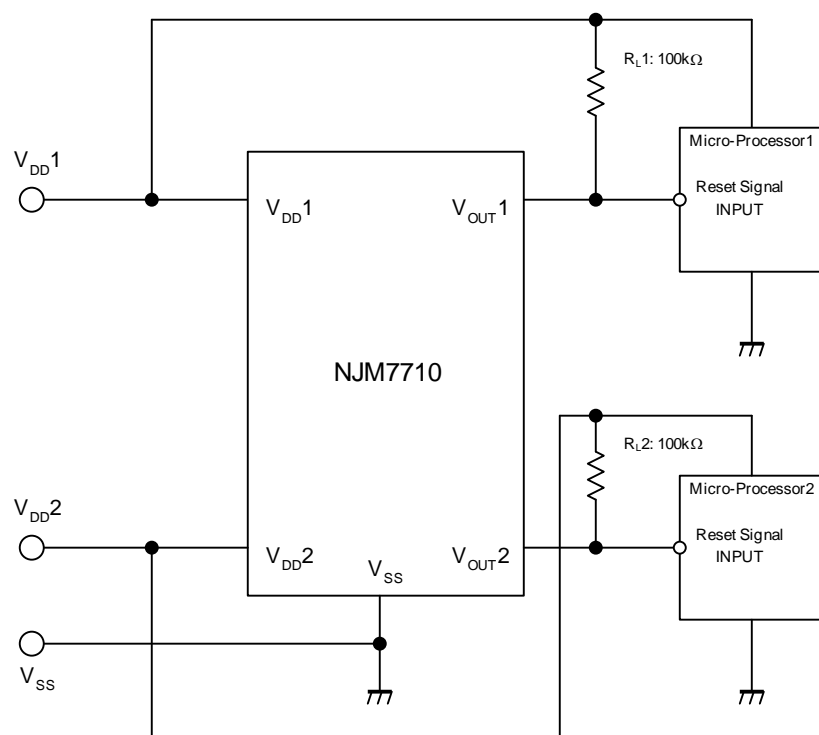


② Output Current/Output Leak Current TEST CIRCUIT



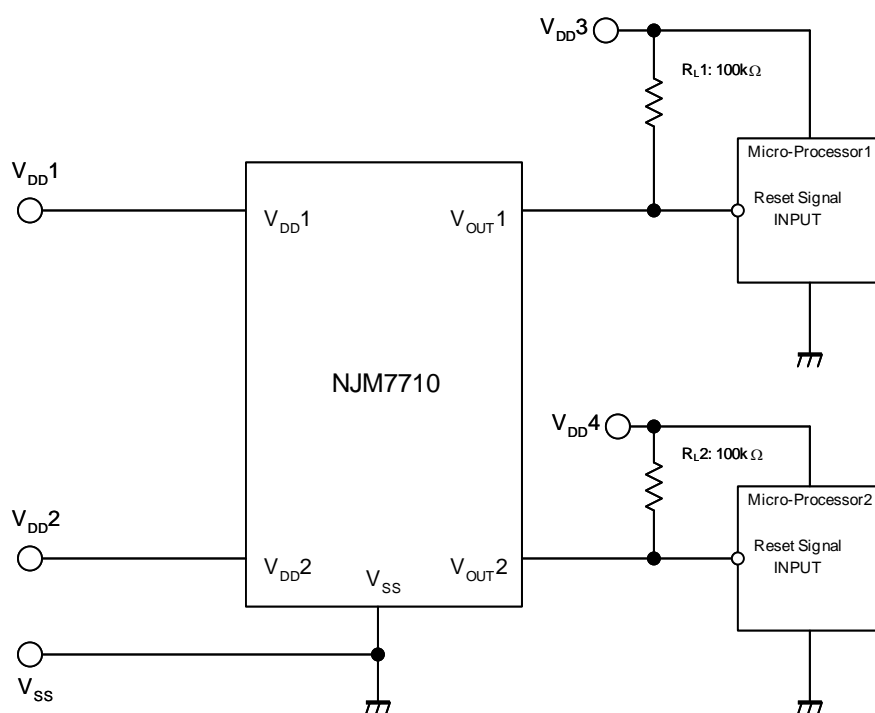
TYPICAL APPLICATION

① Power supply voltage supervision of two systems



② Power supply voltage supervision of two systems

(At the time of power source supply classified by micro-processor)



■ NJU7711

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS		UNIT
Input Voltage	V _{DD}	+10		V
Output Voltage	V _{OUT}	V _{SS} -0.3 ~ V _{DD} +0.3		V
Output Current	I _{OUT}	50		mA
Power Dissipation	P _D	SOT-23-5	350(*4)	mW
			200(*5)	
		SC88A	250(*4)	
Operating Temperature	Topr	-40 ~ +85		°C
Storage Temperature	Tstg	-40 ~ +125		°C

(*4) : Mounted on glass epoxy board based on EIA/JEDEC. (114.3x76.2x1.6mm: 2Layers)

(*5) : Device itself

■ ELECTRICAL CHARACTERISTICS

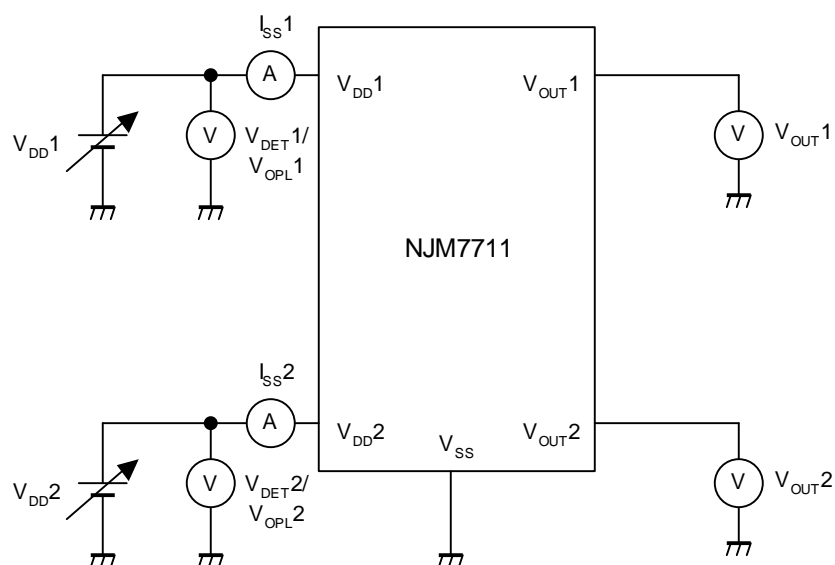
(CH1/2 common characteristics. Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Detection Voltage	V _{DET}			-1.0%	—	+1.0%	V
Hysteresis Voltage	V _{HYS}			V _{DET} x0.03	V _{DET} x0.05	V _{DET} x0.08	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~6V 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 (4V~5.6V Version)	2.5	4.0	—	mA
			V _{DD} =8.4V (≥5.7V Version)	3.0	5.0	—	mA
Detection Voltage Temperature Coefficient	ΔV _{DET} /ΔTa	Ta=0 ~ +85°C		—	±100	—	ppm/°C
Operating Voltage (*6)	V _{DD}	R _L =100kΩ		0.8	—	9	V

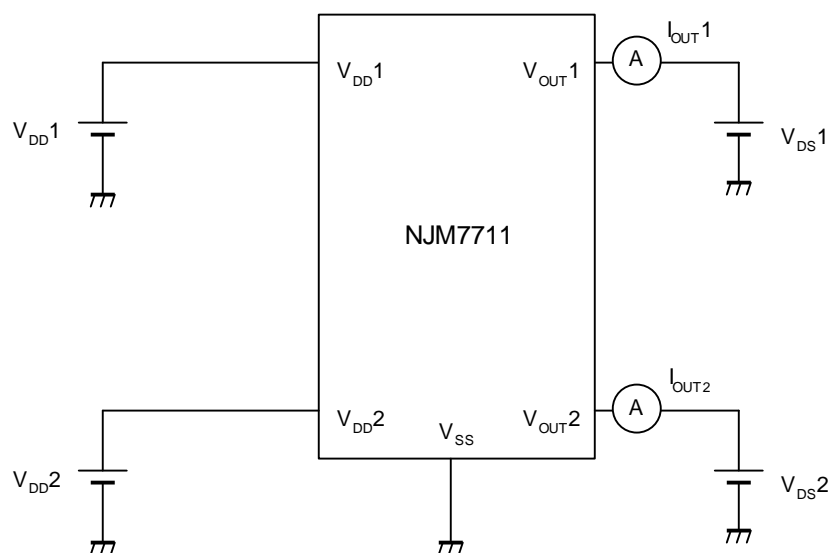
(*6): The minimum Operating Voltage(V_{OPL}) indicates the same value of the output voltage(V_{OUT}) on condition that V_{OUT} becomes 10% or less of the input voltage(V_{DD}).

■ TEST CIRCUIT

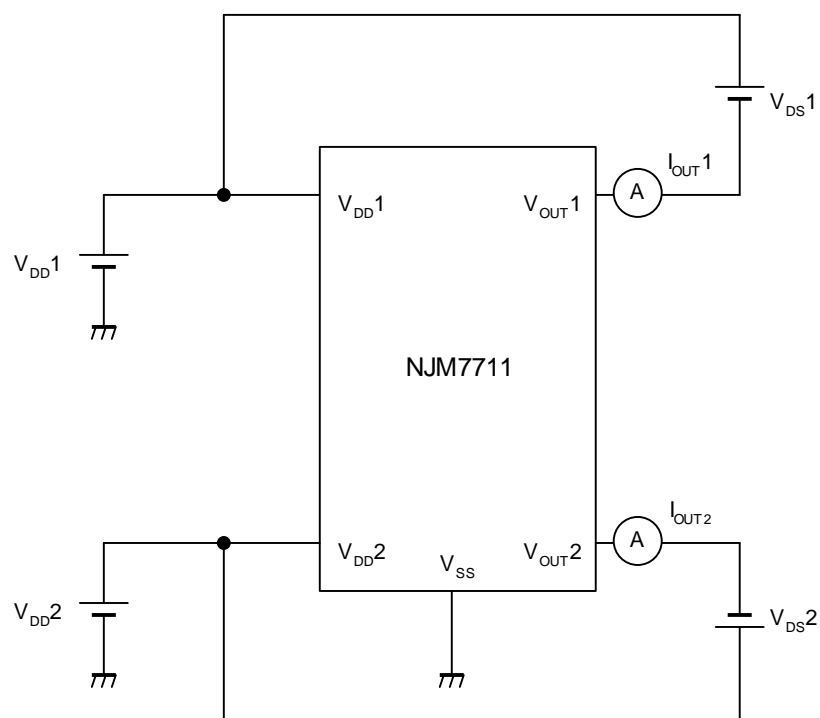
① COMMON TEST CIRCUIT



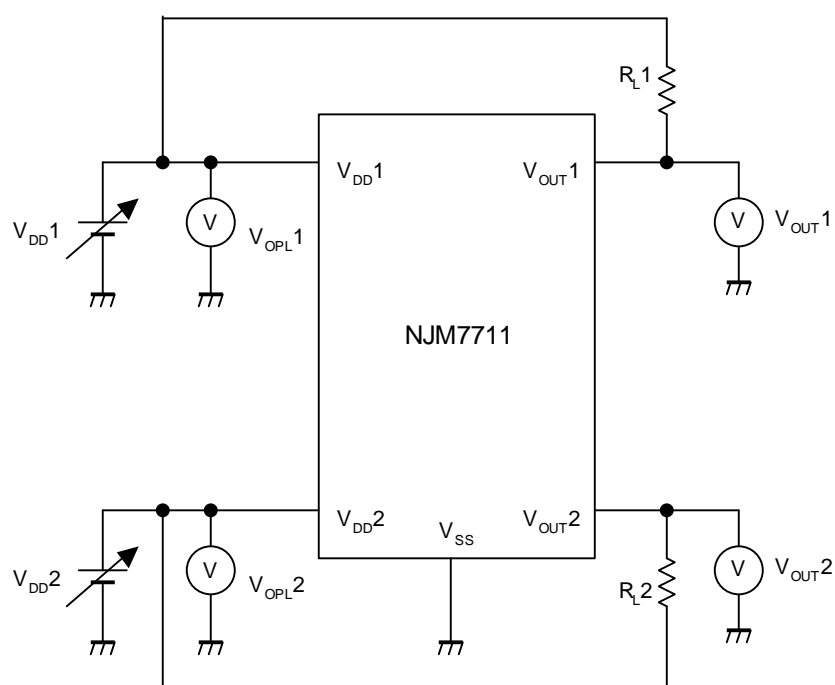
② Nch Output Current TEST CIRCUIT



③ Pch Output Current TEST CIRCUIT

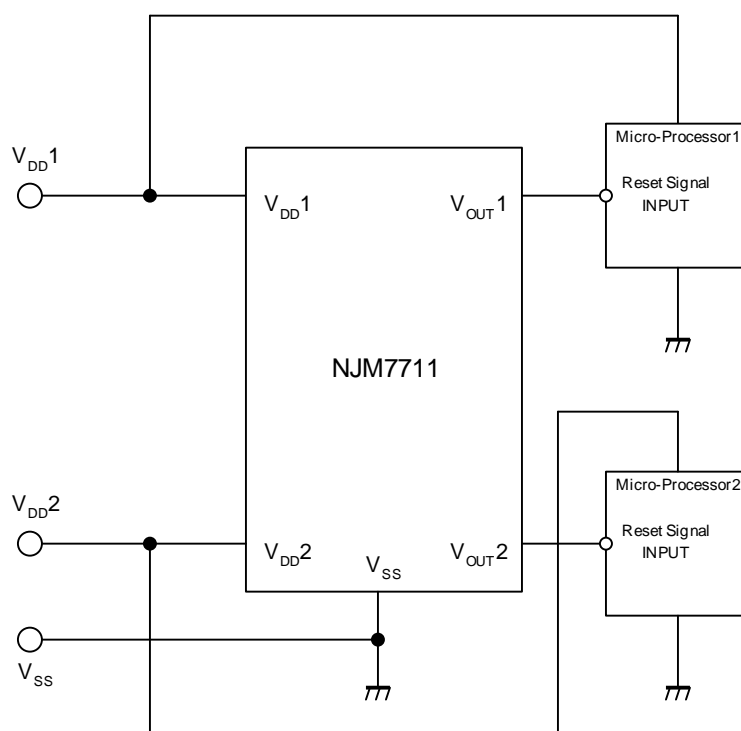


④ Minimum Operating Voltage TEST CIRCUIT



■ TYPICAL APPLICATION

Power supply voltage supervision of two systems



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