

## 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 fixed internally with an accuracy of 1.0%.

NJU7710 is Nch. Open Drain and NJU7711 of output circuit form is a C-MOS output.

### ■ PACKAGE OUTLINE



NJU7710/11F

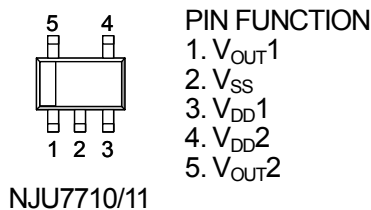


NJU7710/11F3

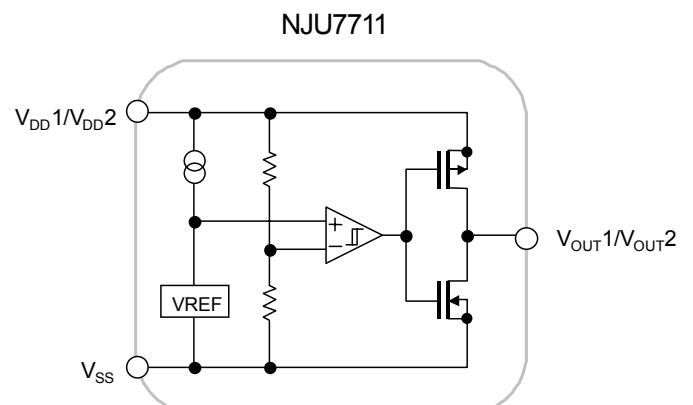
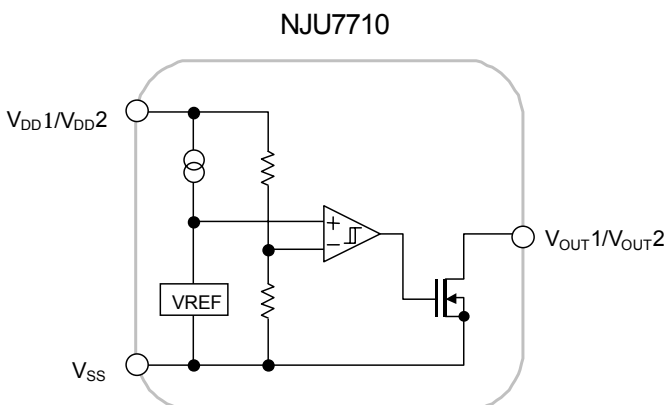
### ■ FEATURES

- High Precision detection Voltage  $\pm 1.0\%$
- Low Quiescent Current  $0.8\mu\text{A}$  (per 1CH)
- Detection Voltage Range  $1.3\text{--}6.0\text{V}$  (0.1V step)
- Output Circuit Form  
 NJU7710: Nch. Open Drain Type  
 NJU7711: C-MOS Output Type
- Package Outline  
 SOT-23-5 (MTP5) / SC88A

### ■ PIN CONFIGURATION



### ■ EQUIVALENT CIRCUIT



### ■ DETECTION VOLTAGERANK LIST

Device Name	Package	$V_{DET}$	
		CH1	CH2
NJU7710/11F4227	SOT-23-5 (MTP5)	4.2V	2.7V
NJU7710/11F0613		6.0V	1.3V
NJU7710/11F3-4227	SC88A	4.2V	2.7V
NJU7710/11F3-0613		6.0V	1.3V

# NJU7710/11

## ■ NJU7710

### ■ 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(MTP5)	mW
		250(SC88A(*note 1))	
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +125	°C

(\*note 1): On board, 50mm×50mm×1.6mm glass epoxy baseplate.

### ■ ELECTRICAL CHARACTERISTICS

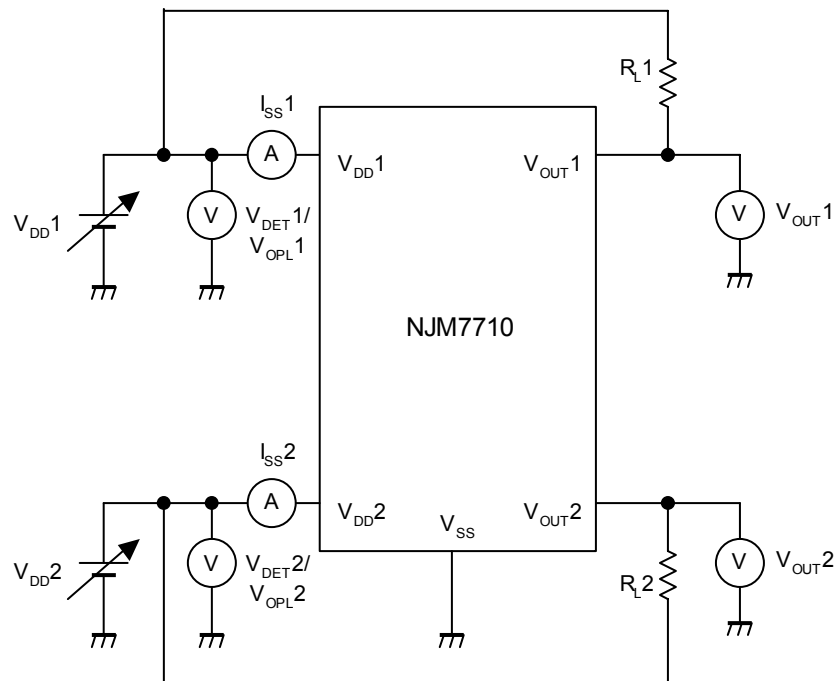
(CH1/2 common characteristics, Ta=25°C)

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> ×0.03	V <sub>DET</sub> ×0.05	V <sub>DET</sub> ×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	μA
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	-	mA
Output Leak Current	I <sub>LEAK</sub>	V <sub>DD</sub> =V <sub>OUT</sub> =9V	-	-	0.1	μA	
Detection Voltage Temperature Coefficient	ΔV <sub>DET</sub> /ΔTa	Ta=0 ~ +85°C	-	±100	-	ppm/°C	
Operating Voltage (*note 2)	V <sub>DD</sub>	R <sub>L</sub> =100kΩ	0.8	-	9	V	

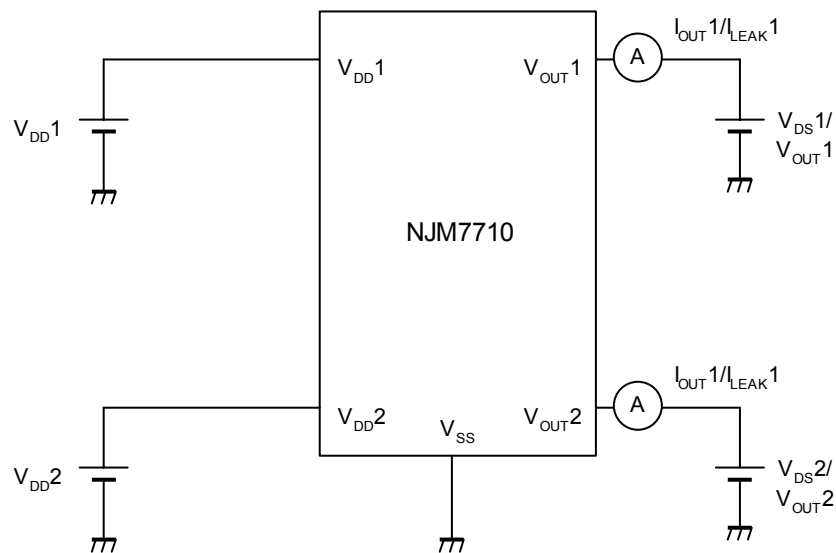
(\*note 2): The minimum Operating Voltage(V<sub>OPL</sub>) indicates the same value of the output voltage(V<sub>OUT</sub>) on condition that V<sub>OUT</sub> becomes 10% or less of the input voltage(V<sub>DD</sub>).

## ■ TEST CIRCUIT

### ① COMMON TEST CIRCUIT

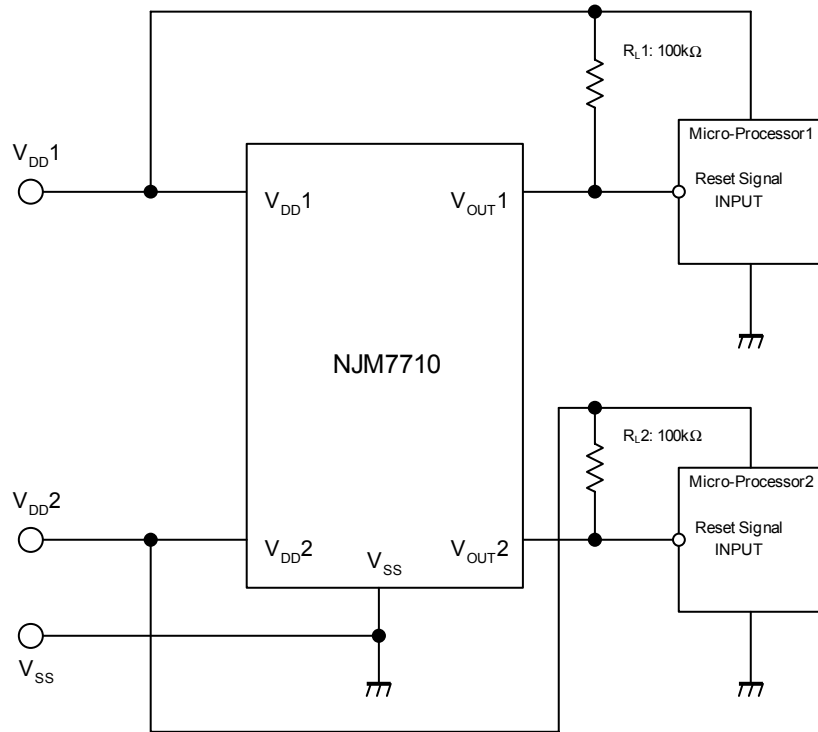


### ② Output Current/Output Leak Current TEST CIRCUIT

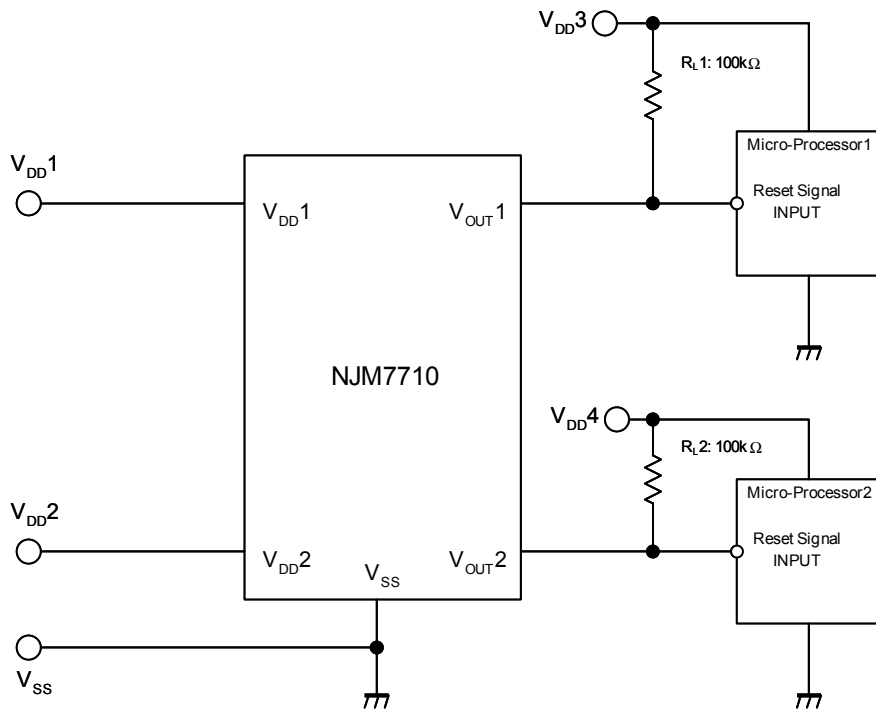


## ■ TYPICAL APPLICATION

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 <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(MTP5)	mW
		250(SC88A(*note 1))	
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +125	°C

(\*note 1): On board, 50mm×50mm×1.6mm glass epoxy baseplate.

■ ELECTRICAL CHARACTERISTICS

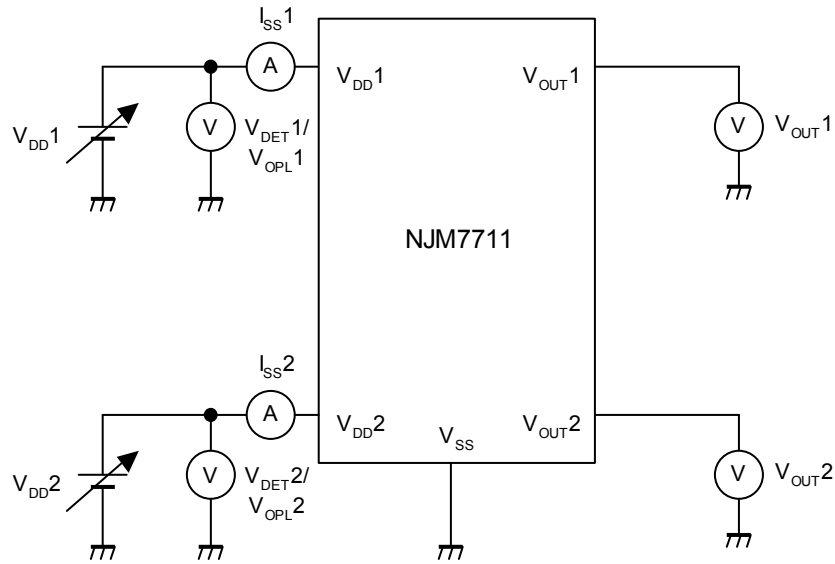
(CH1/2 common characteristics. Ta=25°C)

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> x0.03	V <sub>DET</sub> x0.05	V <sub>DET</sub> x0.08	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~6V Version	–	0.8	1.6	μA
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	–	mA
		Pch, V <sub>DS</sub> =0.5V	V <sub>DD</sub> =4.8V (≤3.9V Version)	2.0	3.5	–	mA
			V <sub>DD</sub> =6.0V (4V~5.6V Version)	2.5	4.0	–	mA
			V <sub>DD</sub> =8.4V (≥5.7V Version)	3.0	5.0	–	mA
Detection Voltage Temperature Coefficient	ΔV <sub>DET</sub> /ΔTa	Ta=0 ~ +85°C	–	±100	–	ppm/°C	
Operating Voltage (*note 3)	V <sub>DD</sub>		0.8	–	9	V	

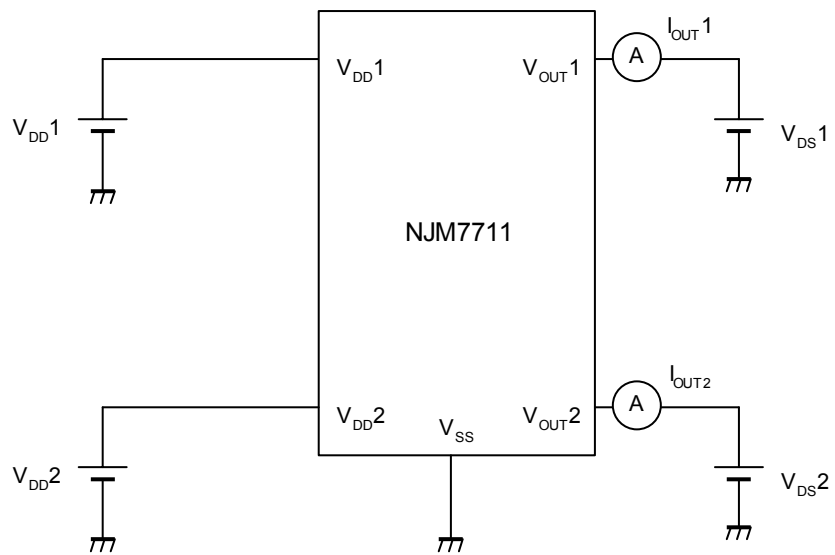
(\*note 3): The minimum Operating Voltage(V<sub>OPL</sub>) indicates the same value of the output voltage(V<sub>OUT</sub>) on condition that V<sub>OUT</sub> becomes 10% or less of the input voltage(V<sub>DD</sub>).

## ■ TEST CIRCUIT

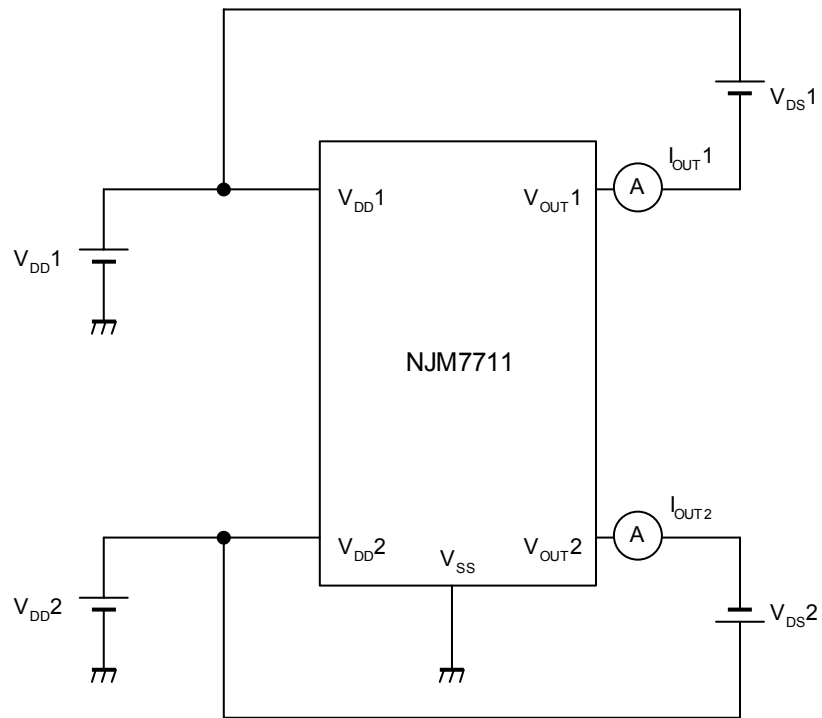
### ① COMMON TEST CIRCUIT



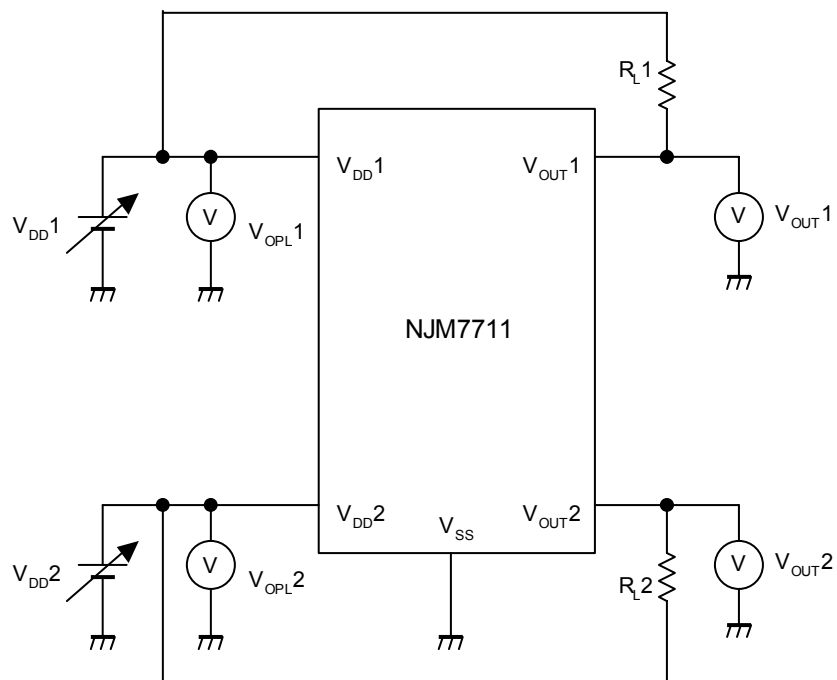
### ② Nch Output Current TEST CIRCUIT



## ③ Pch Output Current TEST CIRCUIT

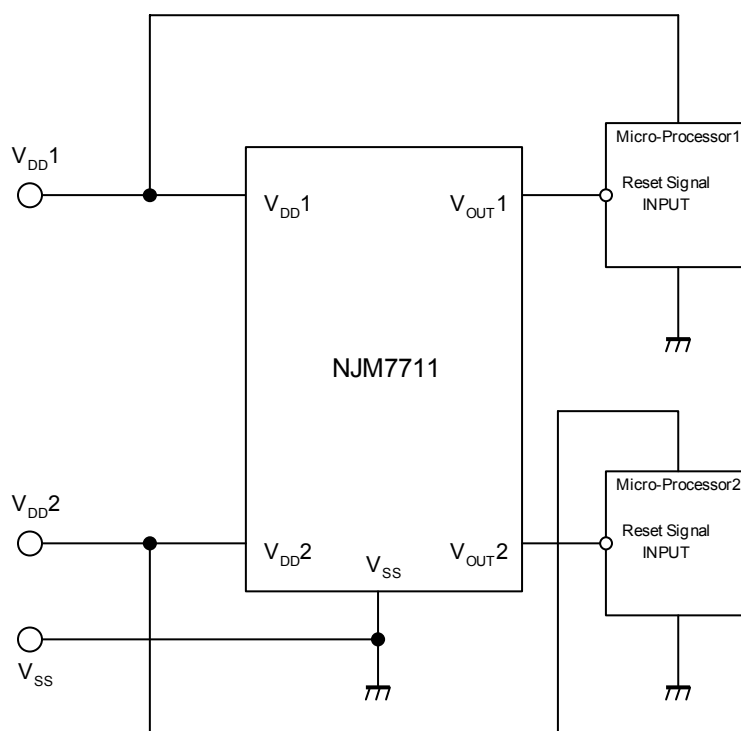


## ④ Minimum Operating Voltage TEST CIRCUIT



## ■ TYPICAL APPLICATION

Power supply voltage supervision of two systems





**[CAUTION]**

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