

## HIGH PRECISION AND HIGH OUTPUT CURRENT C-MOS 3-TERMINAL VOLTAGE REGULATOR

### ■ GENERAL DESCRIPTION

The **NJU7222 series** is a high precision output voltage ( $\pm 2\%$ ) and high output current C-MOS 3-terminal positive voltage regulator which contains internal accurate voltage reference, error amplifier, control transistor, output voltage setting resistor and short current protection circuit.

The regulation voltage is fixed by internal circuits and the following line-up of different output voltage versions are available.

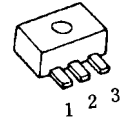
The short current protection circuit prevents destruction of a element by careless great current output in short circuit.

The **NJU7222 series** is suitable for battery operated items and battery back-up systems because of low operating current and low dropout voltage.

### ■ PACKAGE OUTLINE



NJU7222L



NJU7222U

### ■ FEATURES

- High Precision Output Voltage  $\pm 2\%$
- High Output Current  $I_o = 100\text{mA}$
- Low Operating Current  $20\mu\text{A typ}$
- Low Dropout Voltage  $\Delta V_{io} < 0.6\text{V @ } I_o = 100\text{mA}$
- Wide Operating Voltage Range
- Small Temperature Coefficient of Output Voltage
- Short Current Protection Circuit
- Package Outline TO-92/SOT-89
- C-MOS Technology

### ■ TERMINAL DESCRIPTION

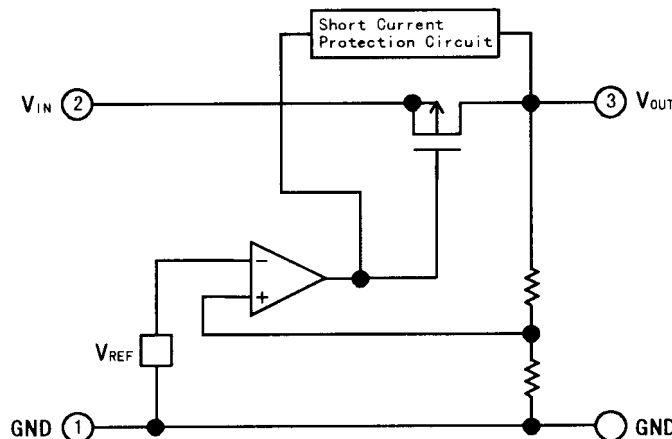
No.	Description
1	GND
2	Input
3	Output

### ■ OUTPUT VOLTAGE LINE-UP

Output Voltage	TO-92 Type	SOT-89 Type
+3.0V	NJU7222L30	NJU7222U30
+3.3V	NJU7222L33	NJU7222U33
+5.0V	NJU7222L50	NJU7222U50

Note1) The SOT-89 type name is different from the marking, so it refer to attached paper correspondence table.

### ■ EQUIVALENT CIRCUIT



# NJU7222 Series

## ■ ABSOLUTE MAXIMUM RATINGS

( $T_a = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	$V_{IN}$	15	V
Output Voltage	$V_{OUT}$	GND-0.3 to $V_{IN}+0.3$	V
Output Current	$I_{OUT}$	200	mA
Power Dissipation	$P_D$	500 (TO-92) 300 (SOT-89)	mW
Operating Temperature Range	$T_{opr}$	-25 to +75	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40 to +125	$^\circ\text{C}$

## ■ ELECTRICAL CHARACTERISTICS

+3.0V Version

( $C_{IN} = C_O = 0.1\mu\text{F}$ ,  $T_a = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	$V_{OUT}$	$V_{IN} = 5.0\text{V}$ , $I_{OUT} = 70\text{mA}$	2.85	3.00	3.15	V
Dropout Voltage	$\Delta V_{IO}$	$I_{OUT} = 50\text{mA}$	-	0.4	0.6	V
Input Voltage	$V_{IN}$		-	-	14	V
Operating Current	$I_{DD1}$	$V_{IN} = 5.0\text{V}$	-	20	30	$\mu\text{A}$
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$	$V_{IN} = 5.0\text{V}$ , $I_{OUT} = 1$ to $100\text{mA}$	-	120	160	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{IN} = 4.0$ to $12.0\text{V}$	-	0.1	-	%/V

+3.3V Version

( $C_{IN} = C_O = 0.1\mu\text{F}$ ,  $T_a = 25^\circ\text{C}$ )

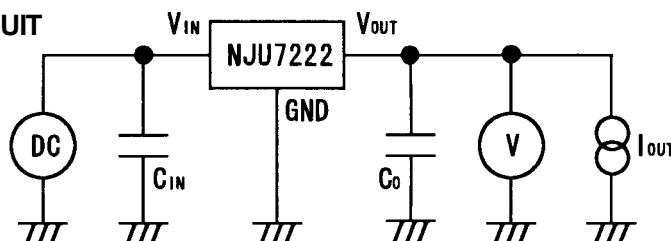
PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	$V_{OUT}$	$V_{IN} = 5.3\text{V}$ , $I_{OUT} = 70\text{mA}$	3.135	3.300	3.465	V
Dropout Voltage	$\Delta V_{IO}$	$I_{OUT} = 50\text{mA}$	-	0.4	0.6	V
Input Voltage	$V_{IN}$		-	-	14	V
Operating Current	$I_{DD1}$	$V_{IN} = 5.3\text{V}$	-	20	30	$\mu\text{A}$
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$	$V_{IN} = 5.3\text{V}$ , $I_{OUT} = 1$ to $100\text{mA}$	-	120	160	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{IN} = 4.3$ to $12.0\text{V}$	-	0.1	-	%/V

+5.0V Version

( $C_{IN} = C_O = 0.1\mu\text{F}$ ,  $T_a = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	$V_{OUT}$	$V_{IN} = 7.0\text{V}$ , $I_{OUT} = 70\text{mA}$	4.75	5.00	5.25	V
Dropout Voltage	$\Delta V_{IO}$	$I_{OUT} = 100\text{mA}$	-	0.3	0.6	V
Input Voltage	$V_{IN}$		-	-	14	V
Operating Current	$I_{DD1}$	$V_{IN} = 7.0\text{V}$	-	20	30	$\mu\text{A}$
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$	$V_{IN} = 7.0\text{V}$ , $I_{OUT} = 1$ to $100\text{mA}$	-	120	160	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{IN} = 6.0$ to $12.0\text{V}$	-	0.1	-	%/V

## ■ MEASUREMENT CIRCUIT



### [CAUTION]

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