

## LOW DROPOUT VOLTAGE REGULATOR

### ■ GENERAL DISCRIPTION

NJU7741 is a low dropout voltage regulator with ON/OFF control.

Advanced CMOS technology achieves high ripple rejection and ultra low quiescent current.

It is suitable for portable applications.

### ■ PACKAGE OUTLINE

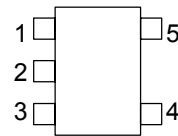


NJU7741F

### ■ FEATURES

- Ultra Low quiescent Current  $I_q=1.5\mu A$  typ. ( $I_o=0mA$ )
- Output capacitor with 0.1 $\mu F$  ceramic capacitor
- Output Current  $I_o(max.)=100mA$
- High Precision Output  $V_o\pm 1.0\%$
- Low Dropout Voltage 0.17V typ. ( $I_o=60mA$ ,  $V_o=3V$ )
- With ON/OFF Control (Active High)
- Internal Short Circuit Current Limit
- CMOS Technology
- Package Outline MTP5 (2.8 $\times$ 2.9 $\times$ 1.1mm)

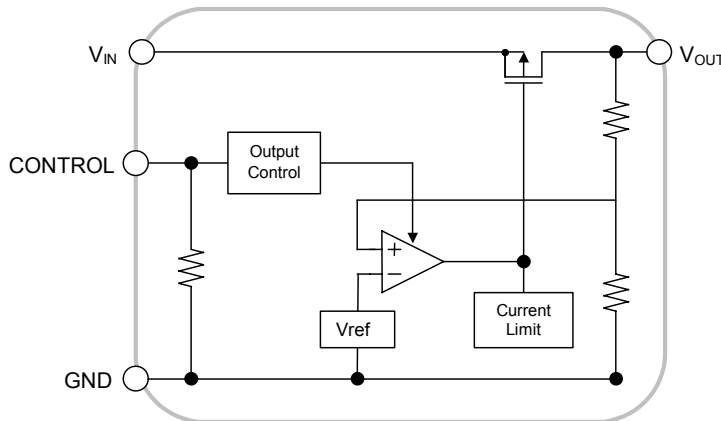
### ■ PIN CONFIGURATION



- PIN FUNCTION**
- 1.CONTROL
  - 2.GND
  - 3.N.C.
  - 4. $V_{OUT}$
  - 5. $V_{IN}$

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### ■ EQUIVALENT CIRCUIT



### ■ OUTPUT VOLTAGE RANK LIST

DEVICE NAME	$V_{OUT}$	DEVICE NAME	$V_{OUT}$
NJU7741F15	1.5V	NJU7741F03	3.0V
NJU7741F02	2.0V	NJU7741F33	3.3V
NJU7741F27	2.7V	NJU7741F06	6.0V
NJU7741F28	2.8V		

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## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	$V_{IN}$	+10	V
Control Voltage	$V_{CONT}$	+10(note 1)	V
Power Dissipation	$P_D$	200	mW
Operating Temperature	$T_{opr}$	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +125	°C

(note 1) When input voltage is less than +10V, the absolute maximum control voltage is equal to the input voltage.

## ■ ELECTRICAL CHARACTERISTICS

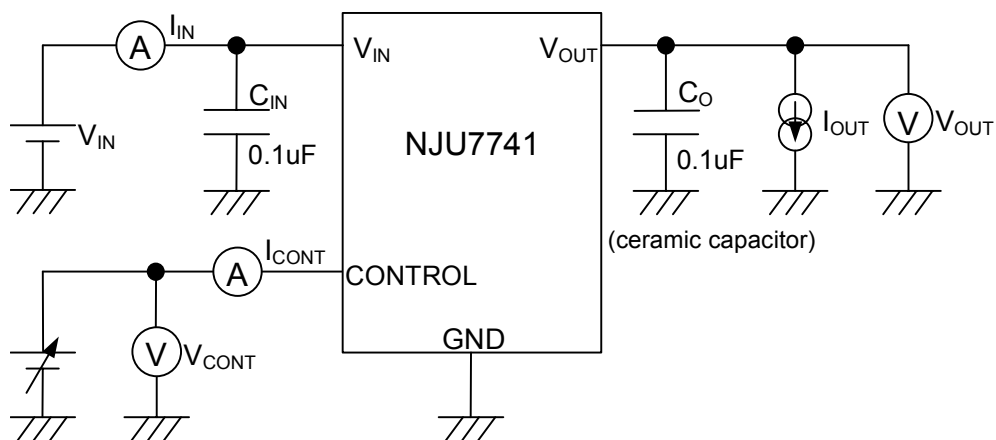
( $V_{IN}=V_O+1V$ ,  $C_{IN}=0.1\mu F$ ,  $C_O=0.1\mu F$ ,  $T_a=25^\circ C$ )

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_O$	$I_O=30mA$	-1.0%	-	+1.0%	V	
Input Voltage	$V_{IN}$		-	-	9	V	
Quiescent Current	$I_Q$	$I_O=0mA$ , $V_{CONT}=V_{IN}$ , except $I_{CONT}$	-	1.5	3.5	$\mu A$	
Quiescent Current at Control OFF	$I_{Q(OFF)}$	$V_{CONT}=0V$	-	0.1	1	$\mu A$	
Output Current	$I_O$	$V_O-0.3V$	100	-	-	mA	
Short Circuit Limit	$I_{LIM}$	$V_O=0V$	-	25	-	mA	
Line Regulation	$\Delta V_O / \Delta V_{IN}$	$V_{IN}=V_O+1V-V_O+6.0V(V_O<3.0V)$ $V_{IN}=V_O+1V-9.0V(V_O\geq 3.0V)$ , $I_O=30mA$	-	-	0.30	%/V	
Load Regulation	$\Delta V_O / \Delta V_O$	$I_O=0\sim 100mA$	-	-	0.30	%/mA	
Dropout Voltage	$\Delta V_{I-O}$	$I_O=40mA$	$1.5V\leq V_O\leq 2.0V$	-	0.19	0.40	V
		$I_O=60mA$	$2.1V\leq V_O\leq 2.4V$	-	0.19	0.29	V
			$2.5V\leq V_O\leq 2.7V$	-	0.18	0.27	V
			$2.8V\leq V_O\leq 3.3V$	-	0.17	0.26	V
			$3.4V\leq V_O\leq 5.0V$	-	0.16	0.24	V
			$5.1V\leq V_O\leq 6.0V$	-	0.15	0.22	V
Average Temperature Coefficient of Output Voltage	$\Delta V_O / \Delta T_a$	$T_a=0-85^\circ C$ , $V_O=10mA$	-	$\pm 100$	-	ppm/°C	
Pull-down Resistance	$R_{CONT}$		2.5	5	10	$M\Omega$	
Control Voltage for ON-State	$V_{CONT(ON)}$		1.6	-	$V_{IN}$	V	
Control Voltage for OFF-State	$V_{CONT(OFF)}$		0	-	0.3	V	

(note 2) The above specification is a common specification for all voltages.

Therefore, it may be different from the individual specification for a specific output Voltage.

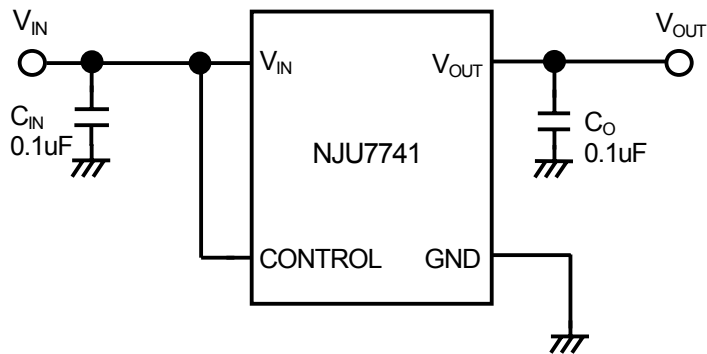
## ■ TEST CIRCUIT



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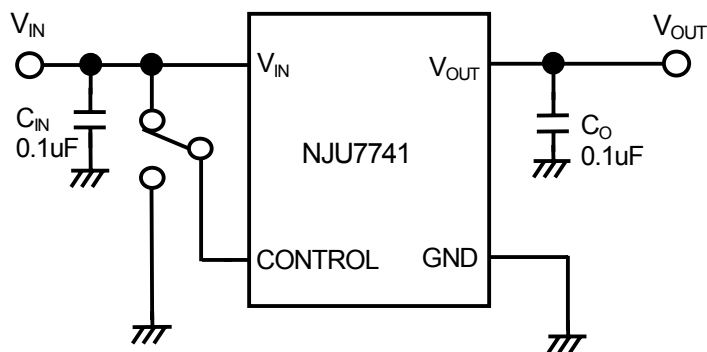
## ■ TYPICAL APPLICATION

① In case that ON/OFF Control is not required:



Connect control terminal to  $V_{IN}$  terminal.

② In use of ON/OFF Control



State of control terminal:

- "H" → output is enabled.
- "L" or "open" → output is disabled.

**[CAUTION]**

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