

LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DISCRIPTION

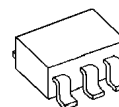
NJU7741/44 is a low dropout voltage regulator with ON/OFF control and Output shunt switch.

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

It is suitable for reset small micro controller and other logic chips.

NJU7744 features shunt switch which improves turn off response of output voltage when ON/OFF control is used.

■ PACKAGE OUTLINE

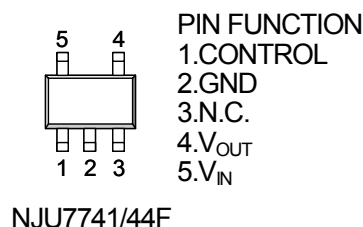


NJU7741/44F

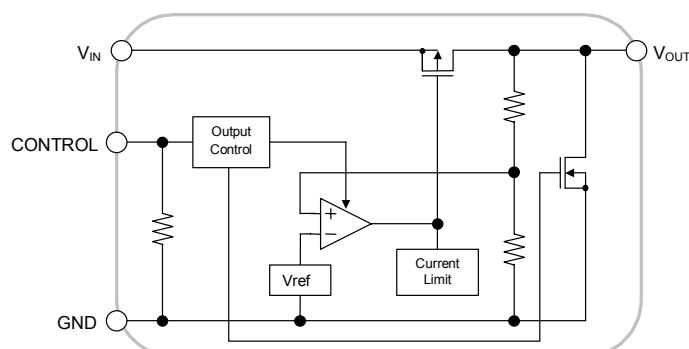
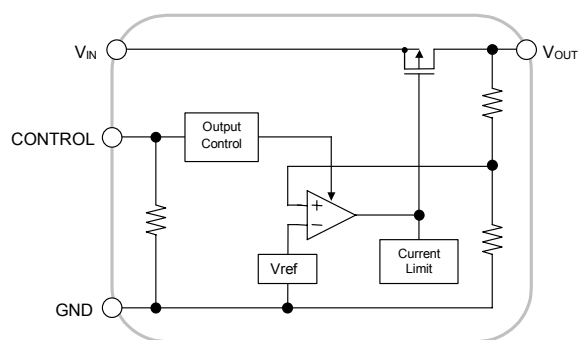
■ FEATURES

- Ultra Low quiescent Current $I_q = 1.5\mu A$ typ. ($I_o = 0mA$)
- Output capacitor with 0.1uF ceramic capacitor
- Output Current $I_o(max.) = 100mA$
- High Precision Output $V_o \pm 1.0\%$
- Low Dropout Voltage 0.17V typ. ($I_o = 60mA$, $V_o = 3V$ version)
- With ON/OFF Control (Active High)
- With Output Shunt Switch Only NJU7744
- Internal Short Circuit Current Limit
- CMOS Technology
- Package Outline SOT-23-5

■ PIN CONFIGURATION



■ EQUIVALENT CIRCUIT



NJU7741/44

■ OUTPUT VOLTAGE RANK LIST

DEVICE NAME	V _{OUT}	DEVICE NAME	V _{OUT}	DEVICE NAME	V _{OUT}
NJU774*F15	1.5V	NJU774*F28	2.8V	NJU774*F04	4.0V
NJU774*F18	1.8V	NJU774*F29	2.9V	NJU774*F45	4.5V
NJU774*F19	1.9V	NJU774*F03	3.0V	NJU774*F05	5.0V
NJU774*F02	2.0V	NJU774*F31	3.1V	NJU774*F06	6.0V
NJU774*F25	2.5V	NJU774*F33	3.3V		
NJU774*F27	2.7V	NJU774*F37	3.7V		

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V _{IN}	+10	V
Control Voltage	V _{CONT}	+10(*1)	V
Power Dissipation	P _D	SOT-23-5 350(*2) 200(*3)	mW
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +125	°C
Output Sink Current at OFF-state(*4)	I _O	10	mA

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

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

(*3) : Device itself

(*4) : This maximum rating is applied to NJU7744.

■ ELECTRICAL CHARACTERISTICS (V_{IN}=V_O+1V, C_{IN}=0.1μF, C_O=0.1μF, Ta=25°C)

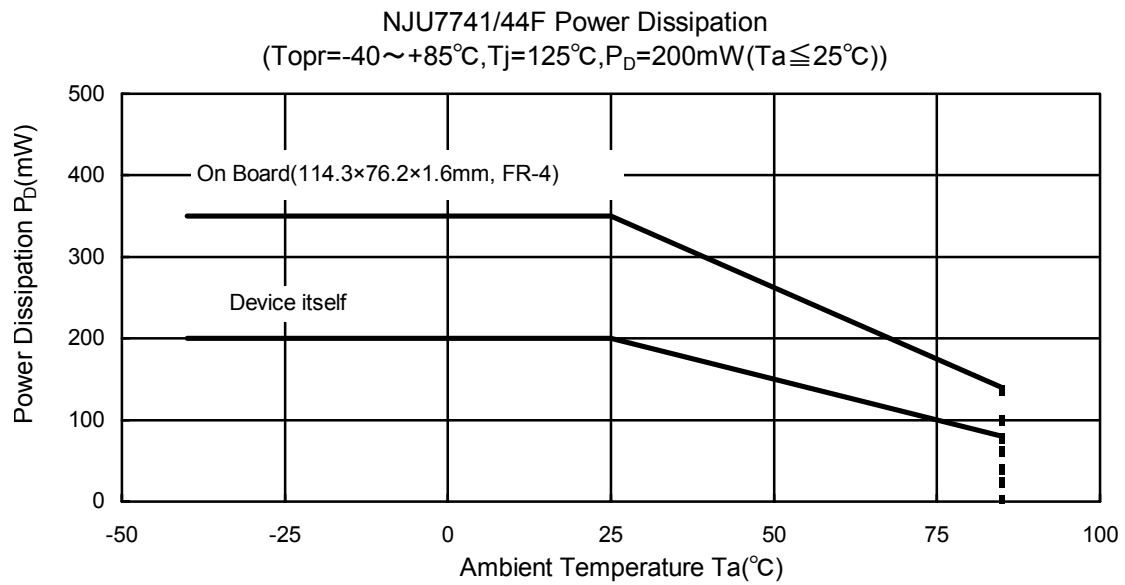
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _O	I _O =30mA	-1.0%	—	+1.0%	V
Input Voltage	V _{IN}		—	—	9	V
Quiescent Current	I _Q	I _O =0mA, V _{CONT} =V _{IN} , Except I _{CONT}	—	1.5	3.5	μA
Quiescent Current at Control OFF	I _{Q(OFF)}	V _{CONT} =0V	—	0.1	1	μA
Output Current	I _O	V _O =0.3V	100	—	—	mA
Short Circuit Limit	I _{LIM}	V _O =0V	—	25	—	mA
Line Regulation	ΔV _O /ΔV _{IN}	V _{IN} = V _O +1V~V _O +6.0V(V _O <3.0V) V _{IN} = V _O +1V~9.0V(V _O ≥3.0V), I _O =30mA	—	—	0.30	%/V
Load Regulation	ΔV _O /ΔV _O	I _O =0~100mA	—	—	0.15	%/mA
Dropout Voltage	ΔV _{I-O}	I _O =40mA	1.5V≤V _O ≤2.0V	—	0.19	0.60 V
		I _O =60mA	2.0V≤V _O ≤2.4V	—	0.19	0.29 V
			2.5V≤V _O ≤2.7V	—	0.18	0.27 V
			2.8V≤V _O ≤3.3V	—	0.17	0.26 V
			3.4V≤V _O ≤5.0V	—	0.16	0.24 V
			5.1V≤V _O ≤6.0V	—	0.15	0.22 V
Average Temperature Coefficient of Output Voltage	ΔV _O /ΔTa	Ta=0~85°C, I _O =10mA	—	±100	—	ppm/°C
Pull-down Resistance	R _{CONT}		2	5	10	MΩ
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
Pull-down Resistance at OFF-state(note 3)	R _{O(OFF)}	V _{CONT} =0V (V _O =3.0V Version)	—	300	—	Ω

(*5) This electrical characteristics is applied to NJU7744.

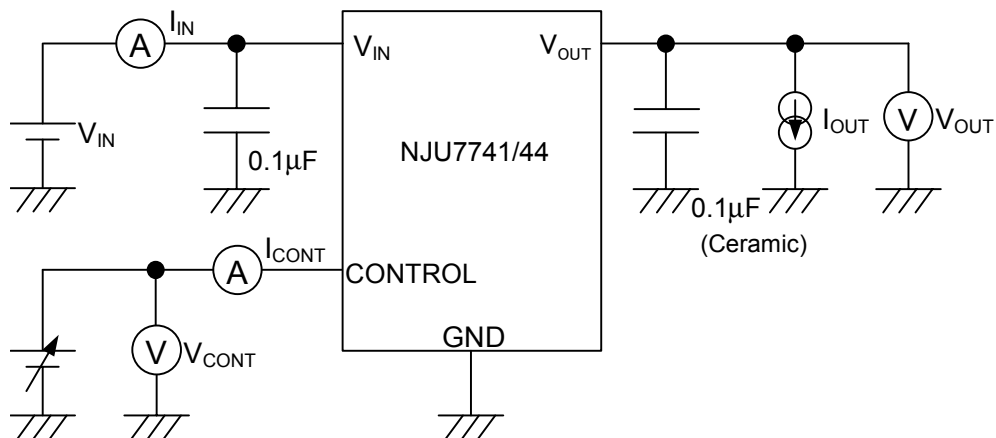
The above specification is a common specification for all voltages.

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

■ POWER DISSIPATION vs. AMBIENT TEMPERATURE

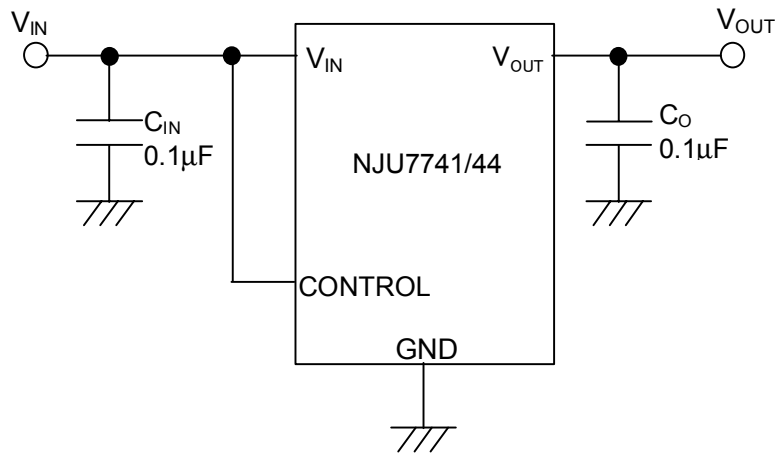


■ TEST CIRCUIT



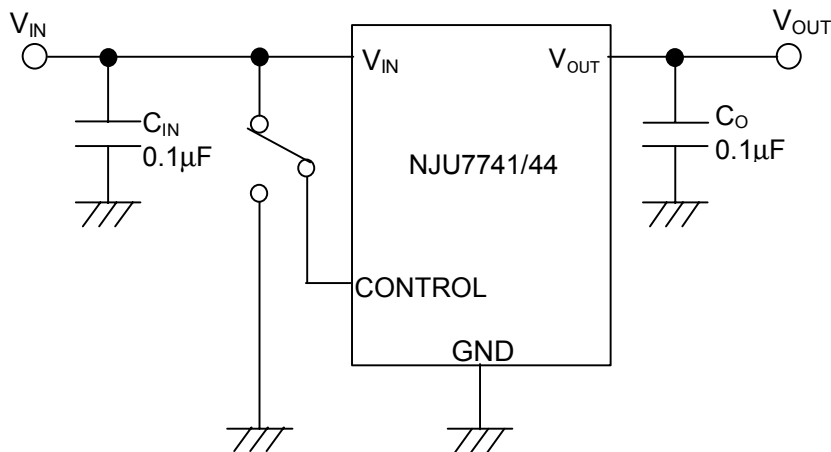
■ TYPICAL APPLICATION

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



Connect control terminal to V_{IN} terminal.

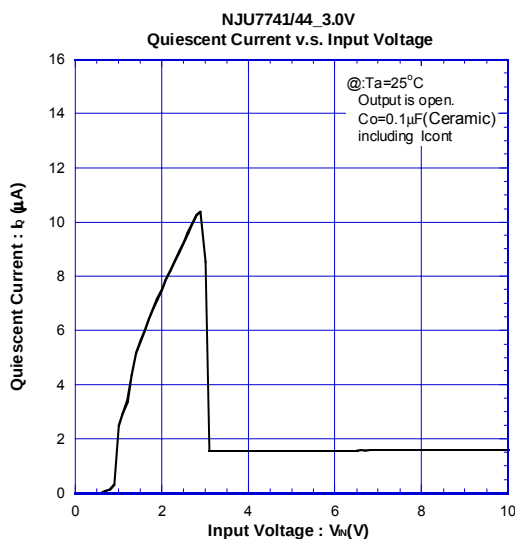
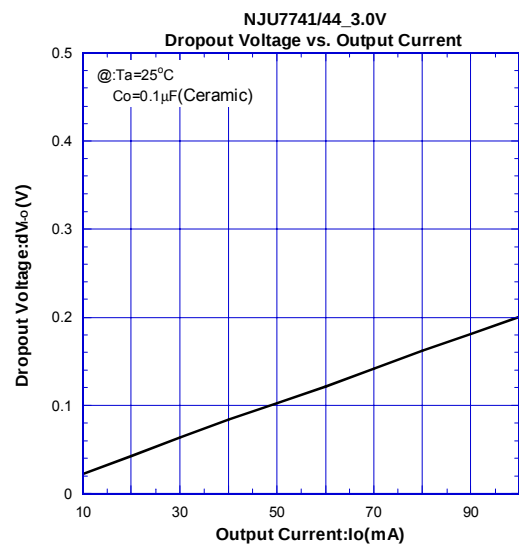
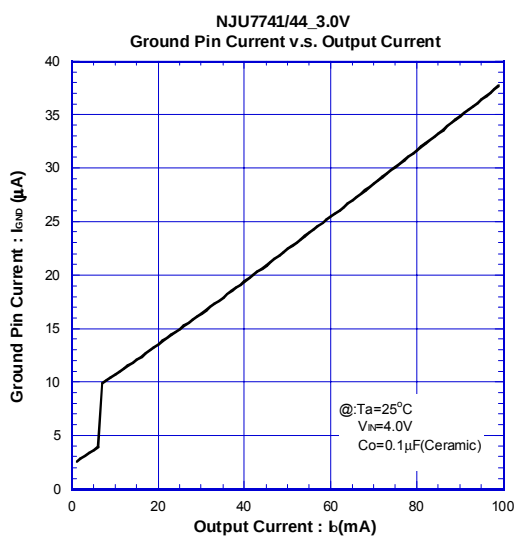
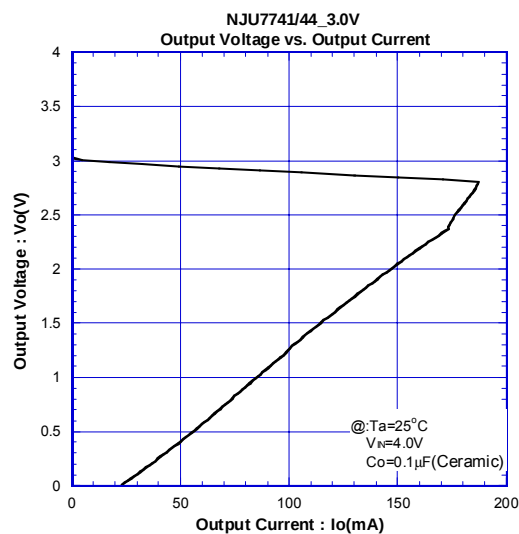
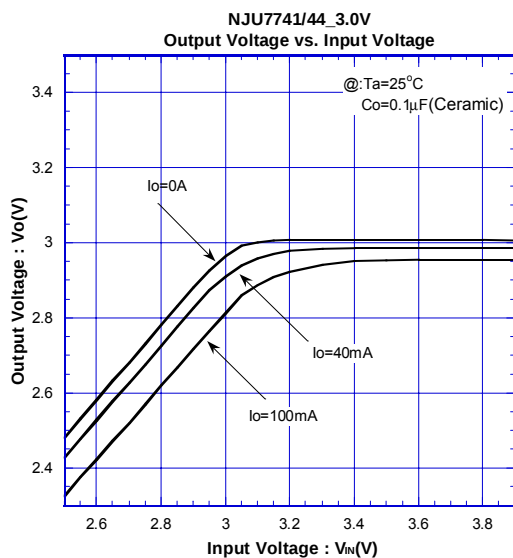
② In use of ON/OFF Control



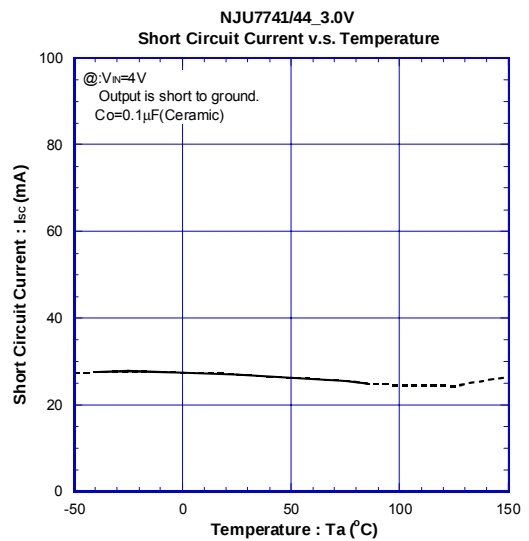
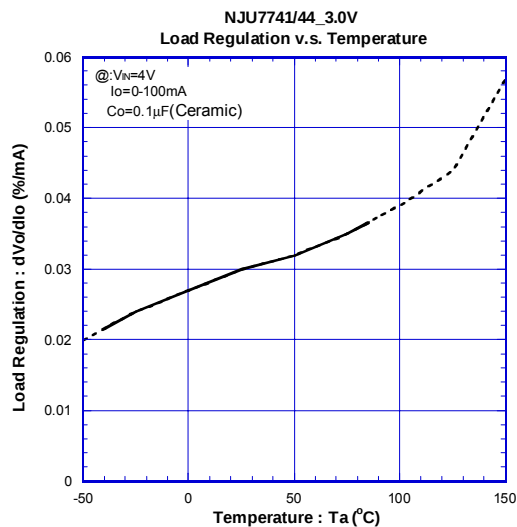
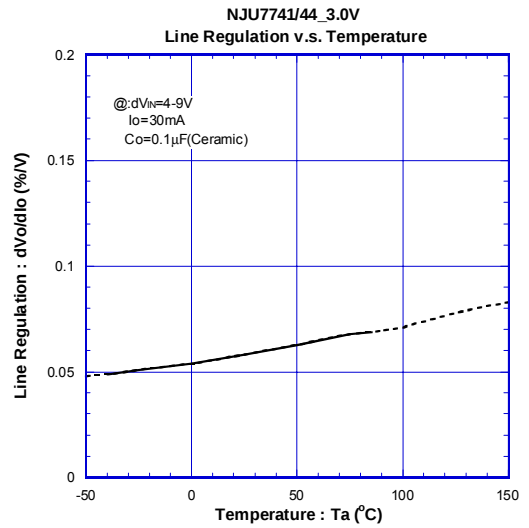
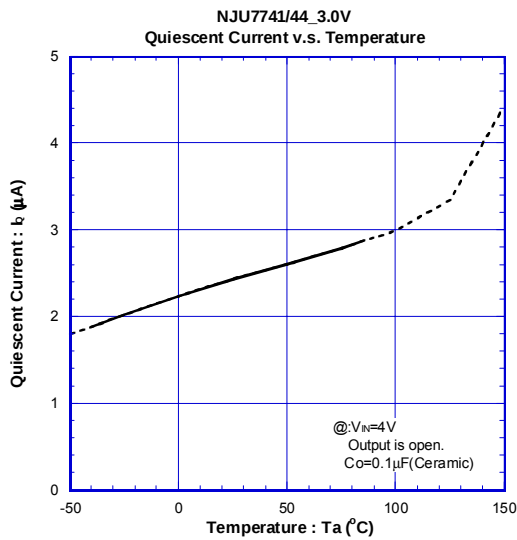
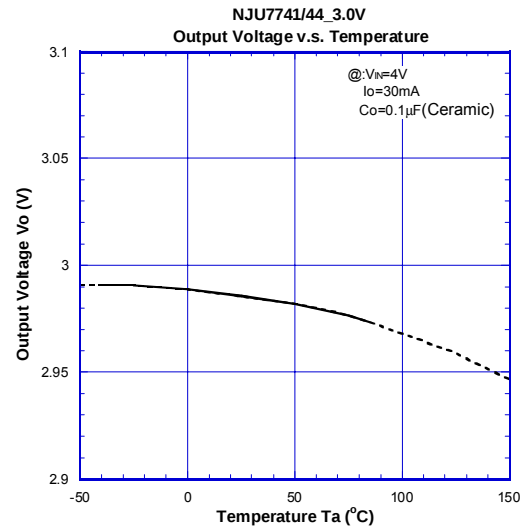
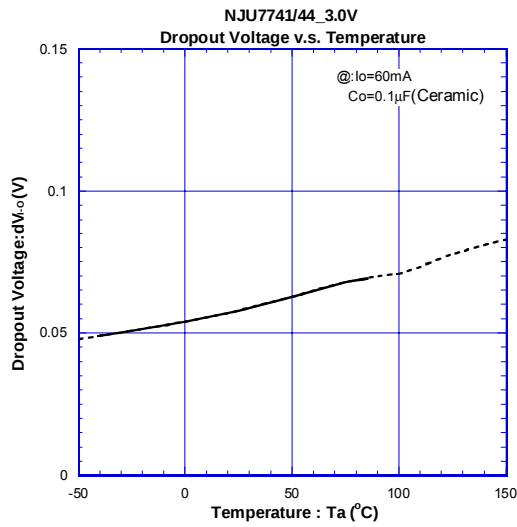
State of control terminal:

- "H" $\rightarrow$ output is enabled.
- "L" or "open" $\rightarrow$ output is disabled.

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



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