

## 2ch LOW DROPOUT VOLTAGE REGULATOR

### ■ GENERAL DESCRIPTION

The NJU7254 is a 2ch low dropout voltage regulator with ON/OFF control. Advanced C-MOS technology achieves high ripple rejection and low quiescent current.

SOT-23-6 package, 100mA×2ch output current and 1.0μF small capacitor make NJU7254 suitable for space conscious applications.

### ■ PACKAGE OUTLINE

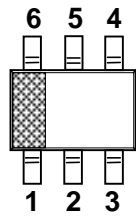


NJU7254F1

### ■ FEATURES

- High Ripple Rejection      65dB typ. (f=1kHz, Vo=3V Version)
- Low Quiescent Current      18μA/ch(typ.), 30μA/total (typ.)
- Output capacitor with 1.0μF ceramic capacitor
- Output Current              Io(max.)=100mA ×2ch
- High Precision Output      Vo±1.0%
- Low Dropout Voltage      0.09V typ. (Io=60mA, Vo=3V Version)
- ON/OFF Control (Each ch.)
- Internal Short Circuit Current Limit
- C-MOS technology
- Package Outline              SOT-23-6

### ■ PIN CONFIGURATION

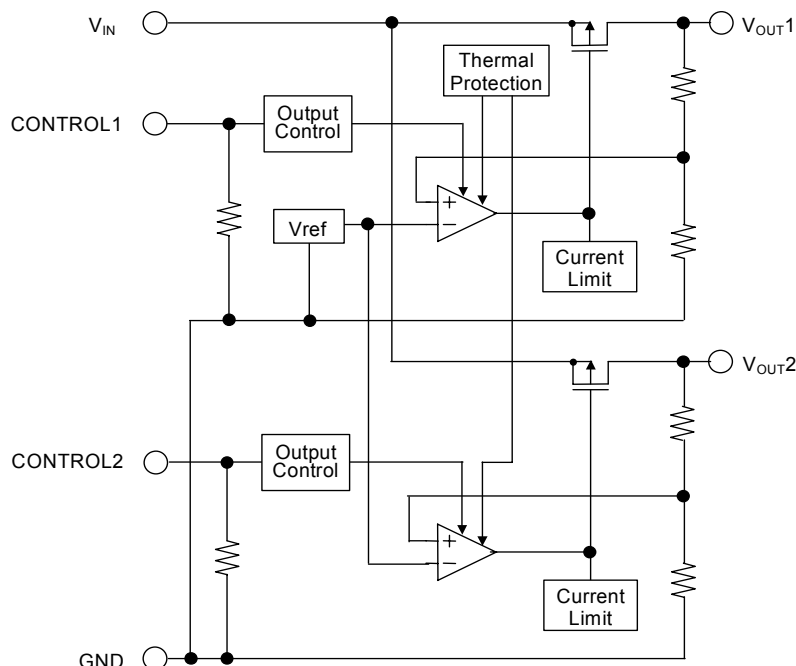


NJU7254F1

#### PIN FUNCTION

1. V<sub>OUT2</sub>
2. GND
3. V<sub>OUT1</sub>
4. CONTROL1
5. V<sub>IN</sub>
6. CONTROL2

### ■ EQUIVALENT CIRCUIT



# NJU7254

## ■ OUTPUT VOLTAGE RANK LIST

Device Name	V <sub>OUT</sub>	
	CH1	CH2
NJU7254F1-2121	2.1V	2.1V
NJU7254F1-0303	3.0V	3.0V
NJU7254F1-0521	5.0V	2.1V

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

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V <sub>IN</sub>	+9	V
Control Voltage	V <sub>CONT</sub>	+9(*1)	V
Power Dissipation	P <sub>D</sub>	SOT-23-6 200(*2) 400(*3)	mW
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-40~+125	°C

(\*1): When input voltage is less than +14V, the absolute maximum control voltage is equal to the input voltage.

(\*2): Device itself.

(\*3): Mounted on glass epoxy board based on EIA/JEDEC. (114.3x76.2x1.6mm: 2Layers)

## ■ Operating voltage

V<sub>IN</sub>=+2.3 ~ +8V (In case of Vo<2.1V version)

## ■ ELECTRICAL CHARACTERISTICS (V<sub>IN</sub>=V<sub>O</sub>+1V(\*4), C<sub>IN</sub>=0.1μF, C<sub>O</sub>=1.0μF (Vo≤2.0V : Co=2.2μF), Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	V <sub>O</sub>	I <sub>O</sub> =30mA	-1.0%	—	+1.0%	V	
Input Voltage	V <sub>IN</sub>		—	—	8	V	
Quiescent Current 1	I <sub>Q1</sub>	V <sub>CONT1</sub> =V <sub>IN</sub> , V <sub>CONT2</sub> =0V or V <sub>CONT1</sub> =0V, V <sub>CONT2</sub> =V <sub>IN</sub> , I <sub>O</sub> =0mA, Include I <sub>CONT</sub>	—	18	35	μA	
Quiescent Current 2	I <sub>Q2</sub>	V <sub>CONT1</sub> =V <sub>CONT2</sub> =V <sub>IN</sub> , I <sub>O</sub> =0mA, Include I <sub>CONT</sub>	—	30	60	μA	
Quiescent Current at Control OFF	I <sub>Q(OFF)</sub>	V <sub>CONT1</sub> =V <sub>CONT2</sub> =0V	—	0.1	1	μA	
Output Current	I <sub>O</sub>	V <sub>O</sub> -0.1V (V <sub>O</sub> ≤2.0V Version) V <sub>O</sub> -0.3V (V <sub>O</sub> ≥2.1V Version)	100	—	—	mA	
Short Circuit Limit	I <sub>LIM</sub>	V <sub>O</sub> =0V	—	40	—	mA	
Line Regulation	ΔV <sub>O</sub> /ΔV <sub>IN</sub>	V <sub>IN</sub> =V <sub>O</sub> +1V~V <sub>O</sub> +6V (V <sub>O</sub> <2.0V Version) V <sub>IN</sub> =V <sub>O</sub> +1V~8.0V (V <sub>O</sub> ≥2.0V Version), I <sub>O</sub> =30mA	—	—	0.20	%/V	
Load Regulation	ΔV <sub>O</sub> /ΔI <sub>O</sub>	I <sub>O</sub> =0~100mA	—	—	0.03	%/mA	
Dropout Voltage	ΔV <sub>I-O</sub>	I <sub>O</sub> =60mA	2.1V≤V <sub>O</sub> ≤2.4V	—	0.11	0.16	V
			2.5V≤V <sub>O</sub> ≤2.7V	—	0.10	0.15	V
			2.8V≤V <sub>O</sub> ≤3.3V	—	0.09	0.14	V
			3.4V≤V <sub>O</sub> ≤5.0V	—	0.07	0.12	V
Average Temperature Coefficient of Output Voltage	ΔV <sub>O</sub> /ΔTa	Ta=0~85°C, I <sub>O</sub> =10mA	—	±100	—	ppm/°C	
Output Noise Voltage	V <sub>NO1</sub>	f=10Hz ~ 80kHz, I <sub>O</sub> =0mA, V <sub>O</sub> =3.0V Version	—	75	—	μVrms	
Pull-down Resistance	R <sub>CONT</sub>		2	5	10	MΩ	
Control Voltage for ON-state	V <sub>CONT(ON)</sub>		1.6	—	—	V	
Control Voltage for OFF-state	V <sub>CONT(OFF)</sub>		—	—	0.3	V	

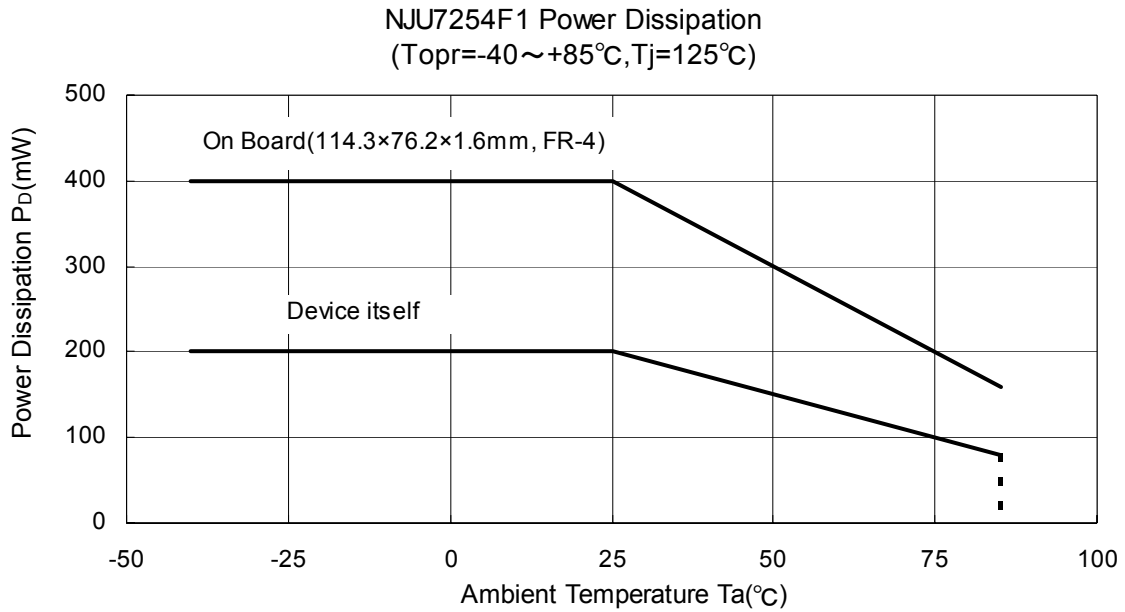
(\*4): V<sub>IN</sub>=V<sub>O</sub>+1V means add 1V to higher output voltage.

(\*5): The output voltage excludes under 2.1V.

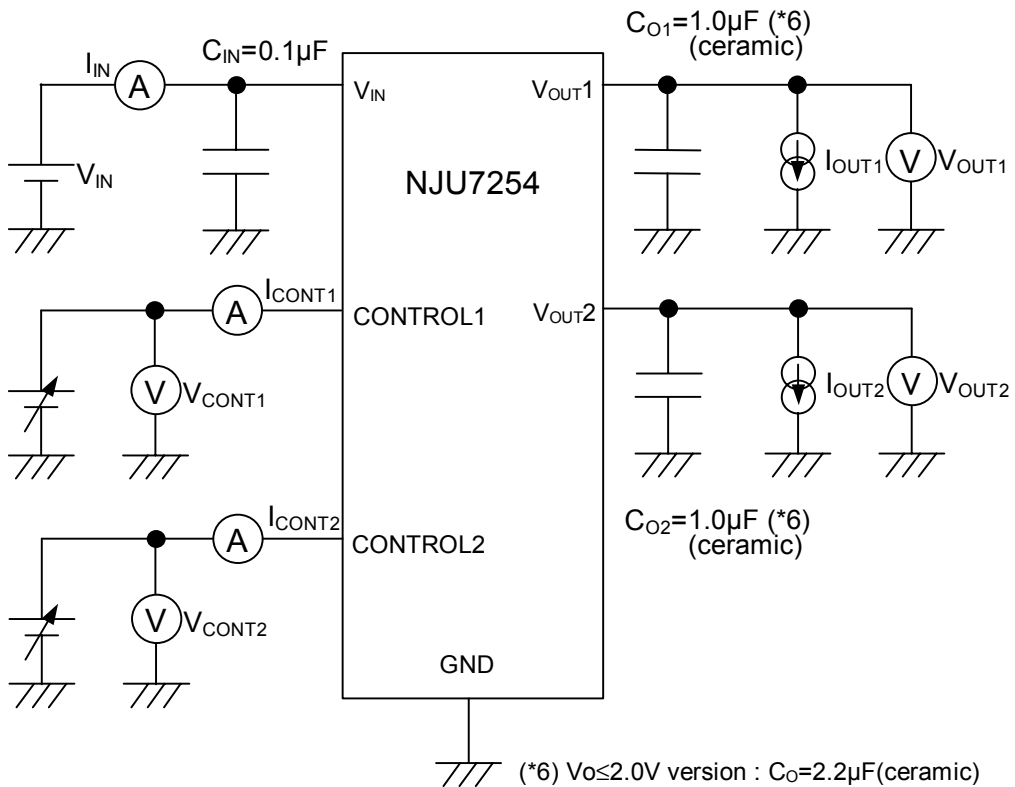
The above specification is a common specification for all voltages.

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

## POWER DISSIPATION vs. AMBIENT TEMPERATURE



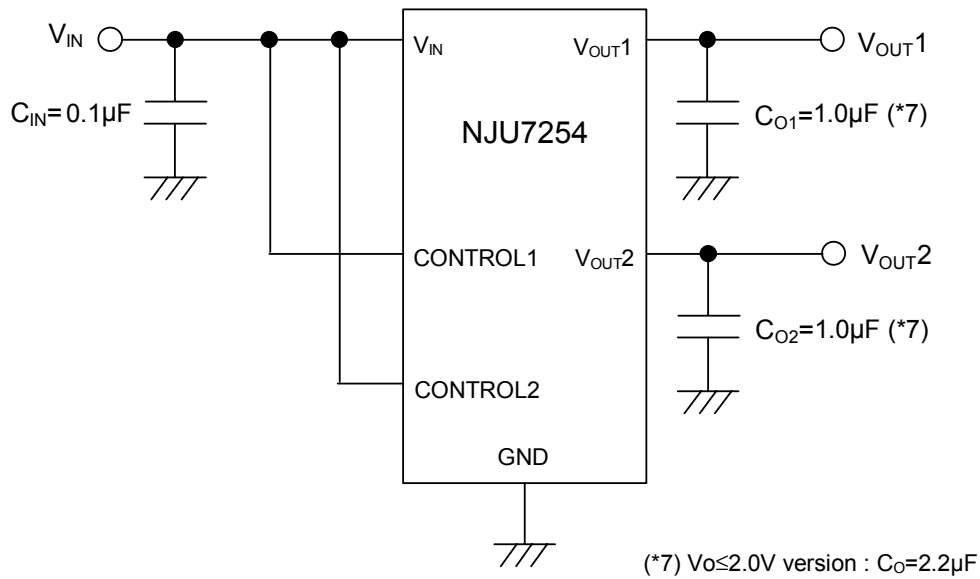
## TEST CIRCUIT



# NJU7254

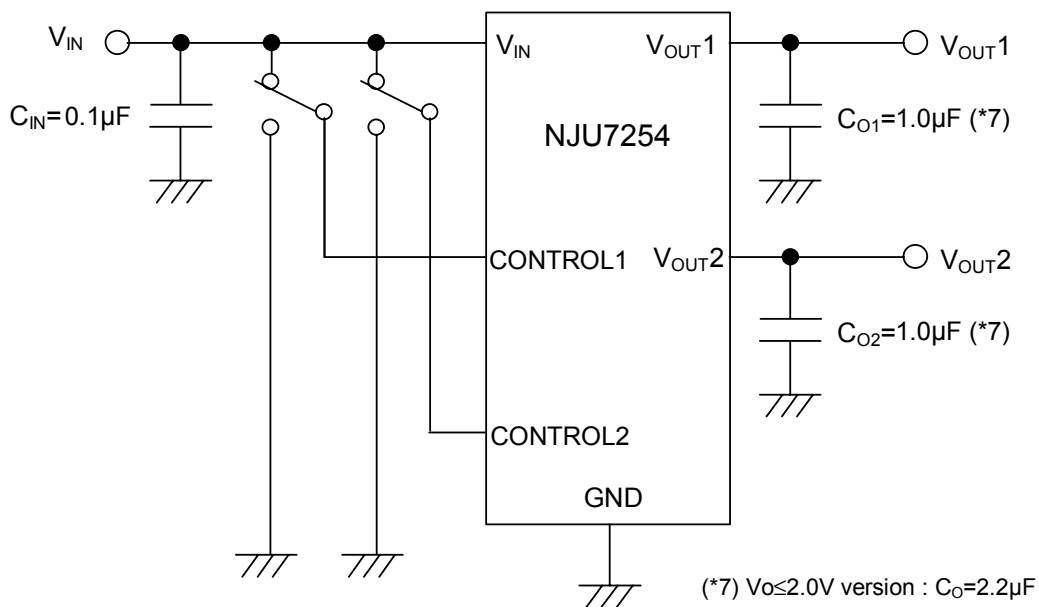
## ■ TYPICAL APPLICATION

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



Connect control terminal to V<sub>IN</sub> terminal.

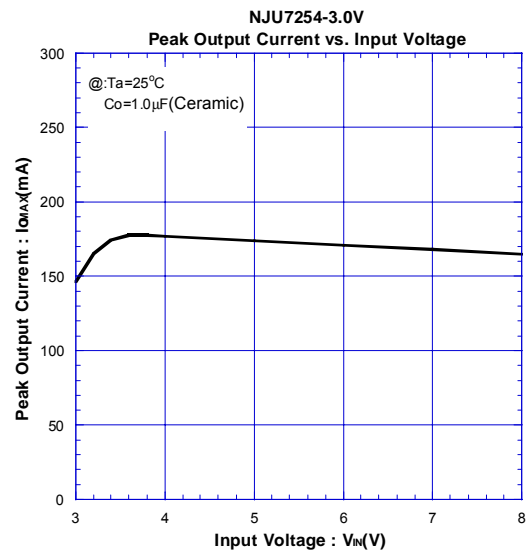
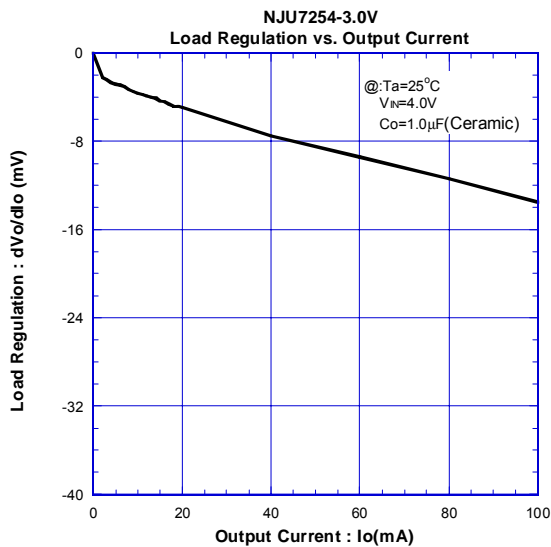
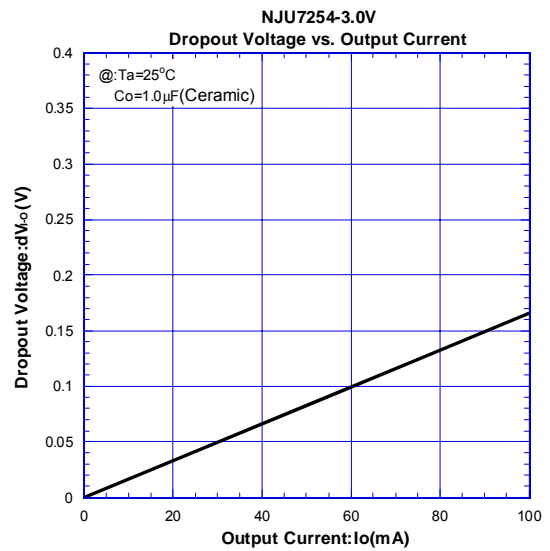
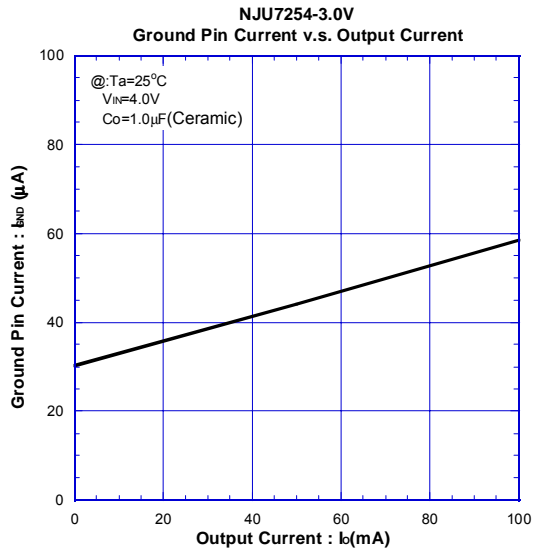
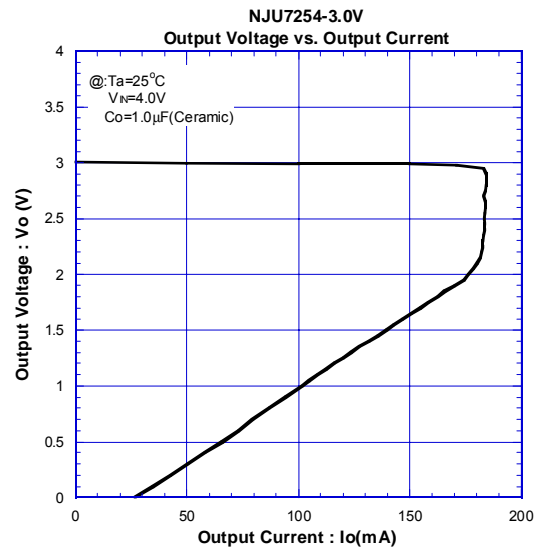
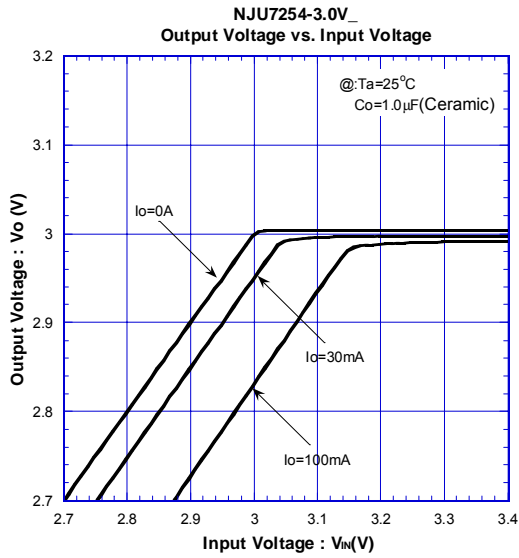
② In use of ON/OFF Control



State of control terminal:

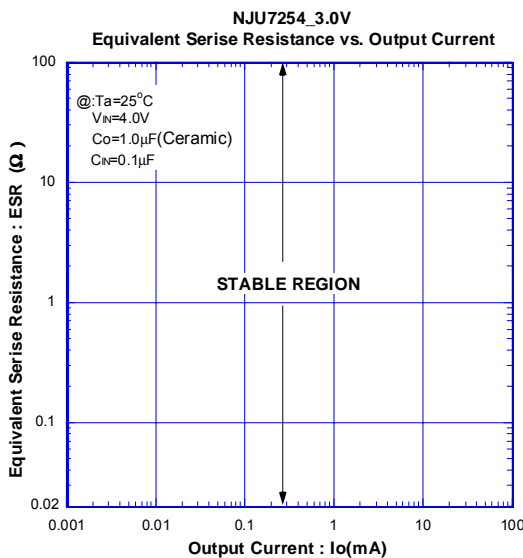
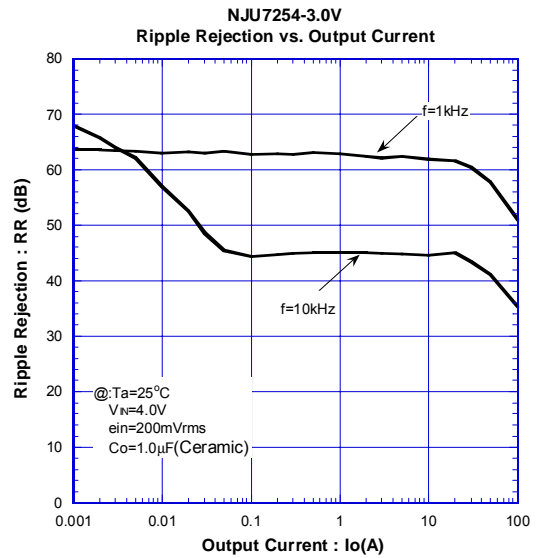
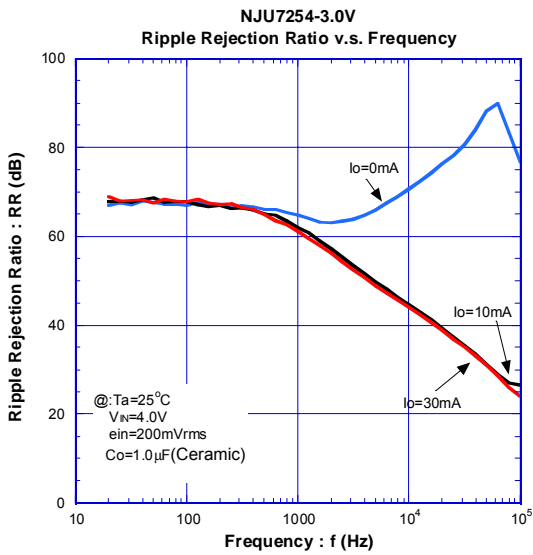
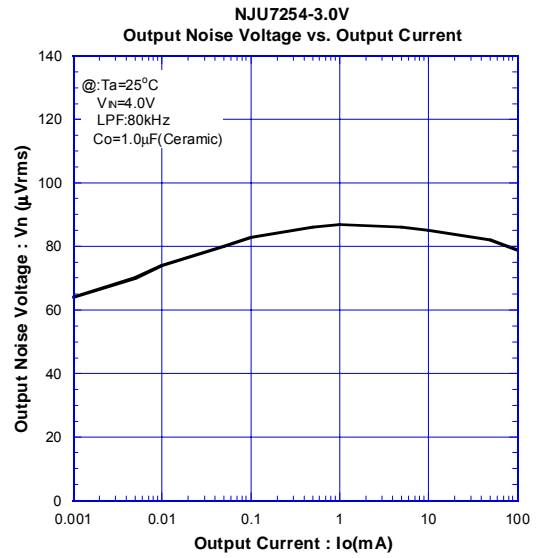
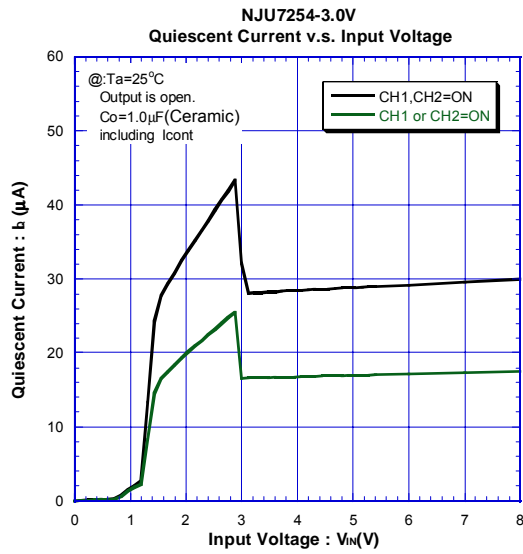
- "H" → output is enabled.
- "L" or "open" → output is disabled.

## ■ TYPICAL CHARACTERISTICS

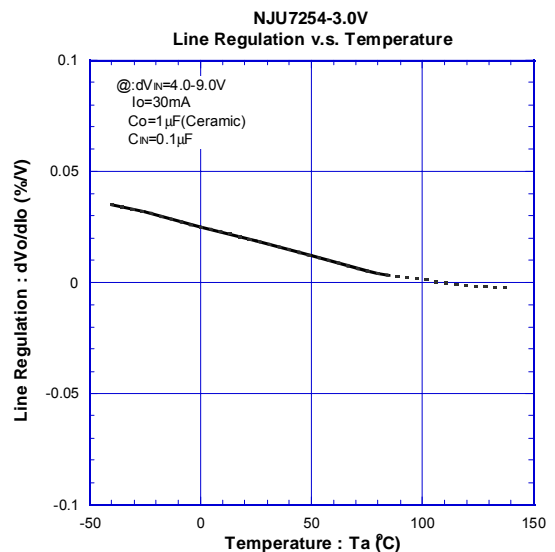
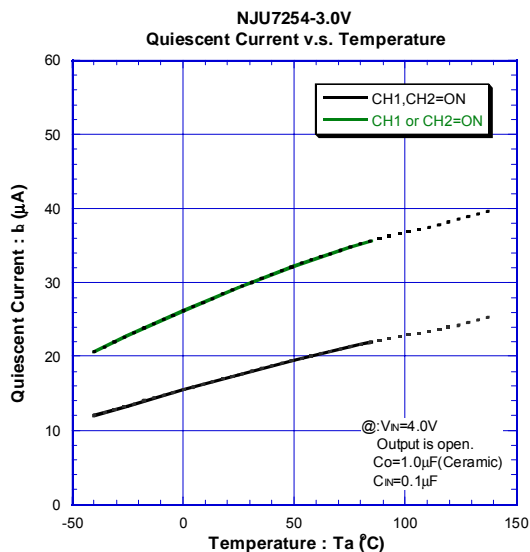
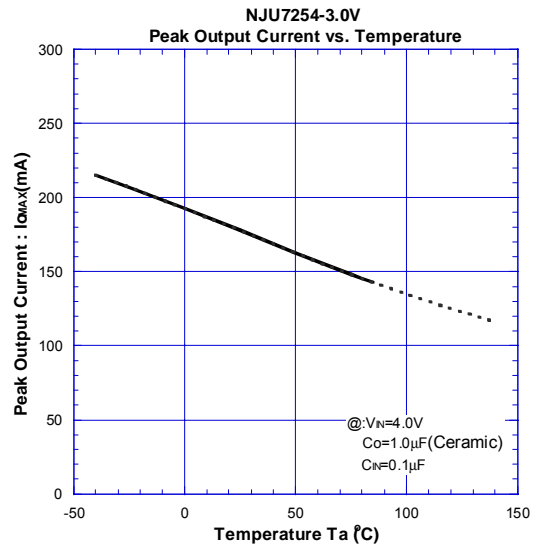
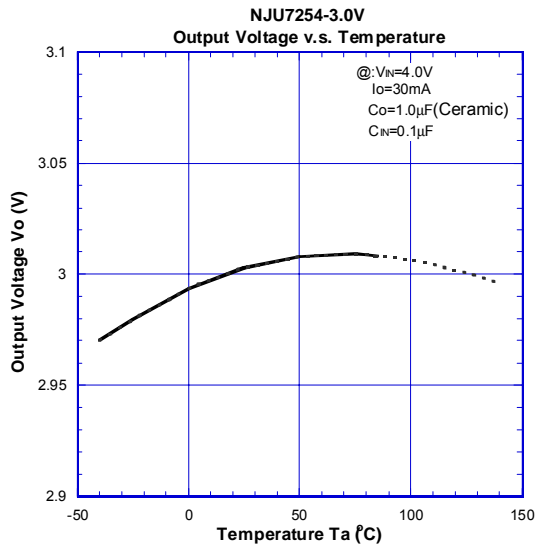
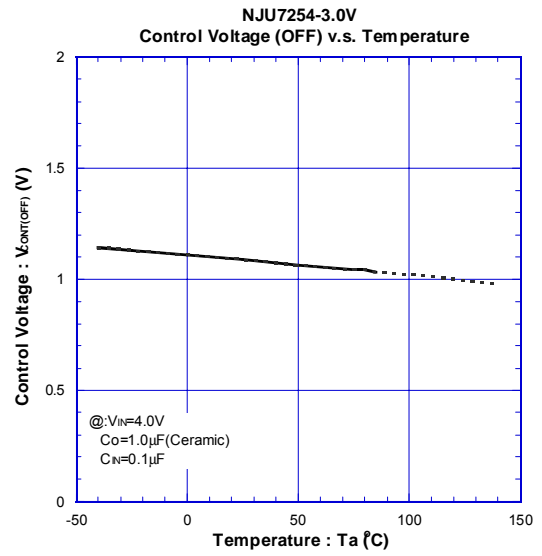
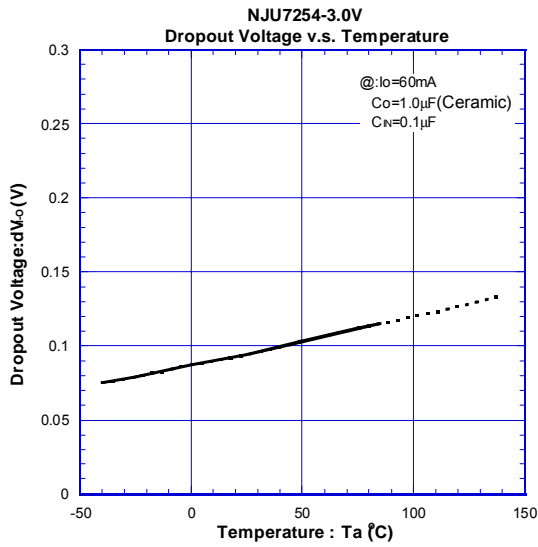


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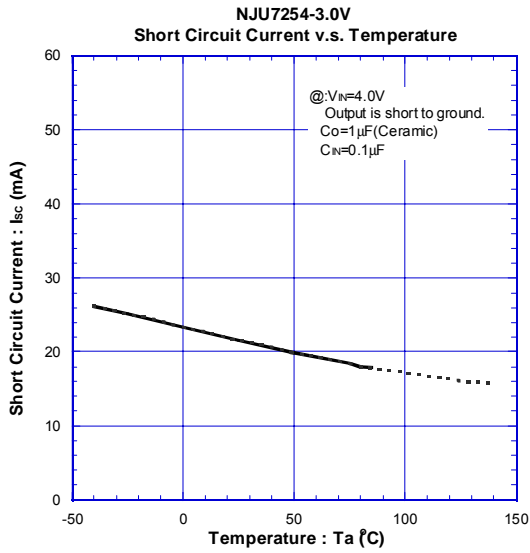
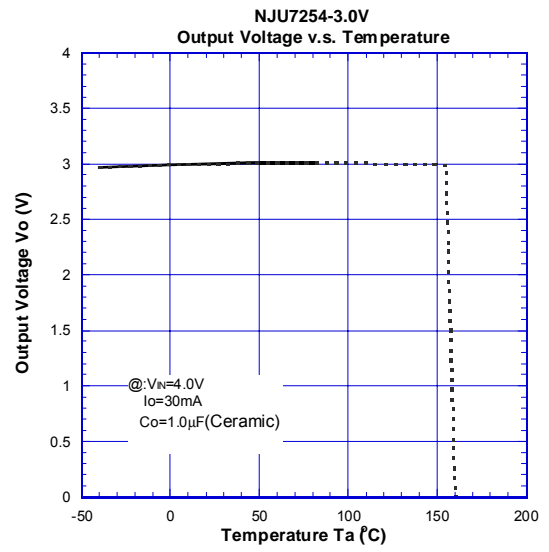
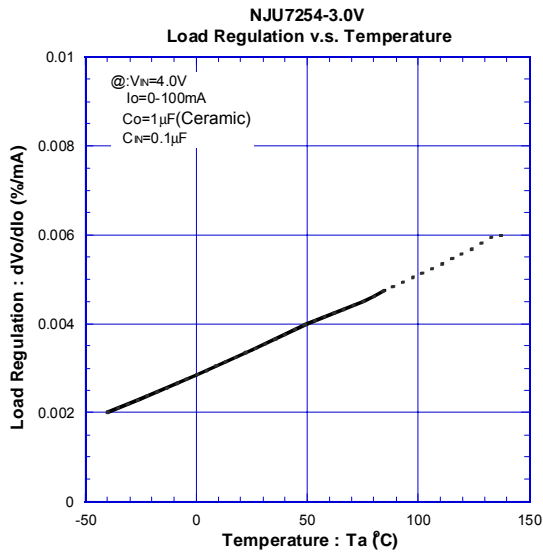
## ■ TYPICAL CHARACTERISTICS



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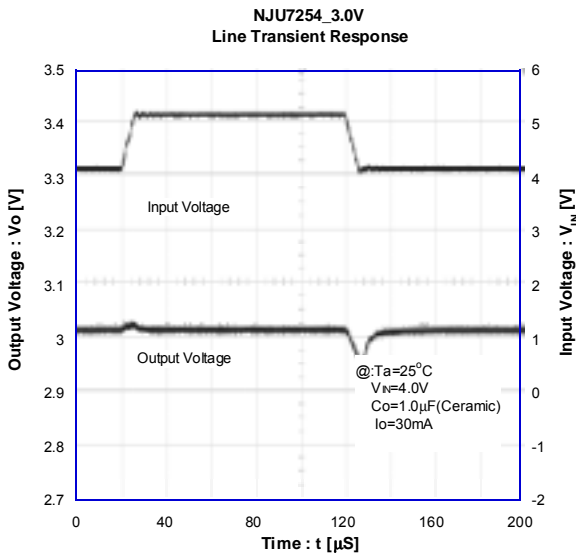
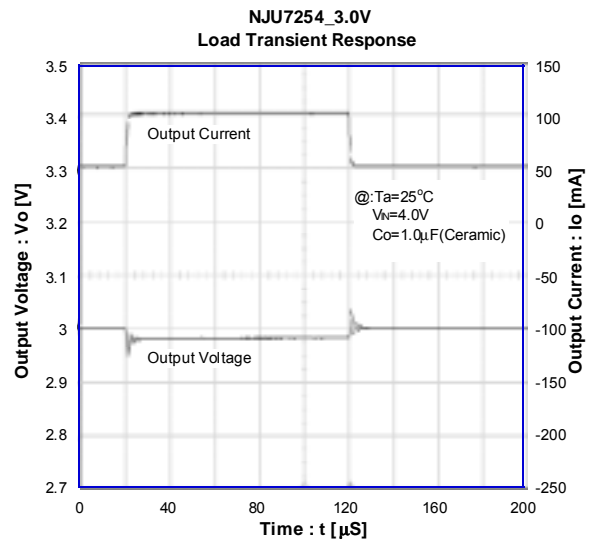
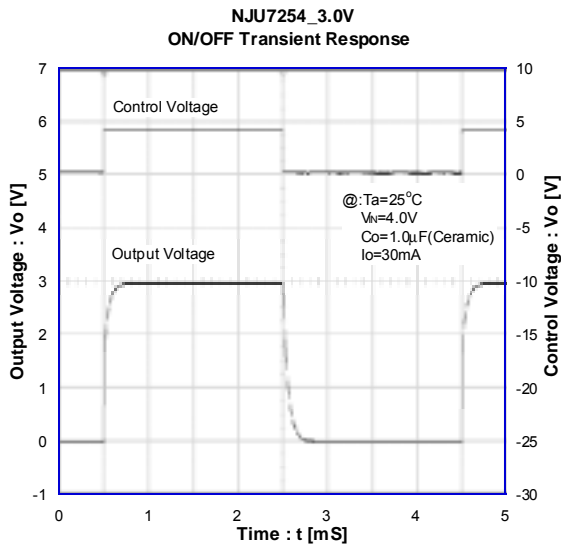


## TYPICAL CHARACTERISTICS





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**[CAUTION]**

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