

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

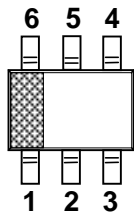


NJU7254F1

■ 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

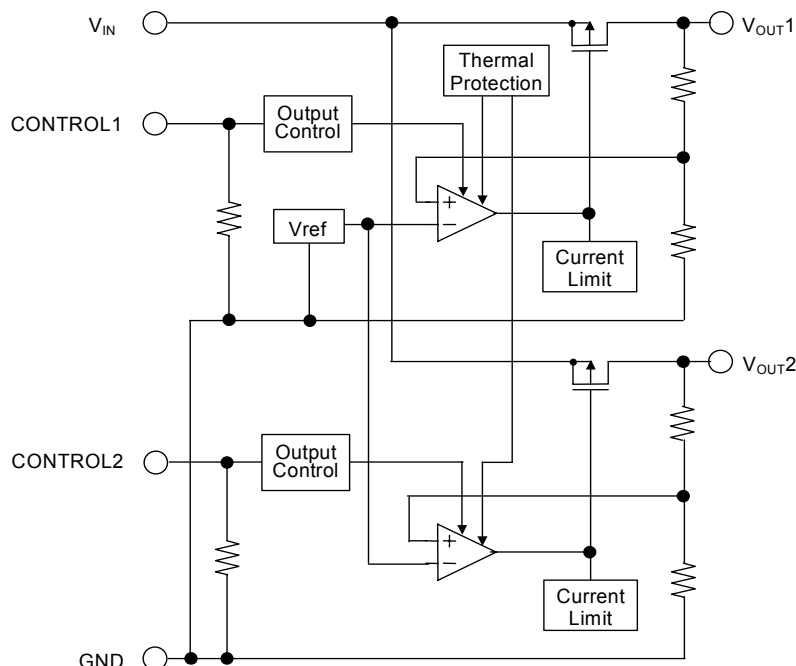


NJU7254F1

PIN FUNCTION

1. V_{OUT2}
2. GND
3. V_{OUT1}
4. CONTROL1
5. V_{IN}
6. CONTROL2

■ EQUIVALENT CIRCUIT



NJU7254

■ OUTPUT VOLTAGE RANK LIST

Device Name	V _{OUT}	
	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 _{IN}	+9	V
Control Voltage	V _{CONT}	+9(*1)	V
Power Dissipation	P _D	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_{IN}=+2.3 ~ +8V (In case of Vo<2.1V version)

■ ELECTRICAL CHARACTERISTICS (V_{IN}=V_O+1V(*4), C_{IN}=0.1μF, C_O=1.0μF (Vo≤2.0V : Co=2.2μF), 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}		—	—	8	V	
Quiescent Current 1	I _{Q1}	V _{CONT1} =V _{IN} , V _{CONT2} =0V or V _{CONT1} =0V, V _{CONT2} =V _{IN} , I _O =0mA, Include I _{CONT}	—	18	35	μA	
Quiescent Current 2	I _{Q2}	V _{CONT1} =V _{CONT2} =V _{IN} , I _O =0mA, Include I _{CONT}	—	30	60	μA	
Quiescent Current at Control OFF	I _{Q(OFF)}	V _{CONT1} =V _{CONT2} =0V	—	0.1	1	μA	
Output Current	I _O	V _O -0.1V (V _O ≤2.0V Version) V _O -0.3V (V _O ≥2.1V Version)	100	—	—	mA	
Short Circuit Limit	I _{LIM}	V _O =0V	—	40	—	mA	
Line Regulation	ΔV _O /ΔV _{IN}	V _{IN} =V _O +1V~V _O +6V (V _O <2.0V Version) V _{IN} =V _O +1V~8.0V (V _O ≥2.0V Version), I _O =30mA	—	—	0.20	%/V	
Load Regulation	ΔV _O /ΔI _O	I _O =0~100mA	—	—	0.03	%/mA	
Dropout Voltage	ΔV _{I-O}	I _O =60mA	2.1V≤V _O ≤2.4V	—	0.11	0.16	V
			2.5V≤V _O ≤2.7V	—	0.10	0.15	V
			2.8V≤V _O ≤3.3V	—	0.09	0.14	V
			3.4V≤V _O ≤5.0V	—	0.07	0.12	V
Average Temperature Coefficient of Output Voltage	ΔV _O /ΔTa	Ta=0~85°C, I _O =10mA	—	±100	—	ppm/°C	
Output Noise Voltage	V _{NO1}	f=10Hz ~ 80kHz, I _O =0mA, V _O =3.0V Version	—	75	—	μVrms	
Pull-down Resistance	R _{CONT}		2	5	10	MΩ	
Control Voltage for ON-state	V _{CONT(ON)}		1.6	—	—	V	
Control Voltage for OFF-state	V _{CONT(OFF)}		—	—	0.3	V	

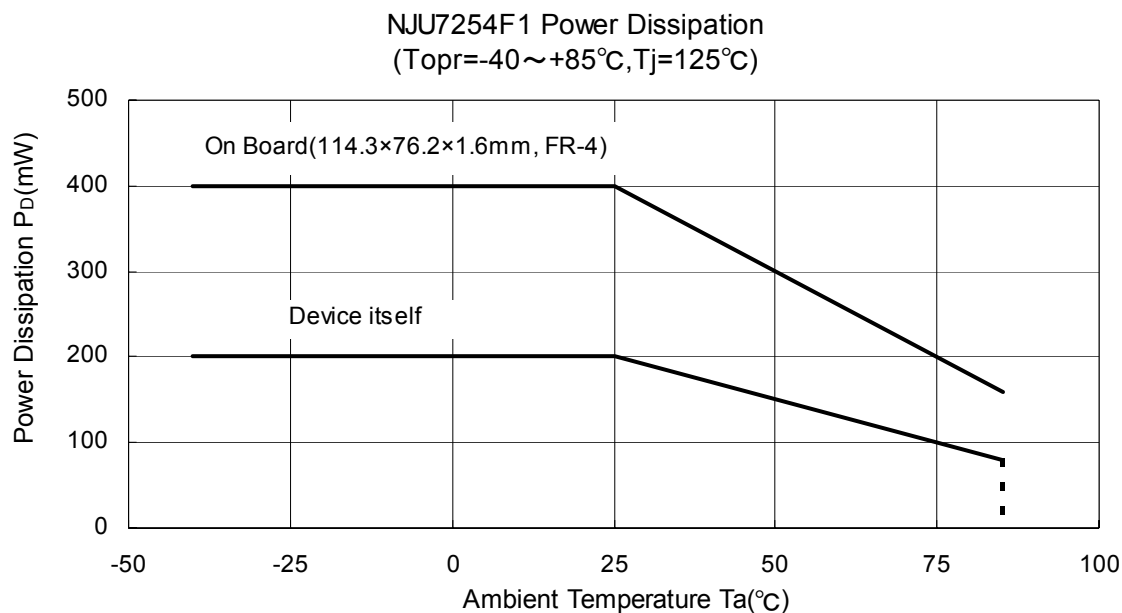
(*4): V_{IN}=V_O+1V means add 1V to higher output voltage.

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

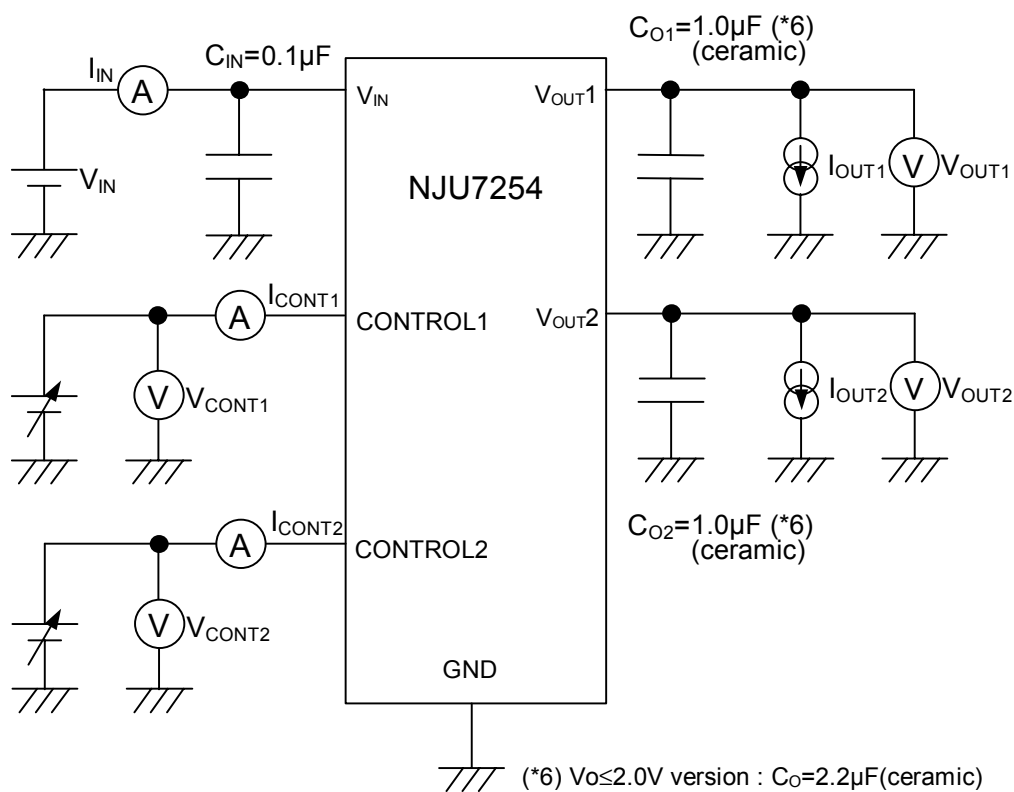
The above specification is a common specification for all voltages.

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

POWER DISSIPATION vs. AMBIENT TEMPERATURE



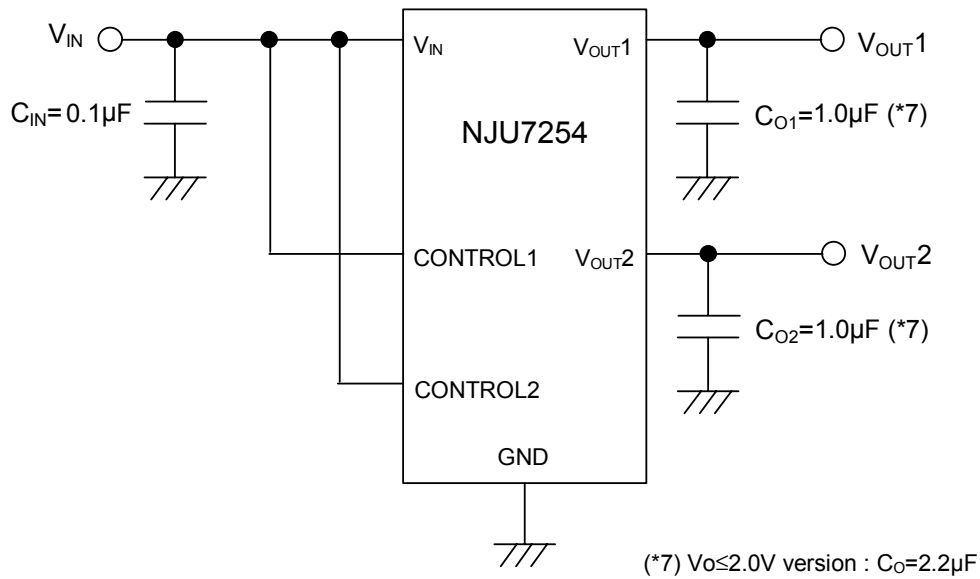
TEST CIRCUIT



NJU7254

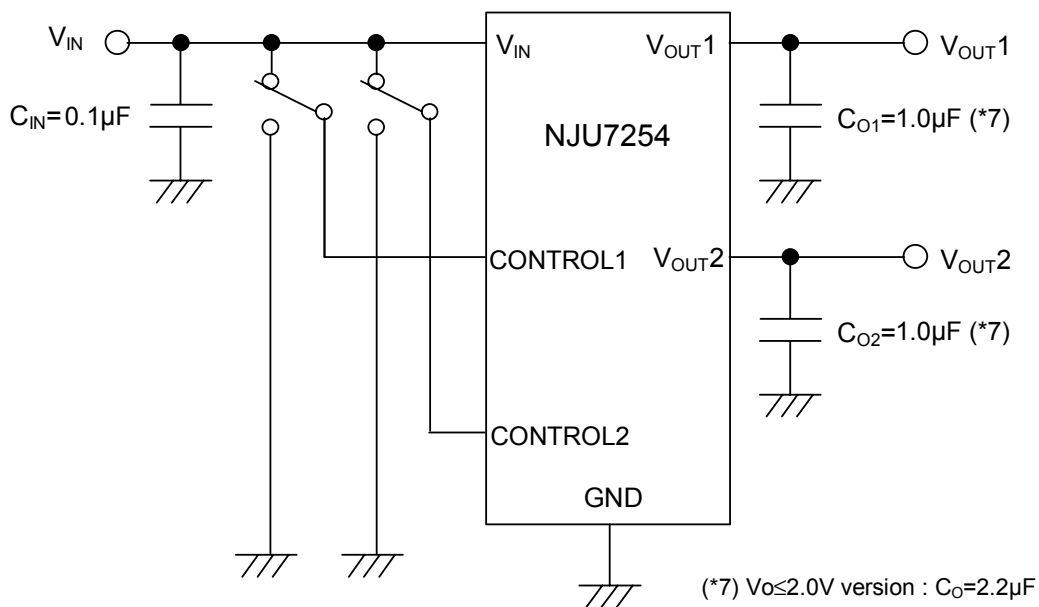
■ TYPICAL APPLICATION

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



Connect control terminal to V_{IN} terminal.

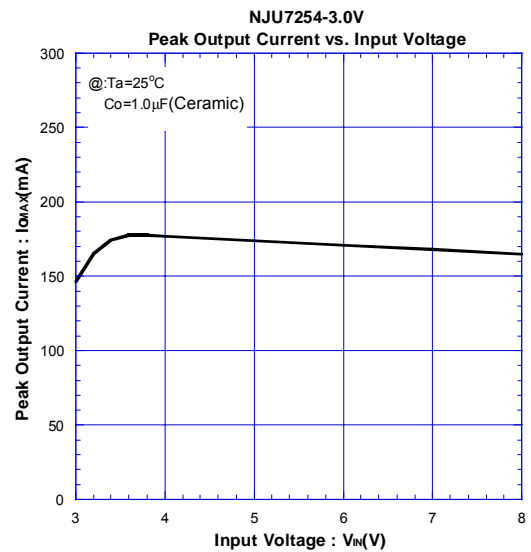
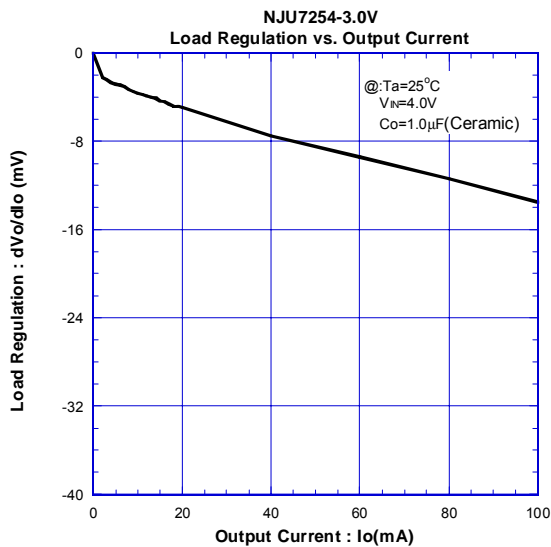
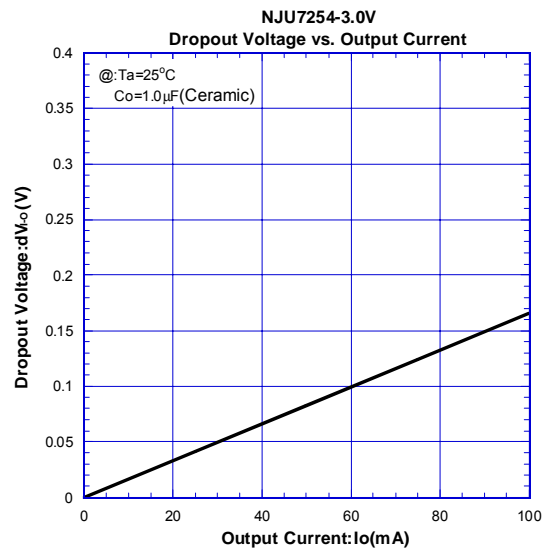
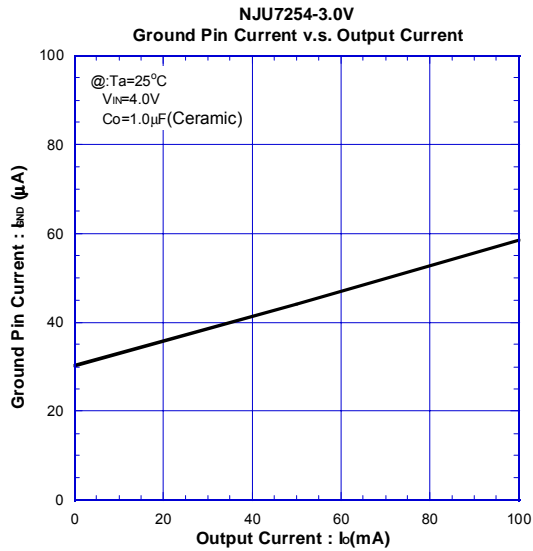
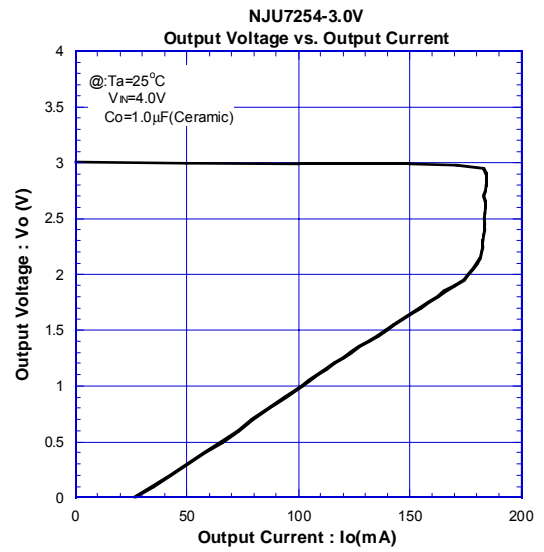
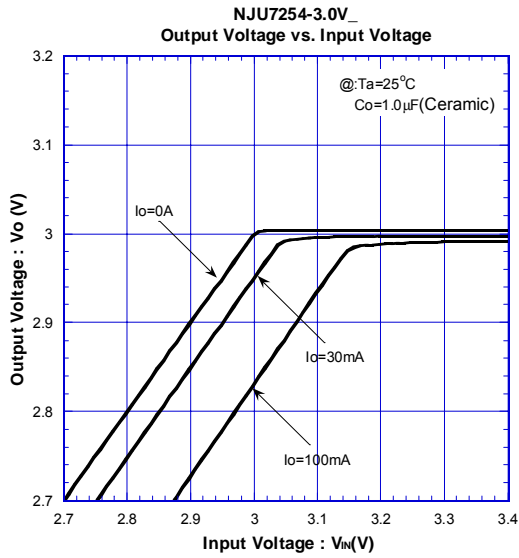
② In use of ON/OFF Control



State of control terminal:

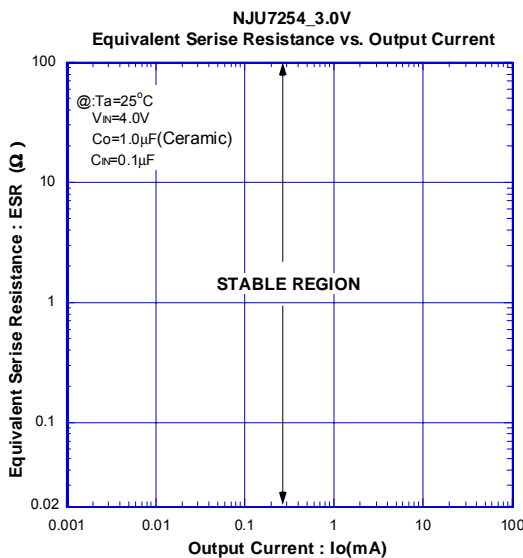
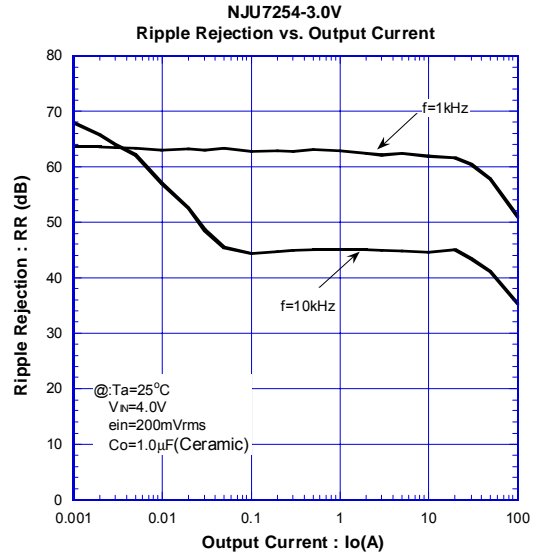
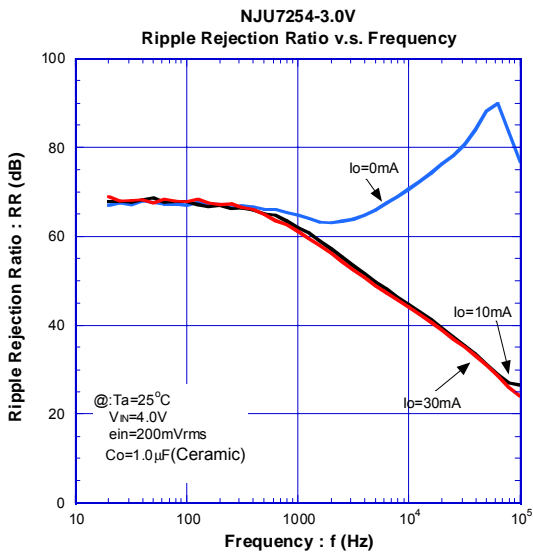
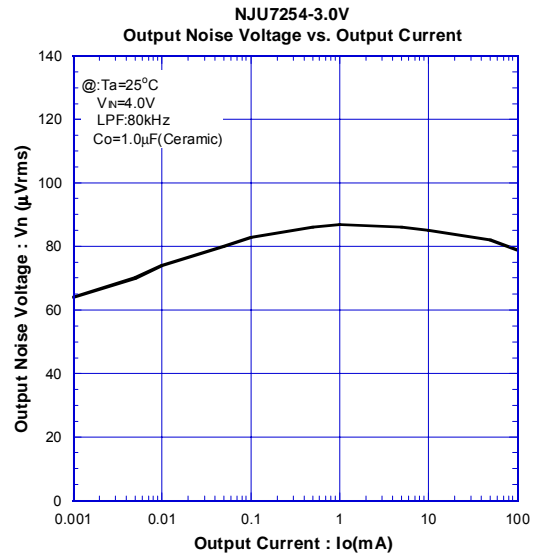
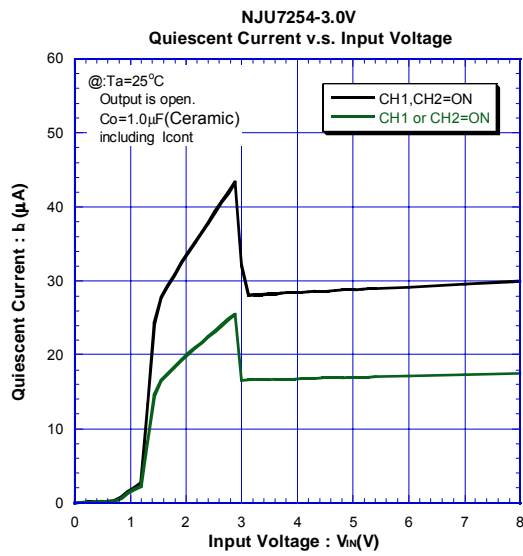
- "H" → output is enabled.
- "L" or "open" → output is disabled.

■ TYPICAL CHARACTERISTICS

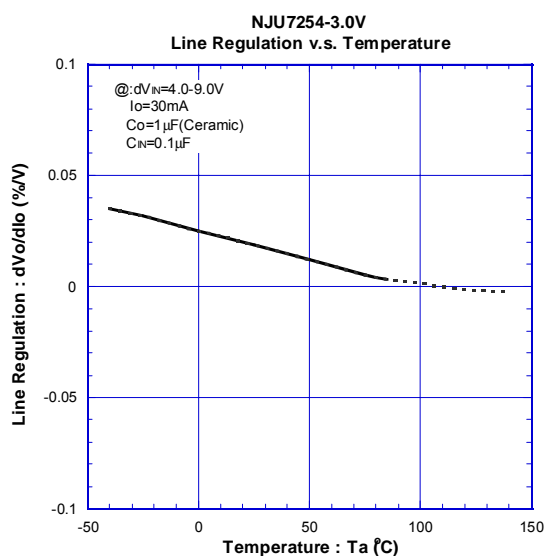
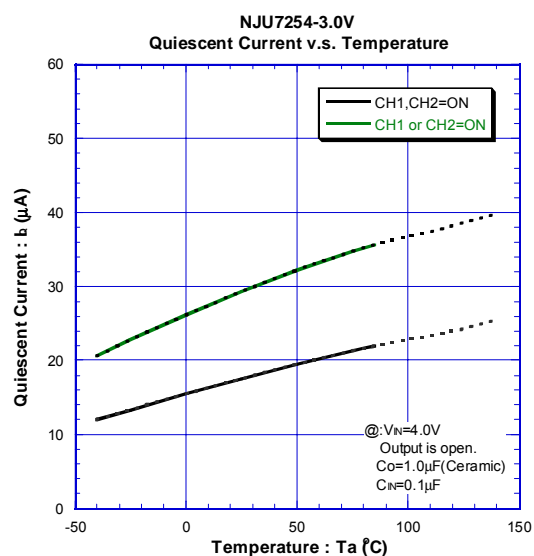
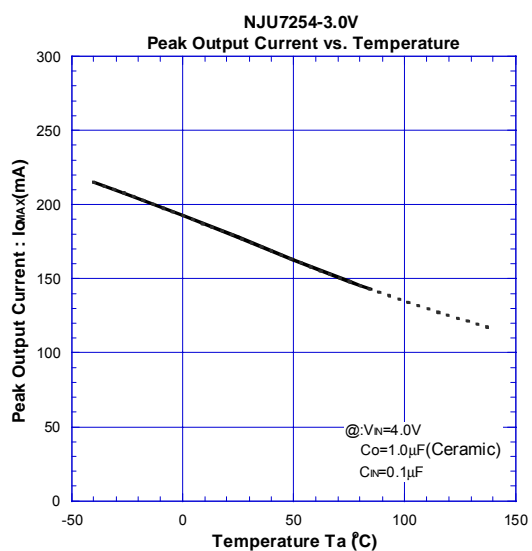
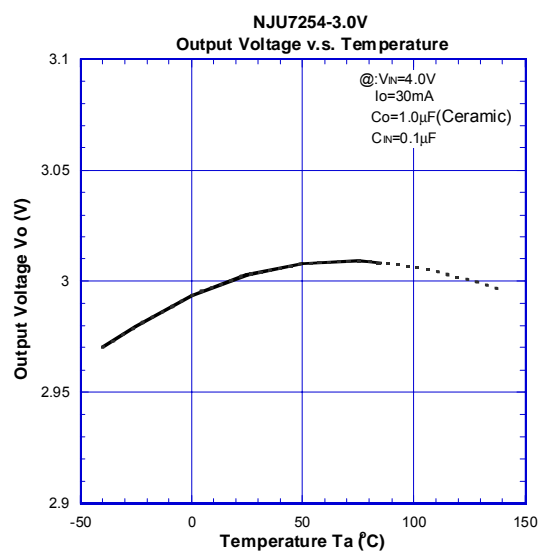
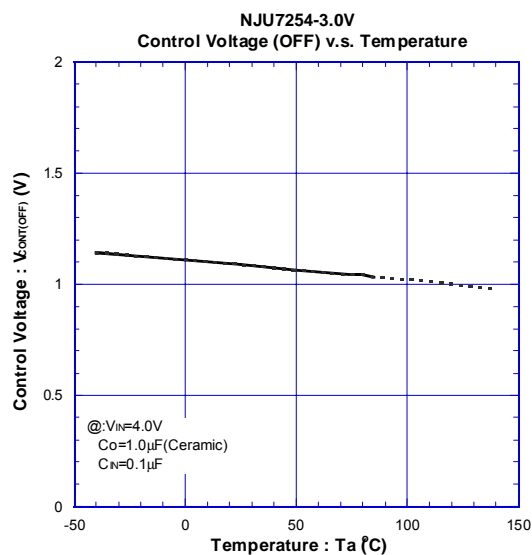
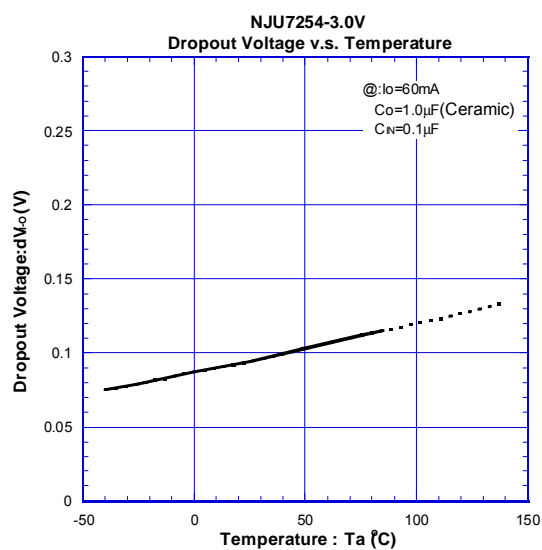


NJU7254

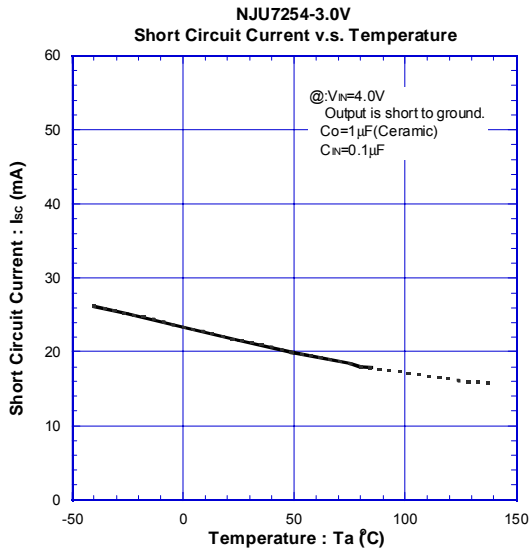
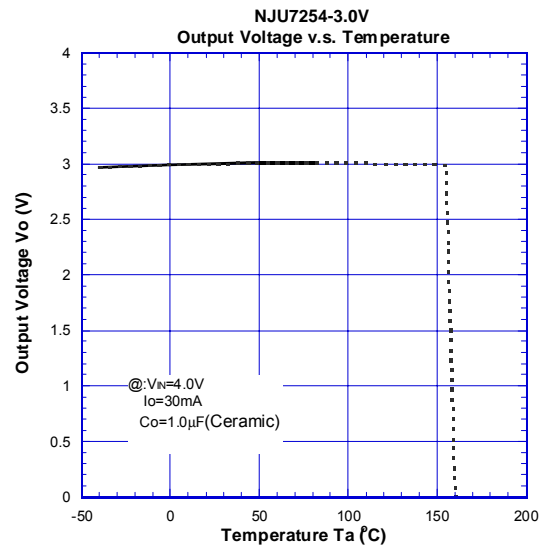
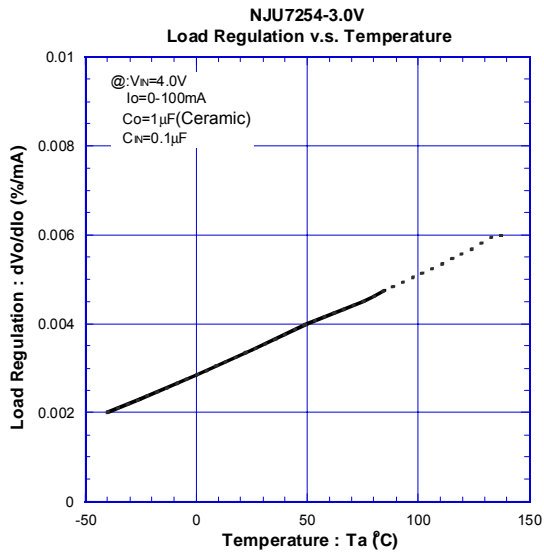
■ TYPICAL CHARACTERISTICS



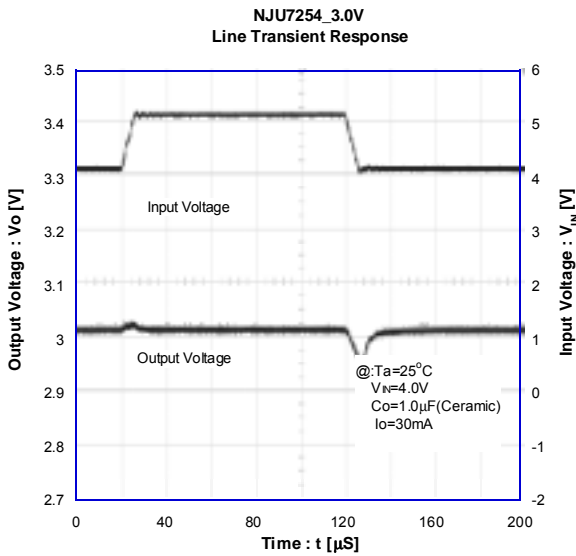
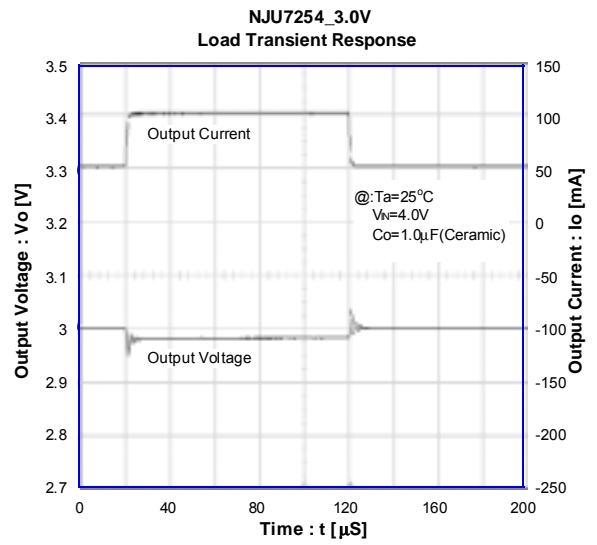
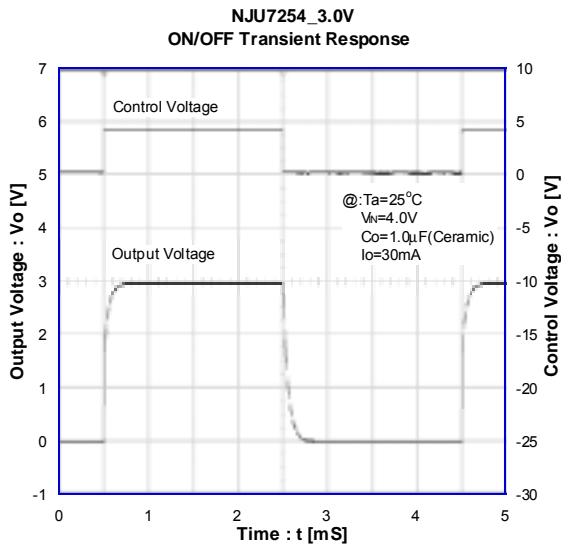
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



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