

Low Dropout Voltage Regulator with Reset

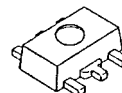
■ GENERAL DISCRIPTION

The NJM2804 is a low dropout voltage regulator with reset function.

It provides up to 300mA of logic supply, and the reset function monitors input voltage of the regulator with 1% accuracy.

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

■ PACKAGE OUTLINE

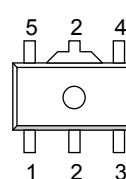


NJM2804U1

■ FEATURES

- Output Voltage Accuracy $V_O \pm 1.0\%$
- Reset Voltage Accuracy $V_{RT} \pm 1.0\%$
- Adjust reset delay time with external capacitor.
- Ripple Rejection 75dB typ. ($f = 1\text{kHz}, V_O = 3\text{V}$ Version)
- Input Voltage Monitor type
- Open Collector Output
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline SOT-89 -5

■ PIN CONFIGURATION



NJM2804U1

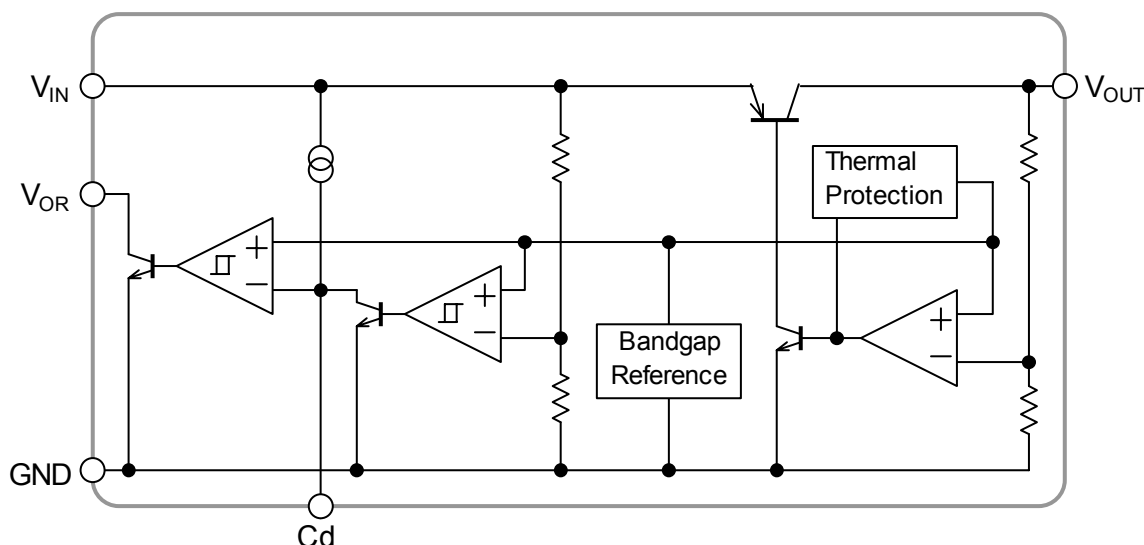
PIN FUNCTION

1. V_{OUT}
2. GND
3. Cd
4. V_{OR}
5. V_{IN}

■ OUTPUT VOLTAGE/ DETECTION VOLTAGE

Device Name	V_{OUT}	V_{DET}
NJM2804U1-1528	1.5V	2.8V
NJM2804U1-1828	1.8V	2.8V
NJM2804U1-2528	2.5V	2.8V
NJM2804U1-3342	3.3V	4.2V

■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	+14	V
Power Dissipation	P_D	350	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +125	°C

■ Operating voltage

$V_{IN}=+2.3 \sim +14V$ (In case of $V_O<2.1V$ version)

■ ELECTRICAL CHARACTERISTICS

($V_{IN}=V_O+1V$, $C_{IN}=0.1\mu F$, $C_O=1.0\mu F$ ($C_O=2.2\mu F$: $V_O\leq 2.6V$) $T_a=25^\circ C$)

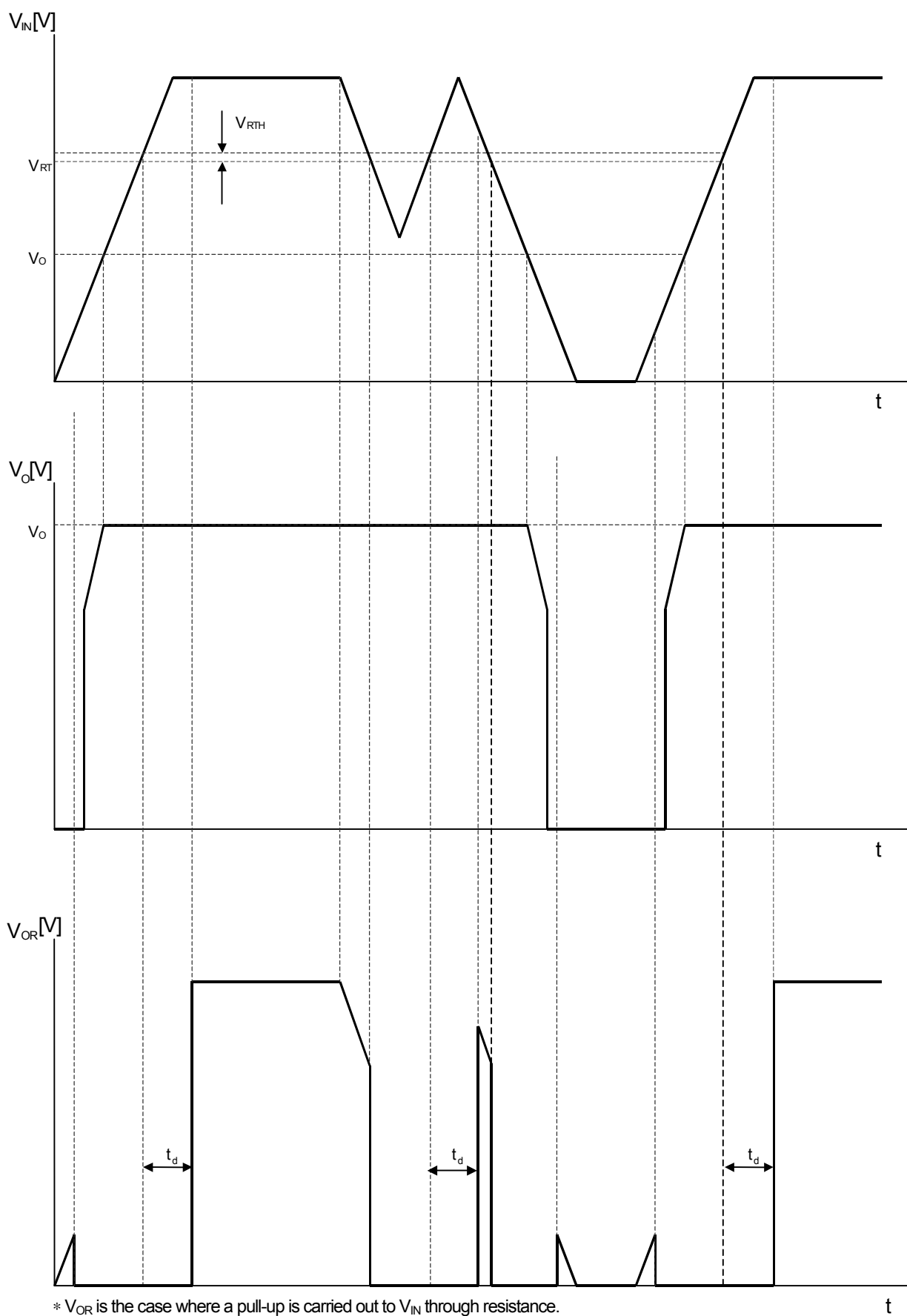
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_Q	$V_{IN}=V_O+2V$, $I_O=0mA$	-	250	350	μA
Regulator Block						
Output Voltage	V_O	$I_O=30mA$	-1.0%	-	+1.0%	V
Output Current	I_O	$V_O=0.3V$	300	400	-	mA
Line Regulation	$\Delta V_O/\Delta V_{IN}$	$V_{IN}=V_O+1V \sim V_O+6V$, $I_O=30mA$	-	-	0.10	%/V
Load Regulation	$\Delta V_O/\Delta I_O$	$I_O=0 \sim 300mA$	-	-	0.03	%/mA
Dropout Voltage(*1)	ΔV_{I_O}	$I_O=100mA$	-	0.10	0.18	V
Ripple Rejection	RR	$e_{in}=200mV_{rms}$, $f=1kHz$, $I_O=10mA$, $V_O=3V$ Version	-	75	-	dB
Output Voltage Temperature Coefficient	$\Delta V_O/\Delta T$	$T_a=0 \sim 85^\circ C$, $I_O=10mA$	-	± 50	-	ppm/°C
Output Noise Voltage	V_{NO}	$f=10Hz \sim 80kHz$, $I_O=10mA$, $V_O=3V$ Version	-	45	-	μV_{rms}
Reset Block						
Voltage Detection	V_{RT}	$V_{IN}=H \rightarrow L$	-1.0%	-	+1.0%	V
Hysteresis Voltage	V_{RTH}	$V_{IN}=H \rightarrow L \rightarrow H$	$V_{RT} \times 3\%$	$V_{RT} \times 5\%$	$V_{RT} \times 8\%$	V
Low Level Output Voltage	R_{ORL}	$V_{IN}=V_{RT}-0.5V$, $R_L=100k\Omega$	-	100	300	mV
Output Leak Current	I_{ORH}	$V_{IN}=V_{RT}+0.5V$	-	-	0.1	μA
On time Output Current	I_{ORL}	$V_{IN}=V_{RT}-0.5V$, $R_L=0\Omega$	5	-	-	mA
Reset Output Delay Time	t_d	$V_{IN}=(V_{RT}-0.5V) \rightarrow (V_{RT}+0.5V)$, $C_d=0.1\mu F$	9	10	11	ms
Operation Voltage Limit	V_{OPL}	$V_{ORL}=0.4V$	-	0.9	-	V

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

The above specification is a common specification for all output voltages.

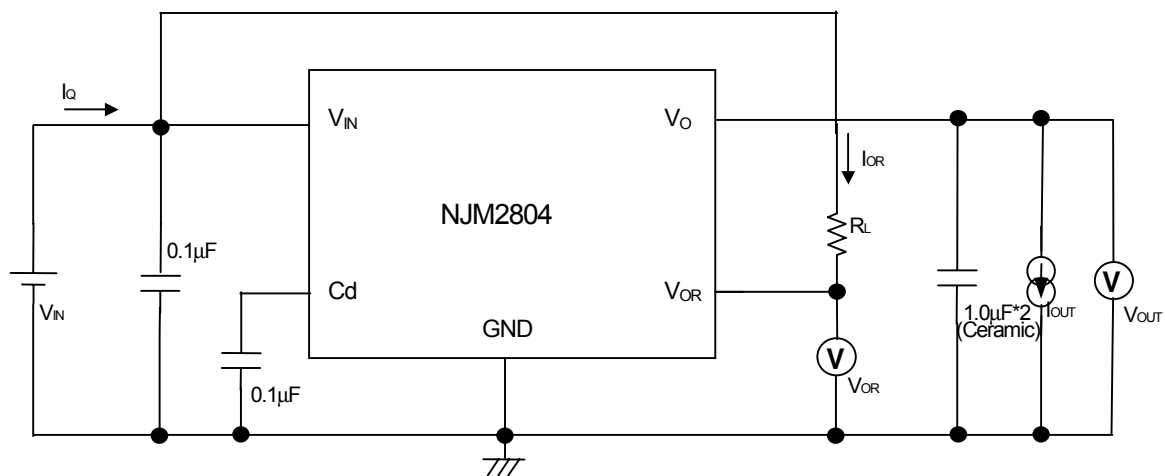
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART



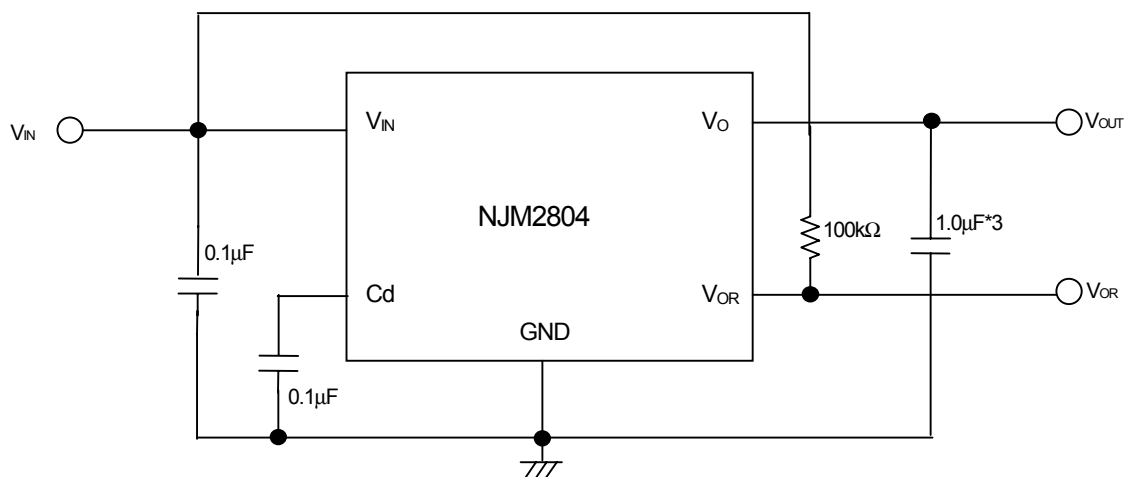
NJM2804

■ TEST CIRCUIT



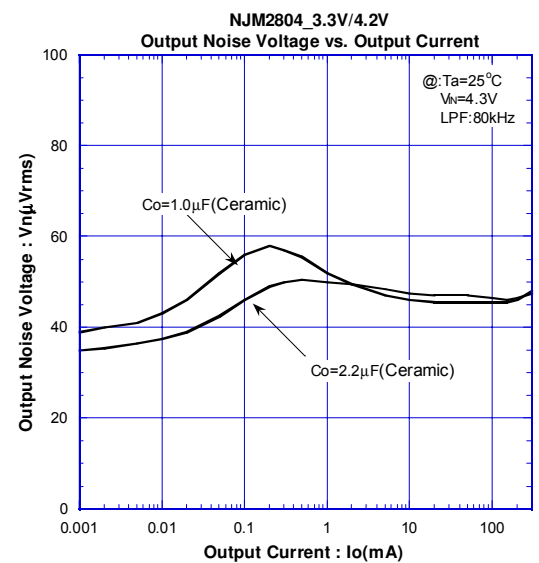
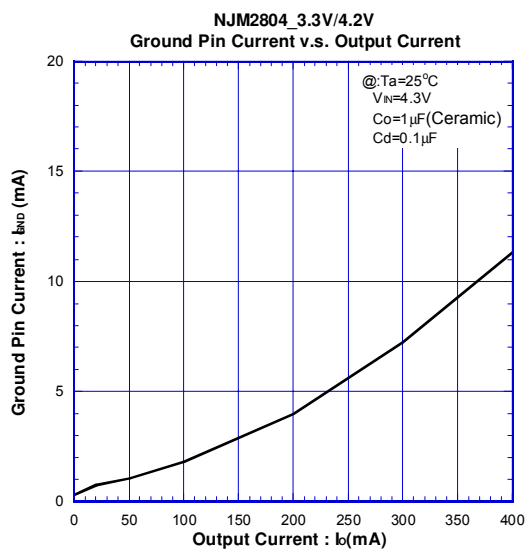
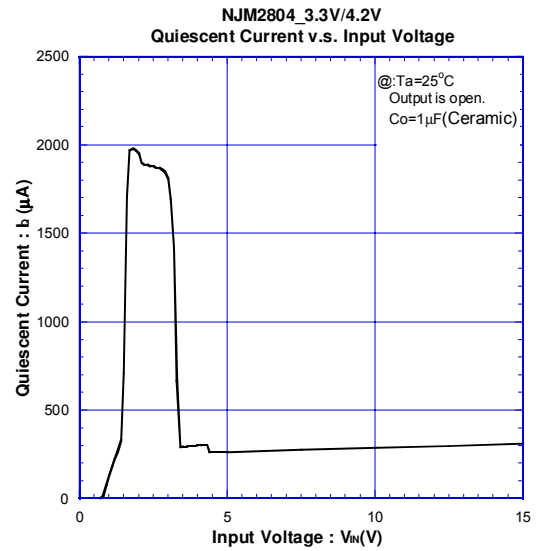
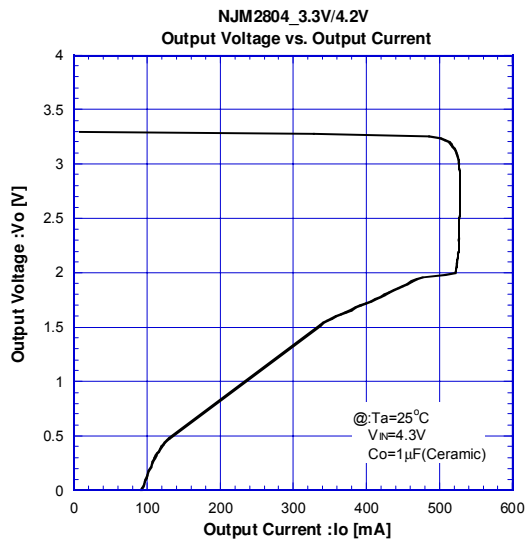
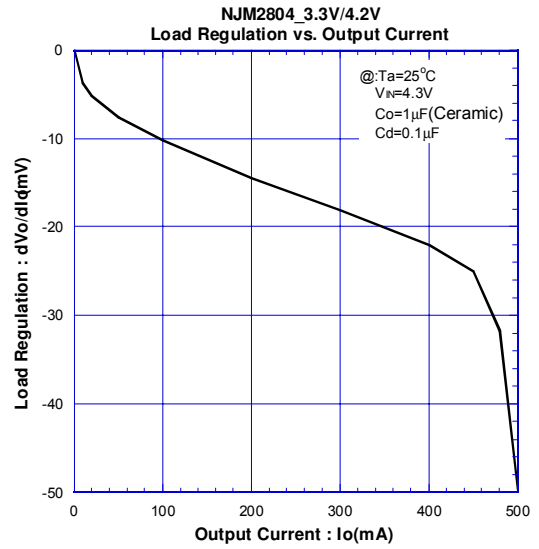
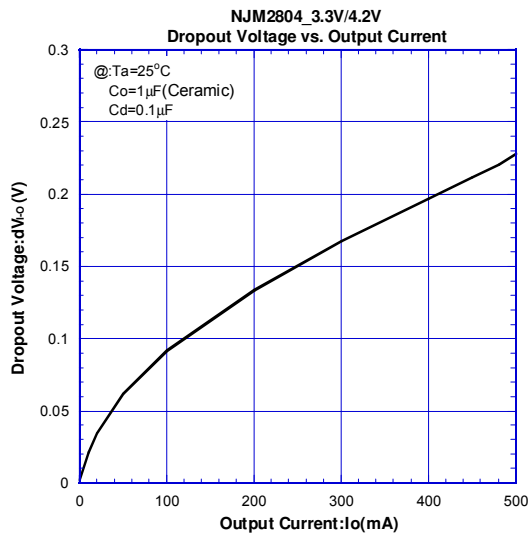
*2 $V_{OS} \leq 2.6V$: $C_O = 2.2\mu F$ (Ceramic)

■ TYPICAL APPLICATIONS

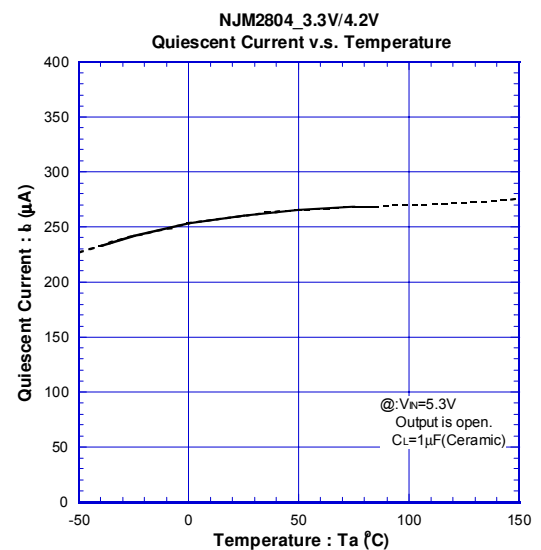
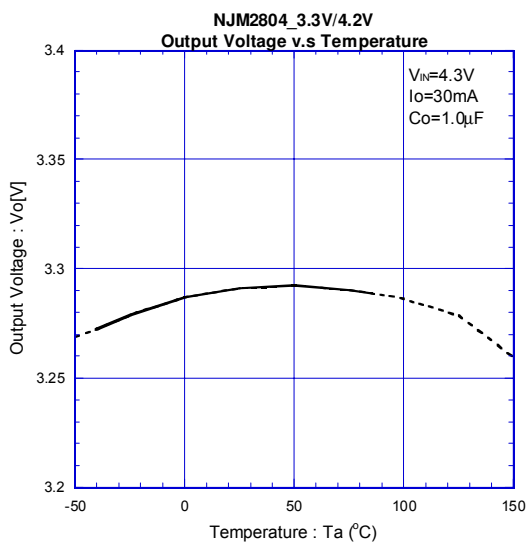
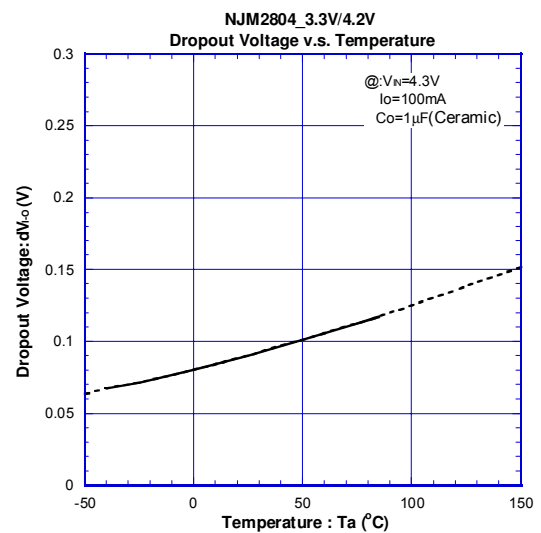
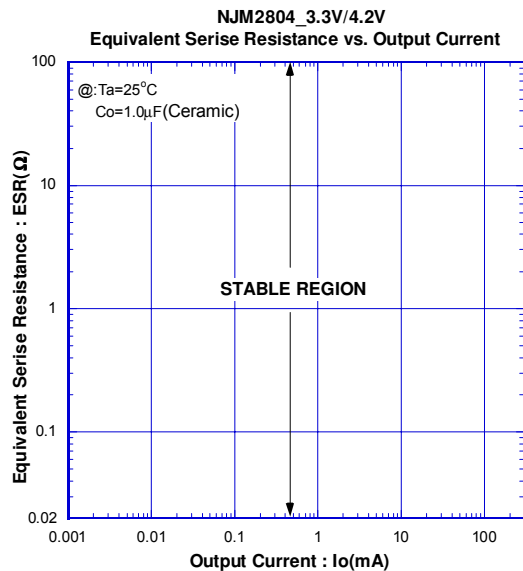
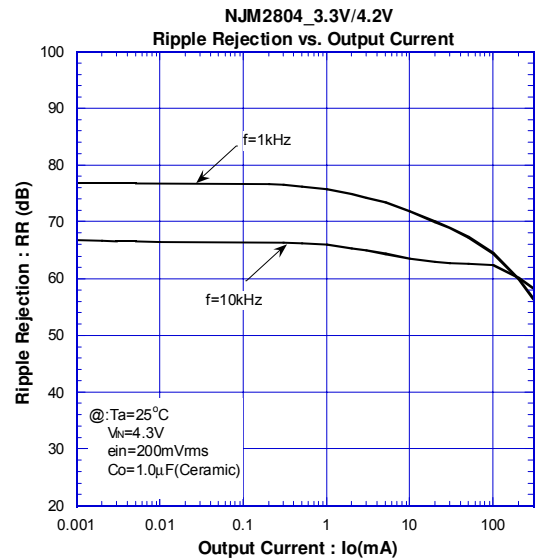
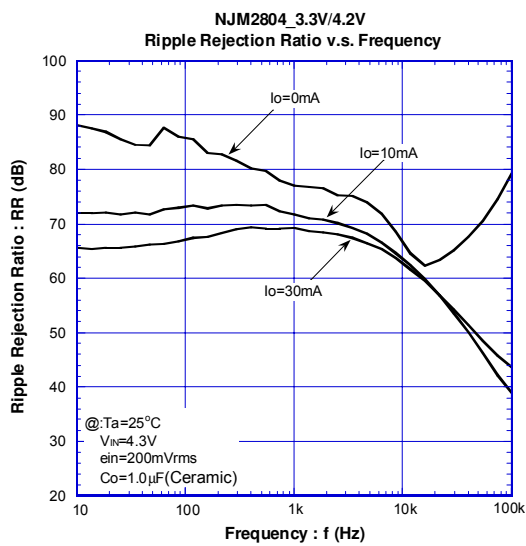


*3 $V_{OS} \leq 2.6V$: $C_O = 2.2\mu F$

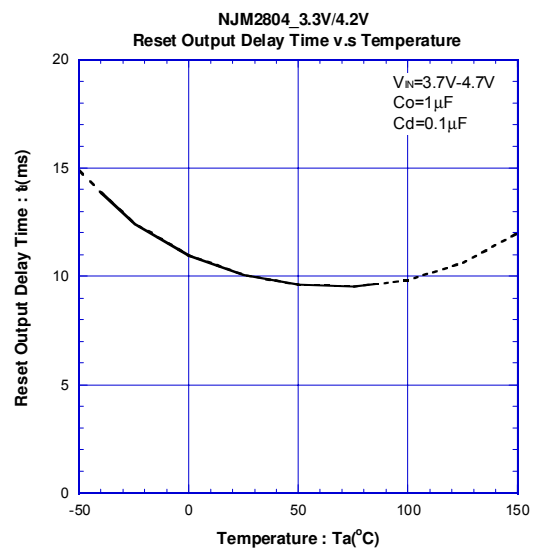
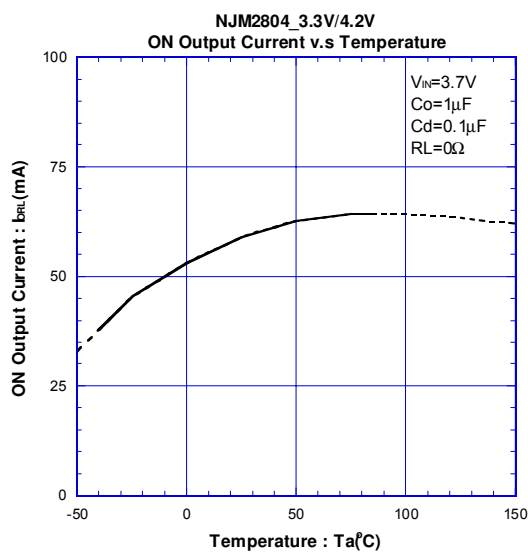
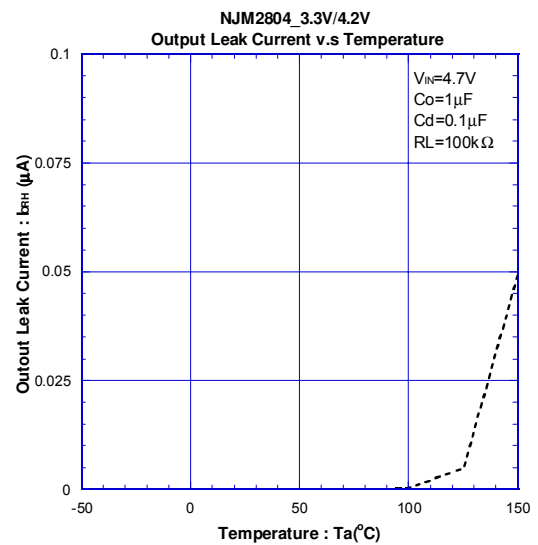
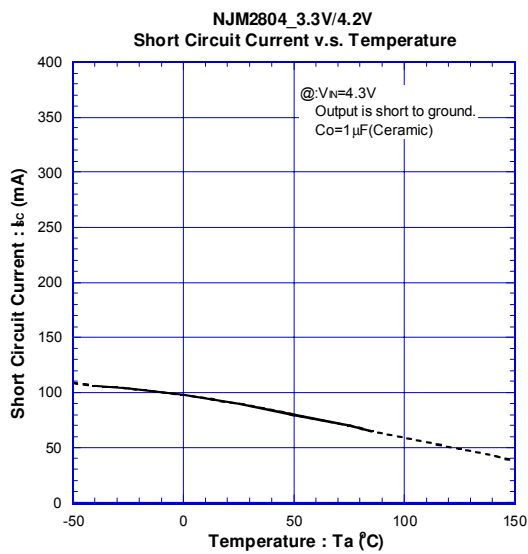
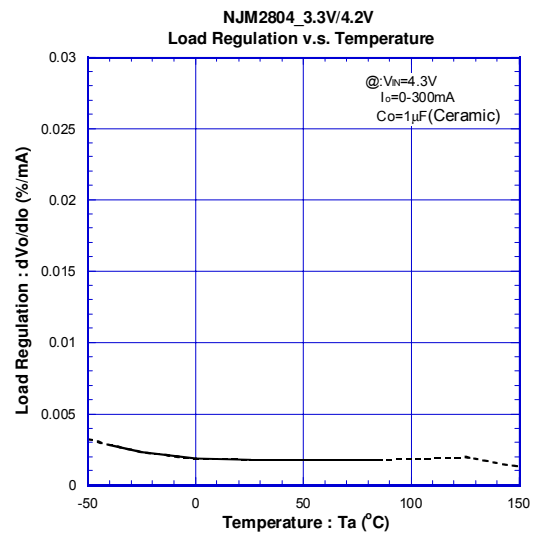
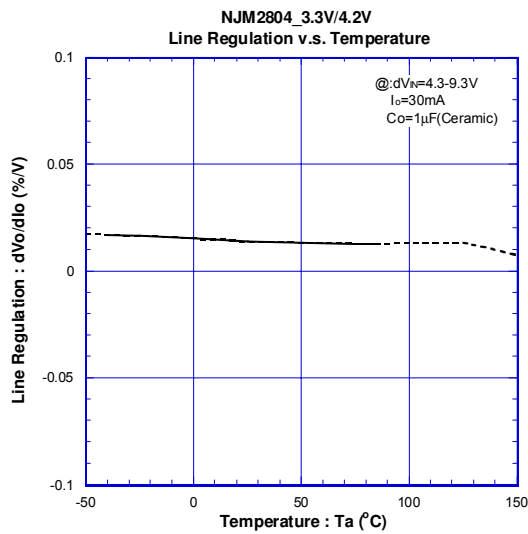
■ ELECTRICAL CHARISTICS



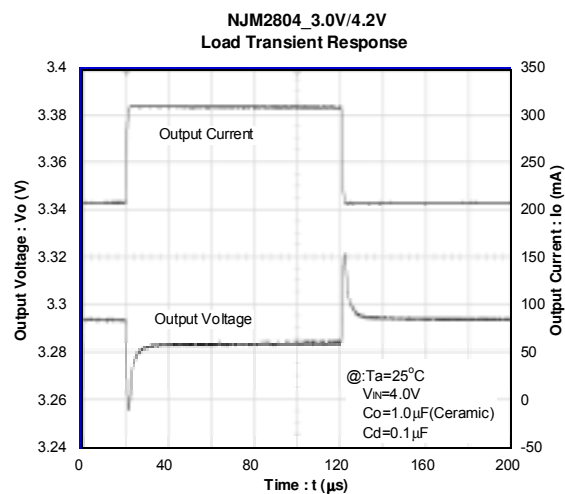
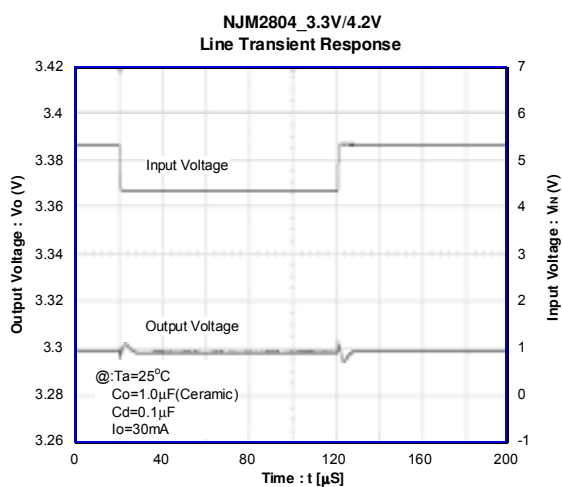
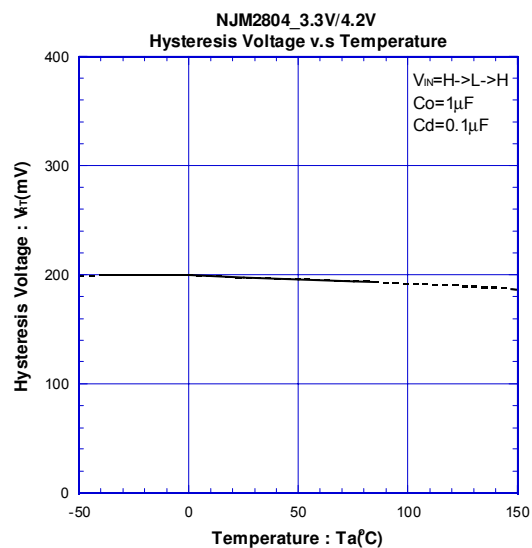
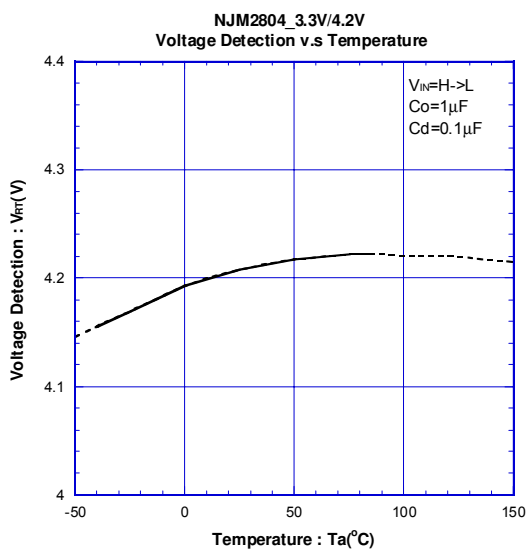
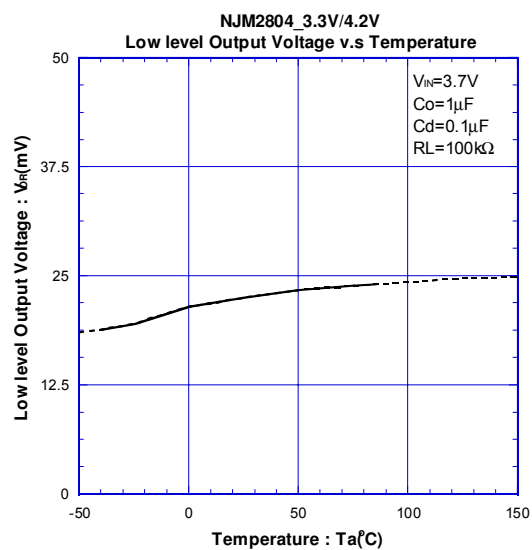
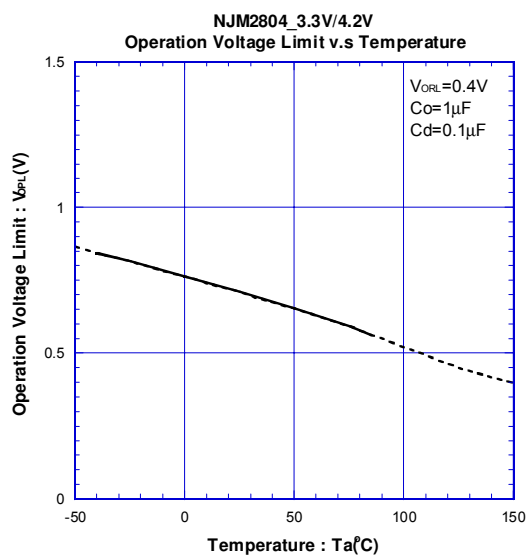
■ ELECTRICAL CHARISTICS



ELECTRICAL CHARACTERISTICS



■ ELECTRICAL CHARISTICS



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