

## Low Dropout Voltage Regulator with Reset

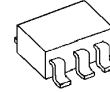
### ■ GENERAL DISCRIPTION

The NJM2801 is a low dropout voltage regulator with reset function.

It provides up to 150mA of logic supply, and the reset function monitors output 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



NJM2801F

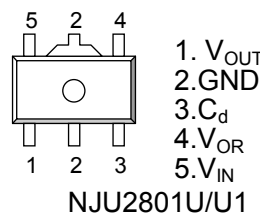
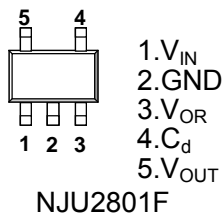


NJM2801U/U1

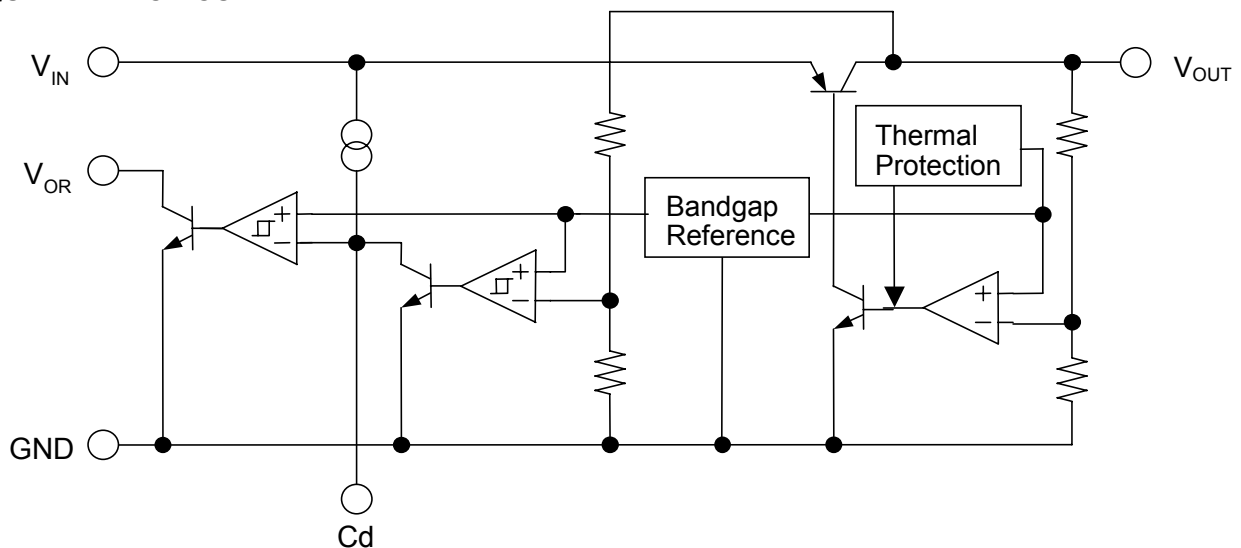
### ■ FEATURES

- 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 60dB typ. (f=1kHz)
- Output Voltage Monitor type
- Open Collector Output
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline SOT89-5 (NJM2801U/U1), SOT-23-5(NJU2801F)

### ■ PIN CONFIGURATION



### ■ EQUIVALENT CIRCUIT



## ■ OUTPUT VOLTAGE/ DETECTION VOLTAGE

Device Name	Output Voltage	Detection Voltage
NJM2801U1-/U/F3328	3.3V	2.8V
NJM2801U1-/U/F0543	5.0V	4.3V

## ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V <sub>IN</sub>	+14	V
Power Dissipation	P <sub>D</sub>	SOT-23-5	350(*1)
			200(*2)
		SOT89-5	350(*2)
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-40~+125	°C

(\*1): Mounted on glass epoxy board based on EIA/JEDEC. (114.3x76.2x1.6mm: 2Layers)

(\*2): Device itself.

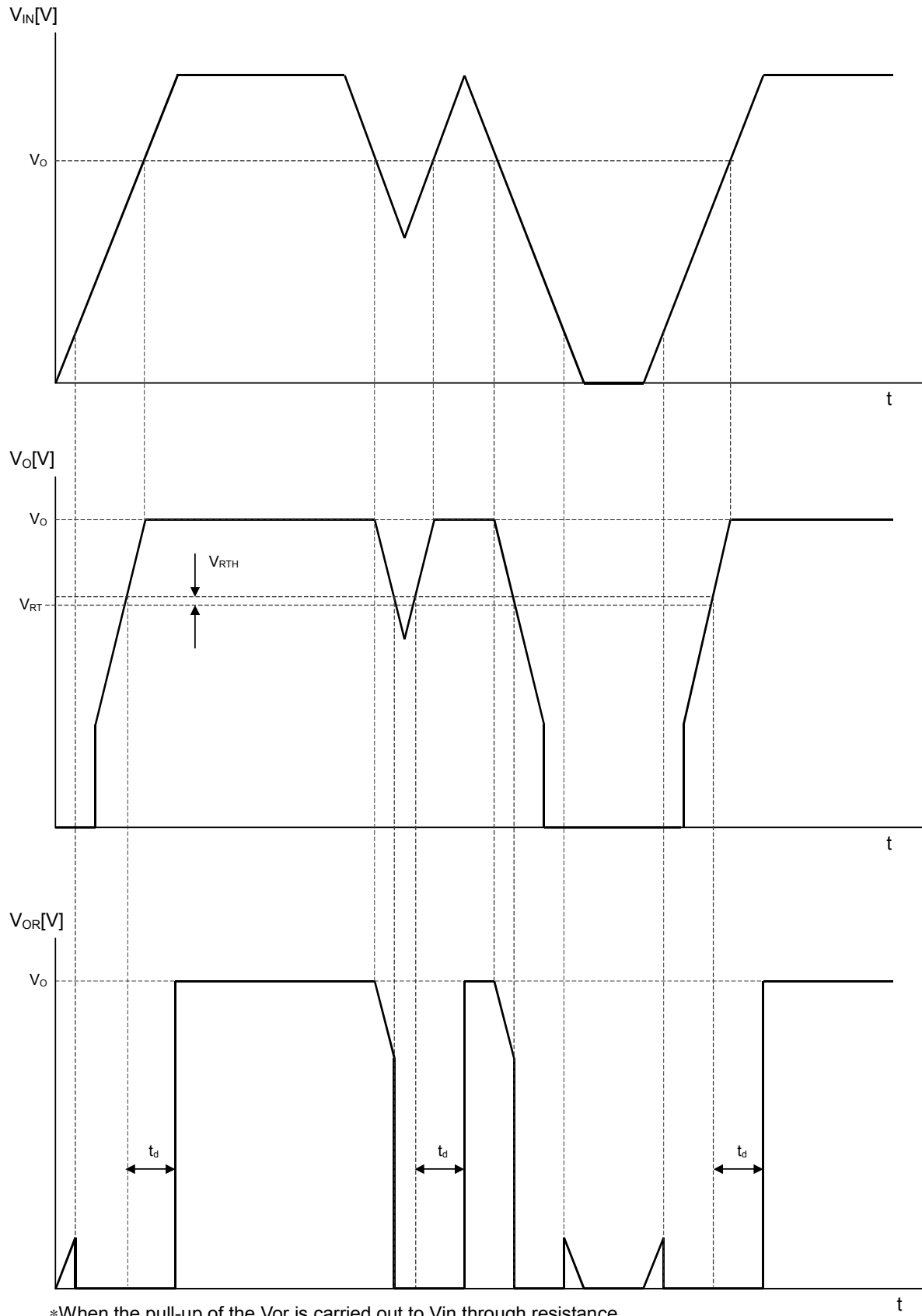
## ■ ELECTRICAL CHARACTERISTICS (V<sub>IN</sub>=V<sub>o</sub>+1V, C<sub>IN</sub>=0.1μF, C<sub>o</sub>=1μF (V<sub>o</sub>≤2.6V: C<sub>o</sub>=2.2μF) Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I <sub>Q</sub>	I <sub>o</sub> =0mA	-	250	350	μA
Regulator Block						
Output Voltage	V <sub>o</sub>	I <sub>o</sub> =30mA	-1.0%	-	+1.0%	V
Output Current	I <sub>o</sub>	V <sub>o</sub> -0.3V	150	200	-	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, I <sub>o</sub> =30mA	-	-	0.10	%/V
Load Regulation	ΔV <sub>o</sub> /ΔI <sub>o</sub>	I <sub>o</sub> =0~100mA	-	-	0.03	%/mA
Dropout Voltage	ΔV <sub>L_O</sub>	I <sub>o</sub> =60mA	-	0.10	0.18	V
Ripple Rejection	RR	e <sub>in</sub> =200mV <sub>rms</sub> , f=1kHz, I <sub>o</sub> =10mA, V <sub>o</sub> =3V	-	60	-	dB
Output Voltage Temperature Coefficient	ΔV <sub>o</sub> /ΔT	Ta=0~85°C, I <sub>o</sub> =10mA	-	±50	-	ppm/°C
Output Noise Voltage	V <sub>NO</sub>	f=10Hz~100kHz, I <sub>o</sub> =10mA, V <sub>o</sub> =3V	-	45	-	μV <sub>rms</sub>
Reset Block						
Voltage Detection	V <sub>RT</sub>	V <sub>IN</sub> =H→L	-1.0%	-	+1.0%	V
Hysteresis Voltage	V <sub>RTH</sub>	V <sub>IN</sub> =H→L→H	V <sub>RT</sub> ×3%	V <sub>RT</sub> ×5%	V <sub>RT</sub> ×8%	V
Low Level Output Voltage	R <sub>ORL</sub>	V <sub>IN</sub> =V <sub>RT</sub> -0.5V, R <sub>L</sub> =100kΩ	-	100	300	mV
Output Leak Current	I <sub>ORH</sub>	V <sub>IN</sub> =V <sub>RT</sub> +0.5V	-	-	0.1	μA
On time Output Current	I <sub>ORL</sub>	V <sub>IN</sub> =V <sub>RT</sub> -0.5V, R <sub>L</sub> =0Ω	5	-	-	mA
Reset Output Delay Time	t <sub>d</sub>	V <sub>IN</sub> =(V <sub>RT</sub> -0.5V)→(V <sub>RT</sub> +0.5V), C <sub>d</sub> =0.1μF	9	10	11	ms
Operation Voltage Limit	V <sub>OPL</sub>	V <sub>ORL</sub> =0.4V	-	0.9	-	V

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

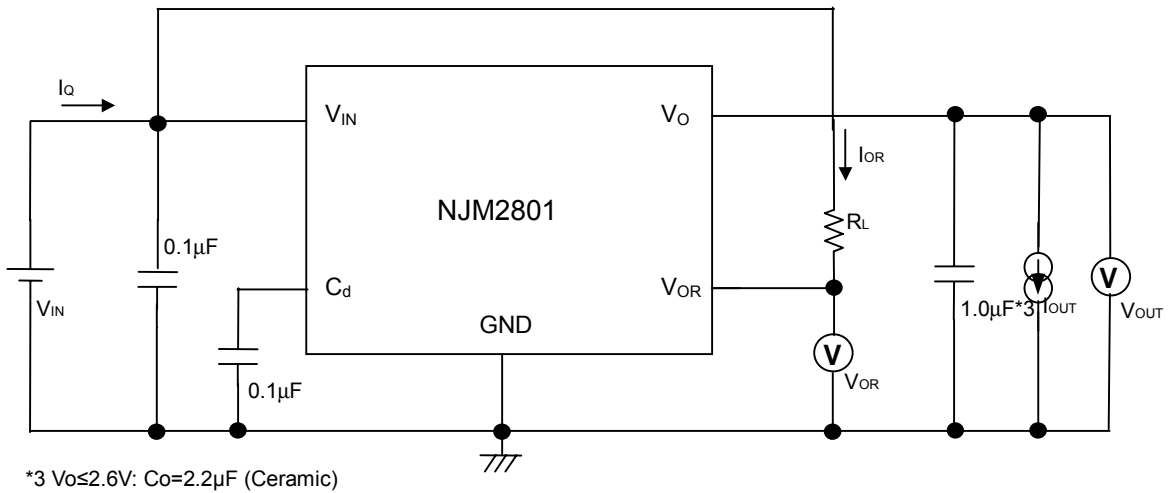
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART

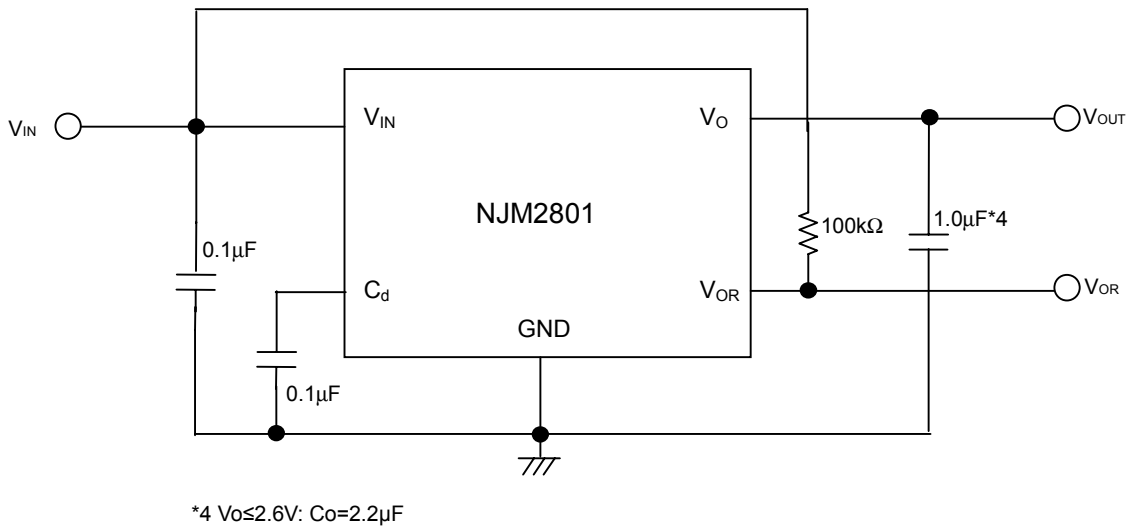


\*When the pull-up of the Vor is carried out to Vin through resistance.

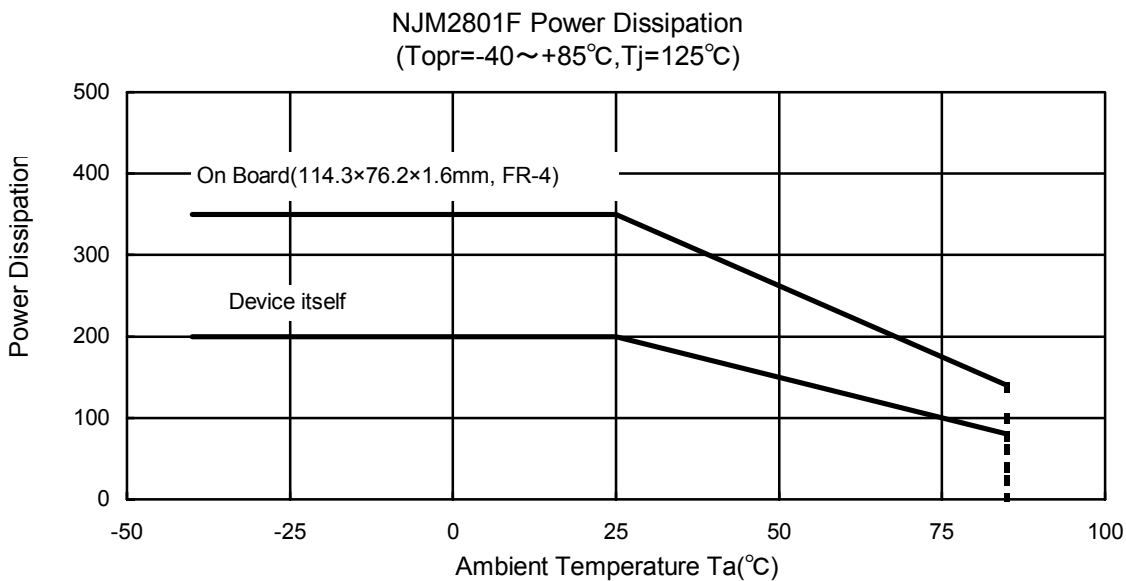
■ TEST CIRCUIT



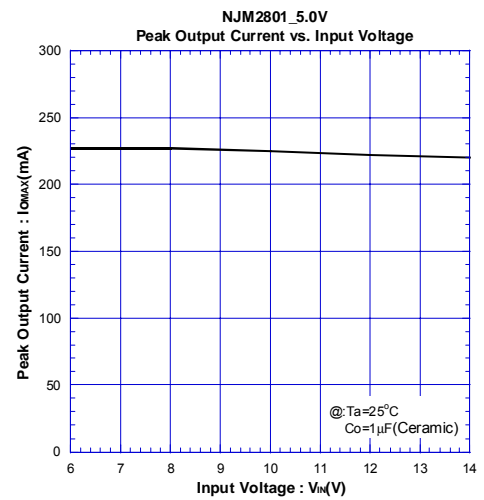
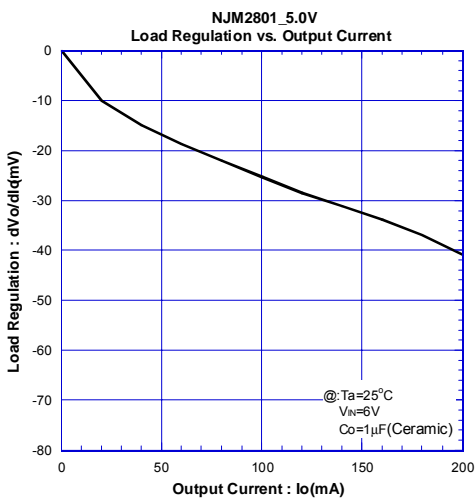
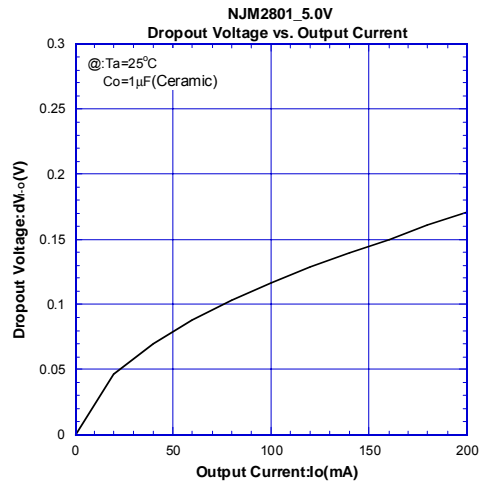
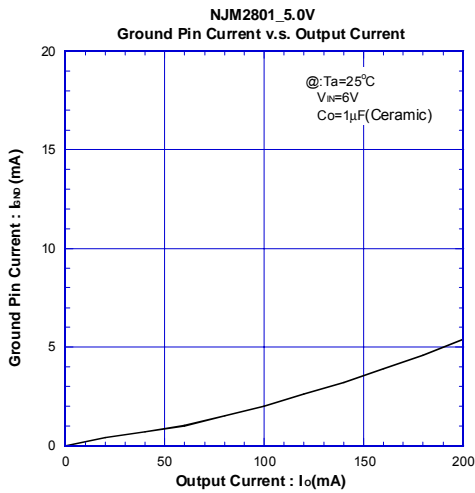
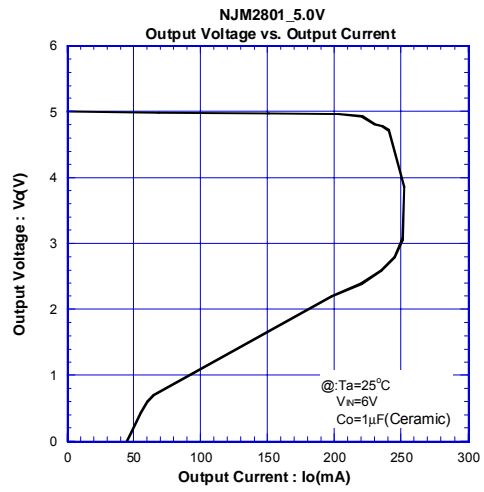
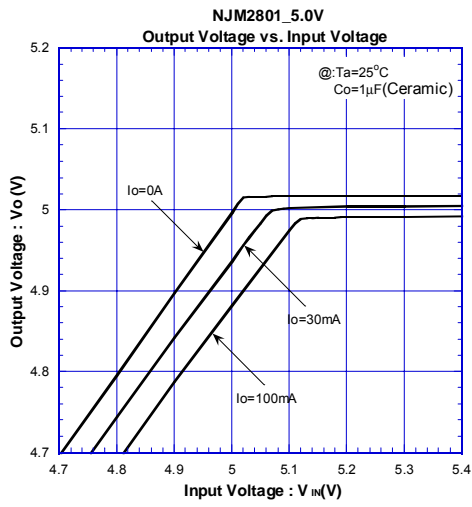
■ TYPICAL APPLICATIONS



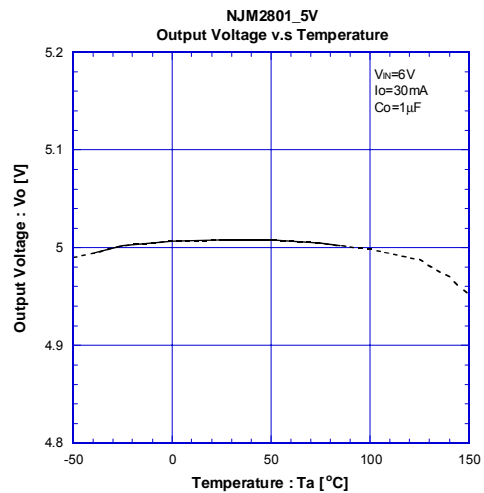
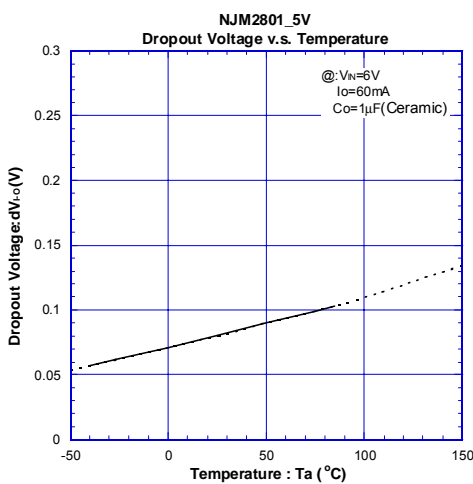
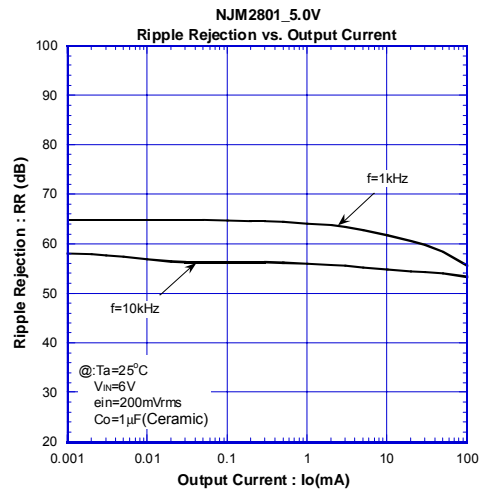
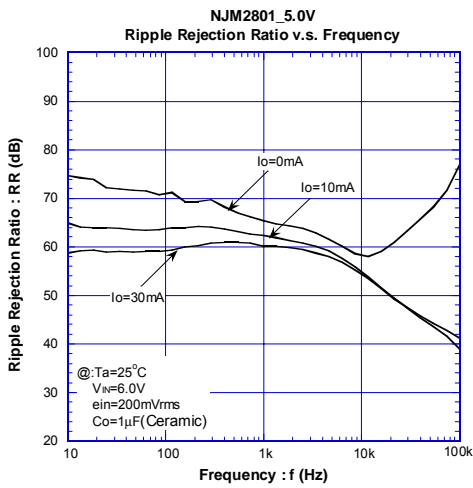
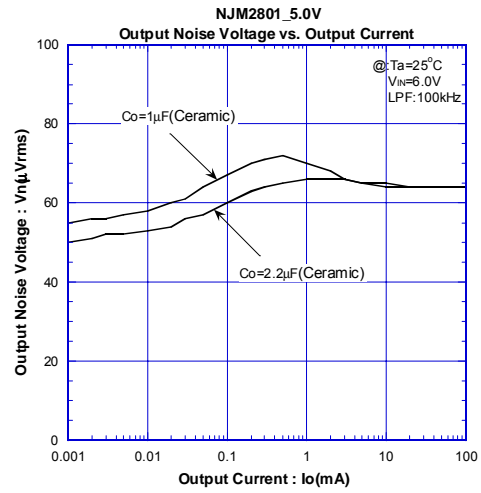
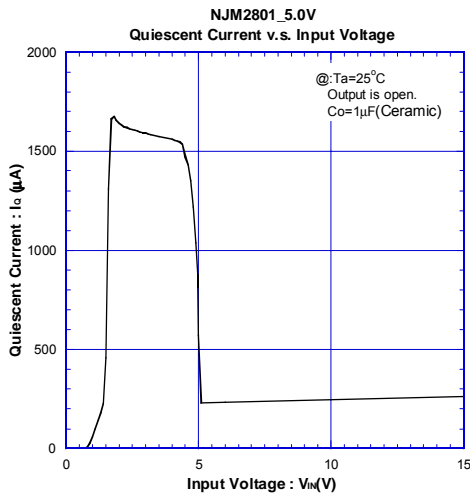
■ POWER DISSIPATION vs. AMBIENT TEMPERATURE



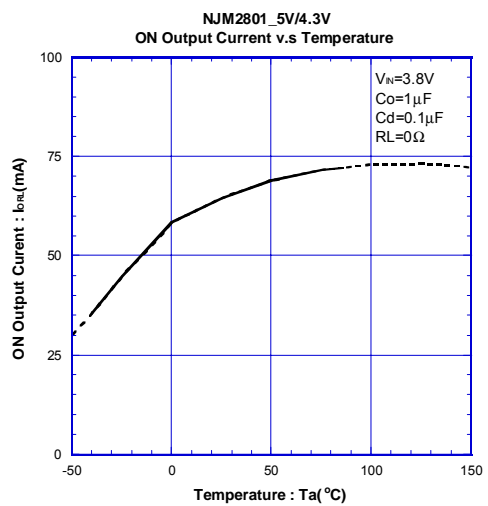
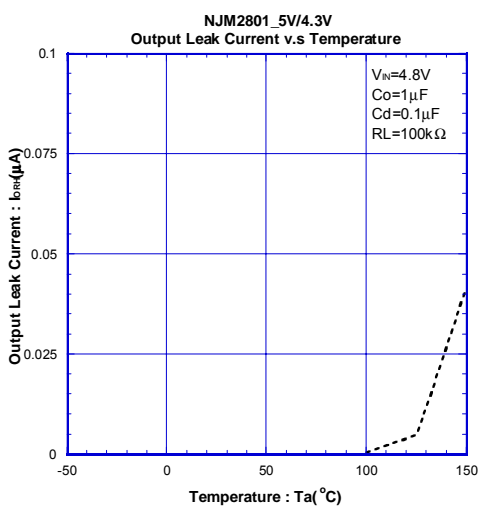
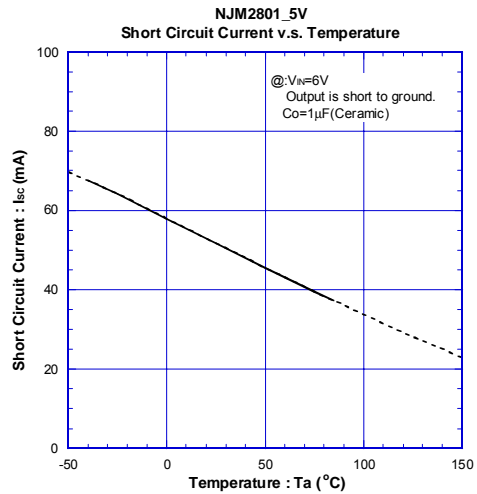
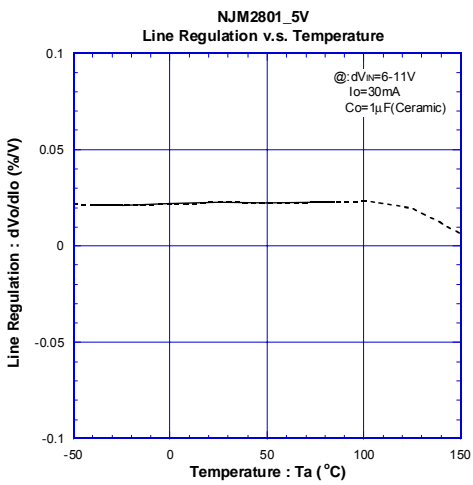
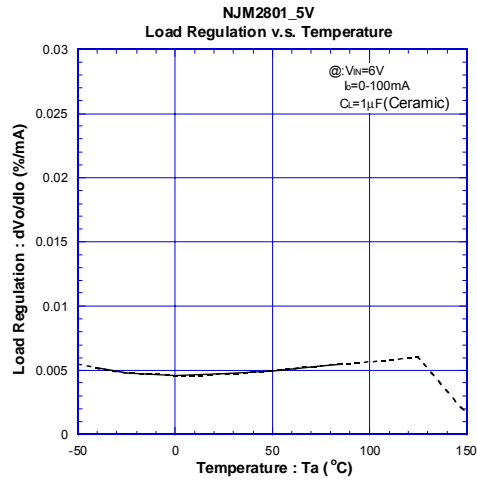
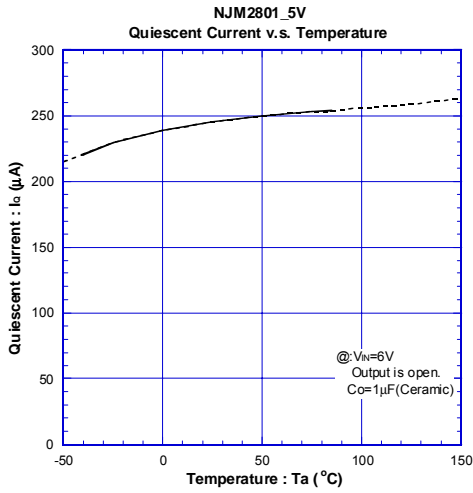
## ■ ELECTRICAL CHARACTERISTICS



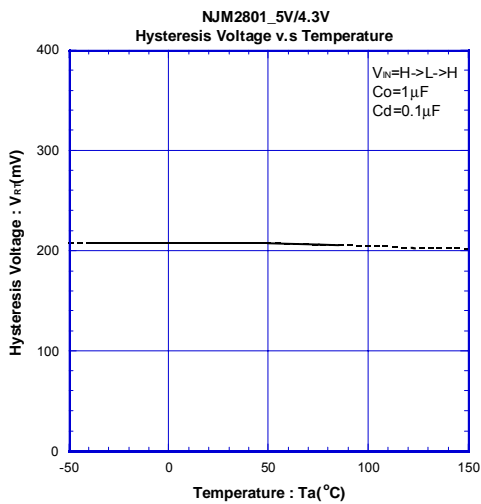
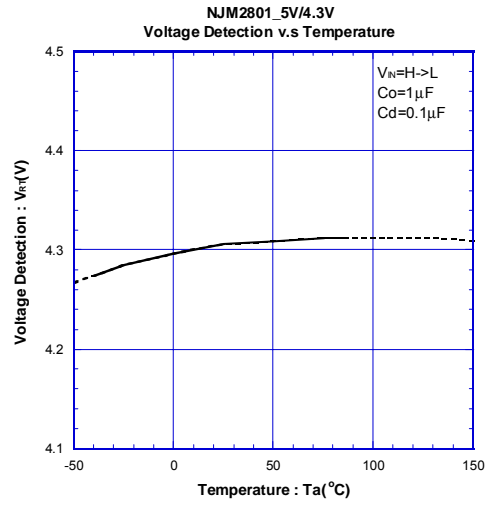
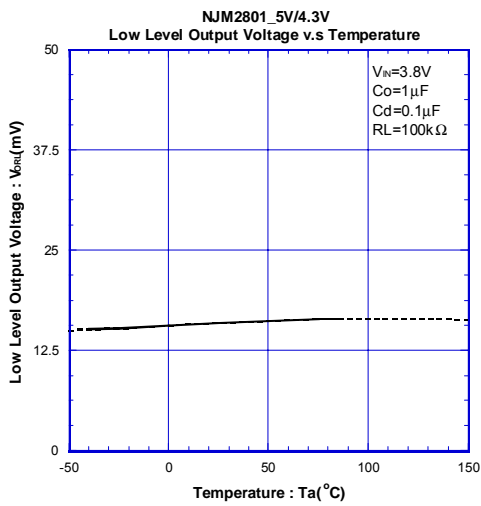
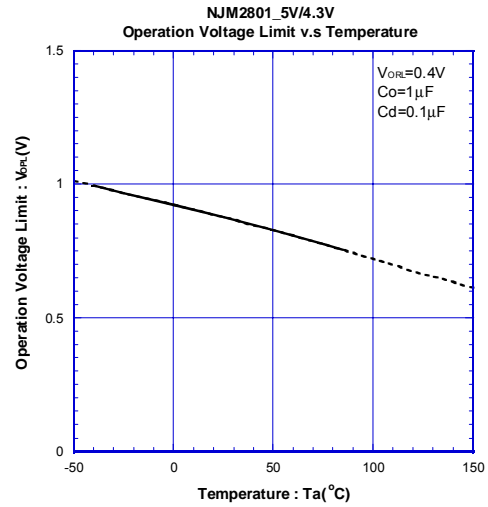
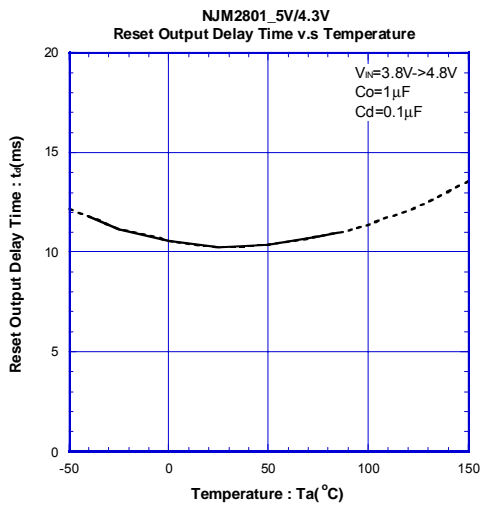
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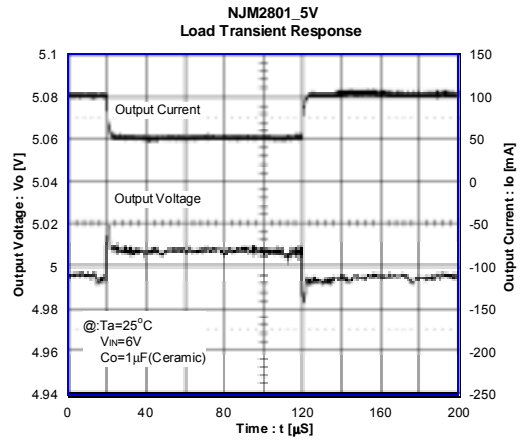
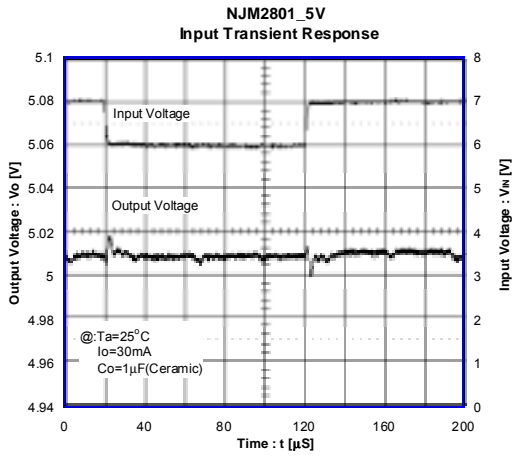


## ELECTRICAL CHARACTERISTICS





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