

## Low Dropout Voltage Regulator with Reset

### ■ GENERAL DISCRIPTION

The NJM2805 is a low dropout voltage regulator with reset function.

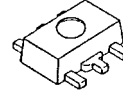
It provides up to 300mA of logic supply, and the reset function monitors output voltage of the regulator with 1% accuracy.

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

### ■ FEATURES

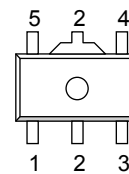
- Output Voltage Accuracy  $V_o \pm 1.0\%$
- Reset Voltage Accuracy  $V_{RT} \pm 1.0\%$
- Adjust reset delay time with external capacitor.
- Ripple Rejection 75dB typ. (f = 1kHz)
- Output Voltage Monitor type
- Open Collector Output
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection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

### ■ PACKAGE OUTLINE



NJM2805U1

### ■ PIN CONFIGURATION



NJM2805U1

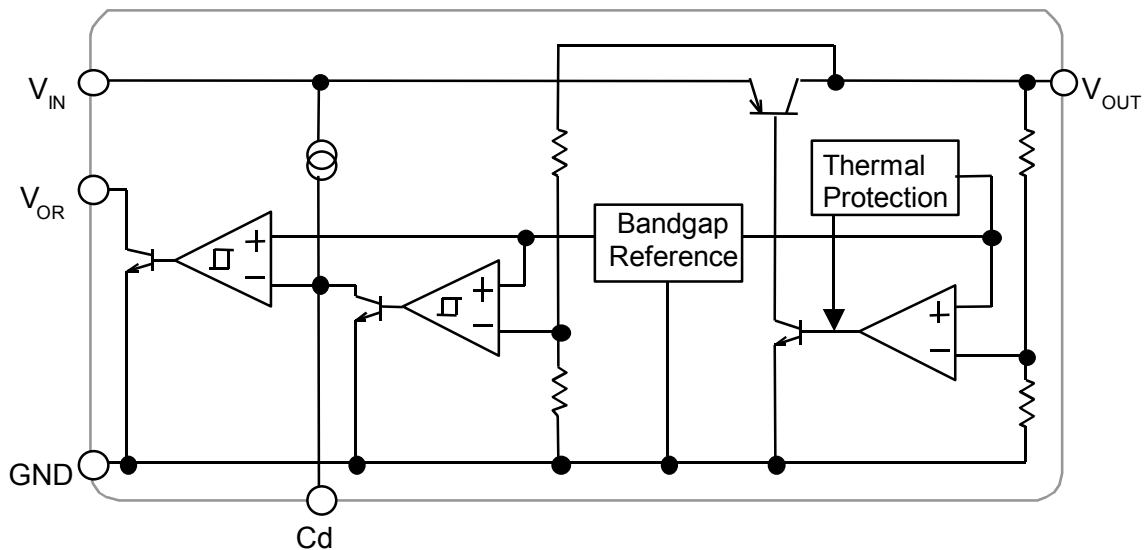
### PIN FUNCTION

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

### ■ OUTPUT VOLTAGE/ DETECTION VOLTAGE

Device Name	$V_{OUT}$	$V_{DET}$
NJM2805U1-2923	2.9V	2.3V
NJM2805U1-3329	3.3V	2.9V
NJM2805U1-0543	5.0V	4.3V

### ■ EQUIVALENT CIRCUIT



# NJM2805

## ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V <sub>IN</sub>	+14	V
Power Dissipation	P <sub>D</sub>	350	mW
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +125	°C

## ■ ELECTRICAL CHARACTERISTICS

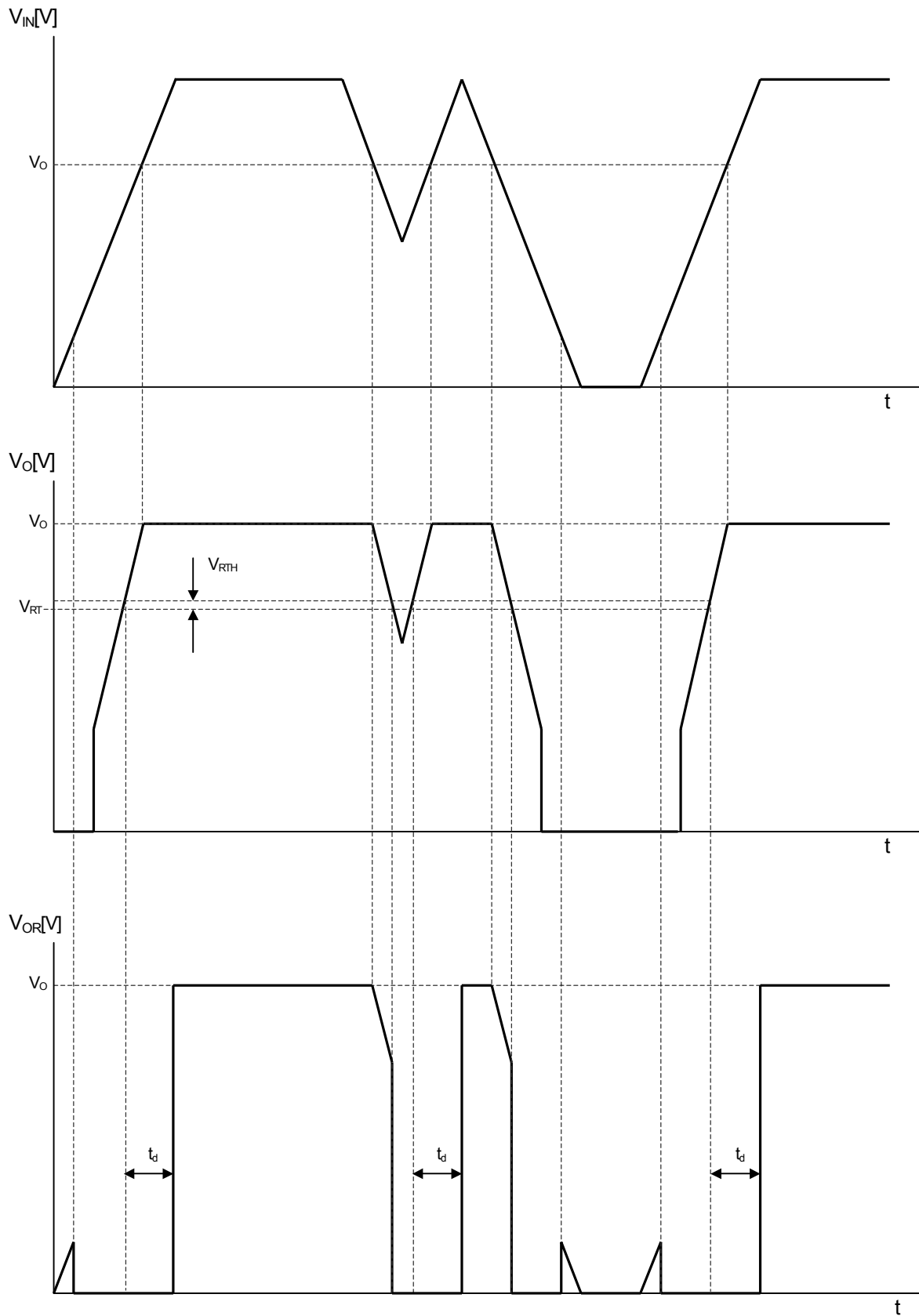
(V<sub>IN</sub>=V<sub>o</sub>+1V, C<sub>IN</sub>=0.1μF, C<sub>o</sub>=1μF (C<sub>o</sub>=2.2μF: V<sub>o</sub>≤2.6V) Ta=25°C)

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	300	400	–	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 ~ 300mA	–	–	0.03	%/mA
Dropout Voltage	ΔV <sub>L<sub>O</sub></sub>	I <sub>o</sub> =100mA	–	0.10	0.18	V
Ripple Rejection	RR	e <sub>in</sub> =200mVrms, f=1kHz, I <sub>o</sub> =10mA, V <sub>o</sub> =3V Version	–	75	–	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 ~ 80kHz, I <sub>o</sub> =10mA, V <sub>o</sub> =3V Version	–	45	–	μVrms
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.

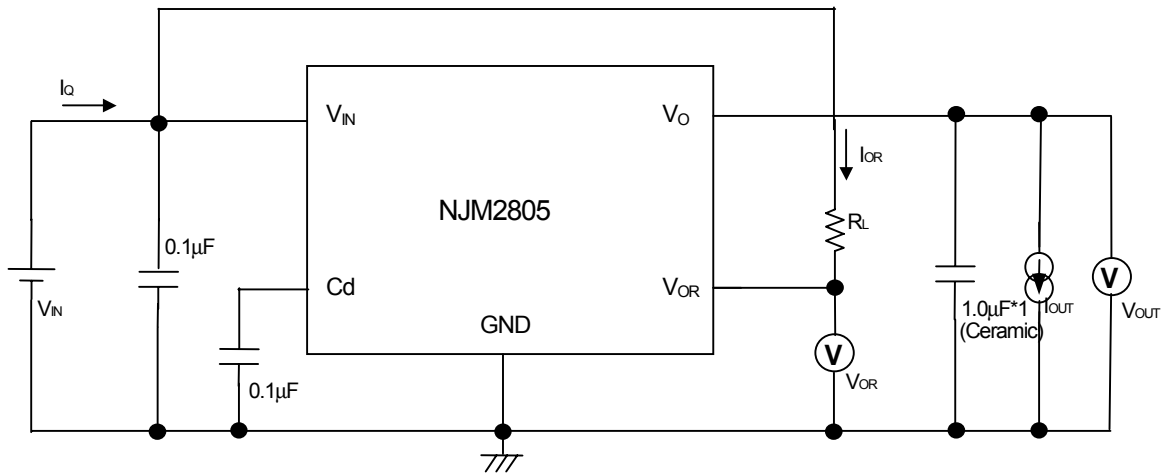
## ■ TIMING CHART



\* When the pull-up of the  $V_{OR}$  is carried out to  $V_{IN}$  through resistance.

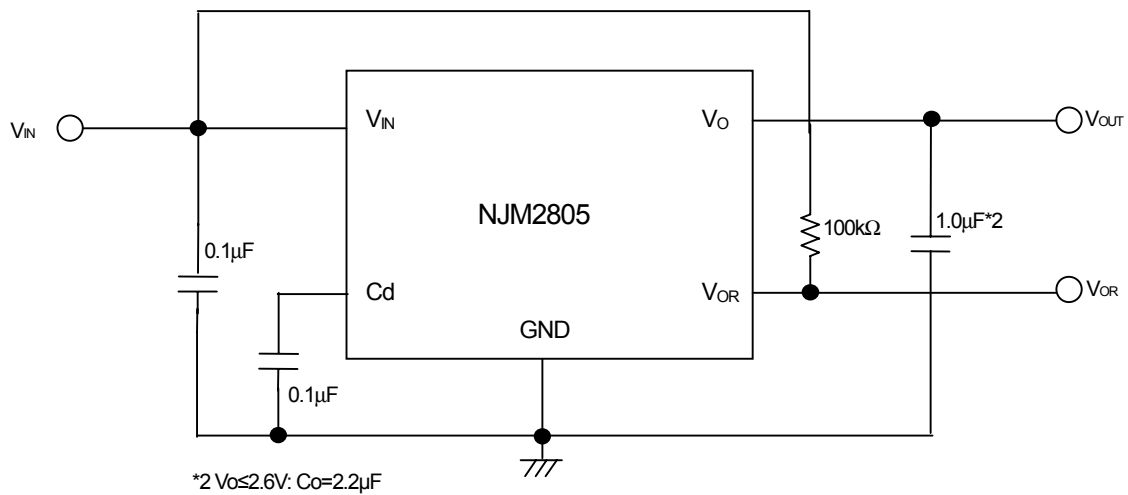
# NJM2805

## TEST CIRCUIT



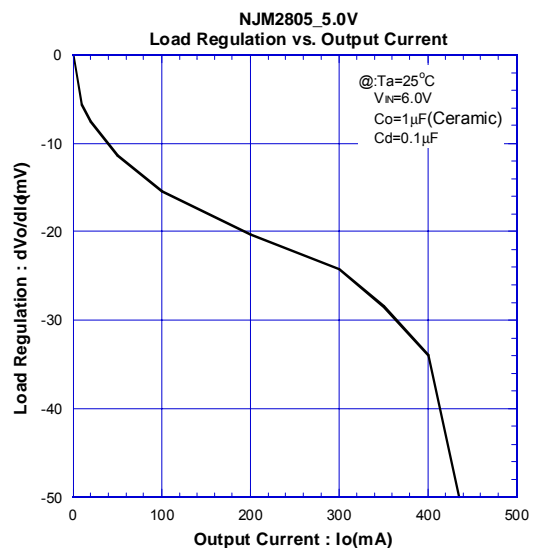
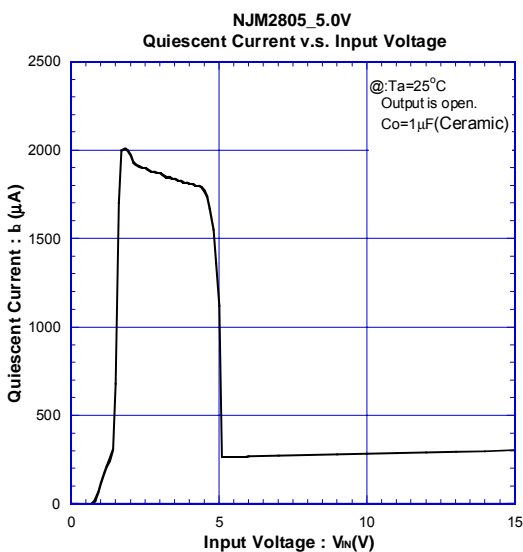
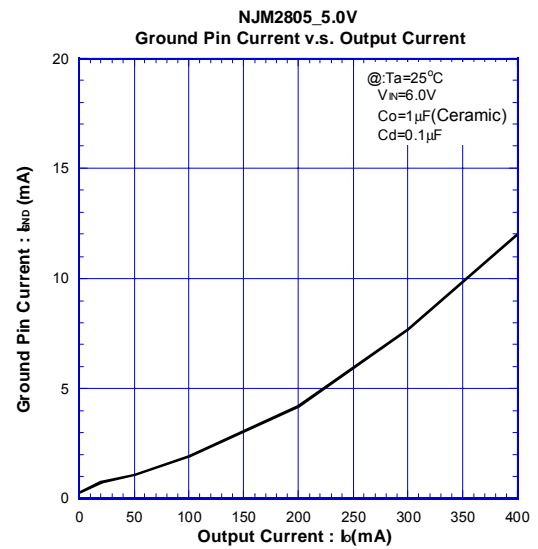
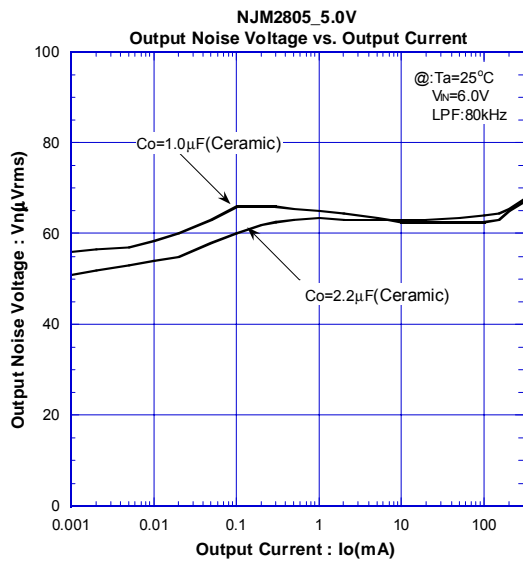
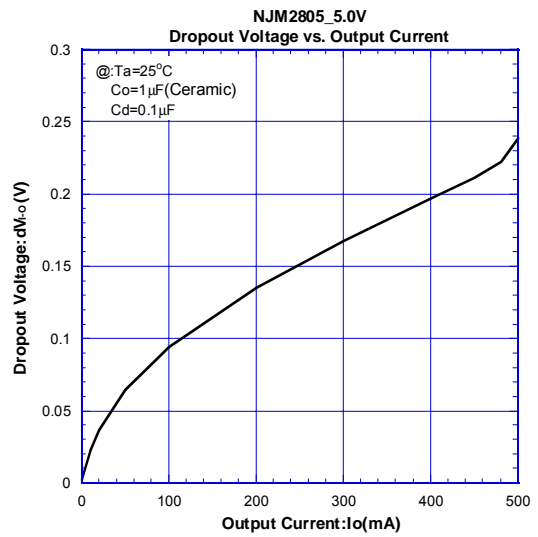
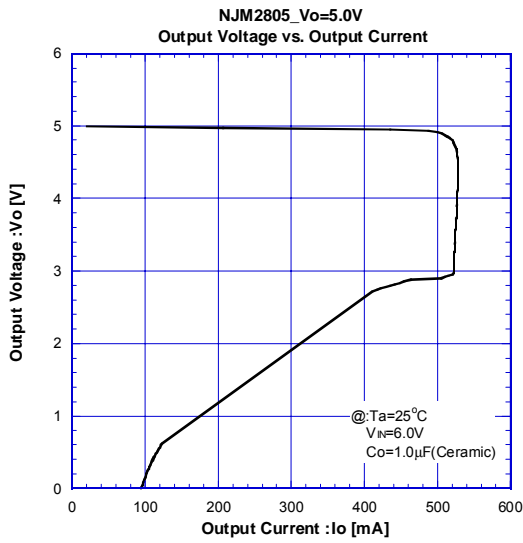
\*1  $V_{OS} \leq 2.6\text{V}$ ;  $C_o = 2.2\mu\text{F}$  (Ceramic)

## TYPICAL APPLICATIONS



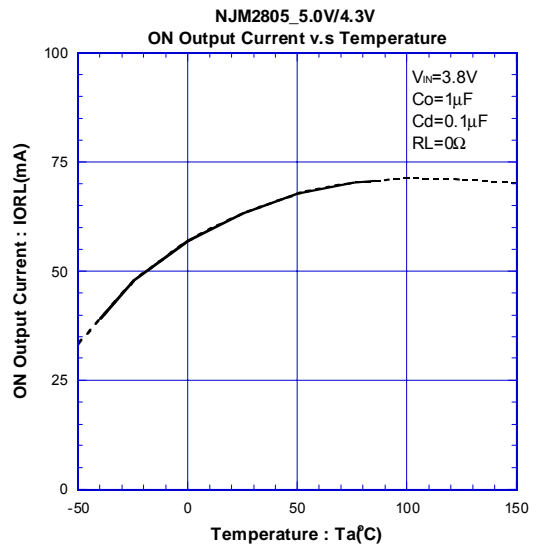
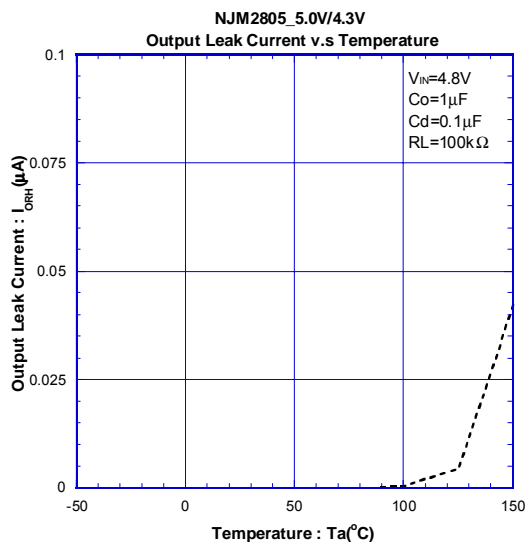
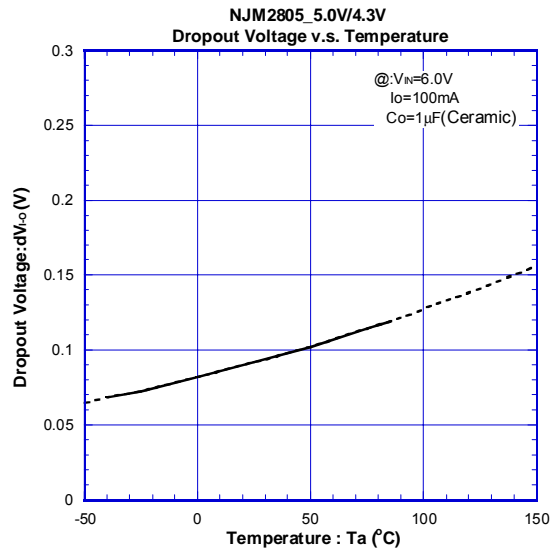
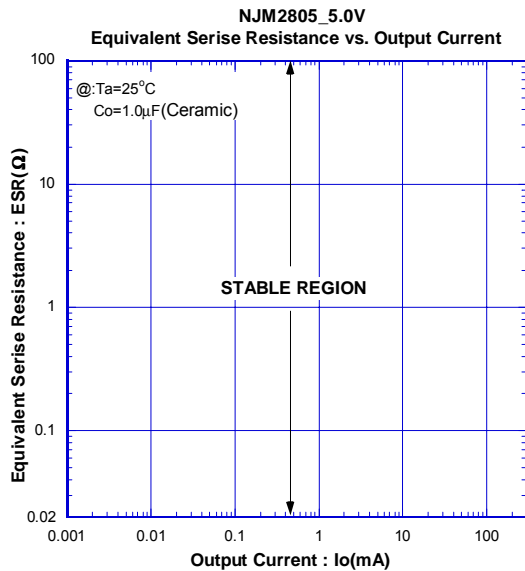
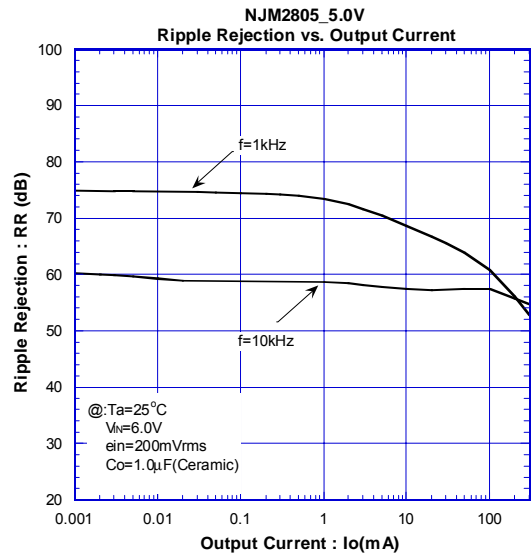
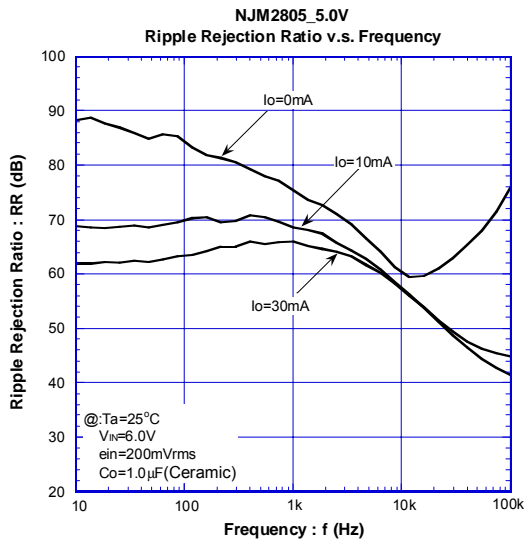
\*2  $V_{OS} \leq 2.6\text{V}$ ;  $C_o = 2.2\mu\text{F}$

## ■ ELECTRICAL CHARISTICS

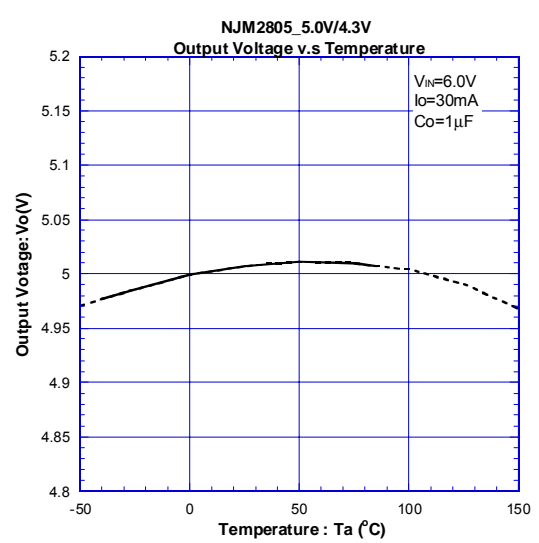
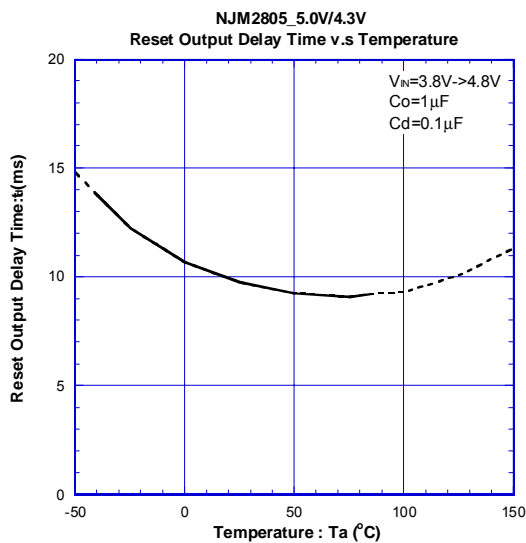
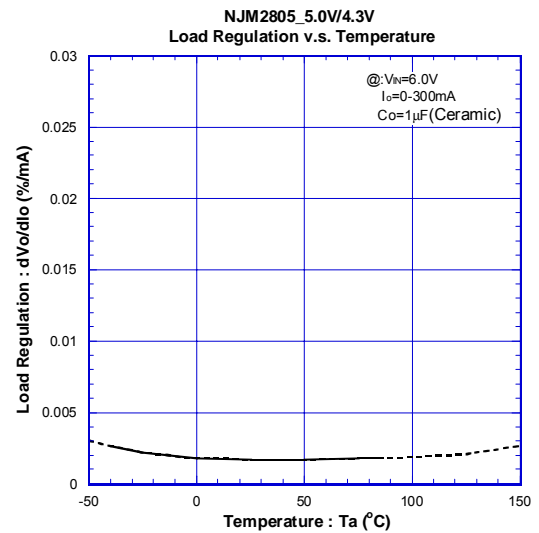
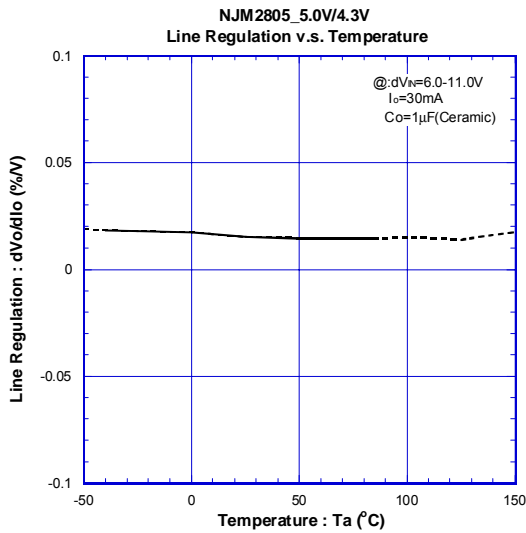
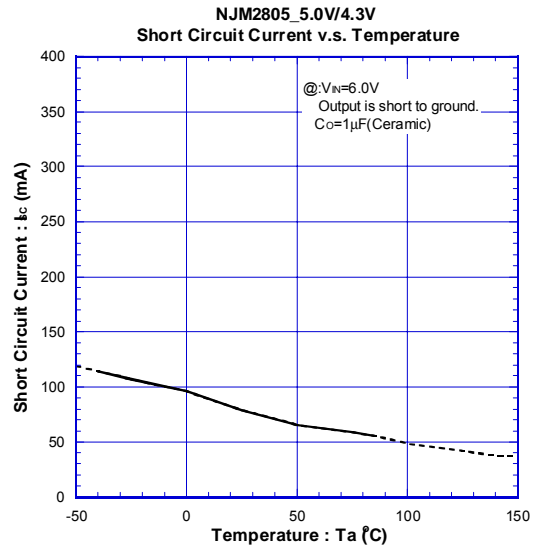
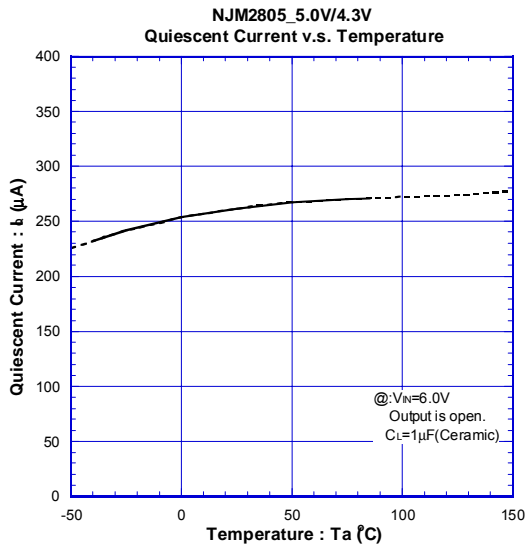


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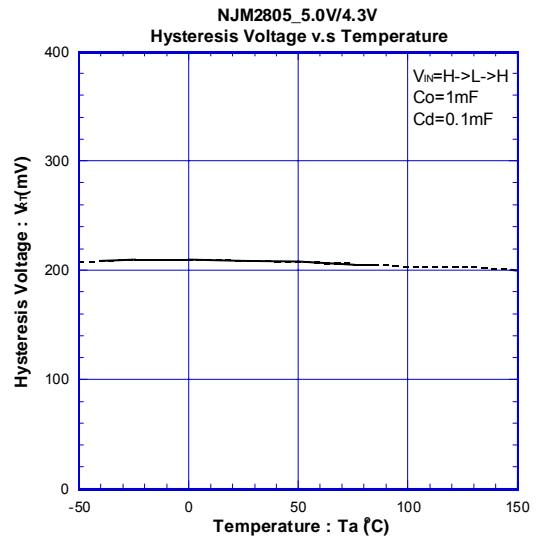
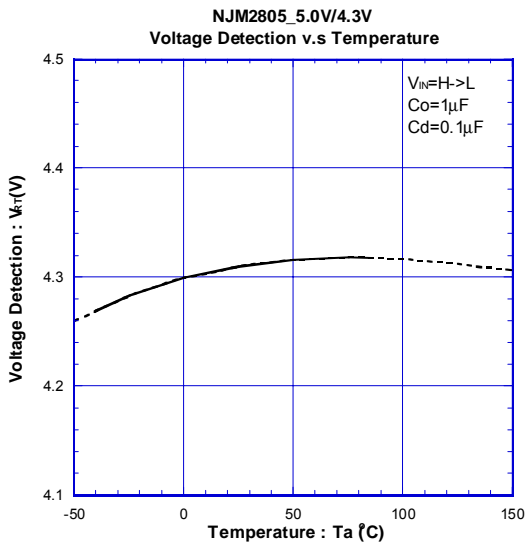
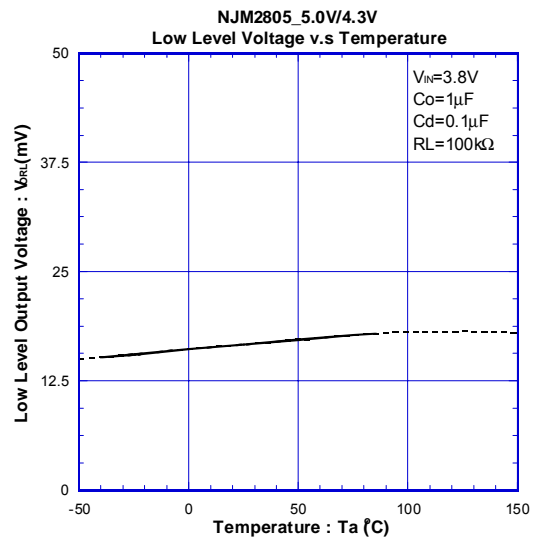
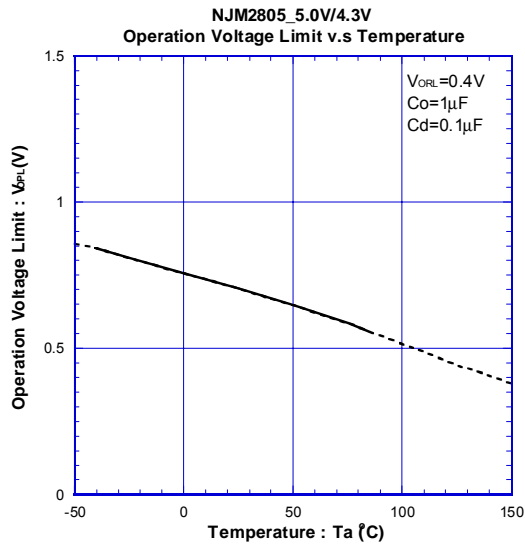


## ■ ELECTRICAL CHARACTERISTICS



# NJM2805

## ELECTRICAL CHARISTICS





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