

Low Dropout Voltage Regulator with Reset

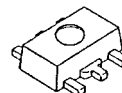
■ GENERAL DISCRIPTION

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.

■ PACKAGE OUTLINE

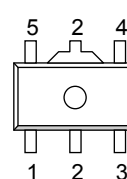


NJM2805U1

■ 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. ($f = 1\text{kHz}$)
- Output Voltage Monitor type
- Open Collector Output
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline SOT-89 -5

■ PIN CONFIGURATION



NJM2805U1

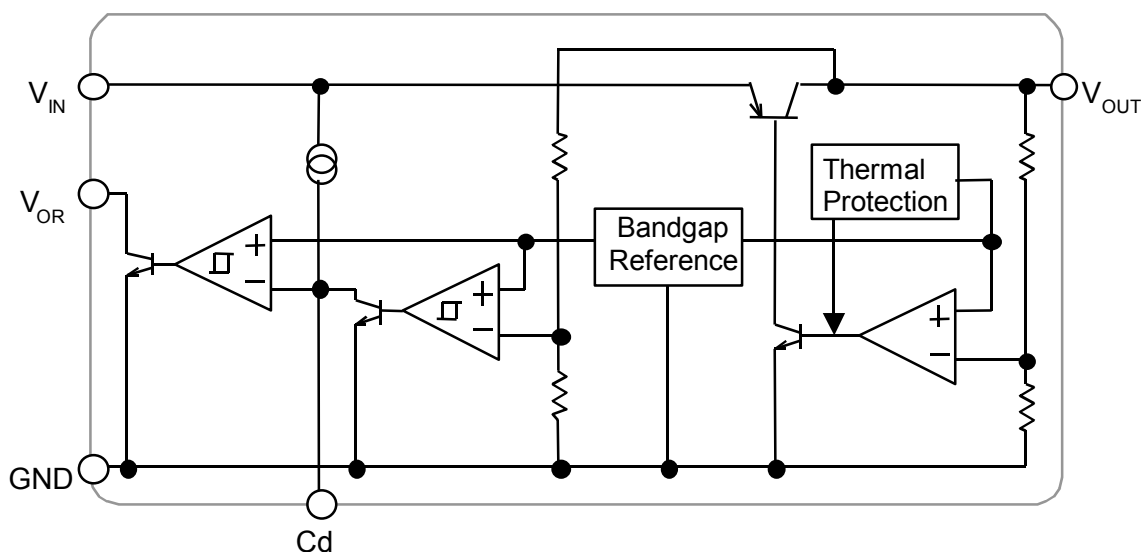
PIN FUNCTION

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_{IN}	+14	V
Power Dissipation	P_D	350	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS

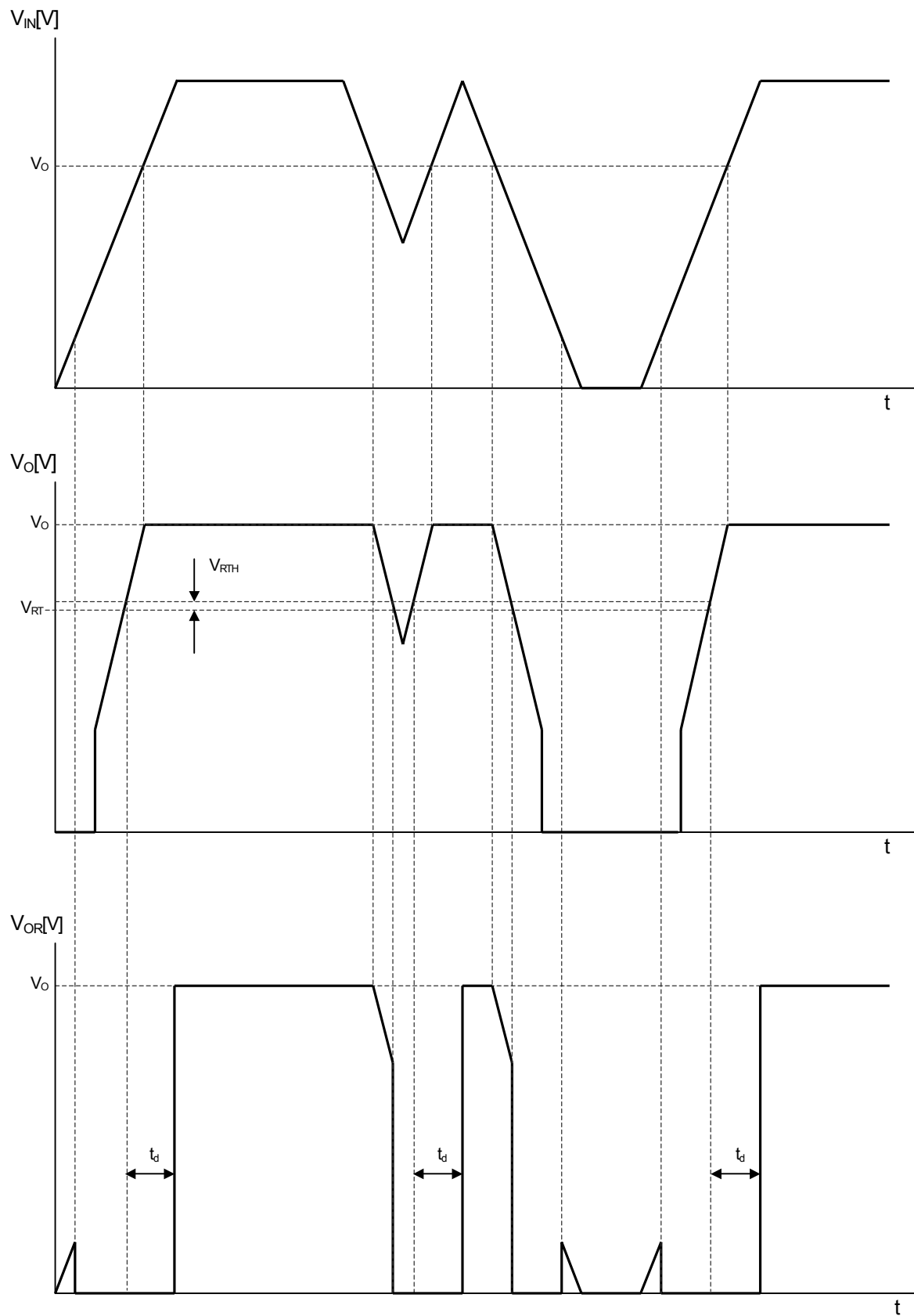
($V_{IN}=V_O+1V$, $C_{IN}=0.1\mu F$, $C_O=1\mu F$ ($C_O=2.2\mu F$: $V_O\leq 2.6V$) $T_a=25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_Q	$I_O=0mA$	–	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	ΔV_{L_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

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.

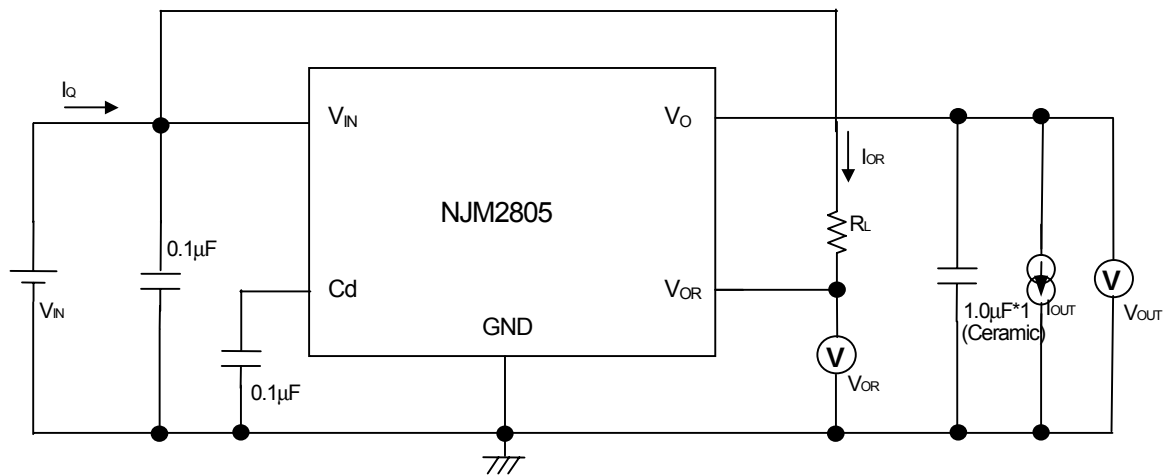
■ TIMING CHART



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

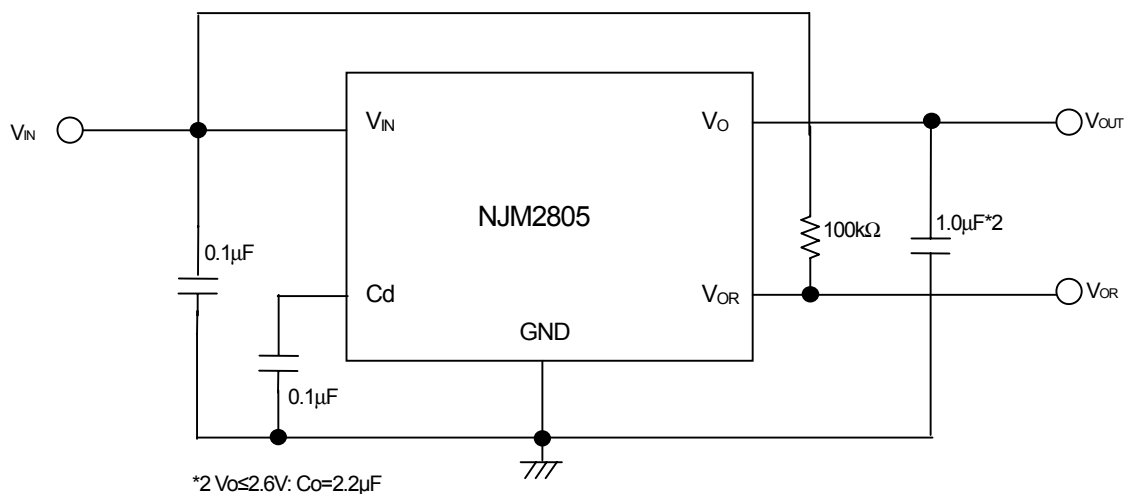
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■ TEST CIRCUIT



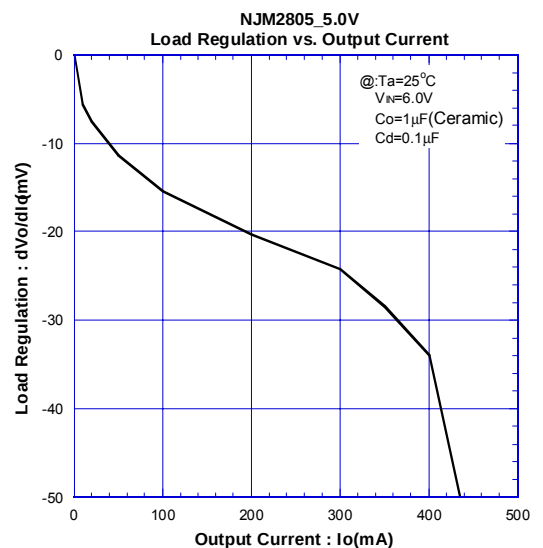
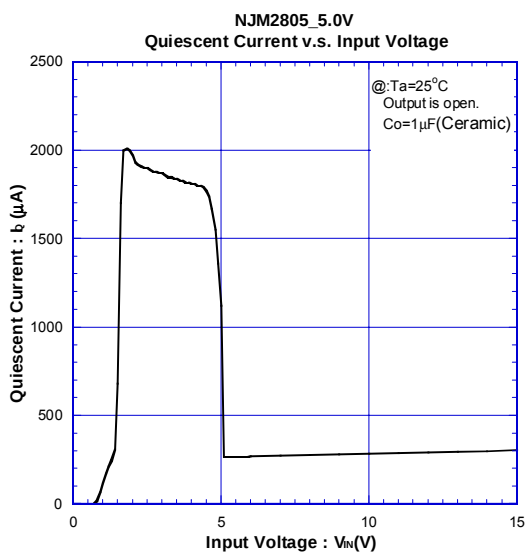
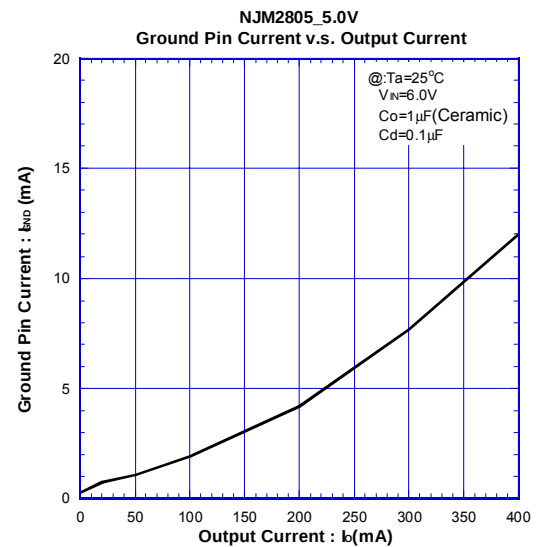
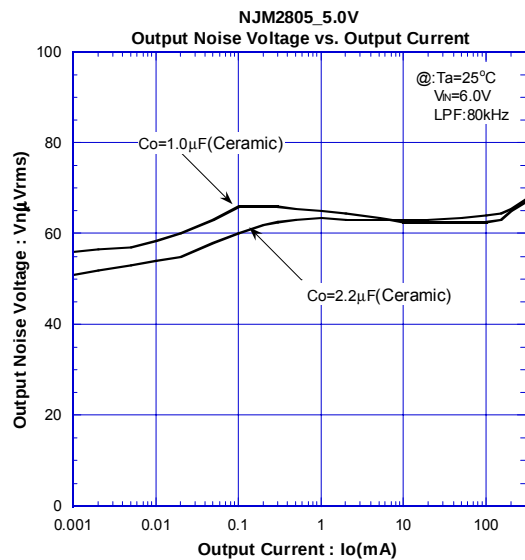
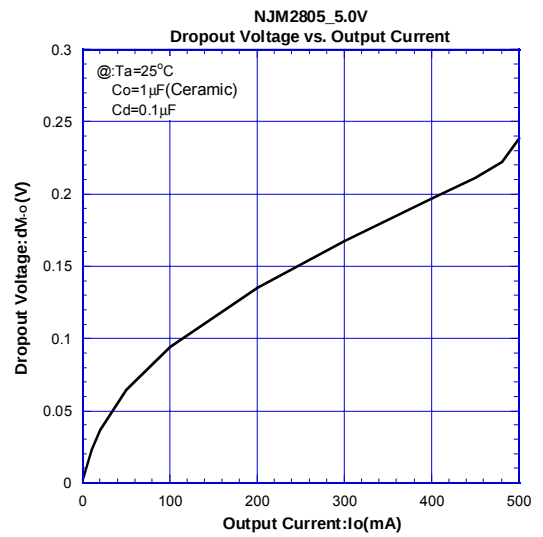
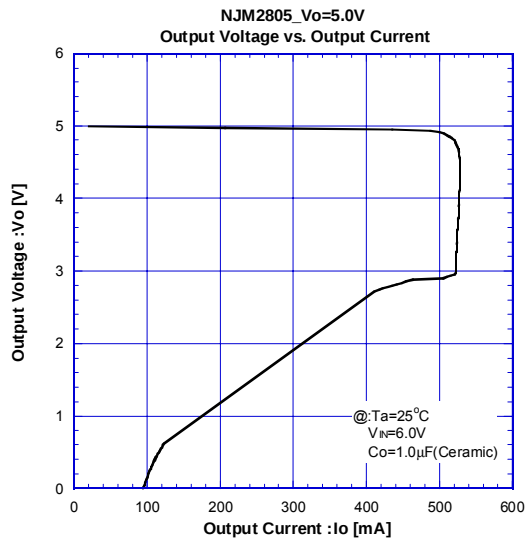
*1 $V_{OS} \leq 2.6V$: $C_O = 2.2\mu F$ (Ceramic)

■ TYPICAL APPLICATIONS

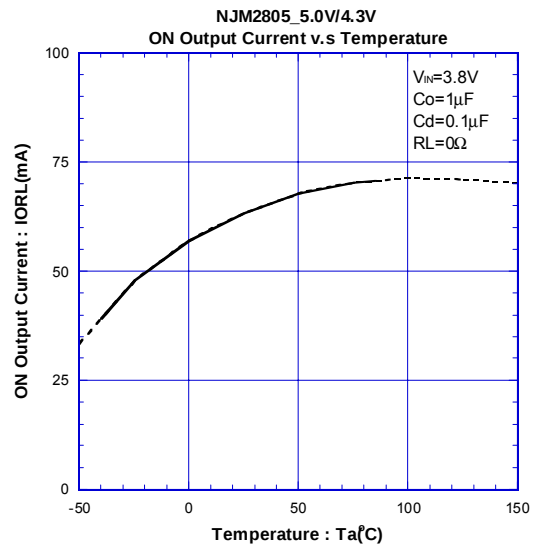
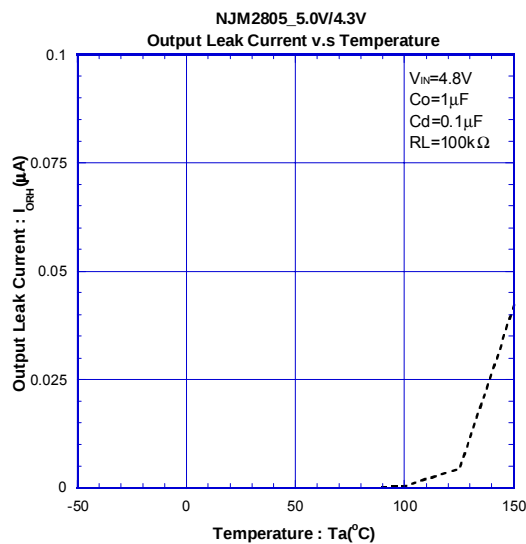
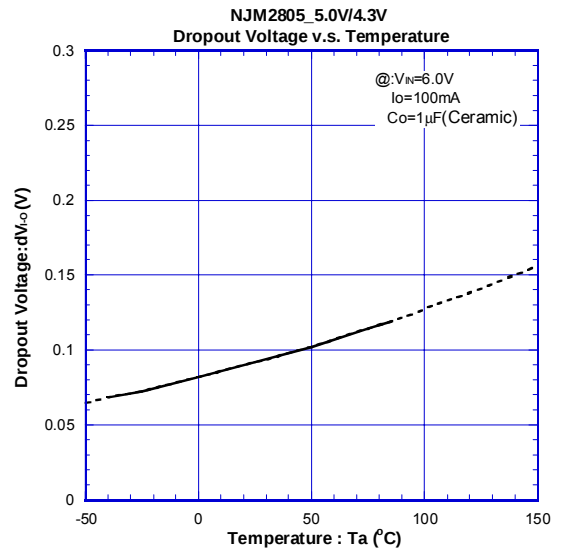
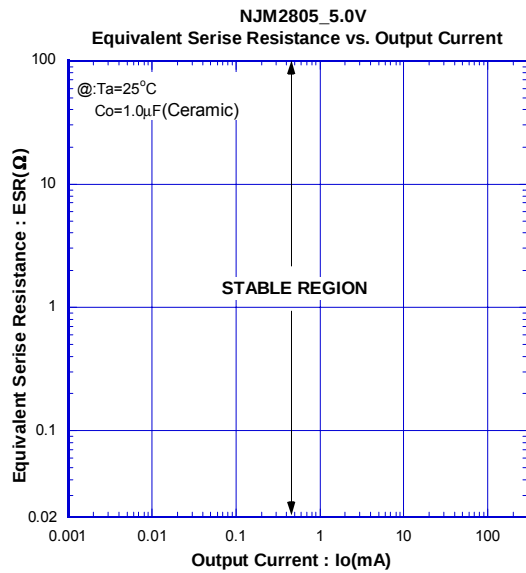
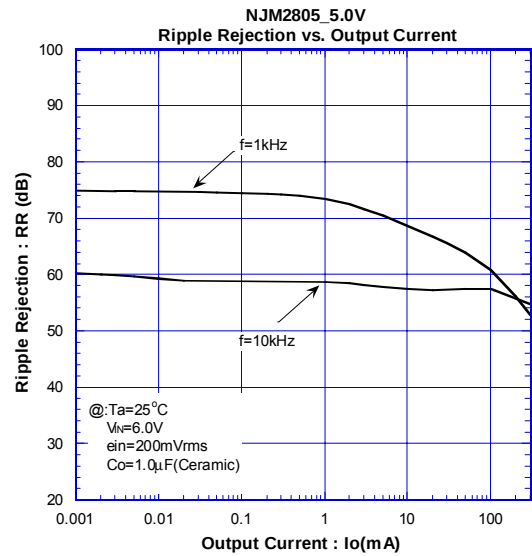
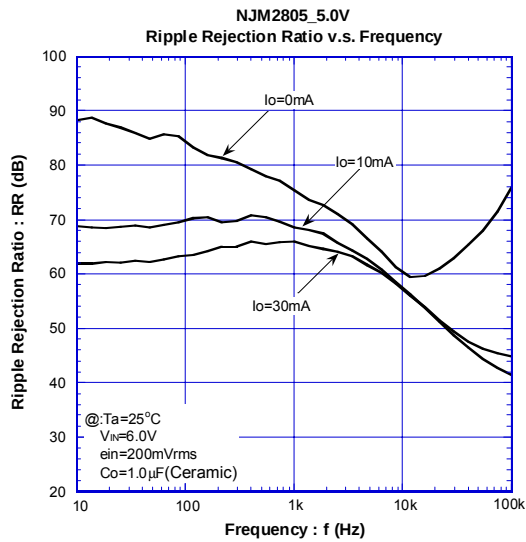


*2 $V_{OS} \leq 2.6V$: $C_O = 2.2\mu F$

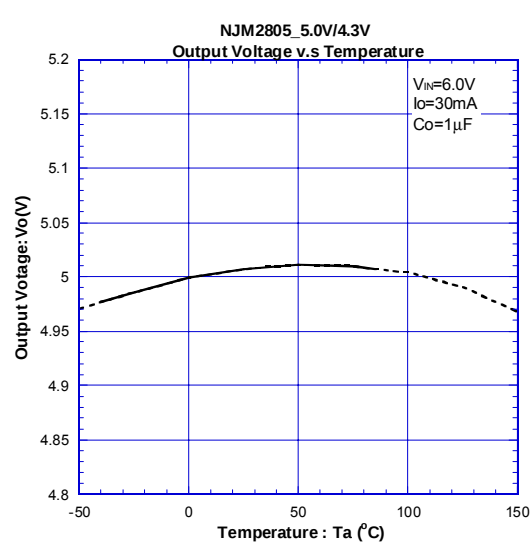
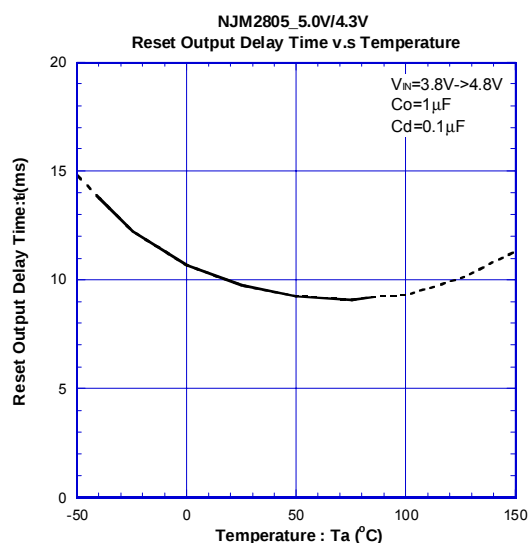
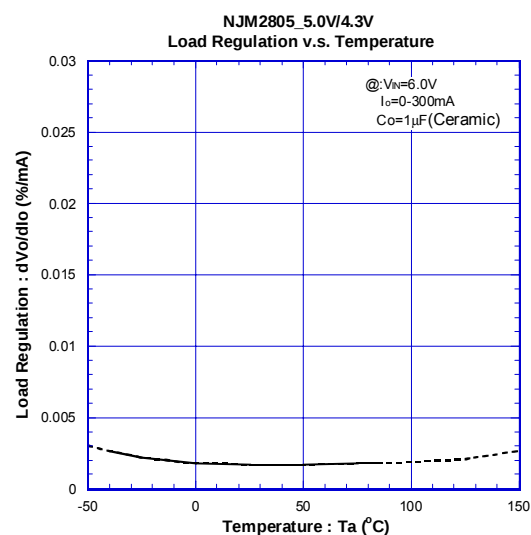
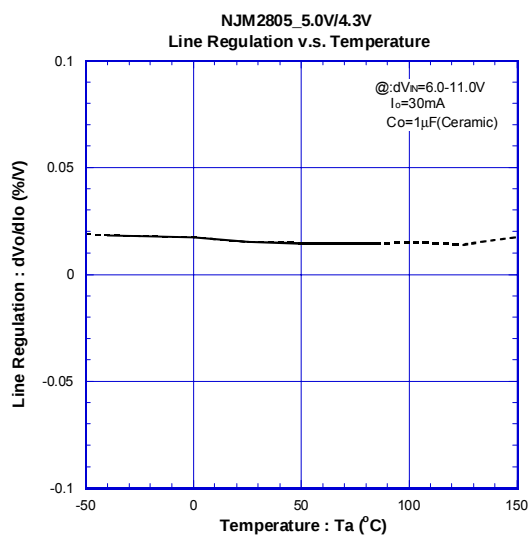
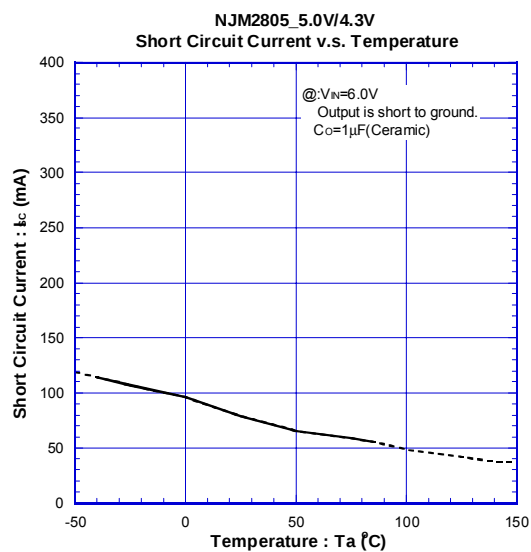
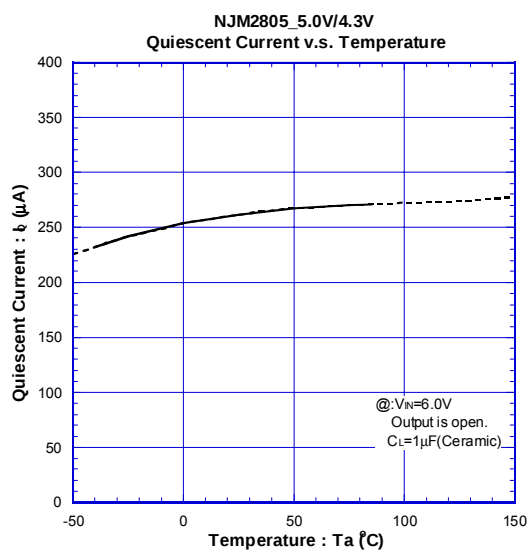
ELECTRICAL CHARACTERISTICS



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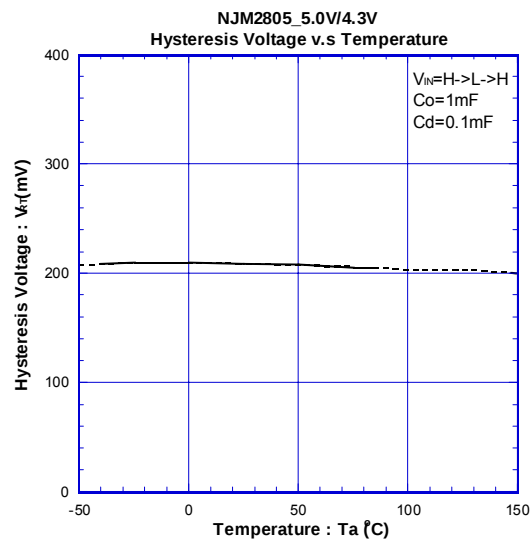
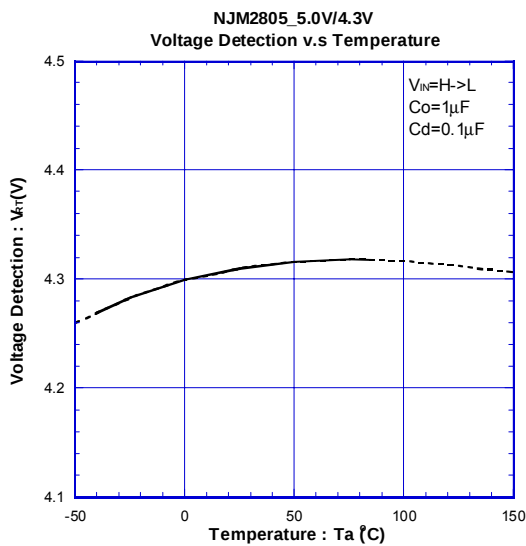
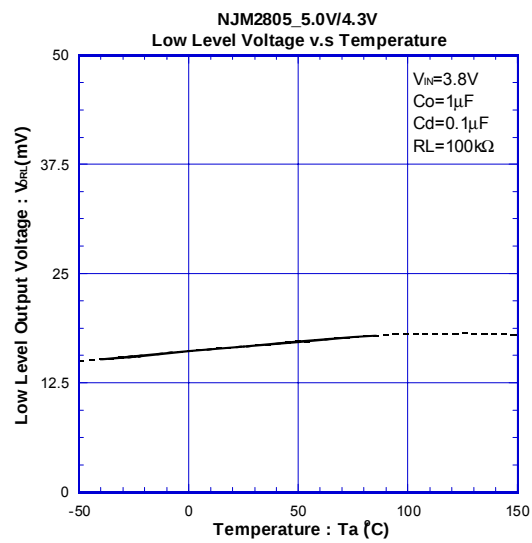
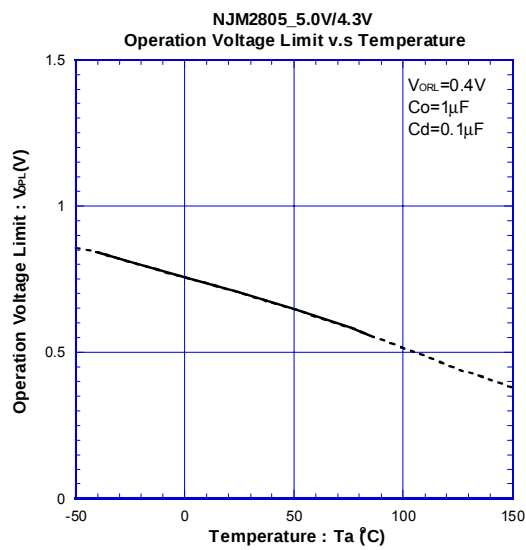


ELECTRICAL CHARACTERISTICS



NJM2805

ELECTRICAL CHARISTICS



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