Low Dropout Voltage Regulator with Reset

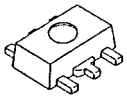
■ GENERAL DISCRIPTION

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

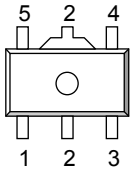


NJM2805U1

■ FEATURES

- Output Voltage Accuracy Vo ±1.0%
- Reset Voltage Accuracy V_{RT}±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

■ PIN CONFIGURATION



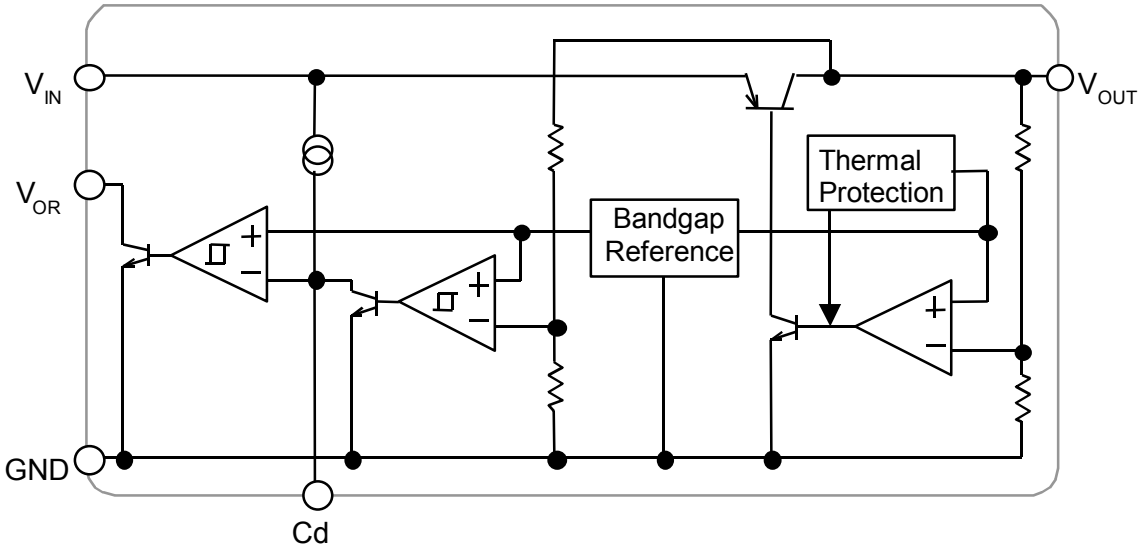
PIN FUNCTION
1.V_{OUT}
2.GND
3.Cd
4.V_{OR}
5.V_{IN}

NJM2805U1

■ 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



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

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

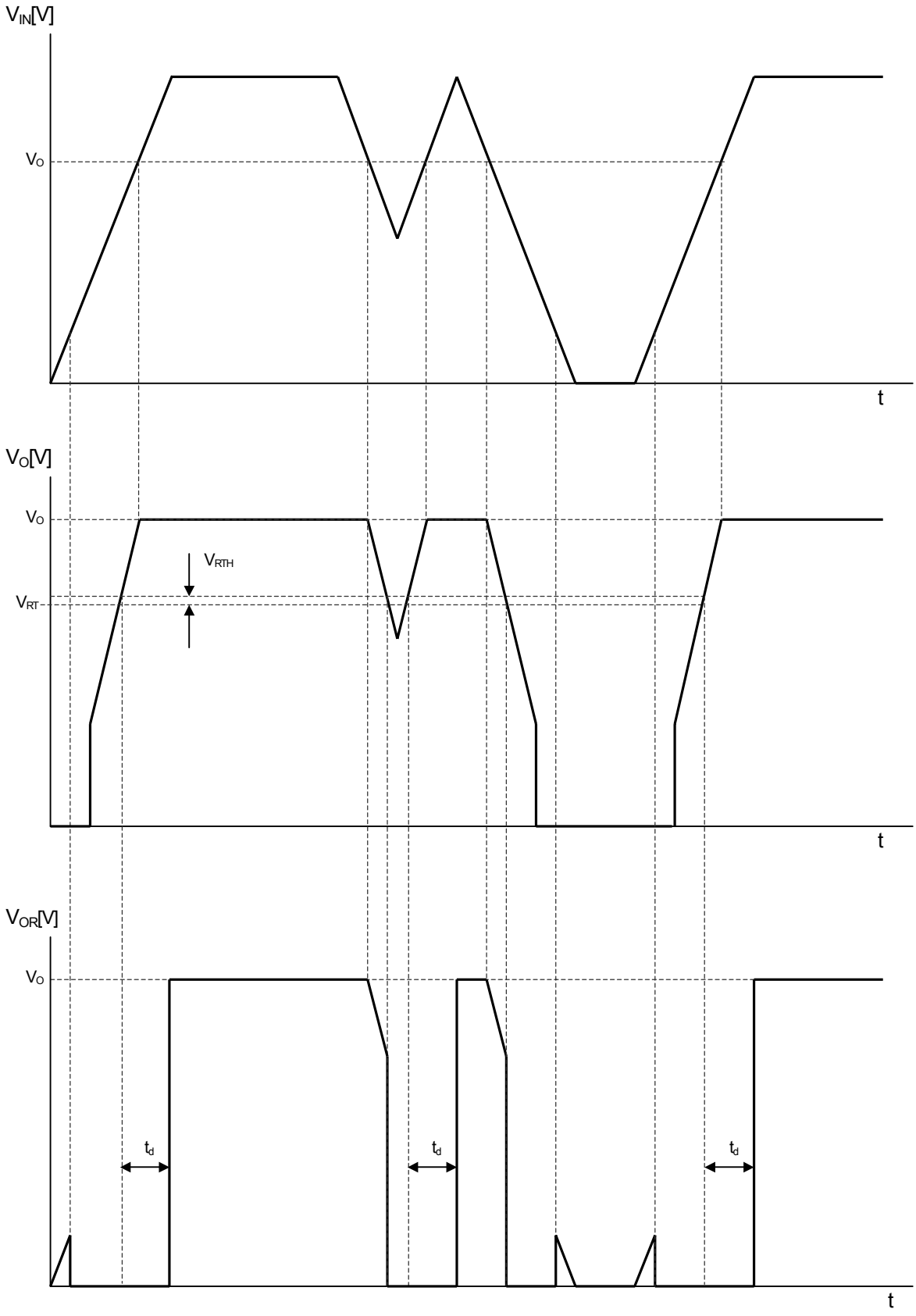
■ ELECTRICAL CHARACTERISTICS

(V_{IN}=Vo+1V, C_{IN}=0.1μF, Co=1μF (Co=2.2μF: Vo≤2.6V) Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_Q	Io=0mA	–	250	350	μA
Regulator Block						
Output Voltage	Vo	Io=30mA	-1.0%	–	+1.0%	V
Output Current	Io	Vo-0.3V	300	400	–	mA
Line Regulation	$\Delta Vo/\Delta V_{IN}$	V_{IN}=Vo+1V ~ Vo+6V, Io=30mA	–	–	0.10	%/V
Load Regulation	$\Delta Vo/\Delta Io$	Io=0 ~ 300mA	–	–	0.03	%/mA
Dropout Voltage	ΔV_{I_O}	Io=100mA	–	0.10	0.18	V
Ripple Rejection	RR	ein=200mVrms, f=1kHz, Io=10mA, Vo=3V Version	–	75	–	dB
Output Voltage Temperature Coefficient	$\Delta Vo/\Delta T$	Ta=0 ~ 85°C, Io=10mA	–	±50	–	ppm/°C
Output Noise Voltage	V_{NO}	f=10Hz ~ 80kHz, Io=10mA, Vo=3V Version	–	45	–	μVrms
Reset Block						
Voltage Detection	V_{RT}	V_{IN}=H→L	-1.0%	–	+1.0%	V
Hysteresis Voltage	V_{RTH}	V_{IN}=H→L→H	V_{RT} ×3%	V_{RT} ×5%	V_{RT} ×8%	V
Low Level Output Voltage	R_{ORL}	V_{IN}=V_{RT}-0.5V, R_L=100kΩ	–	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=0Ω	5	–	–	mA
Reset Output Delay Time	t_d	V_{IN}=(V_{RT}-0.5V)→ (V_{RT}+0.5V), C_d=0.1μF	9	10	11	ms
Operation Voltage Limit	V_{OPL}	V_{ORL}=0.4V	–	0.9	–	V

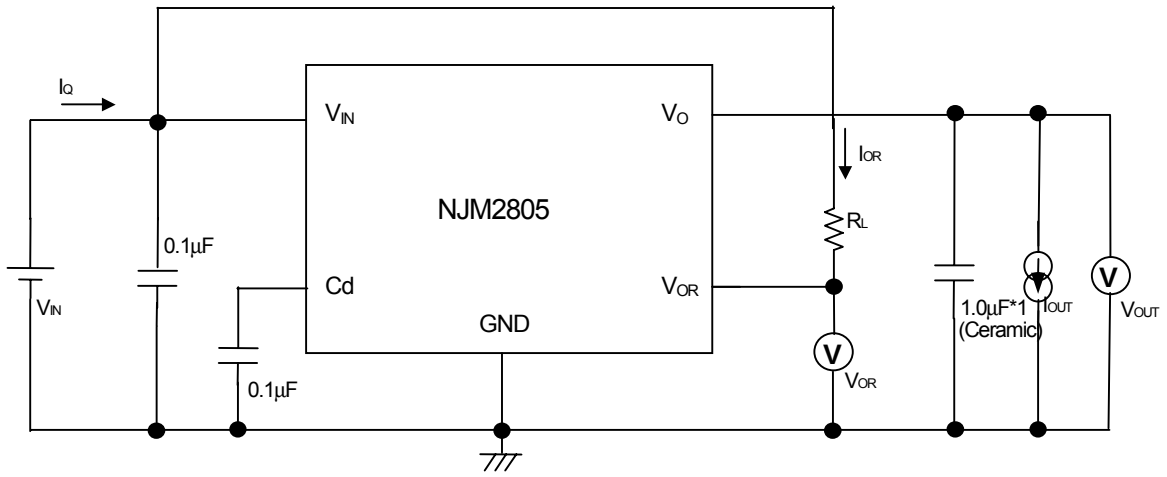
The above specification is a common specification for all output voltages.
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART



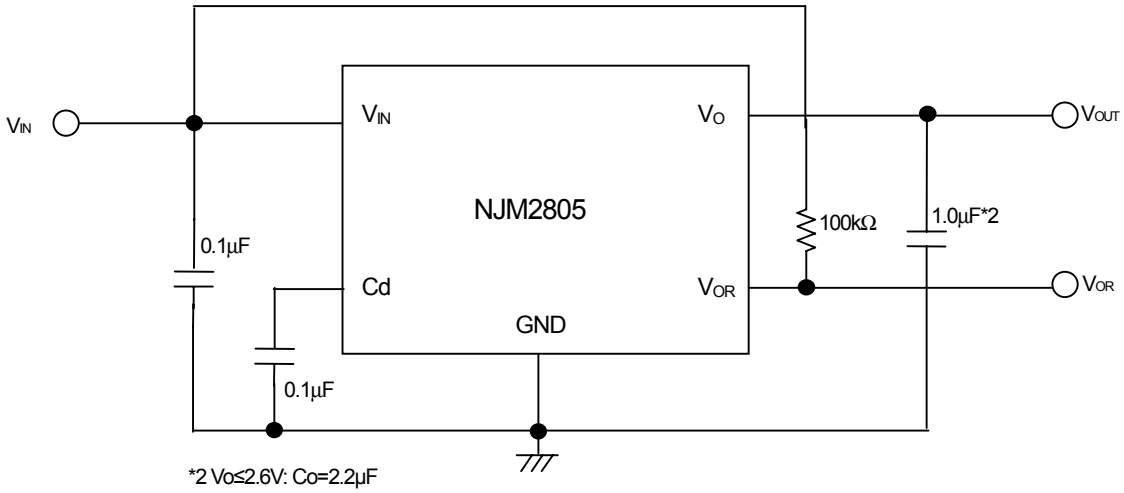
∗ When the pull-up of the V_{OR} is carried out to V_{IN} through resistance.

■ TEST CIRCUIT



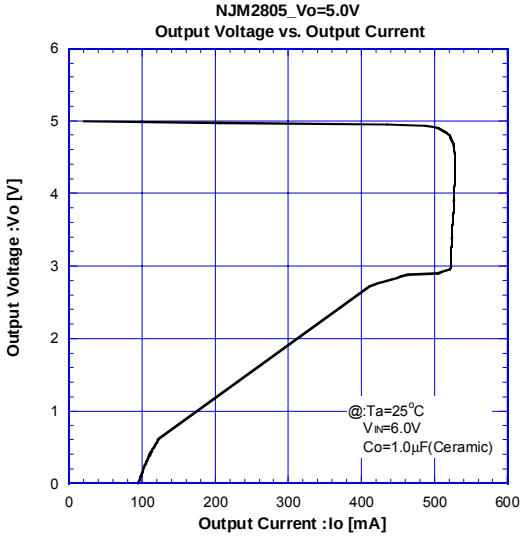
*1 Vo≤2.6V: Co=2.2µF (Ceramic)

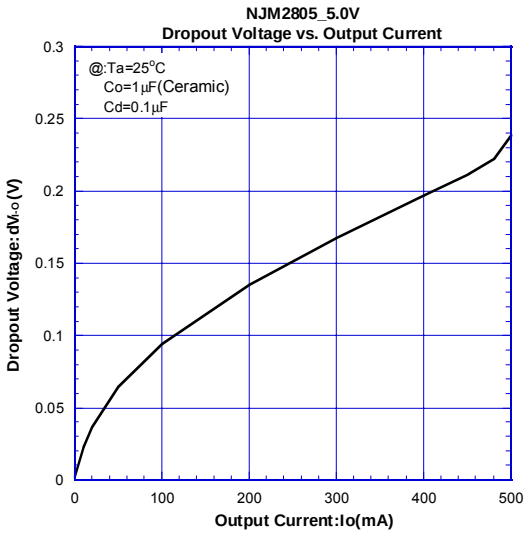
■ TYPICAL APPLICATIONS

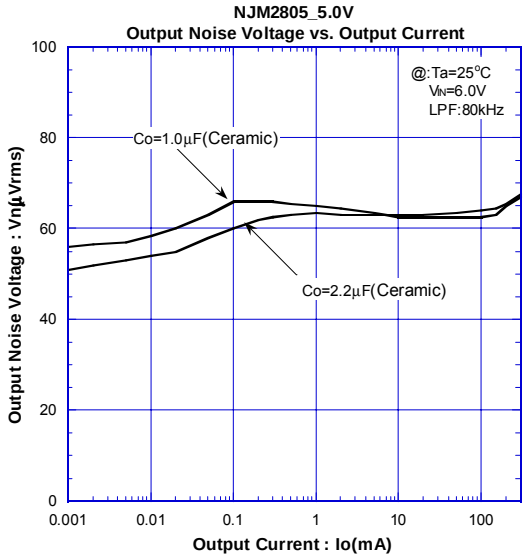


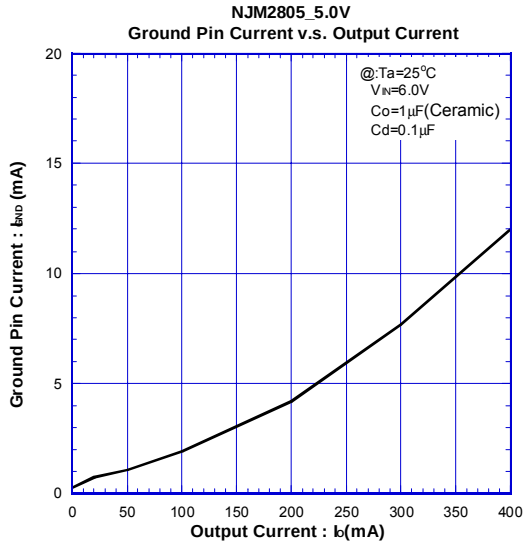
*2 Vo≤2.6V: Co=2.2µF

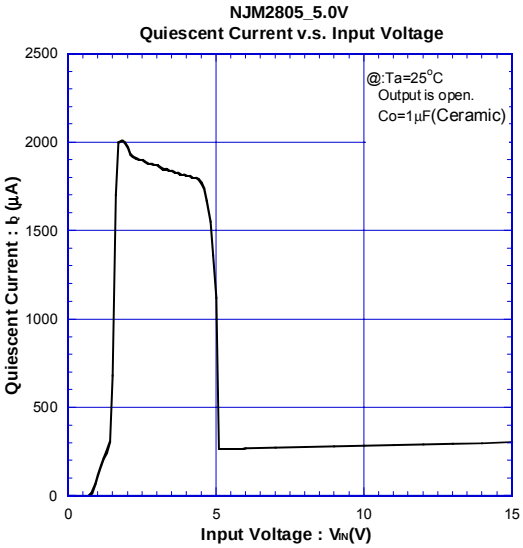
■ ELECTRICAL CHARISTICS

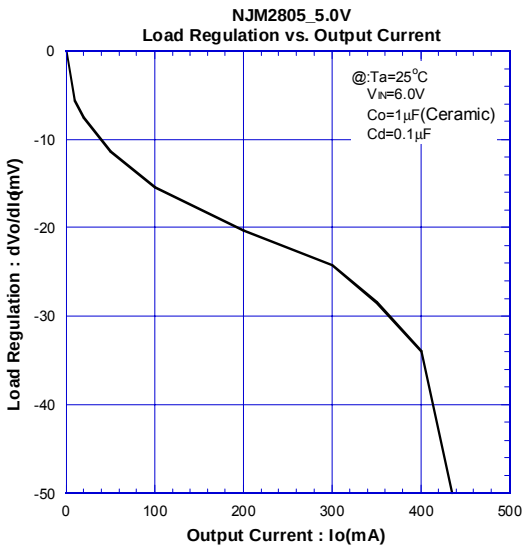




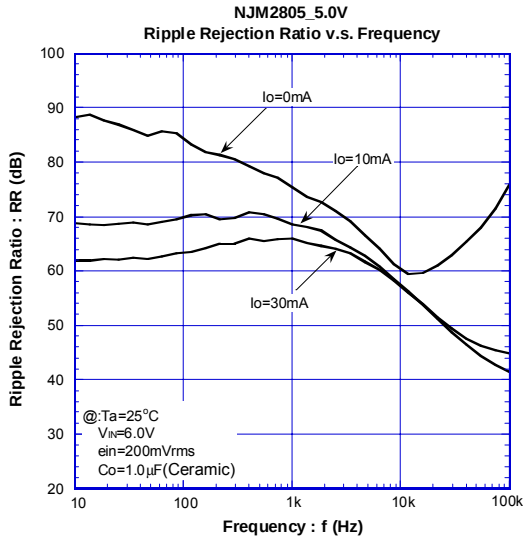


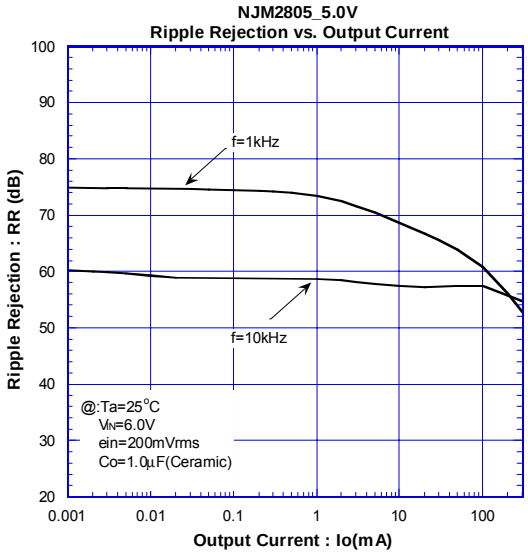


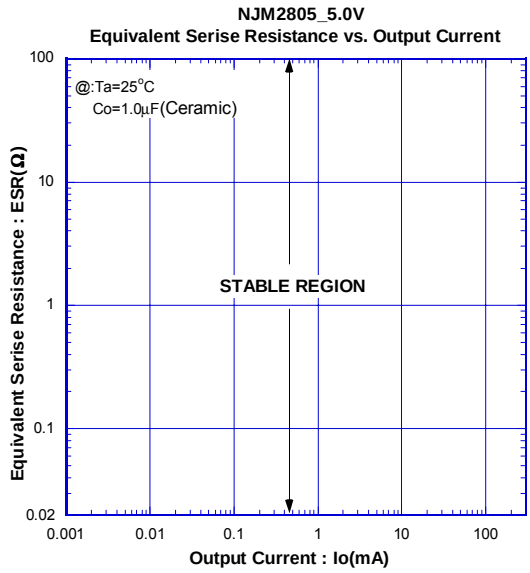


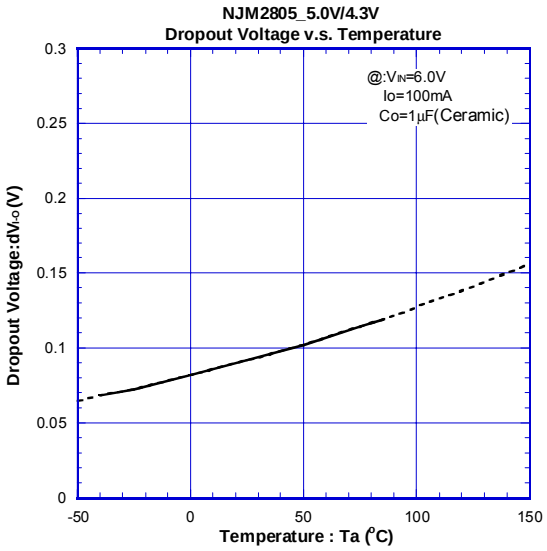


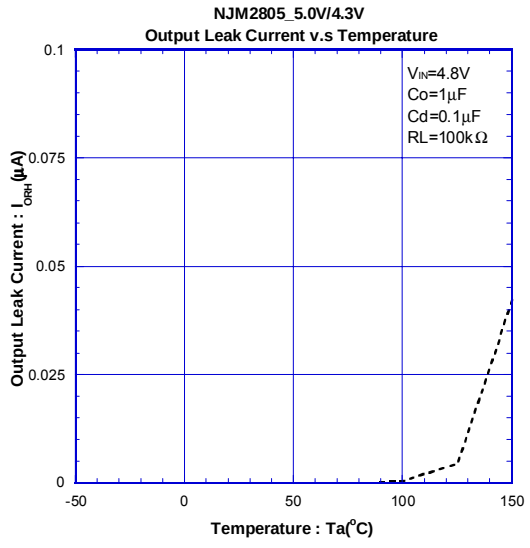
■ ELECTRICAL CHARISTICS

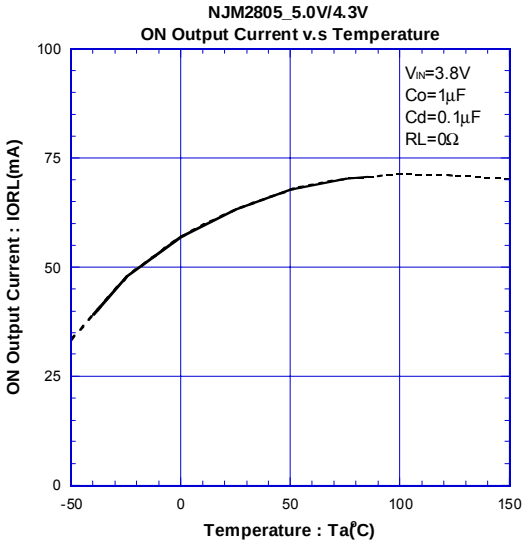






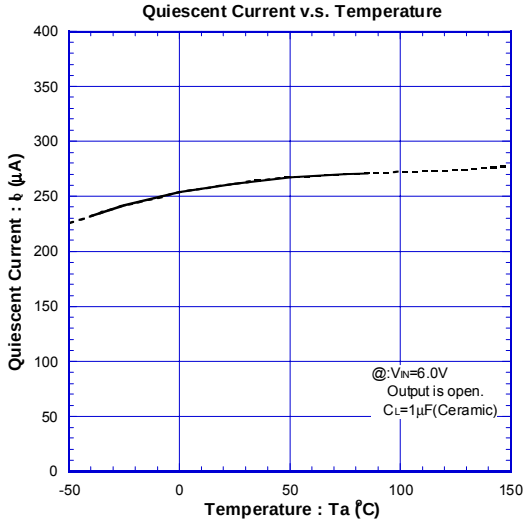




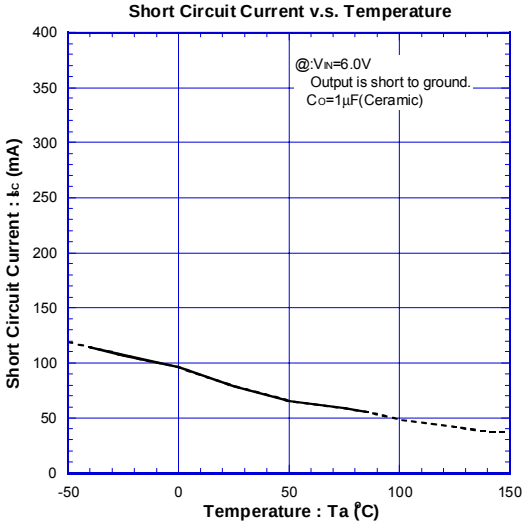


■ ELECTRICAL CHARISTICS

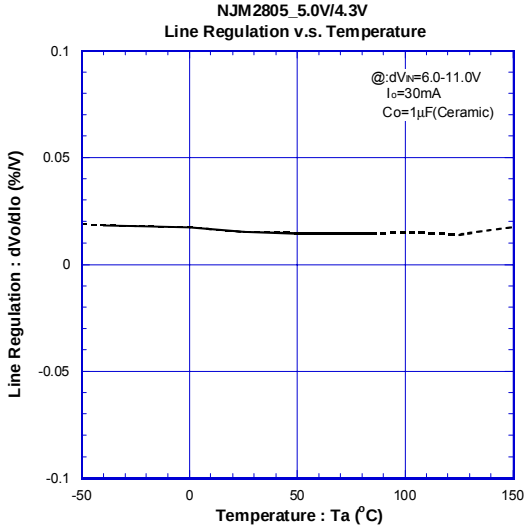
NJM2805_5.0V/4.3V
Quiescent Current v.s. Temperature



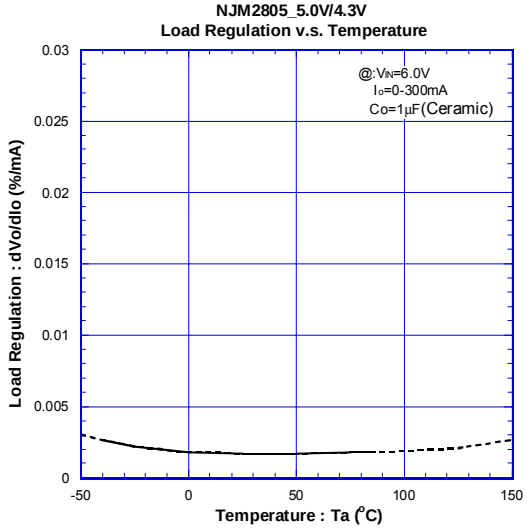
NJM2805_5.0V/4.3V
Short Circuit Current v.s. Temperature



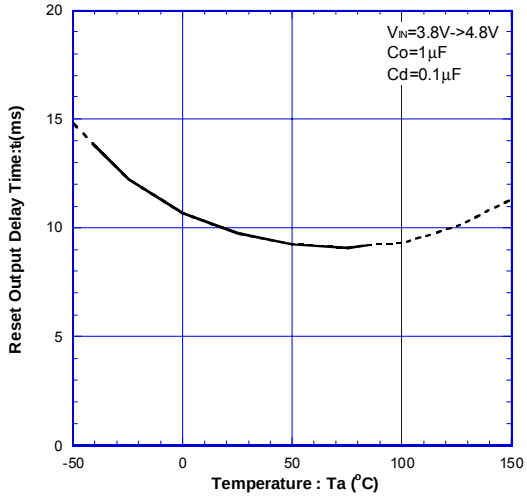
NJM2805_5.0V/4.3V
Line Regulation v.s. Temperature



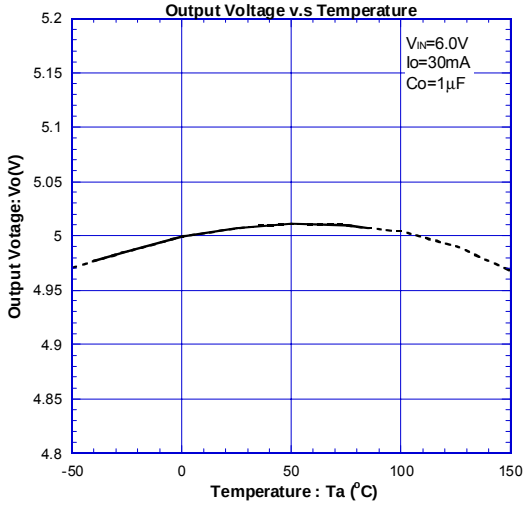
NJM2805_5.0V/4.3V
Load Regulation v.s. Temperature



NJM2805_5.0V/4.3V
Reset Output Delay Time v.s Temperature



NJM2805_5.0V/4.3V
Output Voltage v.s Temperature



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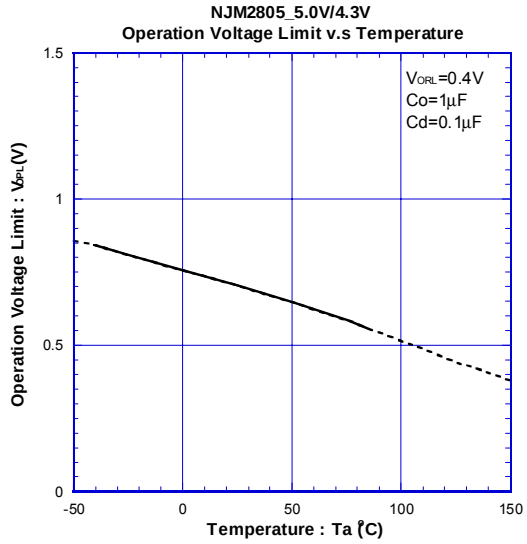

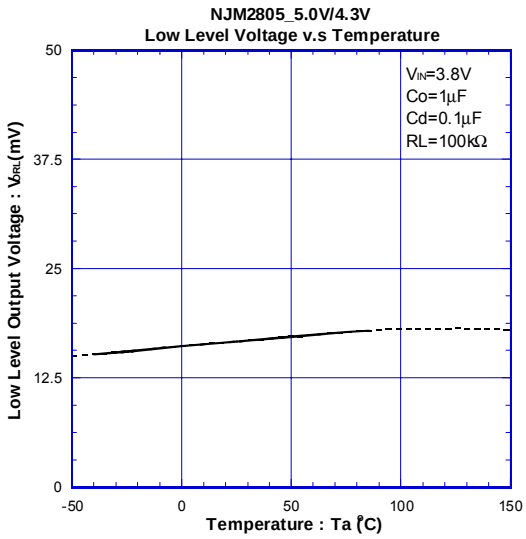

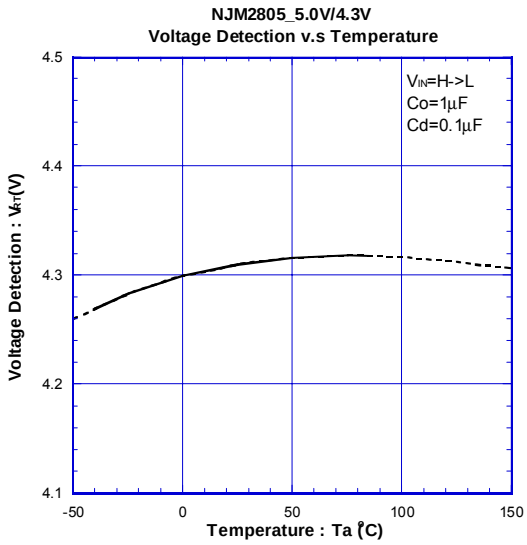

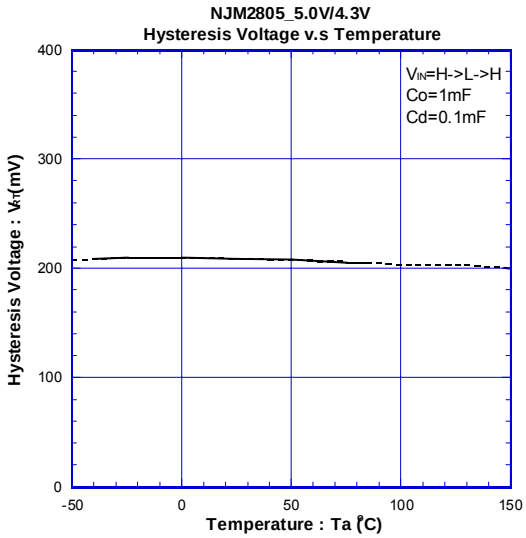

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