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New Japan Radio Co.,Ltd.

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Low Dropout Voltage Regulator with Reset

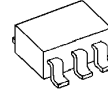
GENERAL DISCRIPTION

The NJM2800 is a low dropout voltage regulator with reset function.

It provides up to 150mA 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



NJM2800F

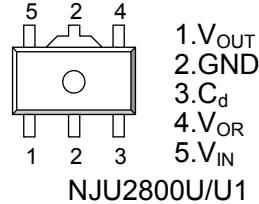
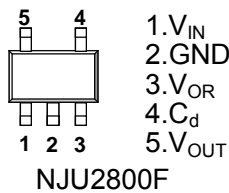


NJM2800U/U1

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)
- Input Voltage Monitor type
- Open Collector Output
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline SOT89-5 (NJM2800U/U1), SOT-23-5(NJU2800F)

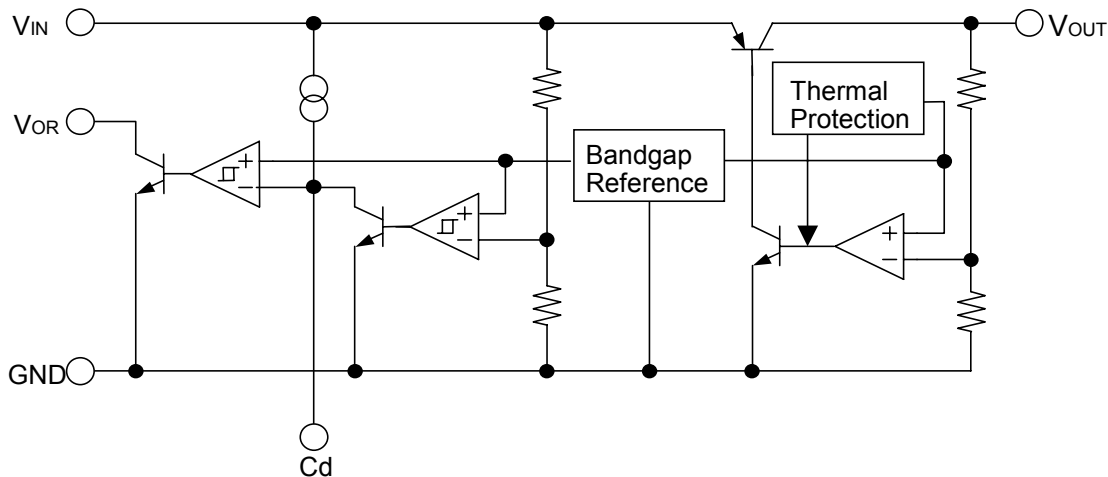
PIN CONFIGURATION



OUTPUT VOLTAGE/ DETECTION VOLTAGE

Device Name	Output Voltage	Detection Voltage
NJM2800U1-/U/F1803	1.8V	3.0V
NJM2800U1-/F2528	2.5V	2.8V
NJM2800U1-/U/F3342	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	SOT-23-5	350(*1)	mW
			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.

■ Operating voltage

V_{IN}=+2.3 ~ +14V (In case of Vo<2.1V version)

■ ELECTRICAL CHARACTERISTICS

(V_{IN}=Vo+1V, C_{IN}=0.1μF, Co=1μF (1.8<Vo≤2.6V: Co=2.2μF, Vo≤1.8V: Co=4.7μF), Ta=25°C)

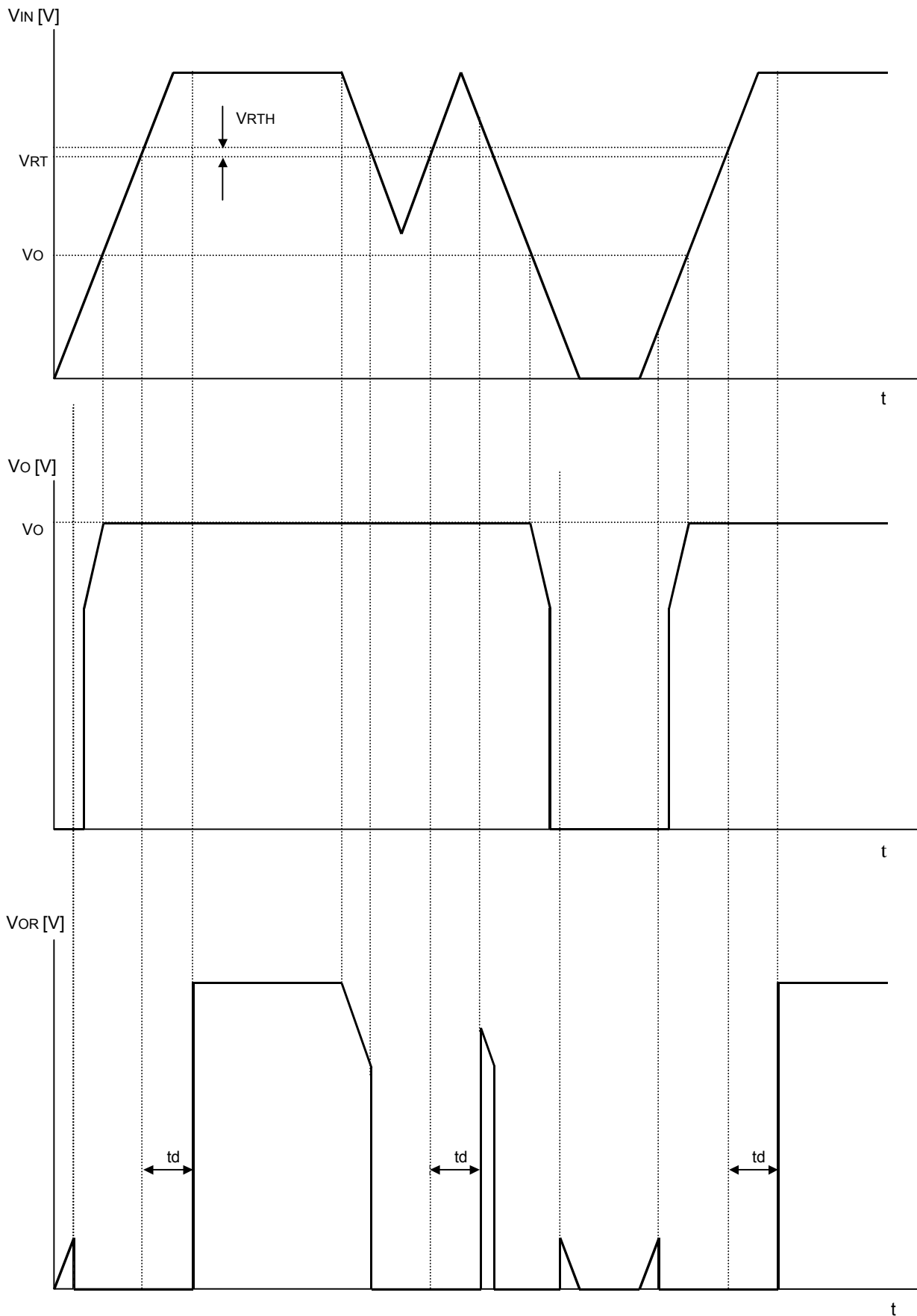
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I _Q	V _{IN} =Vo+2V, I _o =0mA	-	250	350	μA
Regulator Block						
Output Voltage	V _o	I _o =30mA	-1.0%	-	+1.0%	V
Output Current	I _o	V _o -0.3V	150	200	-	mA
Line Regulation	ΔV _o /ΔV _{IN}	V _{IN} =Vo+1V~Vo+6V, I _o =30mA	-	-	0.10	%/V
Load Regulation	ΔV _o /ΔI _o	I _o =0~100mA	-	-	0.03	%/mA
Dropout Voltage(*3)	ΔV _{L_O}	I _o =60mA	-	0.10	0.18	V
Ripple Rejection	RR	e _{in} =200mVrms, f=1kHz, I _o =10mA, V _o =3V Version	-	60	-	dB
Output Voltage Temperature Coefficient	ΔV _o /ΔT	Ta=0~85°C, I _o =10mA	-	±50	-	ppm/°C
Output Noise Voltage	V _{NO}	f=10Hz~100kHz, I _o =10mA, V _o =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	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	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

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

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

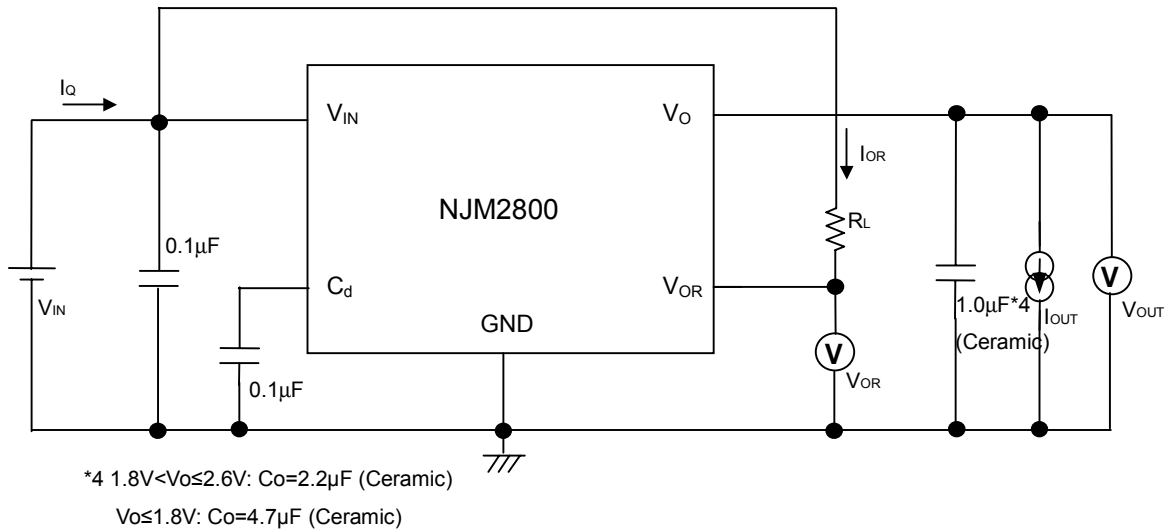
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART

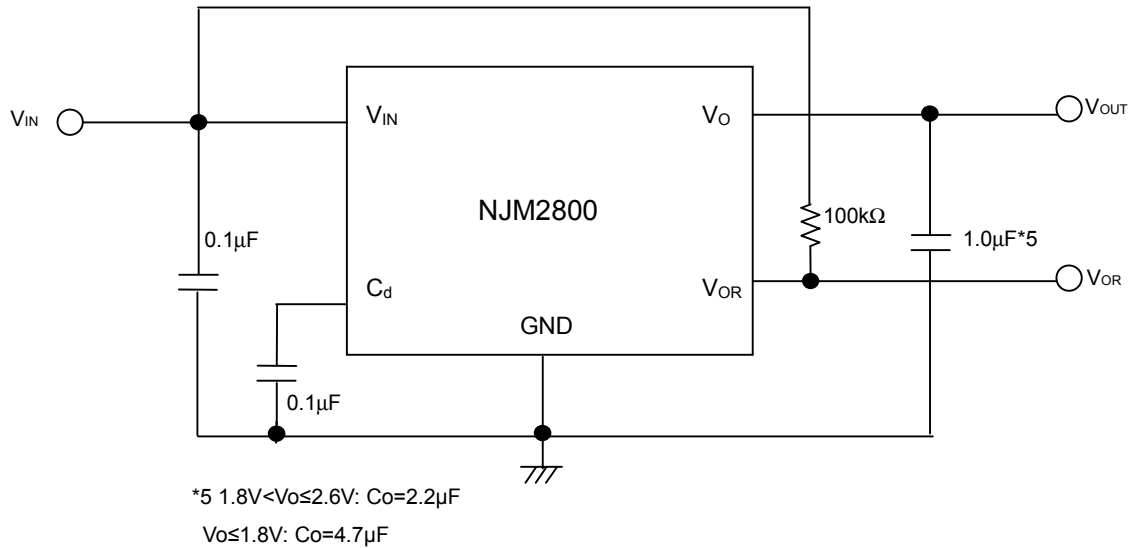


* V_{OR} is the case where a pull-up is carried out to V_{IN} through resistance.

■ TEST CIRCUIT

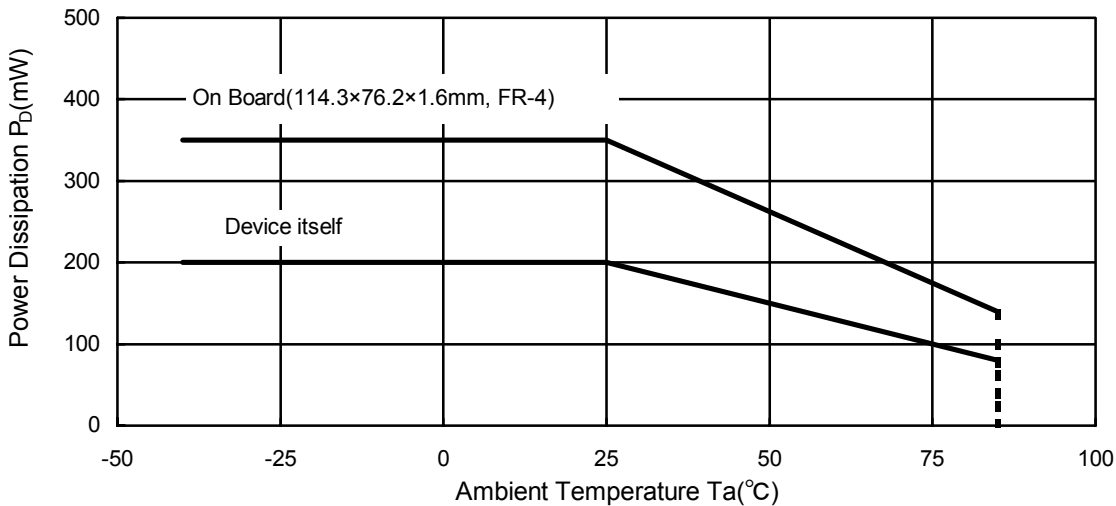


■ TYPICAL APPLICATIONS

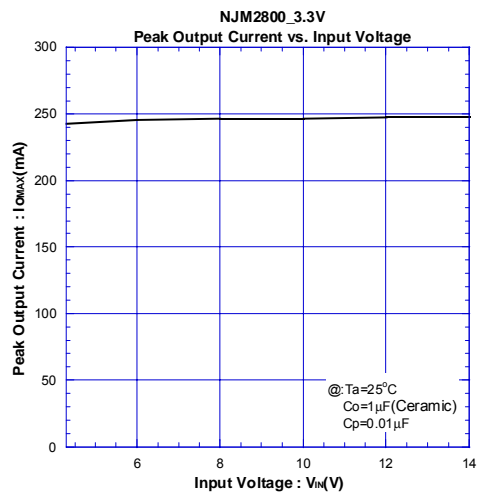
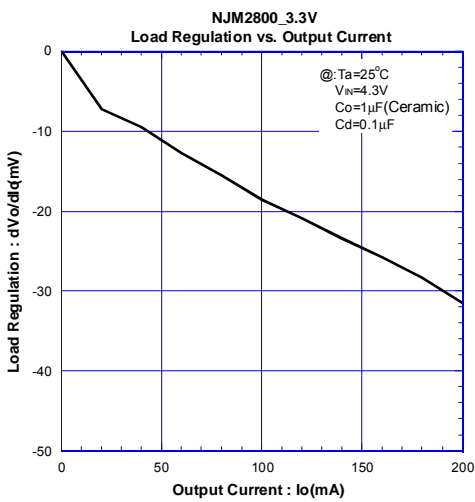
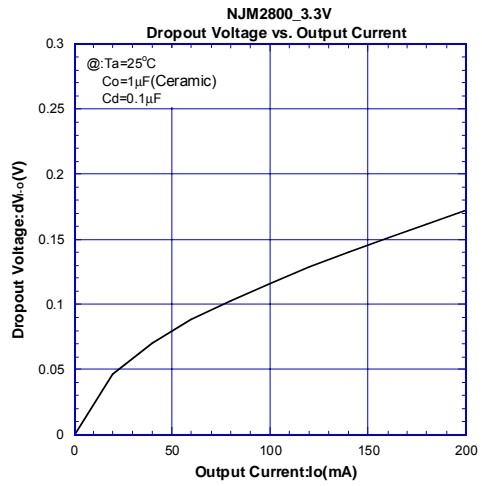
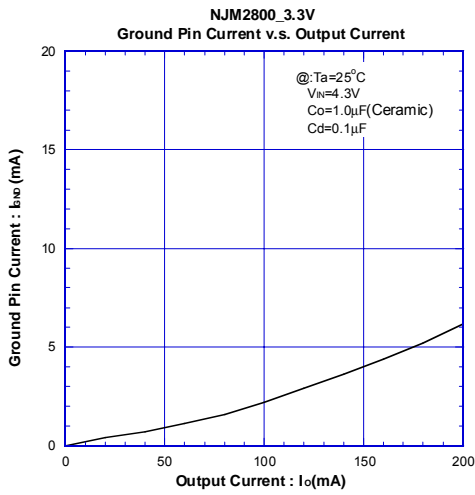
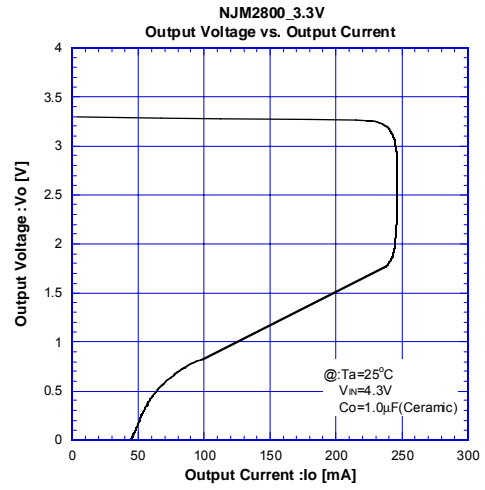
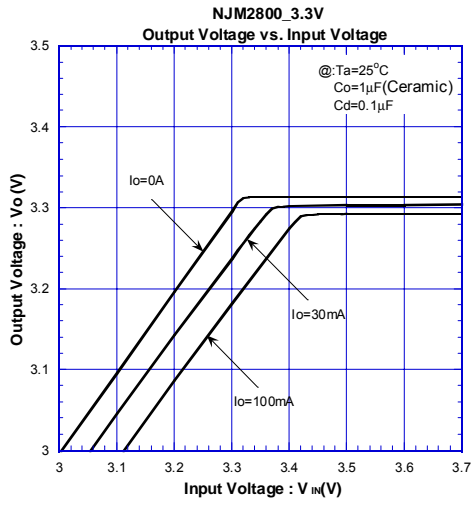


■ POWER DISSIPATION vs. AMBIENT TEMPERATURE

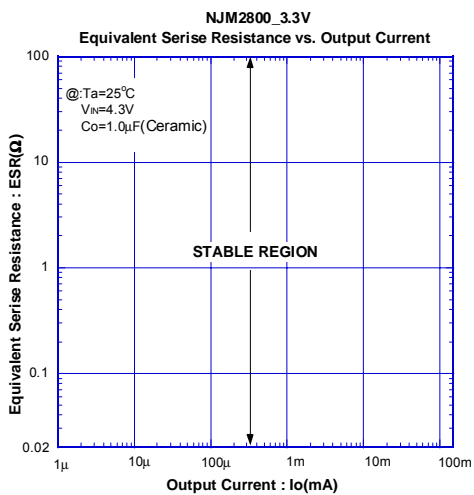
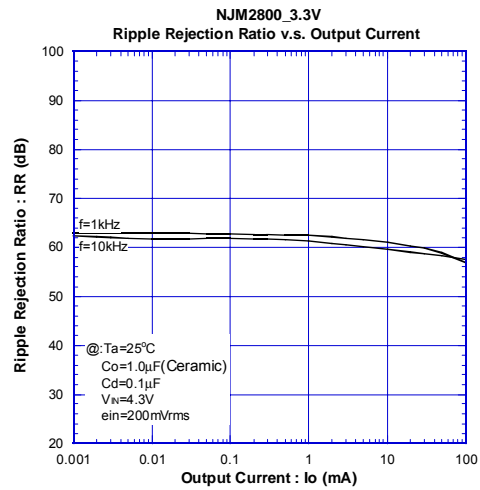
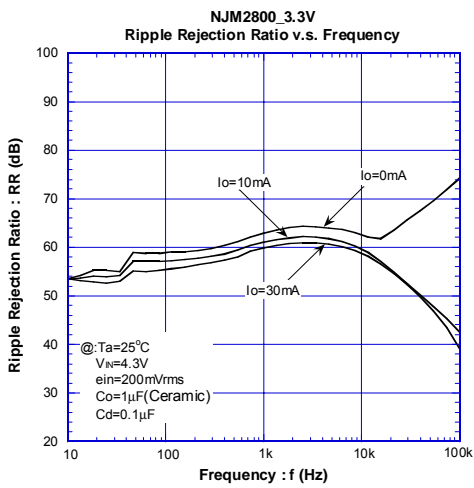
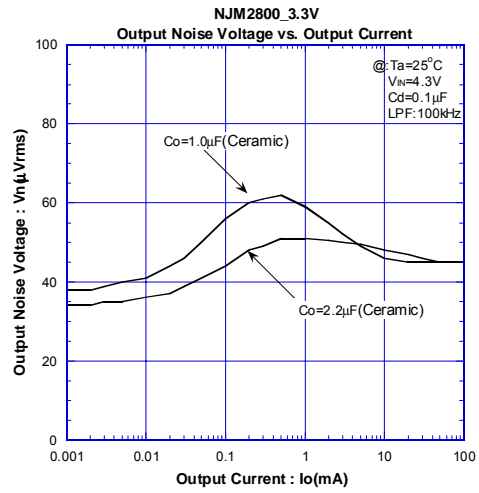
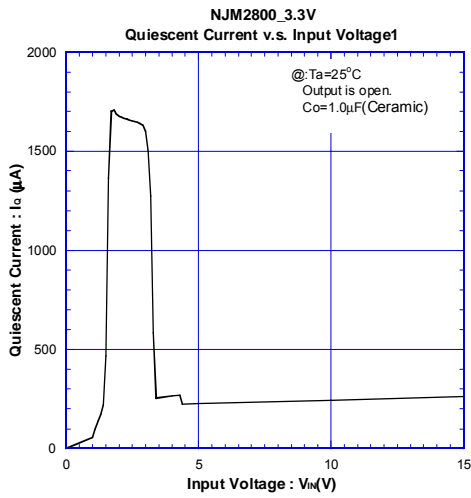
NJM2800F Power Dissipation
 ($T_{op} = -40 \sim +85^\circ C$, $T_j = 125^\circ C$)



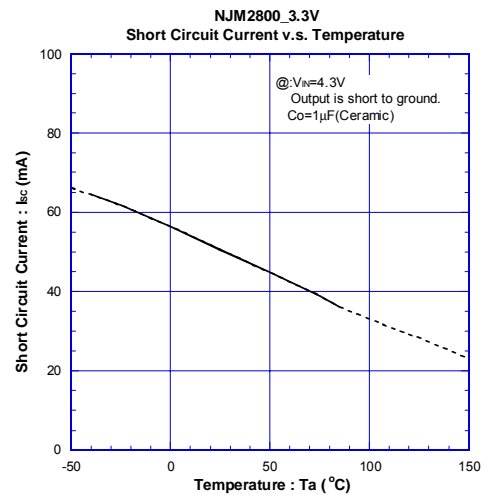
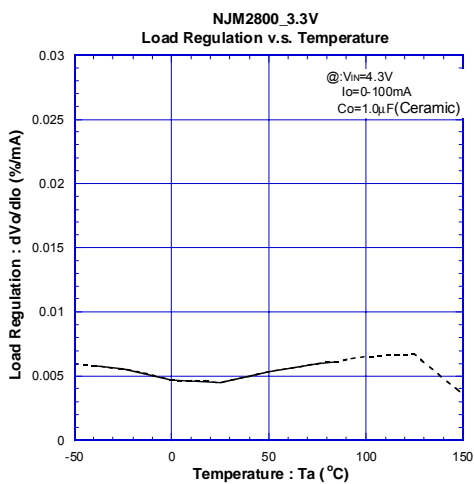
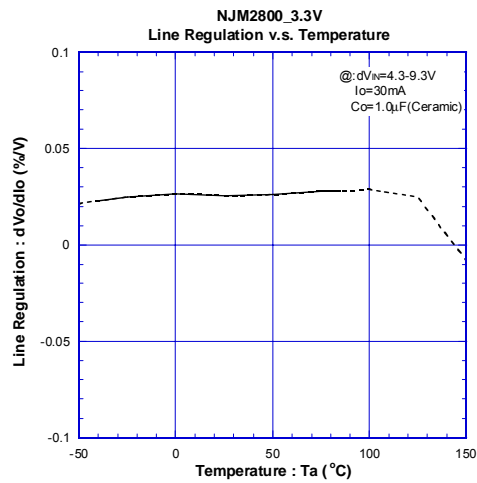
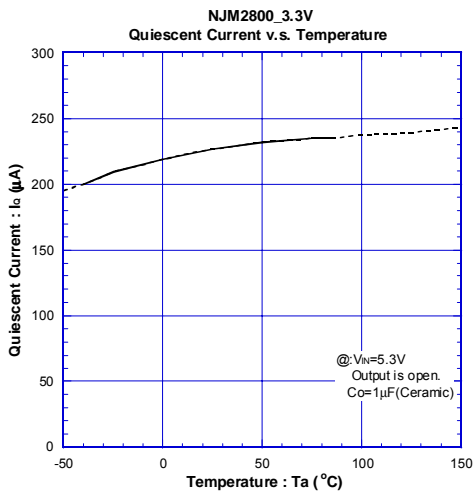
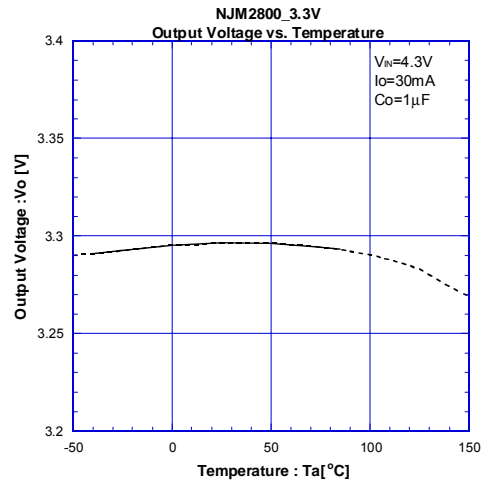
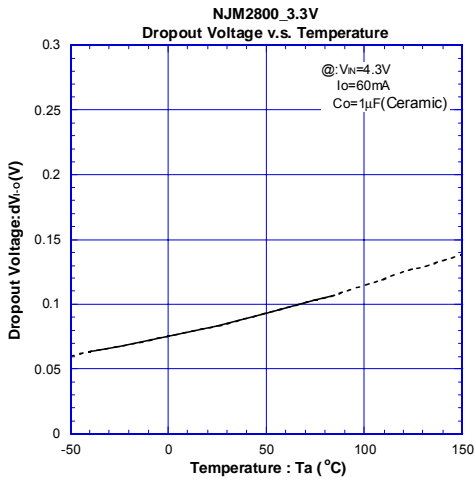
■ ELECTRICAL CHARACTERISTICS



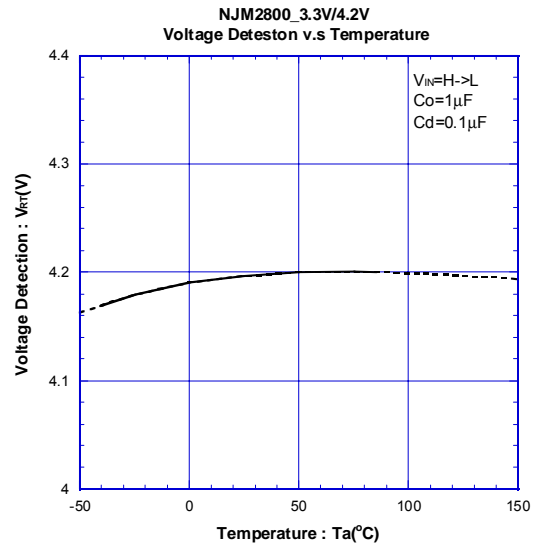
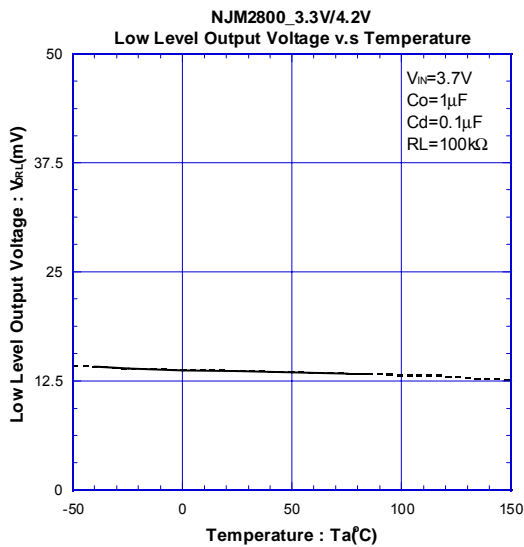
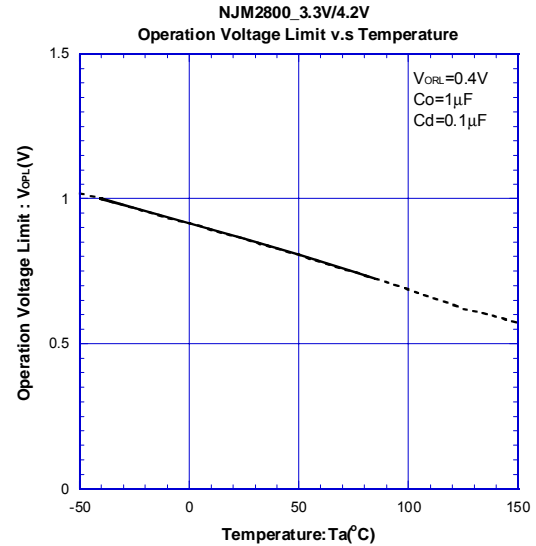
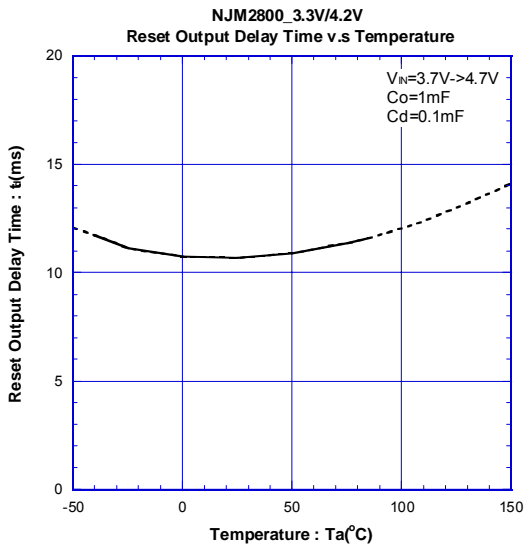
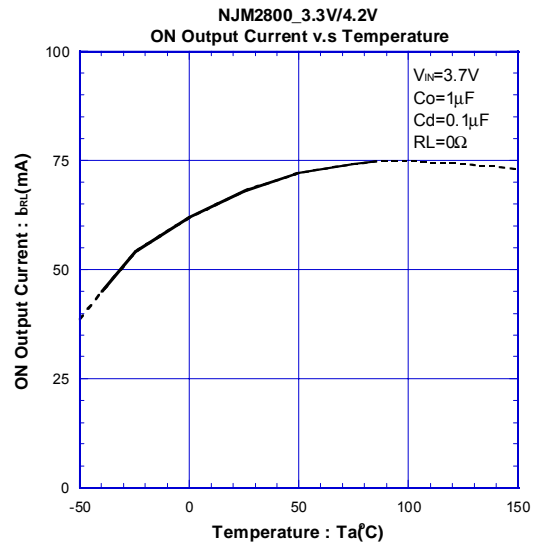
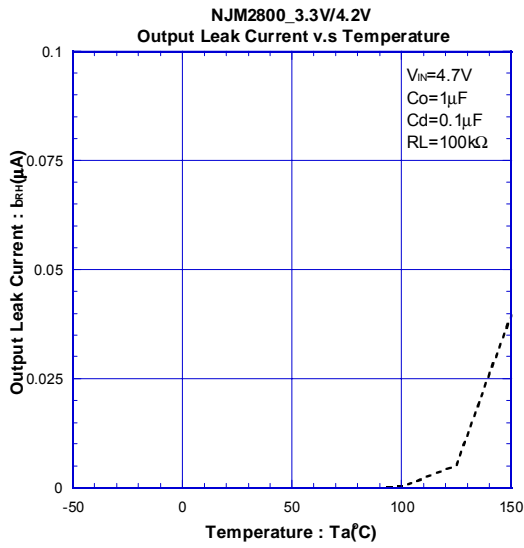
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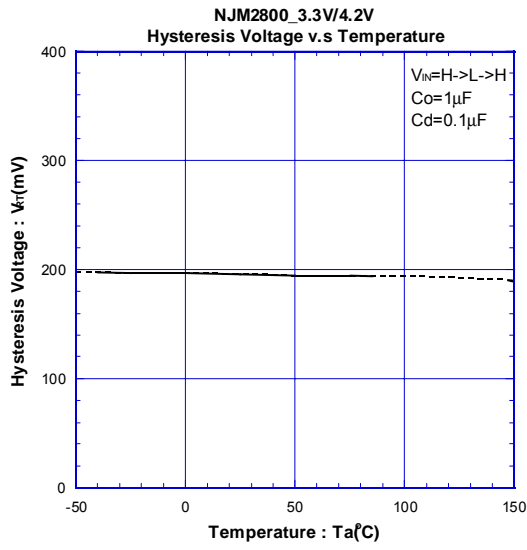
■ ELECTRICAL CHARACTERISTICS



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