

Low Dropout Voltage Regulator with Reset

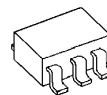
■ GENERAL DISCRIPTION

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

It provides up to 150mA of logic supply, and the reset function monitors either input or 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



NJM2800F

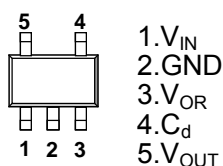


NJM2800U/U1

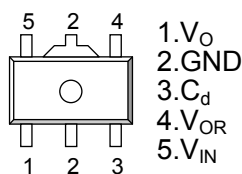
■ FEATURES

- Output Voltage Accuracy $V_o = \pm 1.0\%$
- Reset Voltage Accuracy $V_{reset} = \pm 1.0\%$
- Reset Hold Time $t_d = 10\text{mS} \pm 1.0\text{mS}$
- Ripple Rejection 60dB typ. (f=1kHz)
- Quiescent Current $I_Q = 250\mu\text{A}$ (typ.)
- 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



NJU2800F

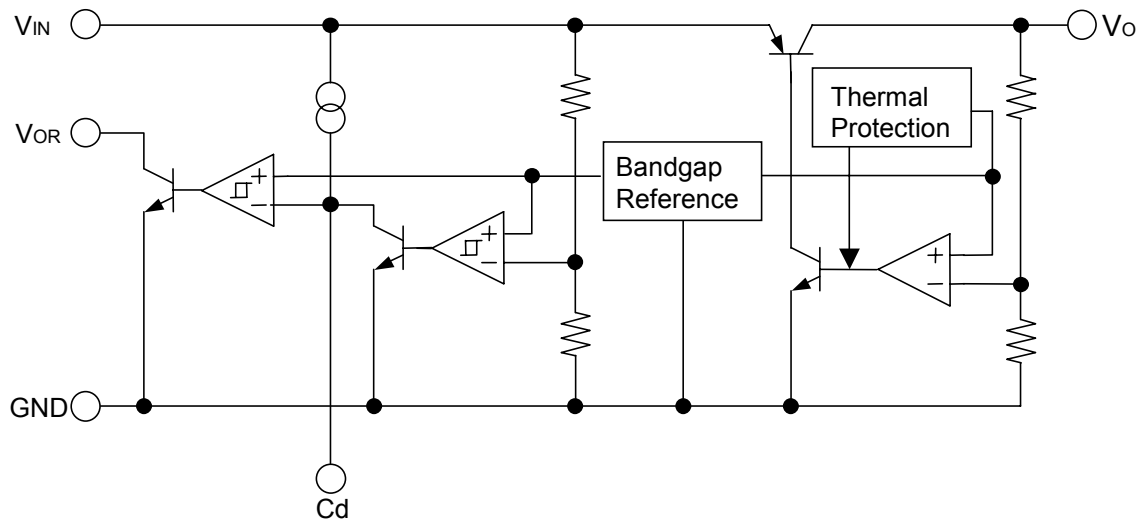


NJU2800U/U1

■ OUTPUT VOLTAGE/ DETECTION VOLTAGE

Device Name	Output Voltage	Detection Voltage
NJM2800F/U1803	1.8V	3.0V
NJM2800F/U1-2528	2.5V	2.8V
NJM2800U3342	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	200 (SOT-23-5)	mW
		350 (SOT-89-5)	
Operating Temperature	T_{opr}	-40~+85	°C
Storage Temperature	T_{stg}	-40~+125	°C

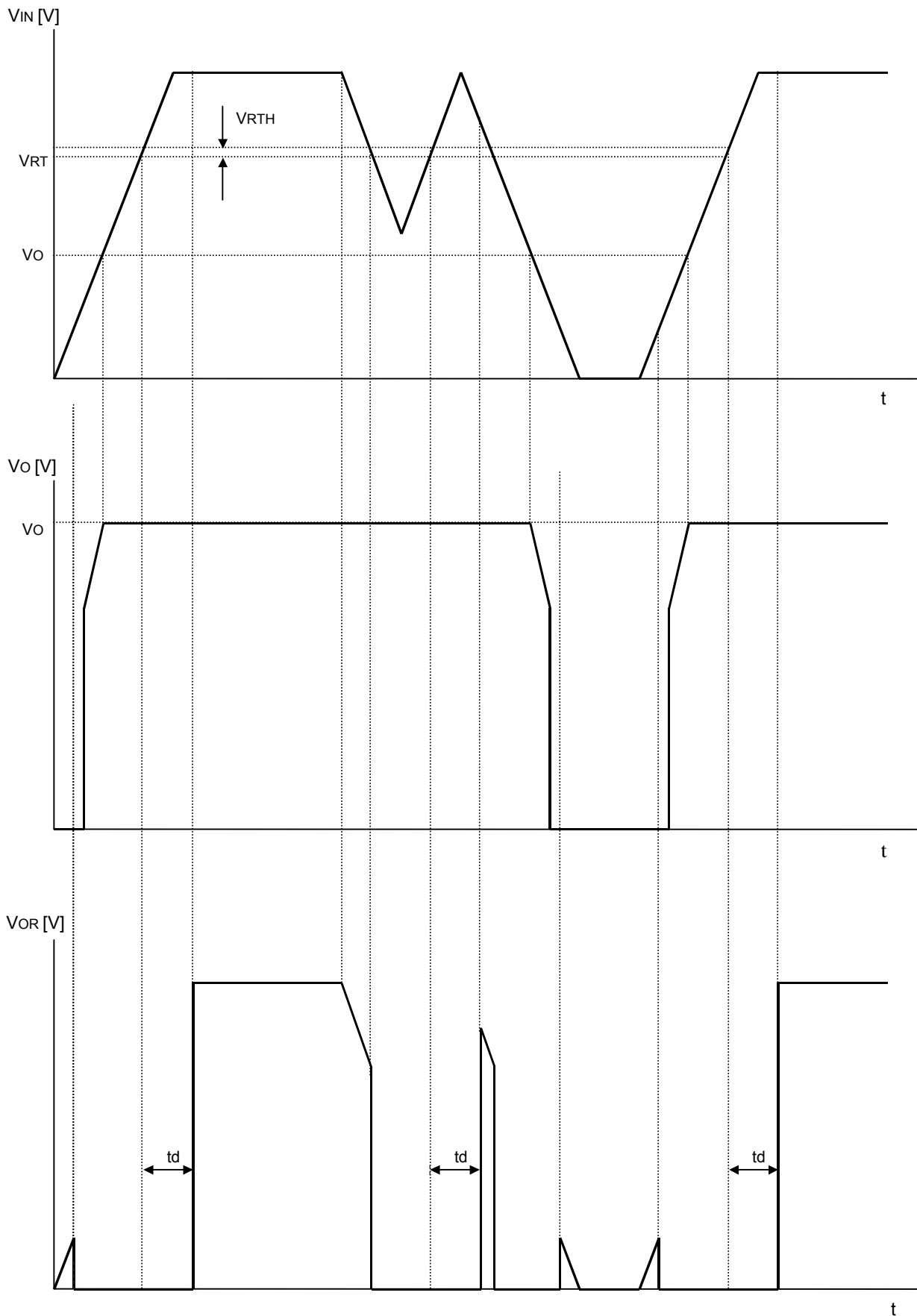
■ ELECTRICAL CHARACTERISTICS ($V_{IN}=V_o+1V$, $C_{IN}=0.1\mu F$, $C_o=1\mu F$ ($V_o\leq 2.6V$: $C_o=2.2\mu F$) $T_a=25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_q	$V_{IN}=V_o+2V$, $I_o=0mA$	-	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	$\Delta V_o/\Delta V_{IN}$	$V_{IN}=V_o+1V\sim V_o+6V$, $I_o=30mA$	-	-	0.10	%/V
Load Regulation	$\Delta V_o/\Delta I_o$	$I_o=0\sim 100mA$	-	-	0.03	%/mA
Dropout Voltage	ΔV_{L_O}	$I_o=60mA$	-	0.10	0.18	V
Ripple Rejection	RR	$e_{in}=200mV_{rms}$, $f=1kHz$, $I_o=10mA$, $V_o=3V$	-	60	-	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}	$f=10Hz\sim 100kHz$, $I_o=10mA$, $V_o=3V$	-	45	-	μV_{rms}
Reset Block						
Voltage Detection	V_{RT}	$V_{IN}=H\rightarrow L$	-1.0%	-	+1.0%	V
Hysteresis Voltage	V_{RTH}	$V_{IN}=H\rightarrow L\rightarrow H$	$V_{RT}\times 3\%$	$V_{RT}\times 5\%$	$V_{RT}\times 8\%$	mV
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

(note 1) The above specification is a common specification for all output voltages.

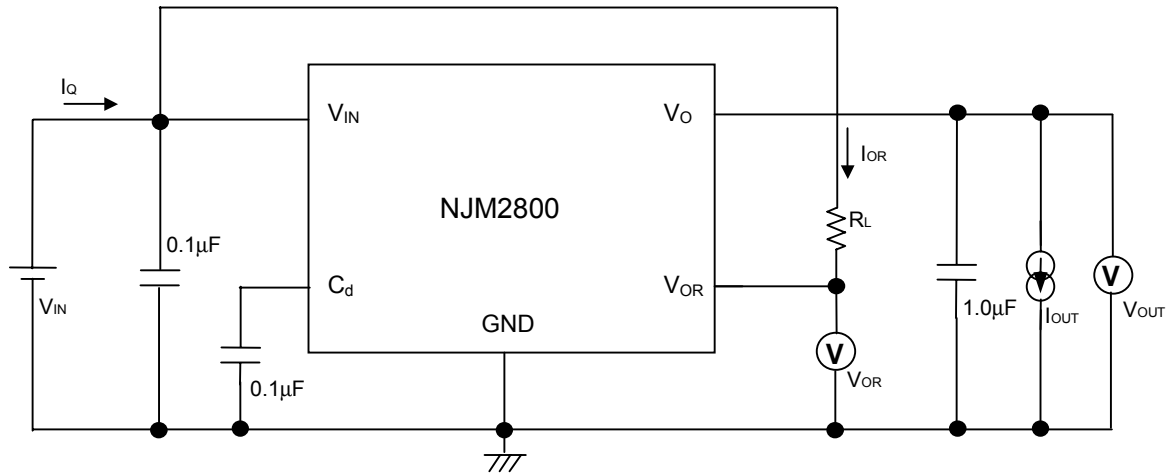
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART

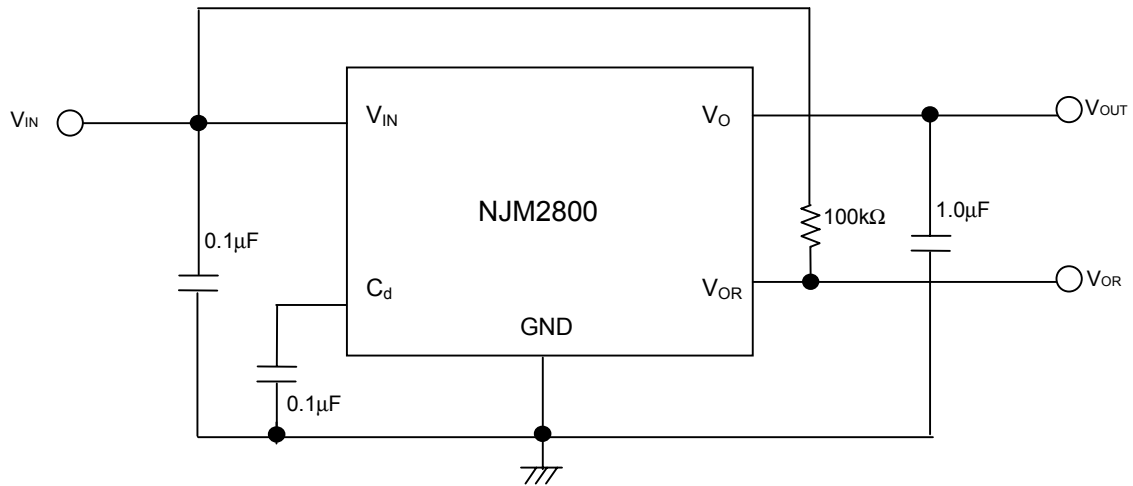


* V_{OR} is the case where a pull-up is carried out to V_{IN} through resistance.

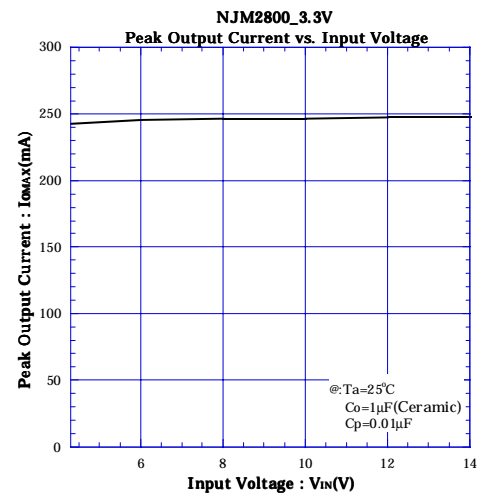
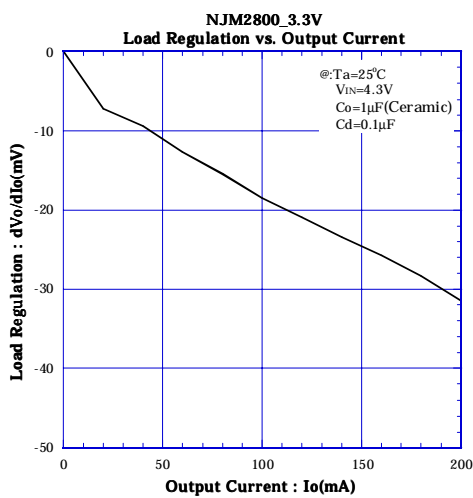
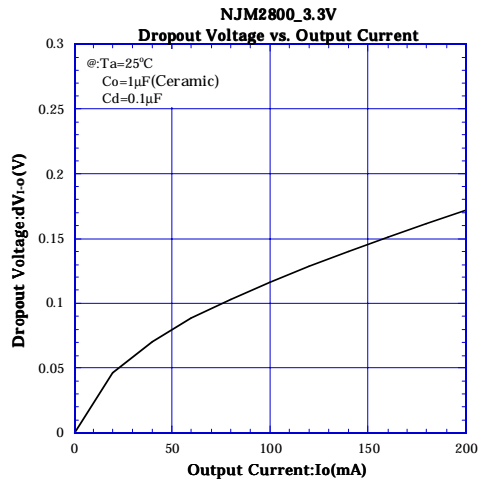
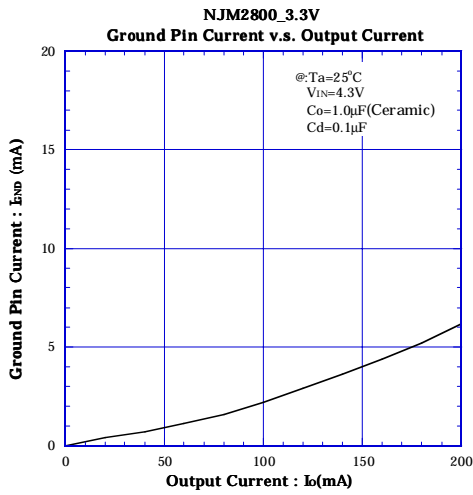
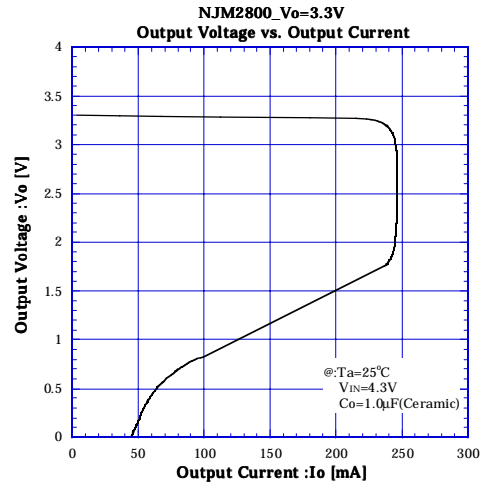
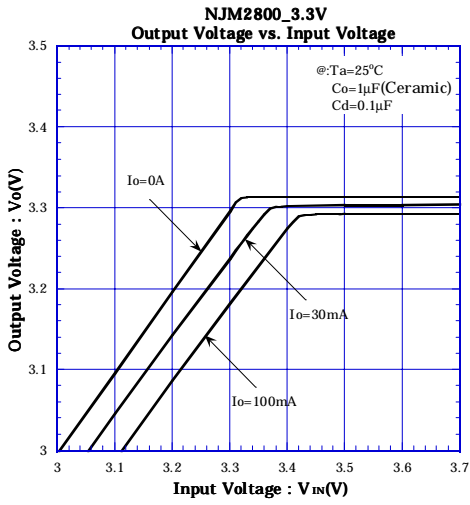
■ TEST CIRCUIT



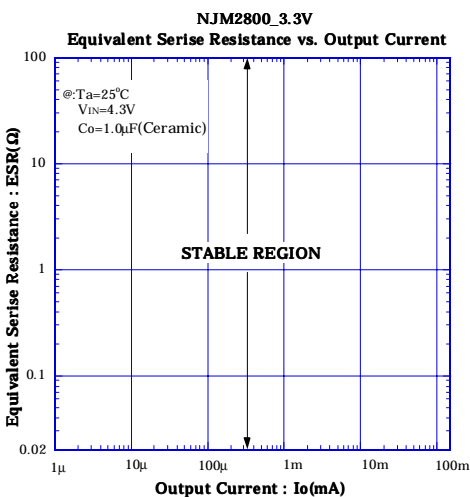
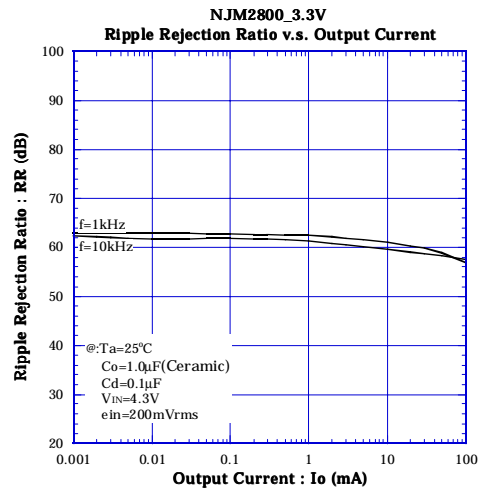
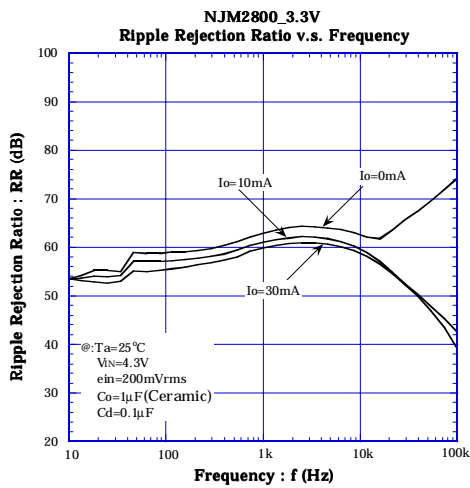
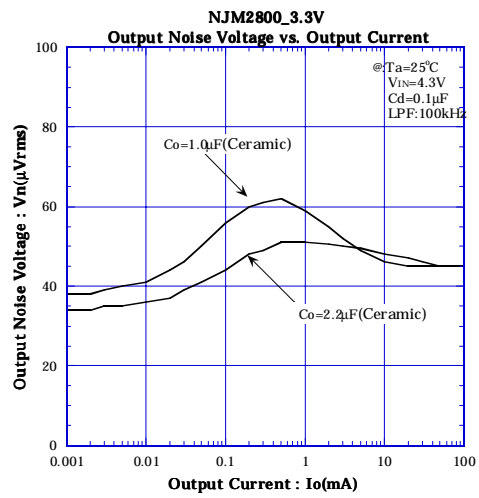
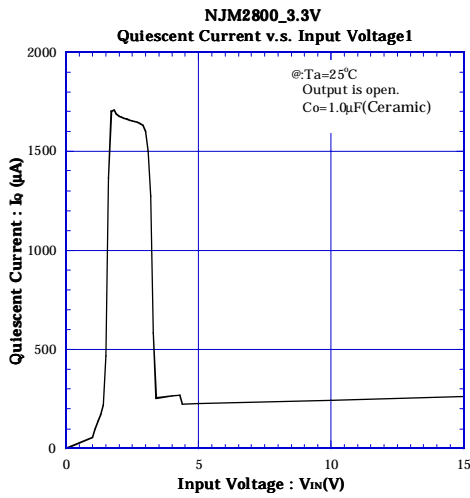
■ TYPICAL APPLICATIONS



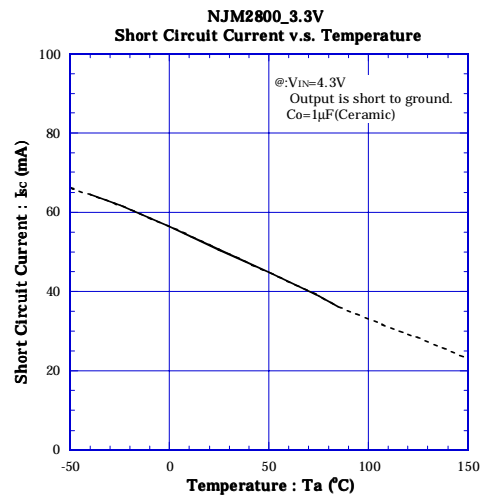
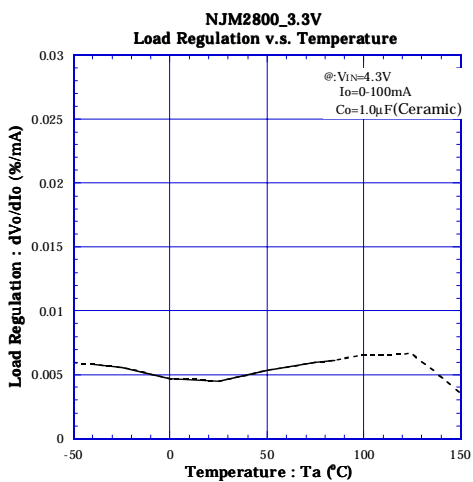
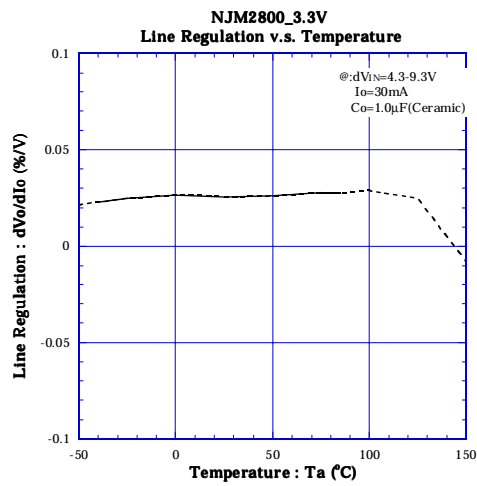
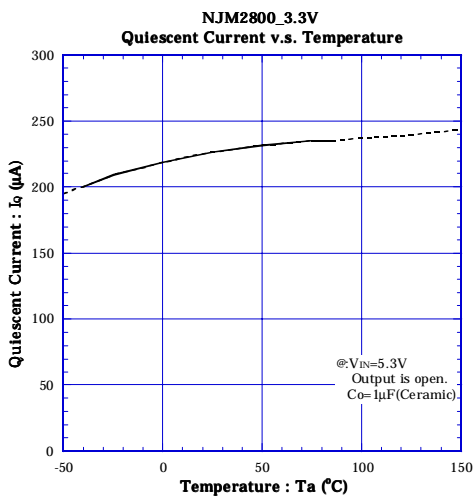
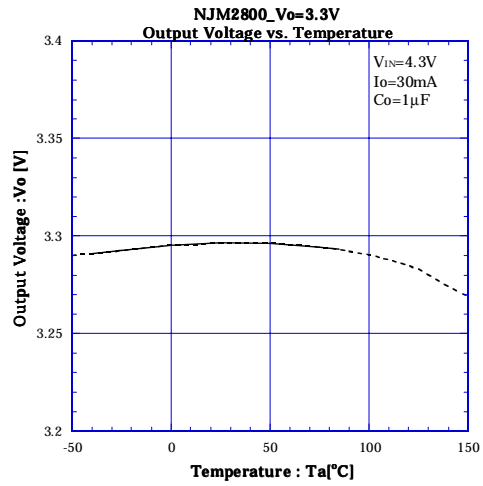
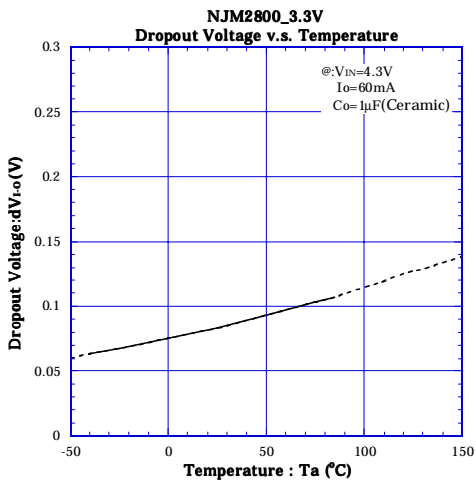
ELECTRICAL CHARACTERISTICS



ELECTRICAL CHARACTERISTICS



ELECTRICAL CHARACTERISTICS



[CAUTION]

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.