

Low Dropout Voltage Regulator with Reset

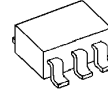
GENERAL DISCRIPTION

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

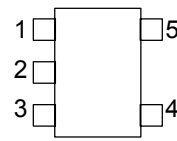


NJM2800F



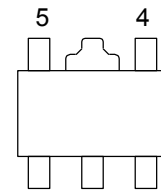
NJM2800U

PIN CONFIGURATION



MTP5

- 1. V_{IN}
- 2. GND
- 3. V_{OR}
- 4. C_d
- 5. V_{OUT}



SOT-89(5pin)

- 1. V_{OUT}
- 2. GND
- 3. C_d
- 4. V_{OR}
- 5. V_{IN}

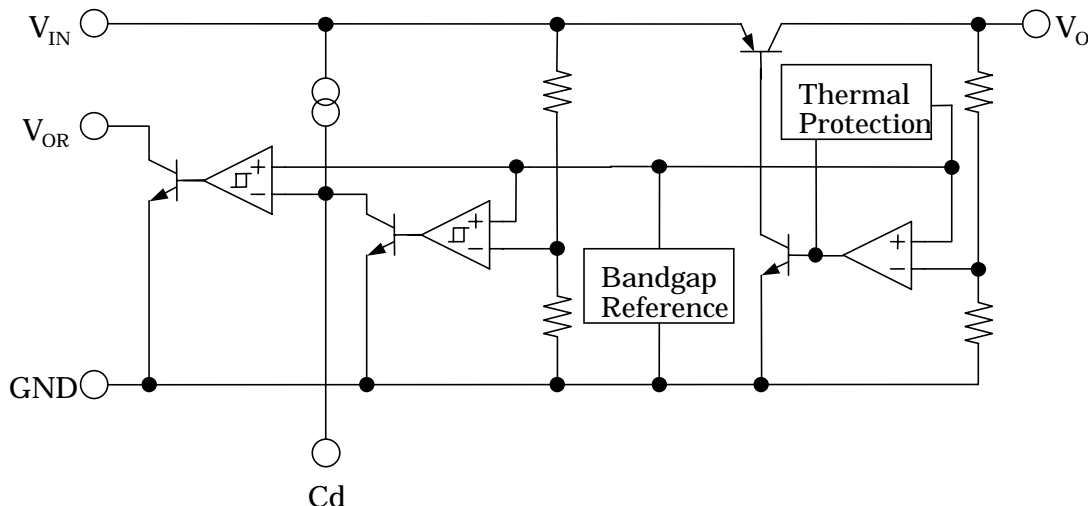
FEATURES

- 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. ($f=1\text{kHz}$)
- 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 (5pin) / MTP5

OUTPUT VOLTAGE/ DETECTION VOLTAGE

Device Name	Output Voltage	Detection Voltage
NJM2800F/U1803	1.8V	3.0V
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 (MTP5)	mW
		350 (SOT-89)	
Operating Temperature	T_{opr}	-40~+85	°C
Storage Temperature	T_{stg}	-40~+125	°C

■ ELECTRICAL CHARACTERISTICS

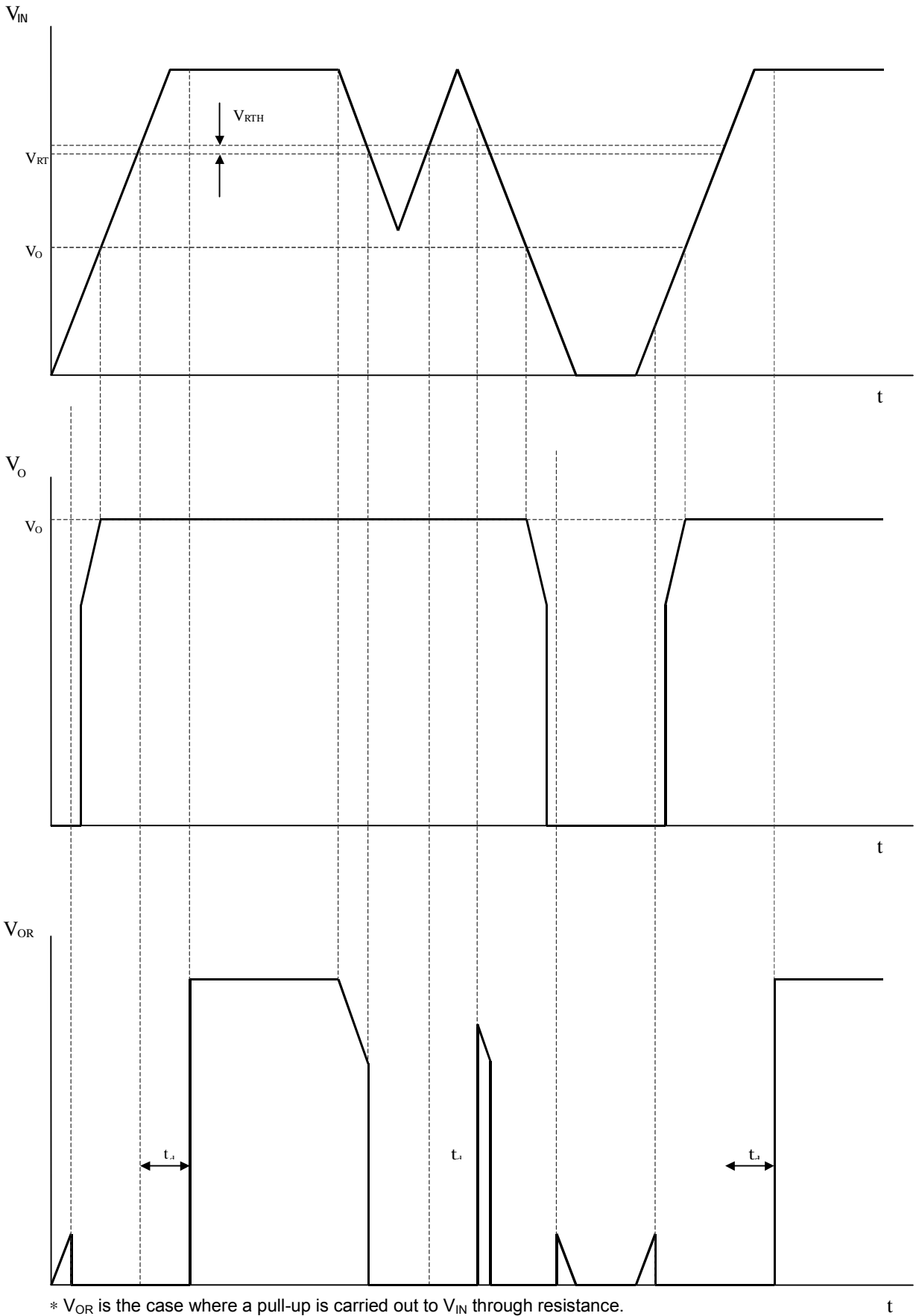
($V_{IN}=V_o+1V$, $C_{IN}=0.1\mu F$, $C_o=1\mu F$ ($V_o\leq 2.6V$: $C_o=2.2\mu F$) $T_a=25^\circ C$)

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.

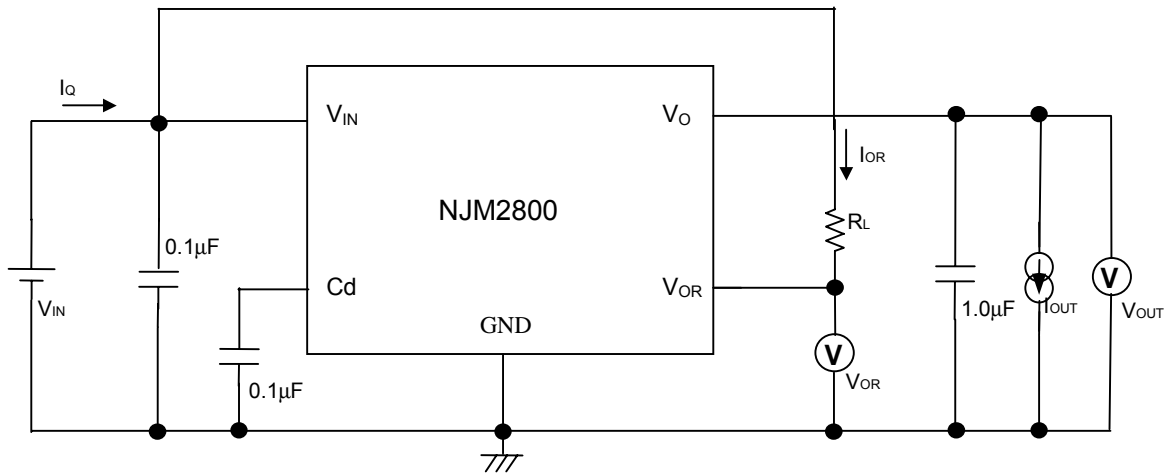
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART

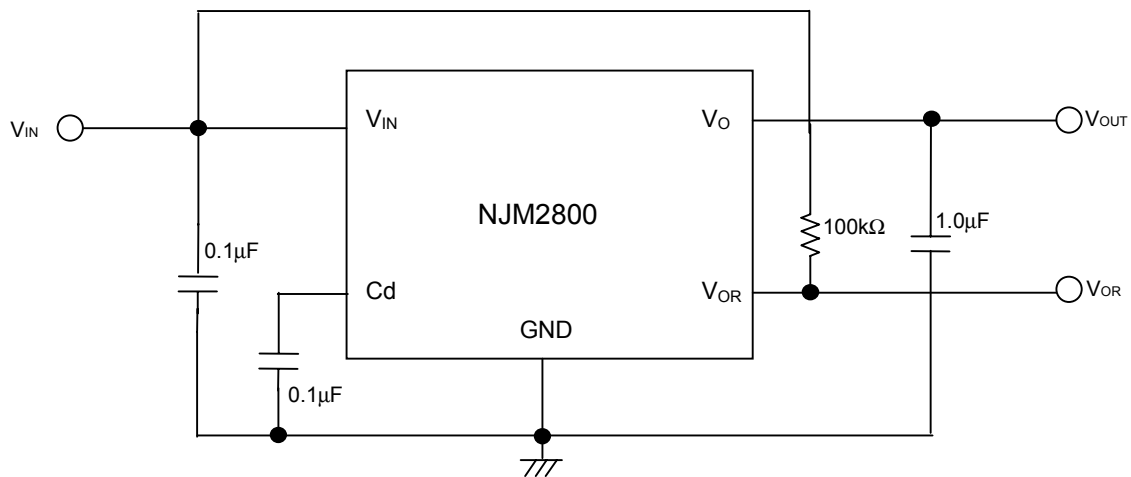


* V_{OR} is the case where a pull-up is carried out to V_{IN} through resistance.

■ TEST CIRCUIT



■ TYPICAL APPLICATIONS



[CAUTION]

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