

Low Dropout Voltage Regulator with Reset

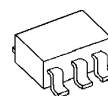
■ GENERAL DISCRIPTION

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 2% accuracy.

It is suitable for local power supply and reset for small micro controller and other logic chips.

■ PACKAGE OUTLINE



NJM2800F**

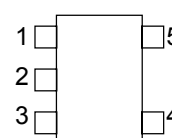


NJM2800U**

■ FEATURES

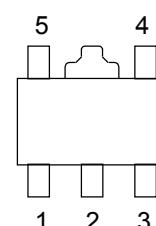
- Output Voltage Accuracy $V_o = \pm 2.2\%$
- Reset Voltage Accuracy $V_{reset} = \pm 2.0\%$
- Reset Hold Time $t_d = 10\text{ms} \pm 2.5\text{ms}$
- Quiescent Current $I_Q = 300\mu\text{A (max.)}$
- Open Collector Output
- Bipolar Technology
- Input Voltage Monitor type
- Package Outline SOT89 (5Pin) / MTP5
- Protection Circuit 1. Current limit circuit
2. Thermal overload protection circuit

(MTP-5)



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

(SOT-89)

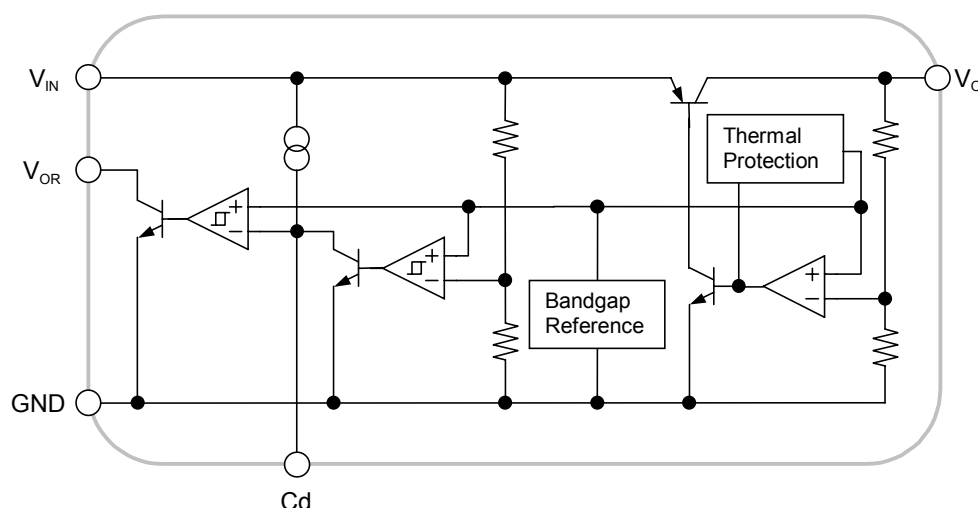


1. V_{OUT}
2. GND
3. C_d
4. V_{OR}
5. V_{IN}

■ OUTPUT VOLTAGE/RESET VALIDATED VOLTAGE

PART NO	Output Voltage	Reset Validated Voltage
NJM2800-2528	2.5V	2.8V
NJM2800-3342	3.3V	4.2V

■ BLOCK DIAGLAM



■ 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

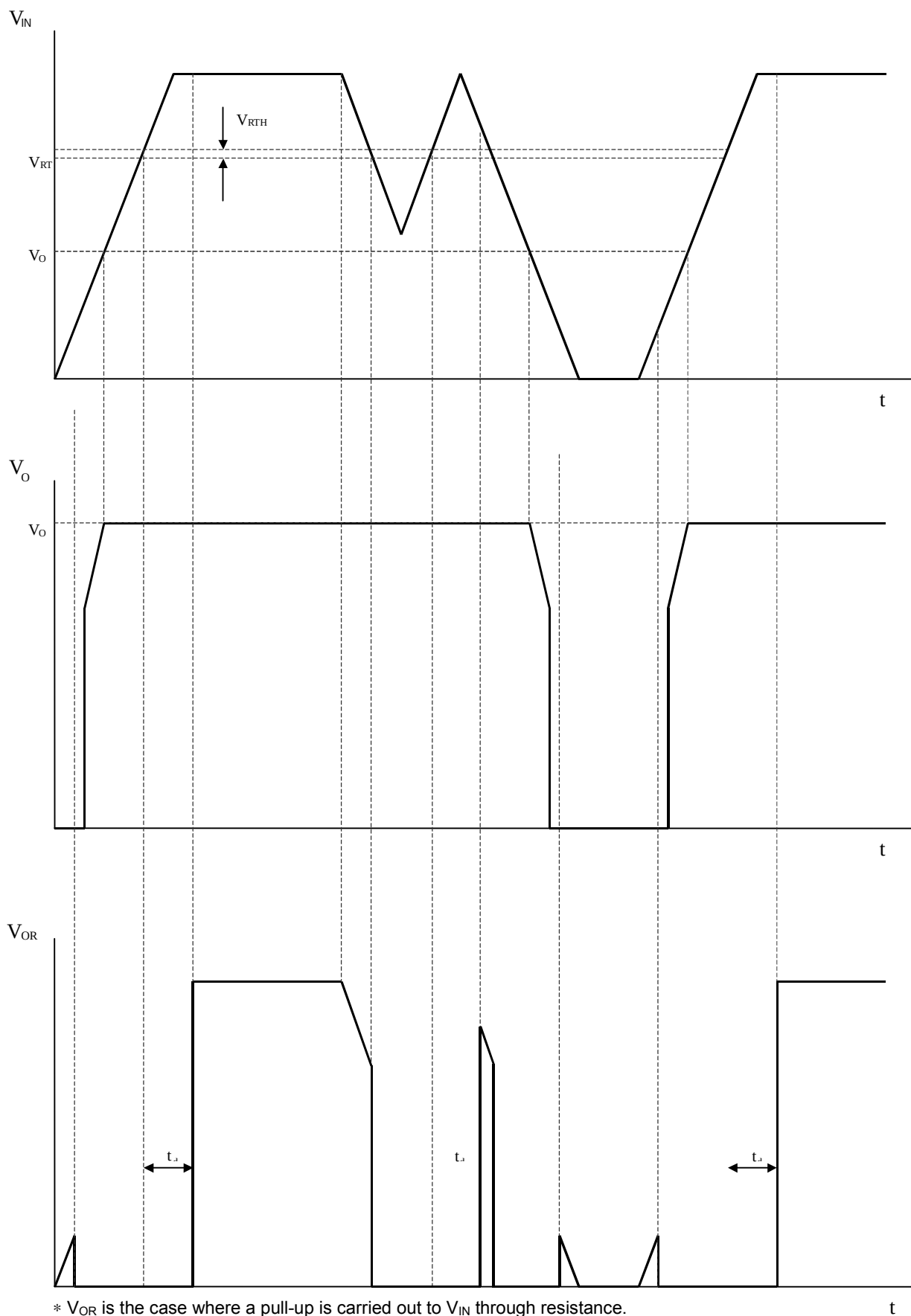
■ ELECTRICAL CHARACTERISTICS ($V_{IN}=V_o+1V$, $C_{IN}=0.1\mu F$, $C_o=1\mu F$ ($V_o\leq 2.6V$: $C_o=2.2\mu F$) Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_Q	$I_o=0mA$	—	250	350	μA
Regulator Block						
Output Voltage	V_o	$I_o=30mA$	-2.2%	—	+2.2%	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_{I_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}	$V_{IN}=H\rightarrow L$	-2%	—	+2%	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	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	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.

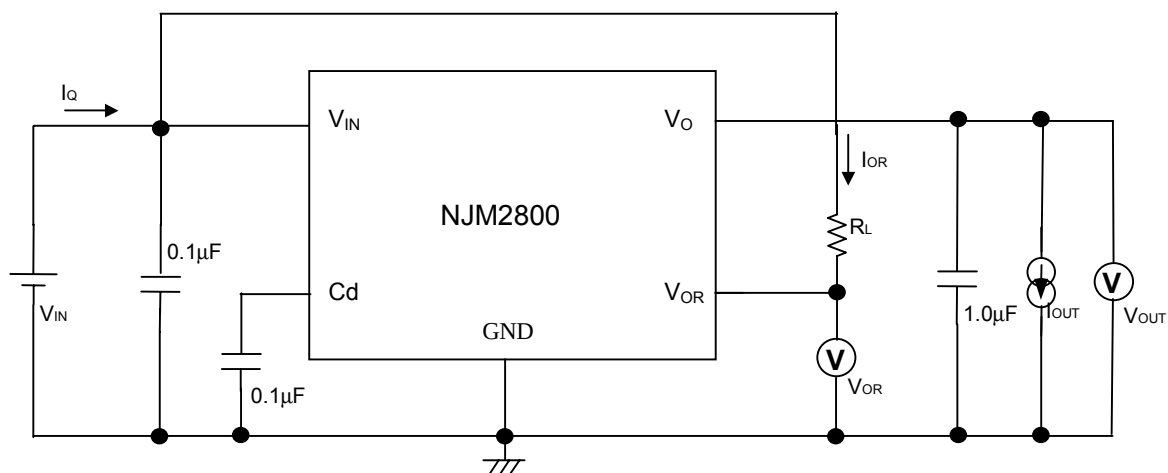
Therefore, it may be different from individual specification for a specific output voltage.

■ TIMING CHART

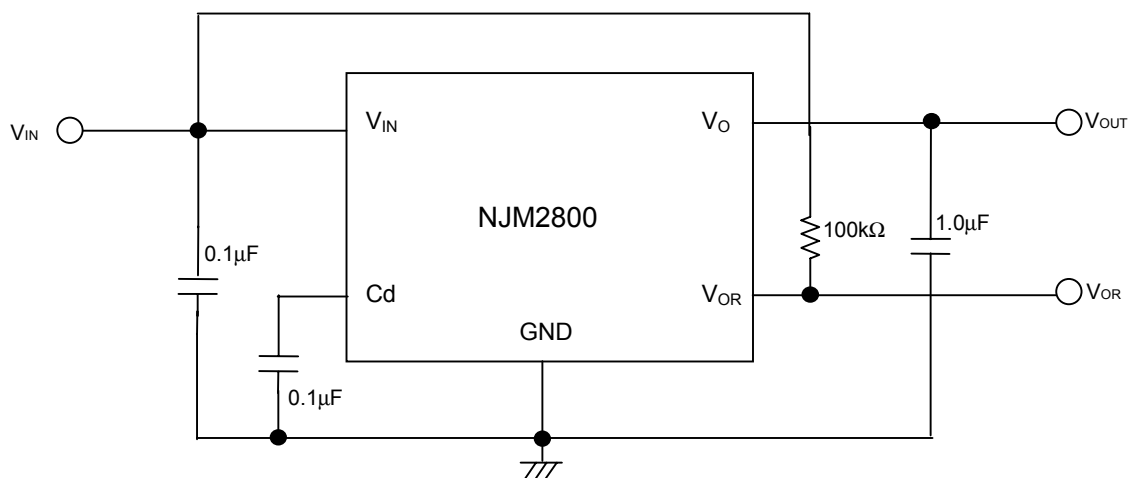


* V_{OR} is the case where a pull-up is carried out to V_{IN} through resistance.

■ TEST CIRCUIT



■ TYPICAL APPLICATIONS



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