

Low Dropout Voltage Regulator with Reset

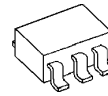
■ GENERAL DISCRIPTION

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**

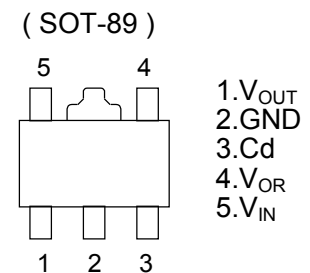
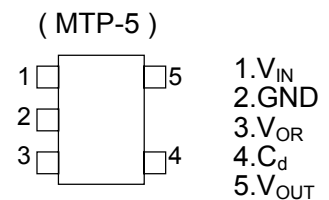
■ FEATURES

- 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

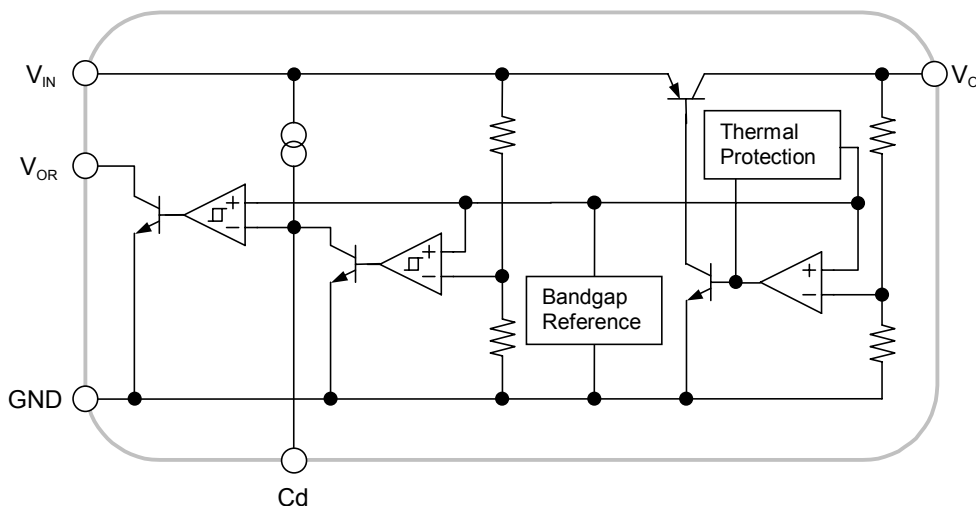
■ OUTPUT VOLTAGE/RESET VALIDATED VOLTAGE

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

■ PIN CONFIGURATION



■ 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

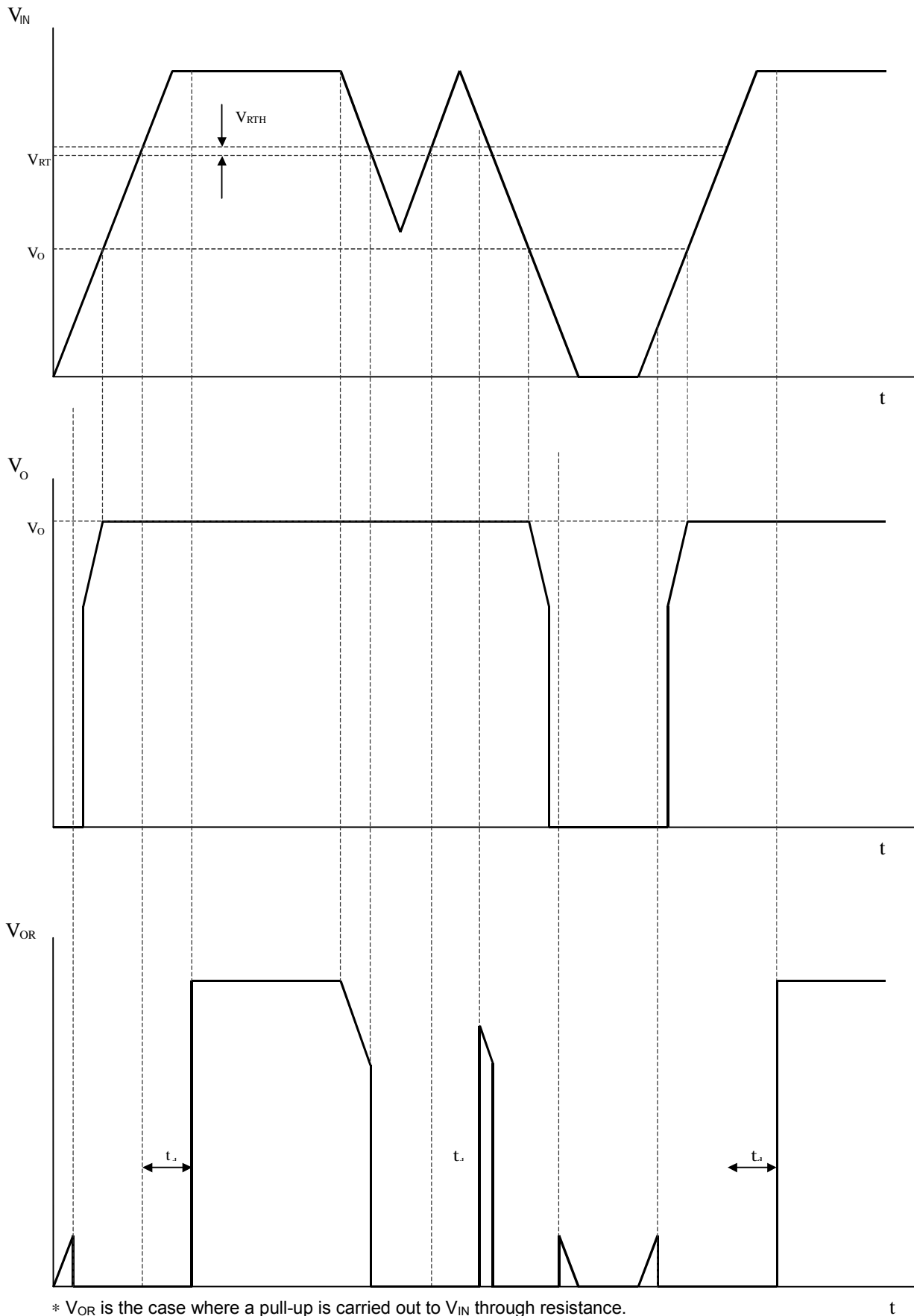
■ ELECTRICAL CHARACTERISTICS (V_{IN}=V_o+1V, C_{IN}=0.1μF, C_o=1μF (V_o≤2.6V: C_o=2.2μF) Ta=25°C)

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	ΔV _o /ΔV _{IN}	V _{IN} =V _o +1V~V _o +6V, I _o =30mA	-	-	0.10	%/V
Load Regulation	ΔV _o /ΔI _o	I _o =0~100mA	-	-	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	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	-	45	-	μV _{rms}
Reset Block						
Voltage Detection	V _{RT}	V _{IN} =H→L	-2%	-	+2%	V
Hysteresis Voltage	V _{RTH}	V _{IN} =H→L→H	V _{RT} ×3	V _{RT} ×5	V _{RT} ×8	mV
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

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

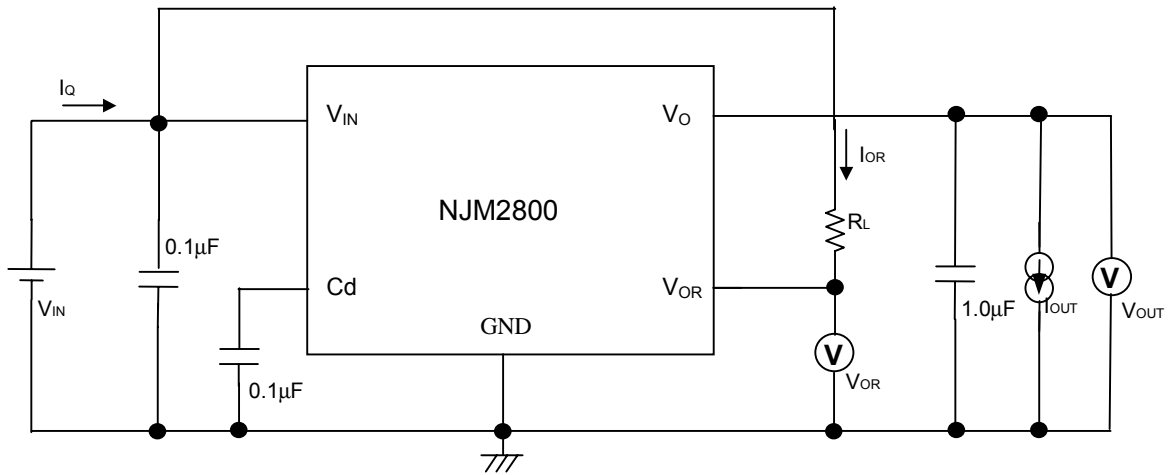
Therefore, it may be different from individual specification for a specific output voltage.

■ TIMING CHART

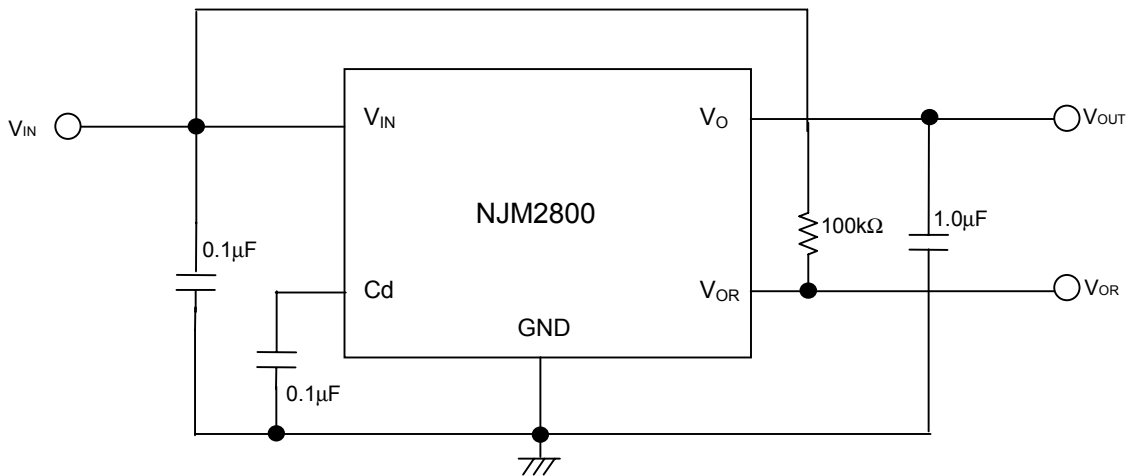


* V_{OR} is the case where a pull-up is carried out to V_{IN} through resistance.

■ TEST CIRCUIT



■ TYPICAL APPLICATIONS



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