

## Low Dropout Voltage Regulator with Reset

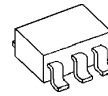
### ■ GENERAL DISCRIPTION

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\*\*

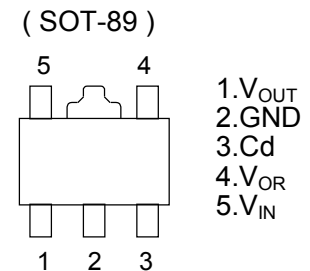
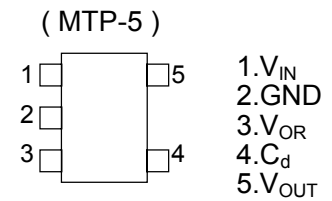


NJM2800U\*\*

### ■ 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

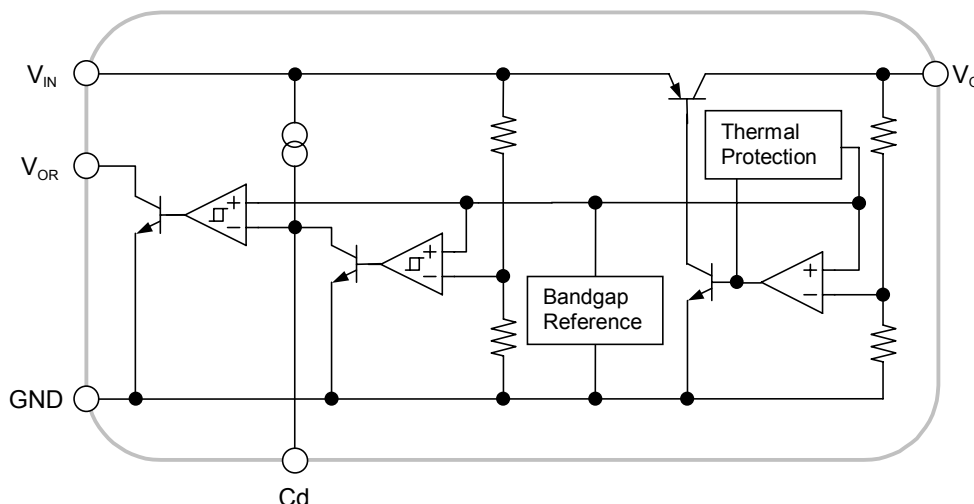
### ■ PIN CONFIGURATION



### ■ 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 <sub>IN</sub>	+14	V
Power Dissipation	P <sub>D</sub>	200 (MTP5)	mW
		350 (SOT-89)	
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-40~+125	°C

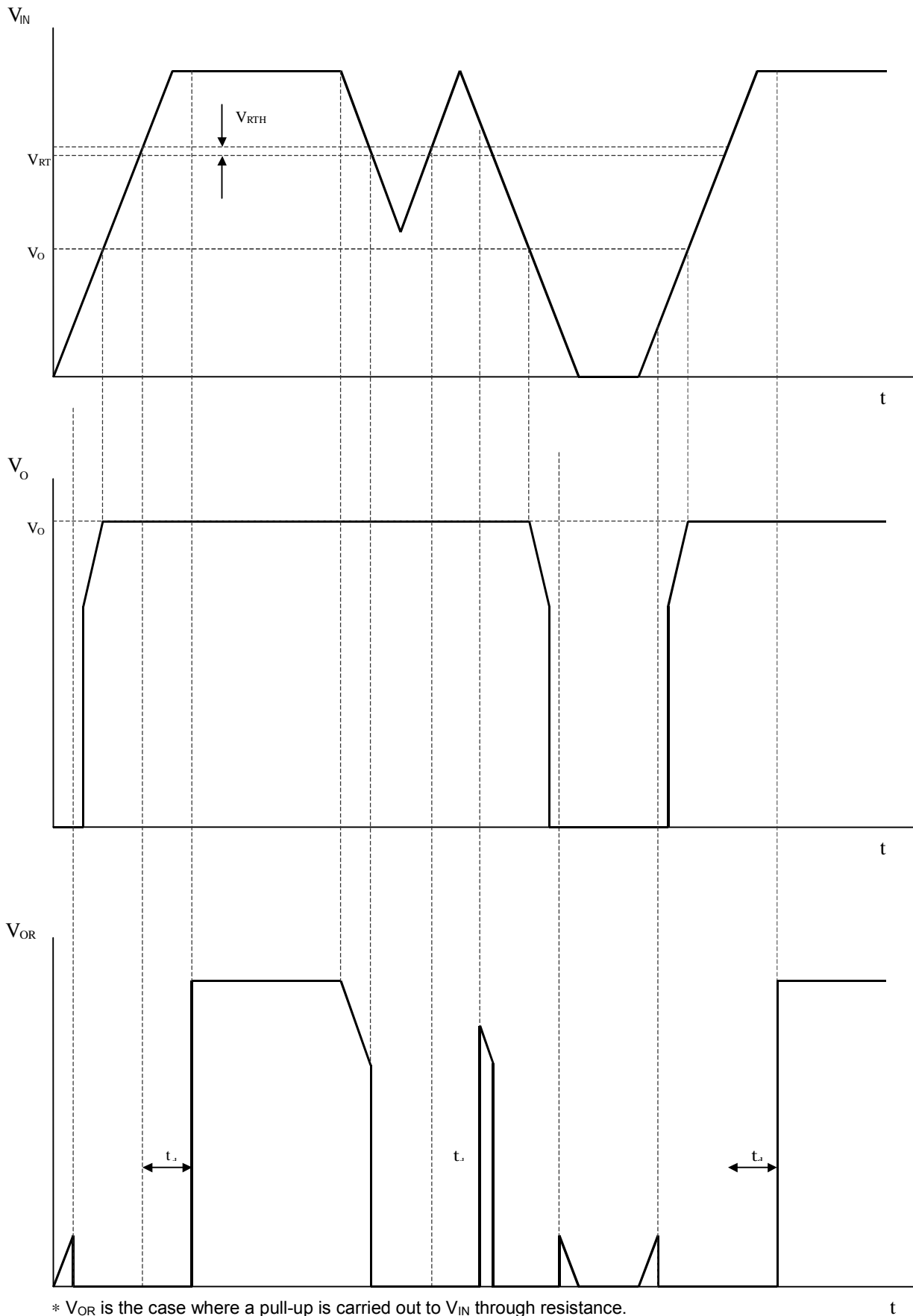
### ■ ELECTRICAL CHARACTERISTICS (V<sub>IN</sub>=V<sub>O</sub>+1V, C<sub>IN</sub>=0.1μF, C<sub>O</sub>=1μF (V<sub>O</sub>≤2.6V: C<sub>O</sub>=2.2μF) Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I <sub>Q</sub>	I <sub>O</sub> =0mA	-	250	350	μA
Regulator Block						
Output Voltage	V <sub>O</sub>	I <sub>O</sub> =30mA	-2.2%	-	+2.2%	V
Output Current	I <sub>O</sub>	V <sub>O</sub> -0.3V	150	200	-	mA
Line Regulation	ΔV <sub>O</sub> /ΔV <sub>N</sub>	V <sub>N</sub> =V <sub>O</sub> +1V~V <sub>O</sub> +6V, I <sub>O</sub> =30mA	-	-	0.10	%/V
Load Regulation	ΔV <sub>O</sub> /ΔI <sub>O</sub>	I <sub>O</sub> =0~100mA	-	-	0.03	%/mA
Dropout Voltage	ΔV <sub>I<sub>O</sub></sub>	I <sub>O</sub> =60mA	-	0.10	0.18	V
Ripple Rejection	RR	E <sub>in</sub> =200mV <sub>rms</sub> , f=1kHz, I <sub>O</sub> =10mA, V <sub>O</sub> =3V	-	60	-	dB
Output Voltage Temperature Coefficient	ΔV <sub>O</sub> /ΔT	Ta=0~85°C, I <sub>O</sub> =10mA	-	±50	-	ppm/°C
Output Noise Voltage	V <sub>NO</sub>	f=10Hz~100kHz, I <sub>O</sub> =10mA, V <sub>O</sub> =3V	-	45	-	μV <sub>rms</sub>
Reset Block						
Voltage Detection	V <sub>RT</sub>	V <sub>N</sub> =H→L	-2%	-	+2%	V
Hysteresis Voltage	V <sub>RTH</sub>	V <sub>N</sub> =H→L→H	V <sub>RT</sub> ×3	V <sub>RT</sub> ×5	V <sub>RT</sub> ×8	mV
Low Level Output	R <sub>ORL</sub>	V <sub>N</sub> =V <sub>RT</sub> -0.5V, R <sub>L</sub> =100kΩ	-	100	300	mV
Output Leak Current	I <sub>ORH</sub>	V <sub>N</sub> =V <sub>RT</sub> -0.5V	-	-	0.1	μA
On time Output Current	I <sub>ORL</sub>	V <sub>N</sub> =V <sub>RT</sub> -0.5V, R <sub>L</sub> =0Ω	5	-	-	mA
Reset Output Delay	t <sub>d</sub>	V <sub>N</sub> =(V <sub>RT</sub> -0.5V)→(V <sub>RT</sub> +0.5V), C <sub>d</sub> =0.1μF	9	10	11	mS
Operation Voltage Limit	V <sub>OPL</sub>	V <sub>ORL</sub> =0.4V	-	0.9	-	V

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

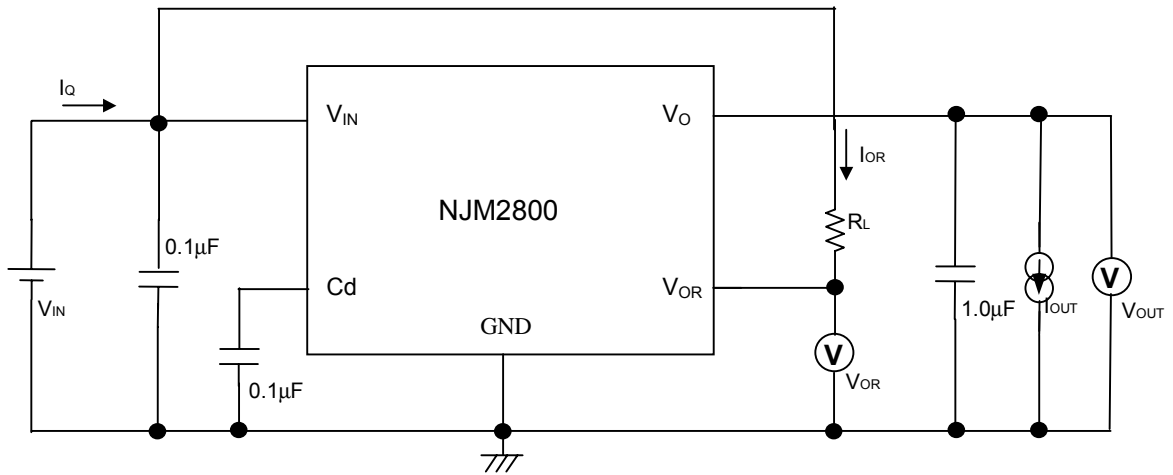
Therefore, it may be different from individual specification for a specific output voltage.

■ TIMING CHART

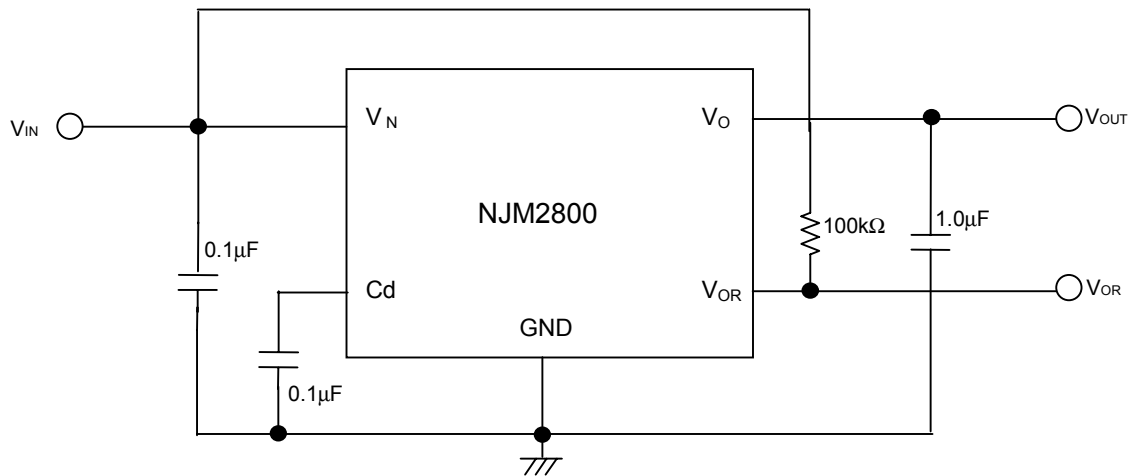


\*  $V_{OR}$  is the case where a pull-up is carried out to  $V_{IN}$  through resistance.

■ TEST CIRCUIT



■ TYPICAL APPLICATIONS



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