

## Low Dropout Voltage Regulator with Reset

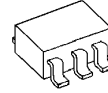
### ■ GENERAL DISCRIPTION

The NJM2801 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

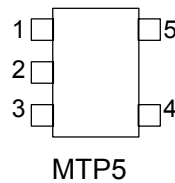


NJM2801F

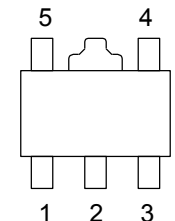


NJM2801U

### ■ PIN CONFIGURATION



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



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

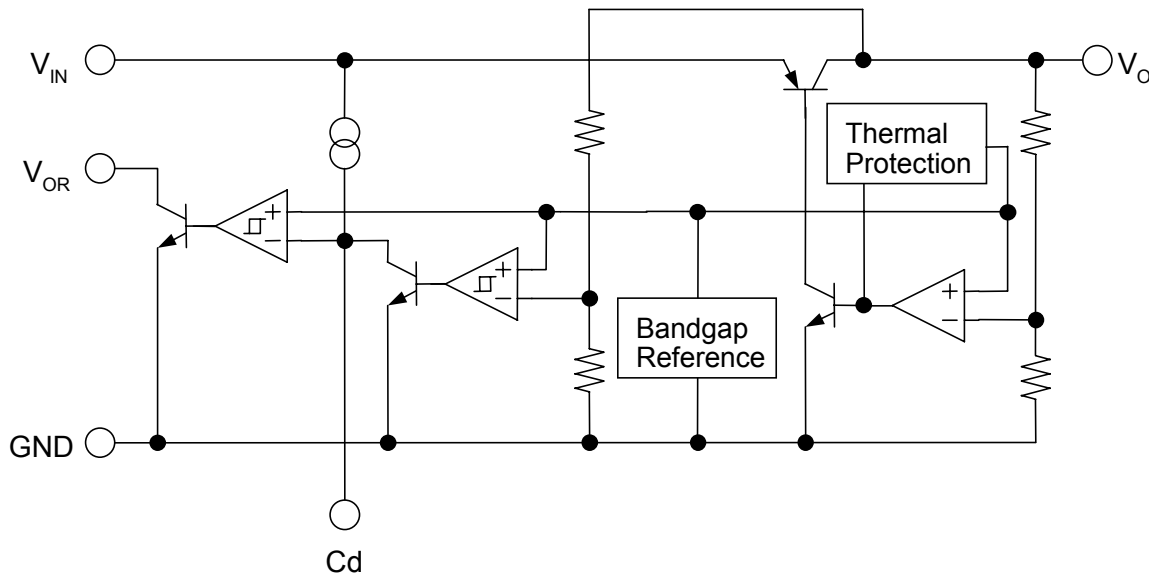
### ■ FEATURES

- 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.)
- Output 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
NJM2801F/U0543	5.0V	4.3V
NJM2801F/U3328	3.3V	2.8V

### ■ 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

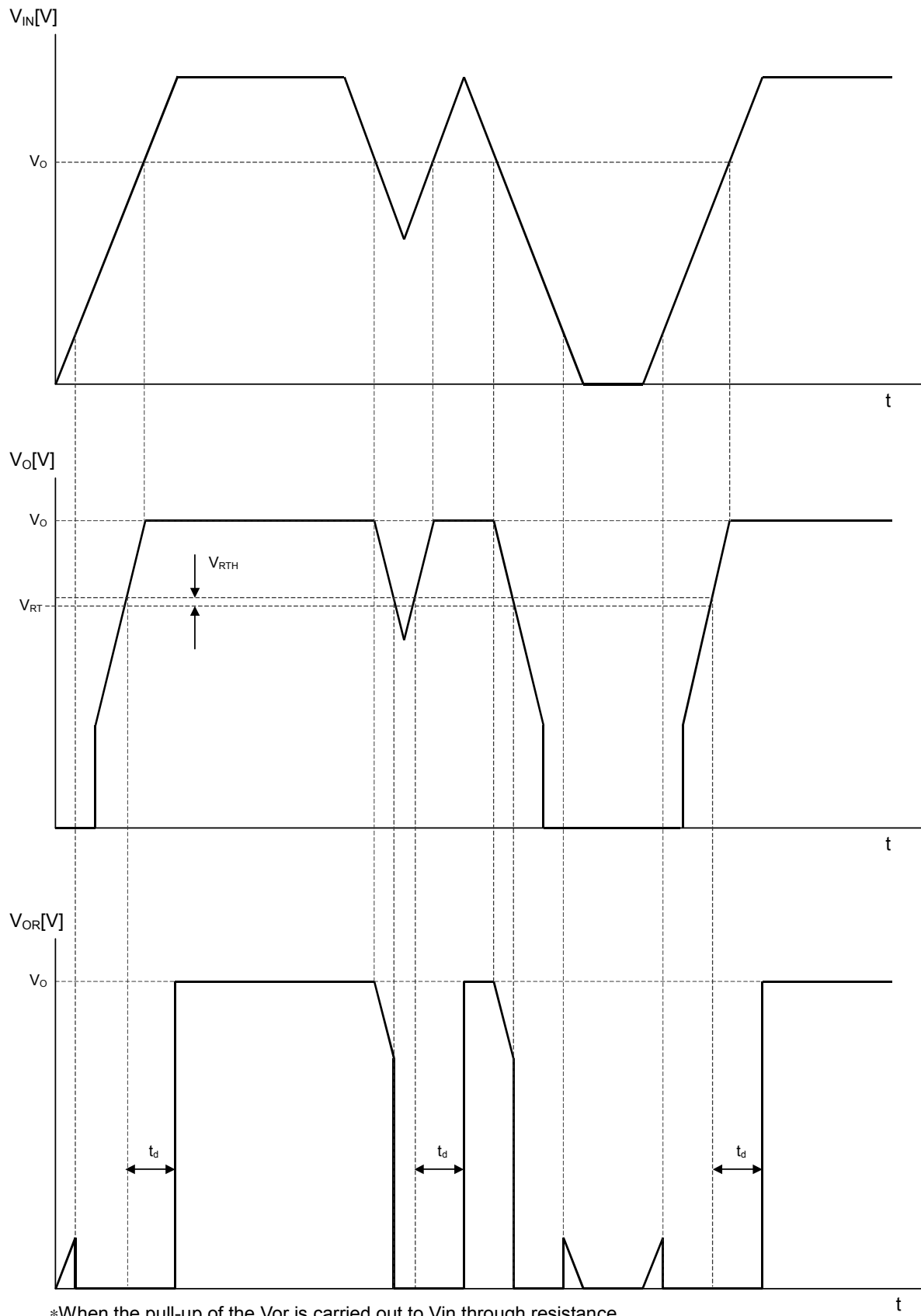
( $V_{IN}=V_o+1V$ ,  $C_{IN}=0.1\mu F$ ,  $C_o=1\mu F$  ( $V_o\leq 2.6V$ :  $C_o=2.2\mu F$ )  $T_a=25^\circ C$ )

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	$I_Q$	$I_o=0mA$	-	250	350	$\mu A$
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	$\Delta V_{L_O}$	$I_o=60mA$	-	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	$\Delta V_o/\Delta T$	$T_a=0\sim 85^\circ C$ , $I_o=10mA$	-	$\pm 50$	-	ppm/°C
Output Noise Voltage	$V_{NO}$	$f=10Hz\sim 100kHz$ , $I_o=10mA$ , $V_o=3V$	-	45	-	$\mu V_{rms}$
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	$\mu A$
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.

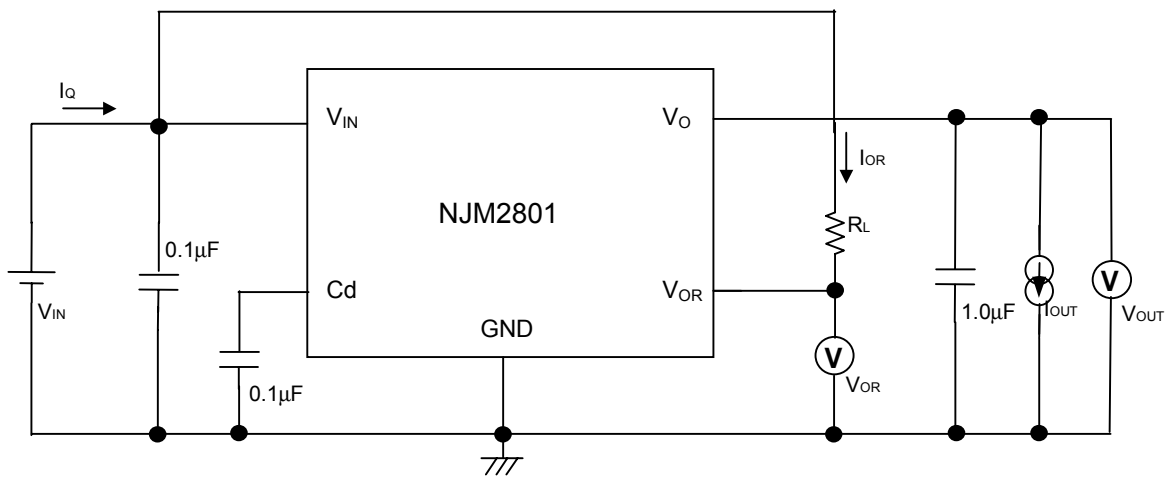
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART

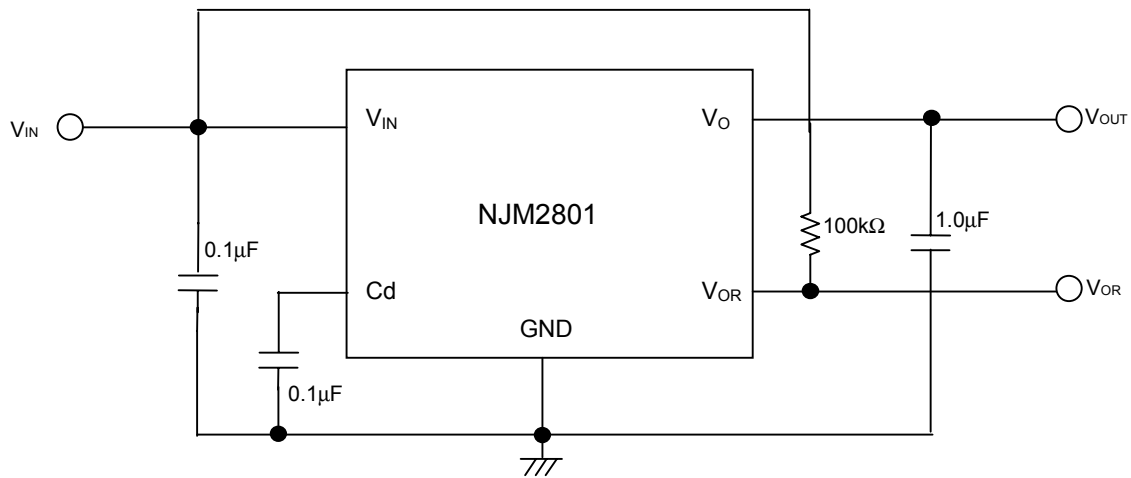


\*When the pull-up of the Vor is carried out to Vin through resistance.

■ TEST CIRCUIT



■ TYPICAL APPLICATIONS



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