

### Low Dropout Voltage Regulator with Reset

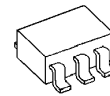
#### ■ GENERAL DISCRIPTION

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 2% accuracy.

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

#### ■ PACKAGE OUTLINE



NJM2801F\*\*



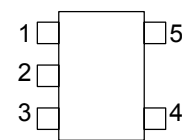
NJM2801U\*\*

#### ■ FEATURES

- Output Voltage Accuracy  $V_o = \pm 2.2\%$
- Reset Output Voltage  $V_{ORH} = 3.3V(\text{typ.})$
- Reset Hold Time  $t_d = 10\text{ms} \pm 2.5\text{ms}$
- Ripple Rejection  $RR = 60\text{dB}(\text{typ.})$
- Quiescent Current  $I_Q = 300\mu\text{A}(\text{max.})$
- Open Collector Output
- Bipolar Technology
- Output Voltage Monitor type
- Package Outline SOT89(5Pin)/MTP5
- Protection Circuit
  - 1.Current limit circuit
  - 2.Thermal overload protection circuit

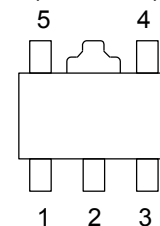
#### ■ PIN CONFIGURATION

( MTP-5 )



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

( SOT-89 )

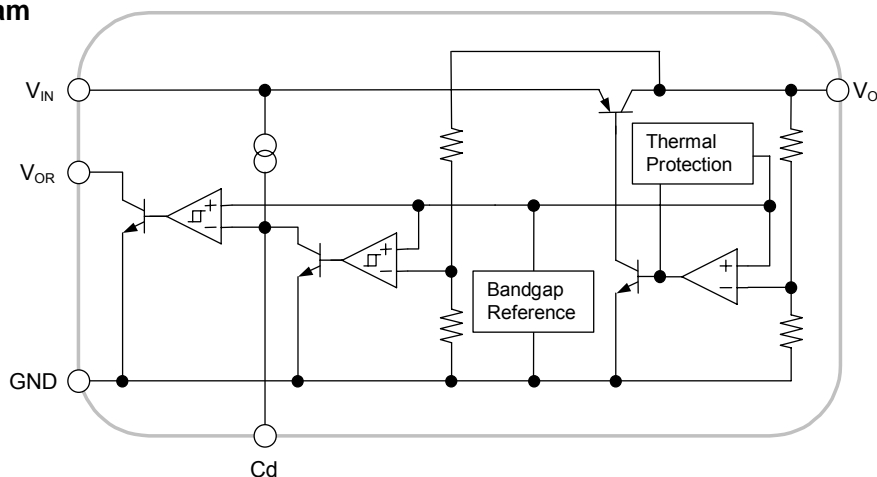


1.  $V_{OUT}$
2. GND
3.  $C_d$
4.  $V_{OR}$
5.  $V_{IN}$

#### ■ Output Voltage/Reset Validated Voltage

PART NO	Output Voltage	Reset Validated Voltage
NJM2801-0543	5.0V	4.3V

#### ■ Block Diagram



### ■ Absolute Maximum Ratings (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	$V_{IN}$	+14	V
Power Dissipation	$P_D$	200 (MTP5) 350 (SOT-89)	mW
Operating Temperature	$T_{opr}$	-40~+85	°C
Storage Temperature Range	$T_{stg}$	-40~+125	°C

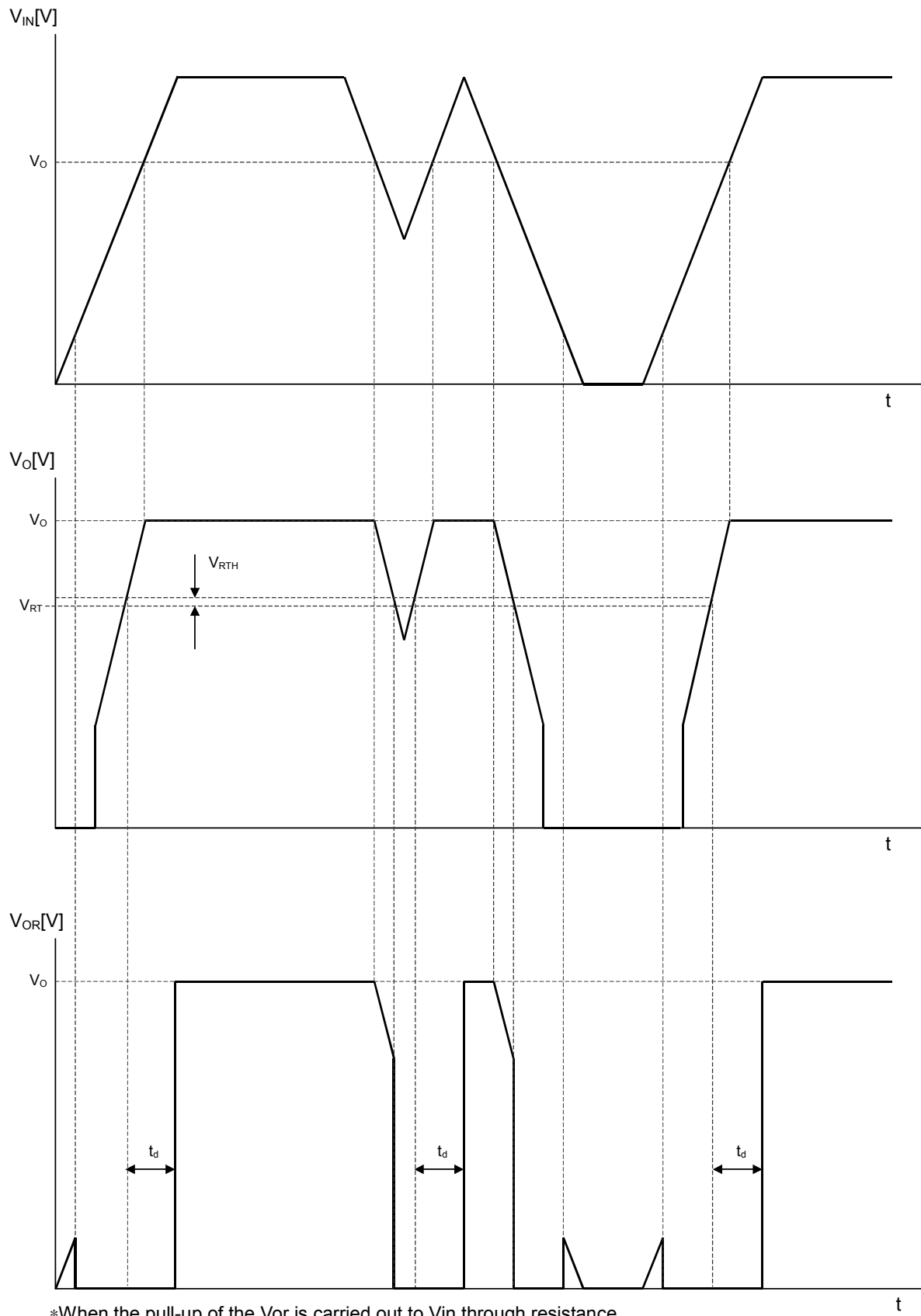
### ■ ELECTRICAL CHARACTERISTICS ( $V_{IN}=V_o+1V$ , $C_{IN}=0.1\mu F$ , $C_o=1\mu F$ ( $V_o\leq 2.6V$ : $C_o=2.2\mu F$ ) Ta=25°C )

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	$I_Q$	$I_o=0mA$	-	200	300	$\mu A$
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	$\Delta V_{L_O}$	$I_o=60mA$	-	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	$V_{RT}$	$V_{IN}=H\rightarrow L$	-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	$\mu A$
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.

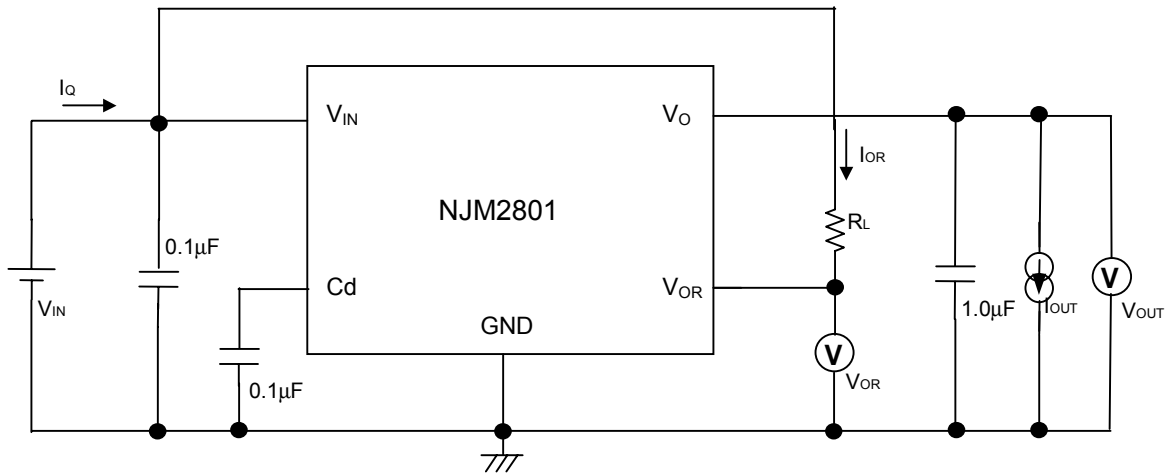
Therefore, it may be different from individual specification for a specific output voltage.

■ TIMING CHART

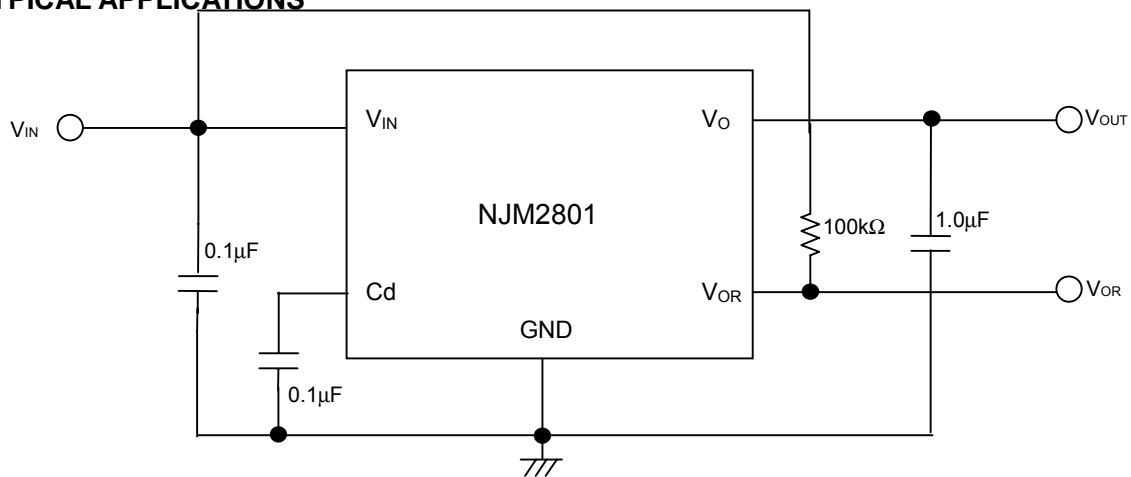


\*When the pull-up of the Vor is carried out to Vin through resistance.

■ TEST CIRCUIT



■ TYPICAL APPLICATIONS



The specifications on this data book are only given for information, without any guarantee as regards either mistakes or omissions. The application circuit in this data book are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.