

Low Dropout Voltage Regulator with Reset

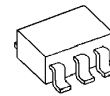
■ GENERAL DISCRIPTION

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**



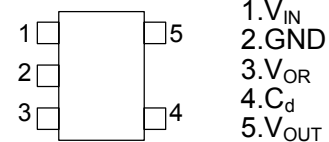
NJM2801U**

■ FEATURES

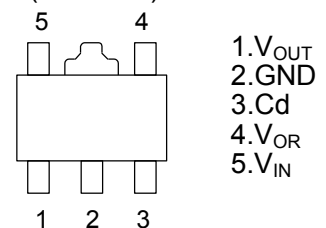
- Output Voltage Accuracy $V_o = \pm 2.2\%$
- Reset Output Voltage $V_{ORH} = 3.3V(\text{typ.})$
- Reset Hold Time $t_d = 10\text{ms} \pm 2.5\text{ms}$
- Ripple Rejection $RR = 60\text{dB}(\text{typ.})$
- Quiescent Current $I_Q = 300\mu\text{A}(\text{max.})$
- Open Collector Output
- Bipolar Technology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

■ PIN CONFIGURATION

(MTP-5)



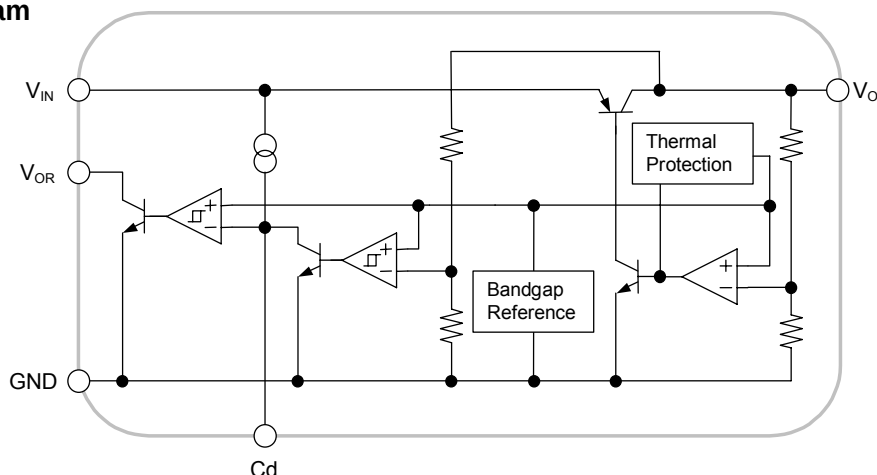
(SOT-89)



■ 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

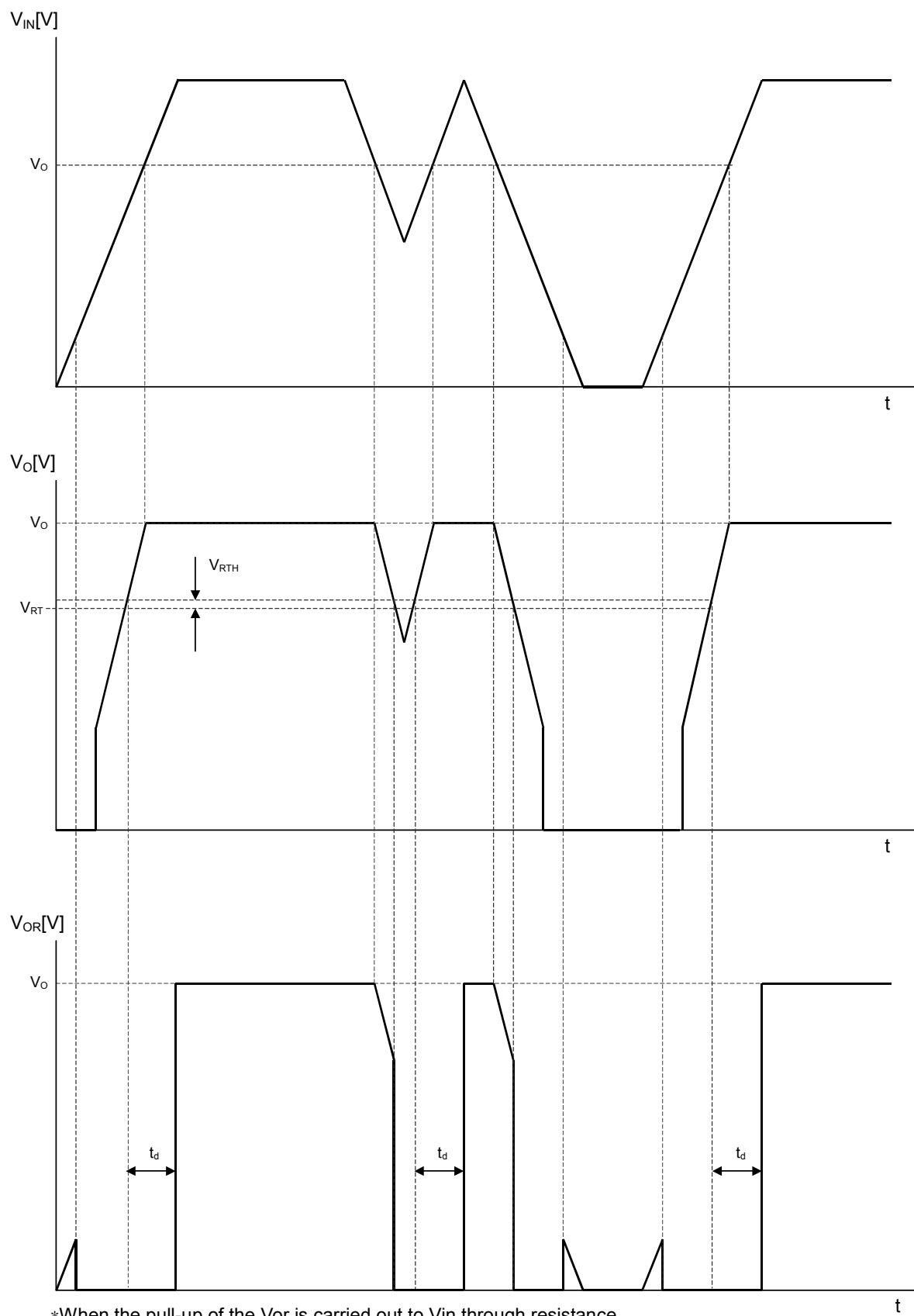
■ ELECTRICAL CHARACTERISTICS ($V_{IN}=V_O+1V$, $C_{IN}=0.1\mu F$, $C_O=1\mu F$ ($V_O\leq 2.6V$: $C_O=2.2\mu F$) Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_Q	$I_O=0mA$	—	200	300	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_{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	$\Delta V_O/\Delta T$	Ta=0~85°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

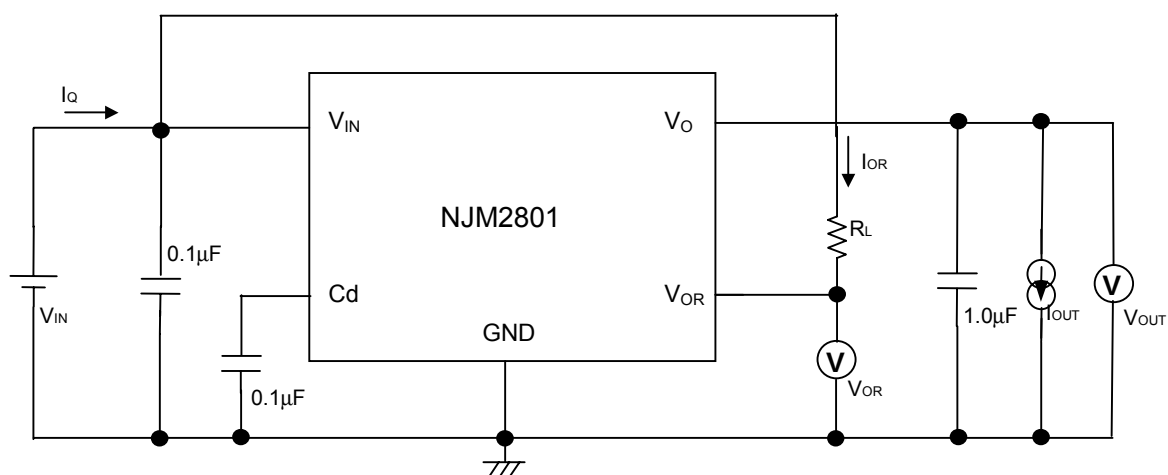
The above specification is a common specification for all output voltages.

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

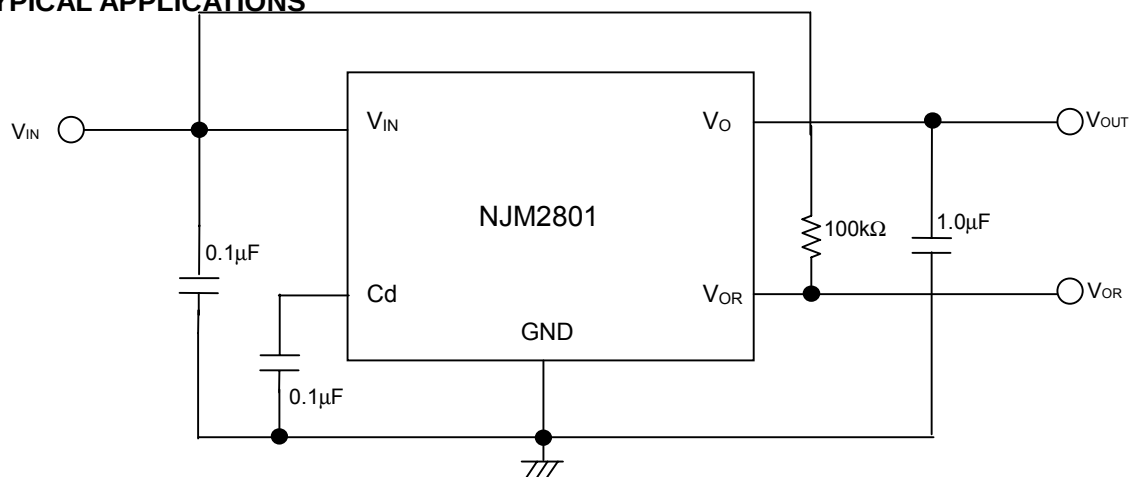
■ TIMING CHART



■ TEST CIRCUIT



■ TYPICAL APPLICATIONS



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