PRELIMINARY

Low Dropout Voltage Regulator with Reset

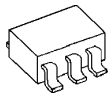
■ GENERAL DISCRIPTION

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

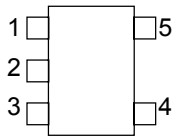


NJM2800F**

NJM2800U**

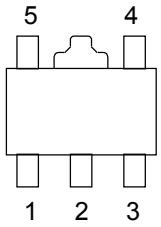
■ PIN CONFIGURATION

(MTP-5)



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

(SOT-89)



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

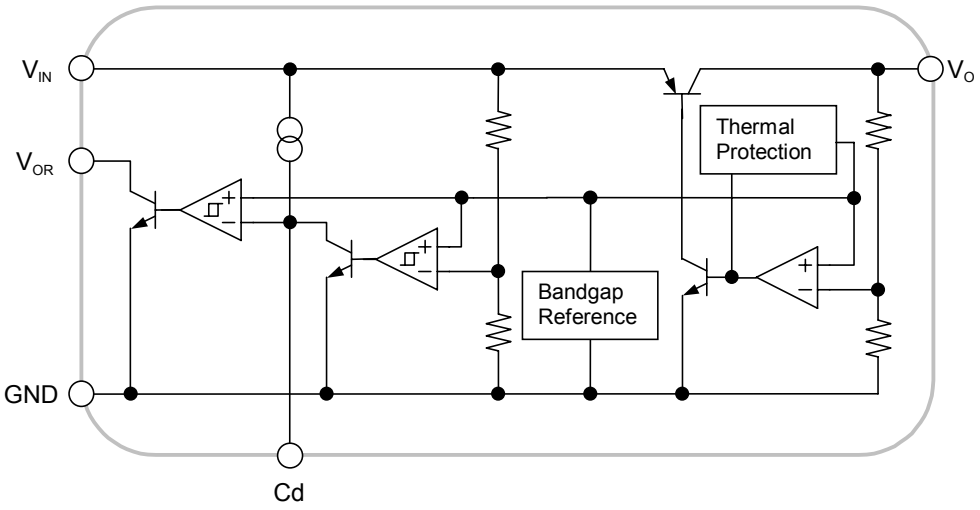
■ FEATURES

• Output Voltage Accuracy	Vo = ±2.2%
• Reset Voltage Accuracy	Vreset = ±2.0%
• Reset Hold Time	td = 10mS±2.5mS
• Quiescent Current	I_Q=300μA (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

■ 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	Topr	−40~+85	°C
Storage Temperature	Tstg	−40~+125	°C

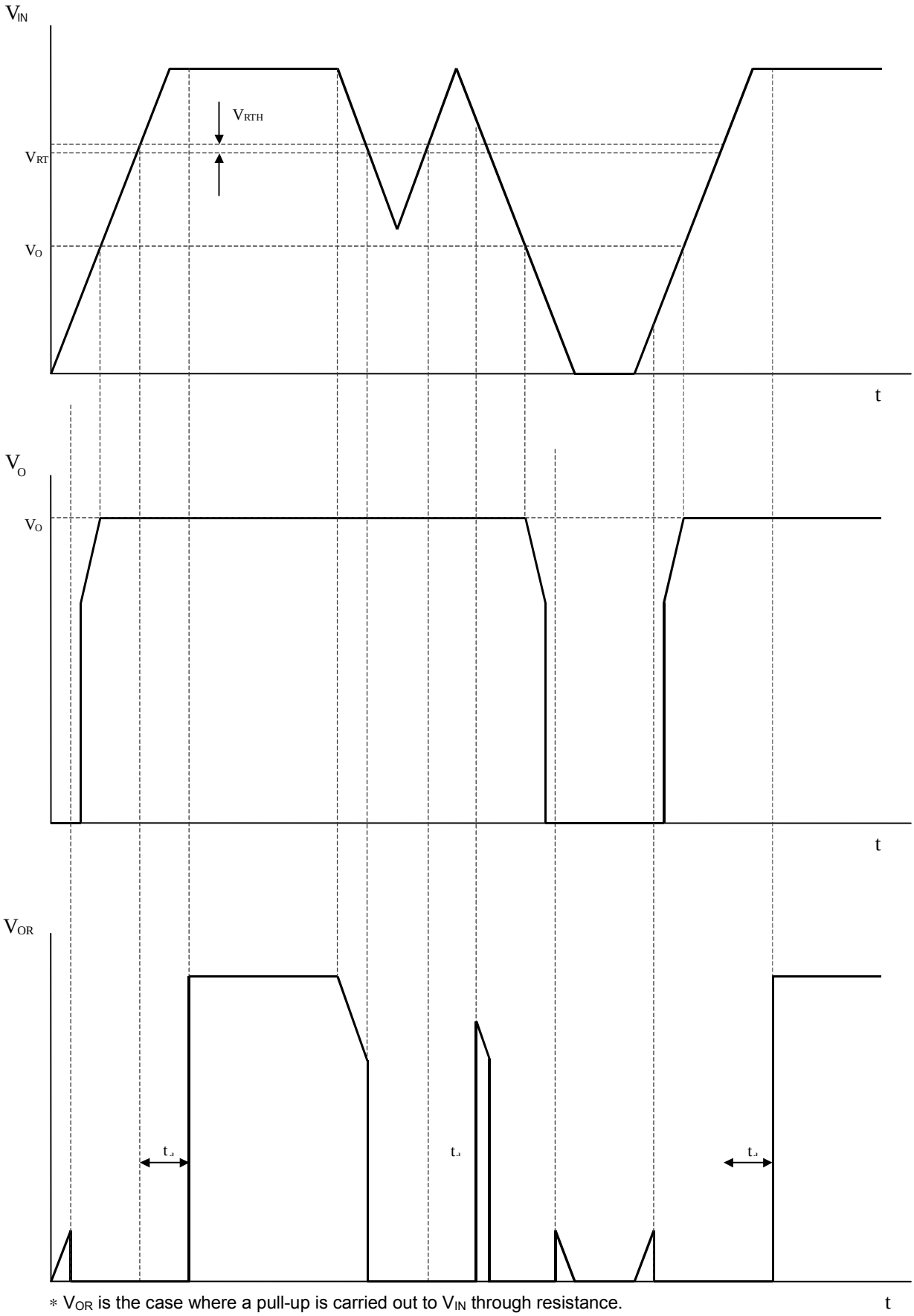
■ ELECTRICAL CHARACTERISTICS (V_{IN}=Vo+1V , C_{IN}=0.1µF, Co=1µF (Vo≤2.6V: Co=2.2µF) Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_Q	Io=0mA	−	250	350	µA
Regulator Block						
Output Voltage	Vo	Io=30mA	−2.2%	−	+2.2%	V
Output Current	Io	Vo-0.3V	150	200	−	mA
Line Regulation	$\Delta Vo/\Delta V_{IN}$	V_{IN}=Vo+1V~Vo+6V, Io=30mA	−	−	0.10	%/V
Load Regulation	$\Delta Vo/\Delta Io$	Io=0~100mA	−	−	0.03	%/mA
Dropout Voltage	ΔV_{I_O}	Io=60mA	−	0.10	0.18	V
Ripple Rejection	RR	Ein=200mVrms, f=1kHz, Io=10mA,Vo=3V	−	60	−	dB
Output Voltage Temperature Coefficient	$\Delta Vo/\Delta T$	Ta=0~85°C, Io=10mA	−	±50	−	ppm/°C
Output Noise Voltage	V_{NO}	f=10Hz~100kHz, Io=10mA, Vo=3V	−	45	−	µVrms
Reset Block						
Voltage Detection	V_{RT}	V_{IN}=H→L	−2%	−	+2%	V
Hysteresis Voltage	V_{RTH}	V_{IN}=H→L→H	VRT×3	VRT×5	VRT×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.

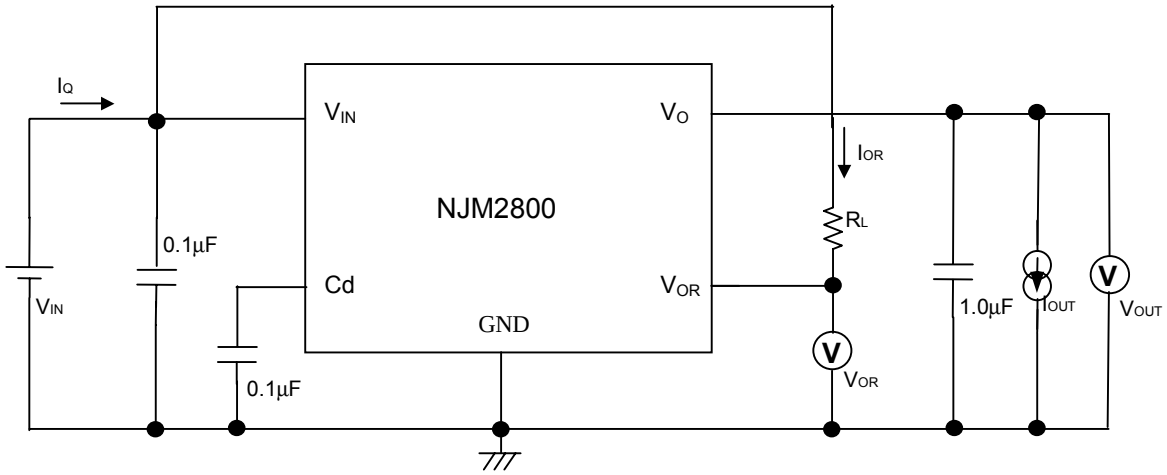
Therefore, it may be different from individual specification for a specific output voltage.

■ TIMING CHART



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

■ TEST CIRCUIT



■ TYPICAL APPLICATIONS