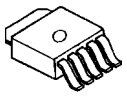
Low Dropout Voltage Regulator with Reset

■ GENERAL DISCRIPTION

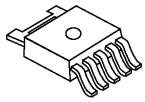
The NJM2807 is a low dropout voltage regulator with reset function.

It provides up to 500mA of logic supply, and the reset function monitors input 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



NJM2807DL2

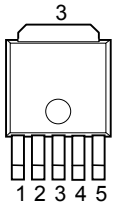


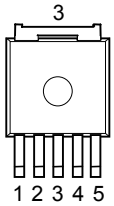
NJM2807DL3

■ FEATURES

- Output Voltage Accuracy Vo ±1.0%
- Reset Voltage Accuracy V_{RT} ±1.0%
- Adjust reset delay time with external capacitor.
- Ripple Rejection 75dB typ. (f=1kHz)
- Output Voltage Monitor type
- Open Collector Output
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline TO-252-5

■ PIN CONFIGURATION





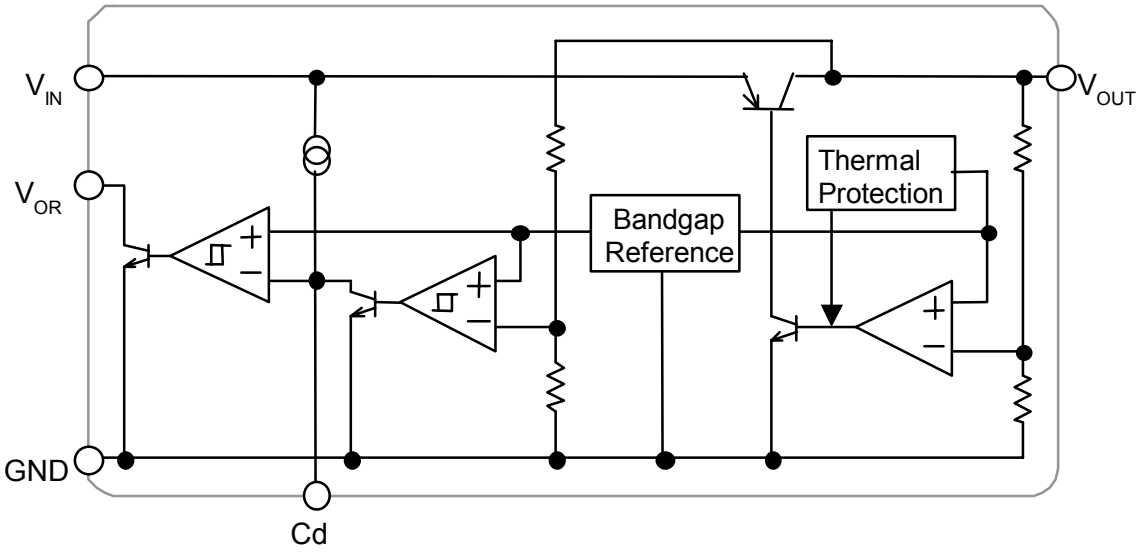
1.V_{OR}
2.V_{IN}
3.GND
4.V_{OUT}
5.Cd

NJM2806DL2 NJM2806DL3

■ OUTPUT VOLTAGE/ DETECTION VOLTAGE

Device Name	Output Voltage	Detection Voltage
NJM2807DL*-0543	5.0V	4.3V

■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	+14	V
Power Dissipation	P_D	8 (Tc=25°C)	W
		0.8(Ta≤25°C)	
Operating Temperature	Topr	−40~+85	°C
Storage Temperature	Tstg	−40~+125	°C

■ ELECTRICAL CHARACTERISTICS

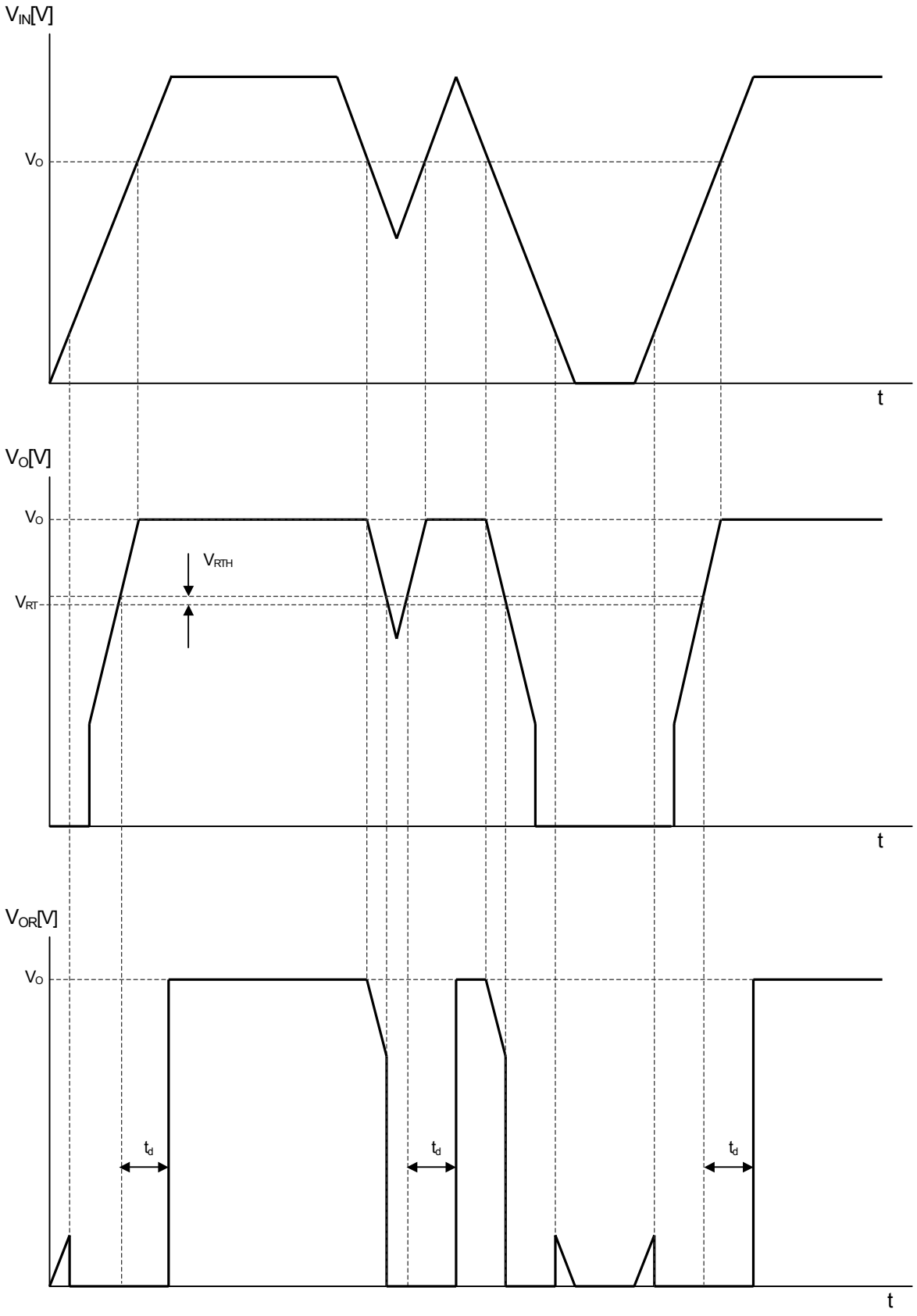
(V_{IN}=Vo+1V, C_{IN}=0.33µF, Co=1.0µF (Co=2.2µF: Vo≤2.4V) Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_Q	V_{IN}=Vo+2V, Io=0mA	−	330	430	µA
Regulator Block						
Output Voltage	Vo	Io=30mA	−1.0%	−	+1.0%	V
Output Current	Io	Vo-0.3V	500	650	−	mA
Line Regulation	$\Delta Vo/\Delta V_{IN}$	V_{IN}=Vo+1V~Vo+6.0V, Io=30mA	−	−	0.10	%/V
Load Regulation	$\Delta Vo/\Delta Io$	Io=0~500mA	−	−	0.03	%/mA
Dropout Voltage	ΔV_{I_O}	Io=300mA	−	0.18	0.28	V
Ripple Rejection	RR	ein=200mVrms, f=1kHz, Io=10mA, Vo=3.0V Version	−	75	−	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~80kHz, Io=10mA, Vo=3.0V Version	−	50	−	µVrms
Reset Block						
Voltage Detection	V_{RT}	V_{IN}=H→L	−1.0%	−	+1.0%	V
Hysteresis Voltage	V_{RTH}	V_{IN}=H→L→H	V_{RT} ×3%	V_{RT} ×5%	V_{RT} ×8%	mV
Low Level Output Voltage	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 Time	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.

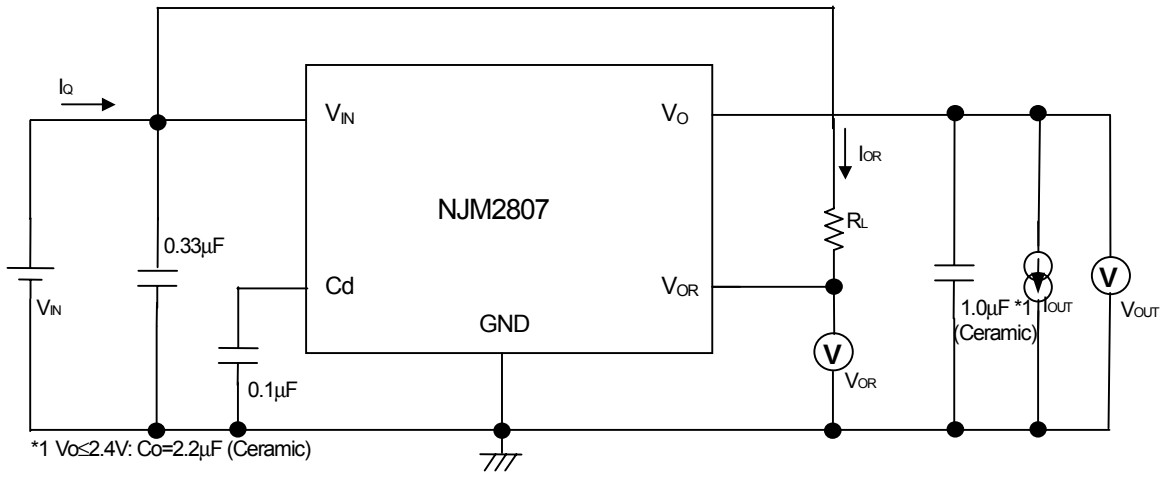
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART

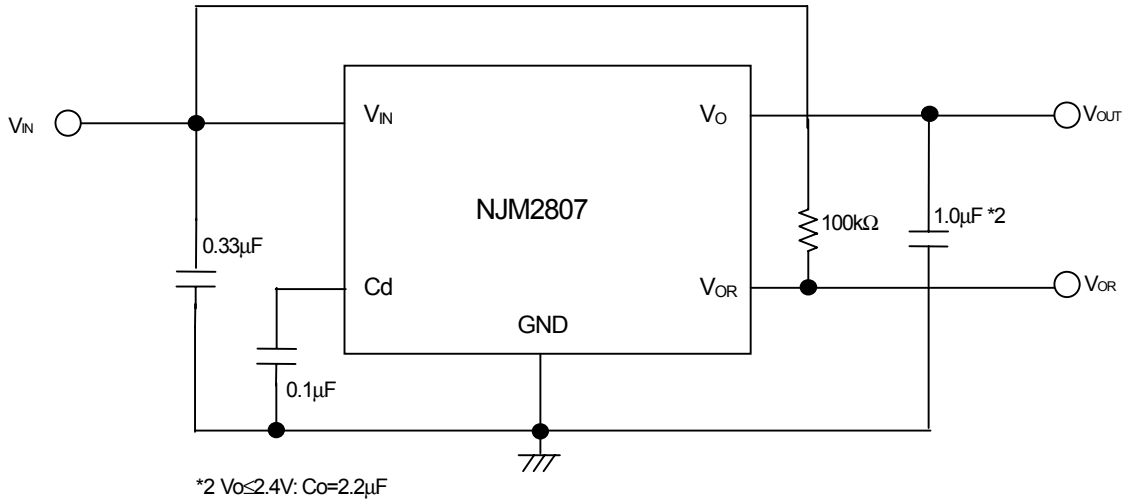


∗ When the pull-up of the V_{OR} is carried out to V_{IN} through resistance.

■ TEST CIRCUIT



■ TYPICAL APPLICATIONS



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