

Low Dropout Voltage Regulator with Reset

■ GENERAL DISCRIPTION

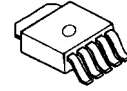
The NJM2806 is a low dropout voltage regulator with reset function.

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.

■ FEATURES

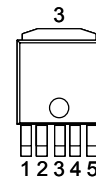
- Output Voltage Accuracy $V_o \pm 1.0\%$
- Reset Voltage Accuracy $V_{RT} \pm 1.0\%$
- Reset Hold Time $t_d = 10\text{mS} \pm 1.0\text{mS}$
- Ripple Rejection 75dB typ. (f=1kHz)
- Quiescent Current $I_Q = 330\mu\text{A}$ (typ.)
- Input Voltage Monitor type
- Open Collector Output
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline TO-252-5

■ PACKAGE OUTLINE



NJM2806DL2

■ PIN CONFIGURATION



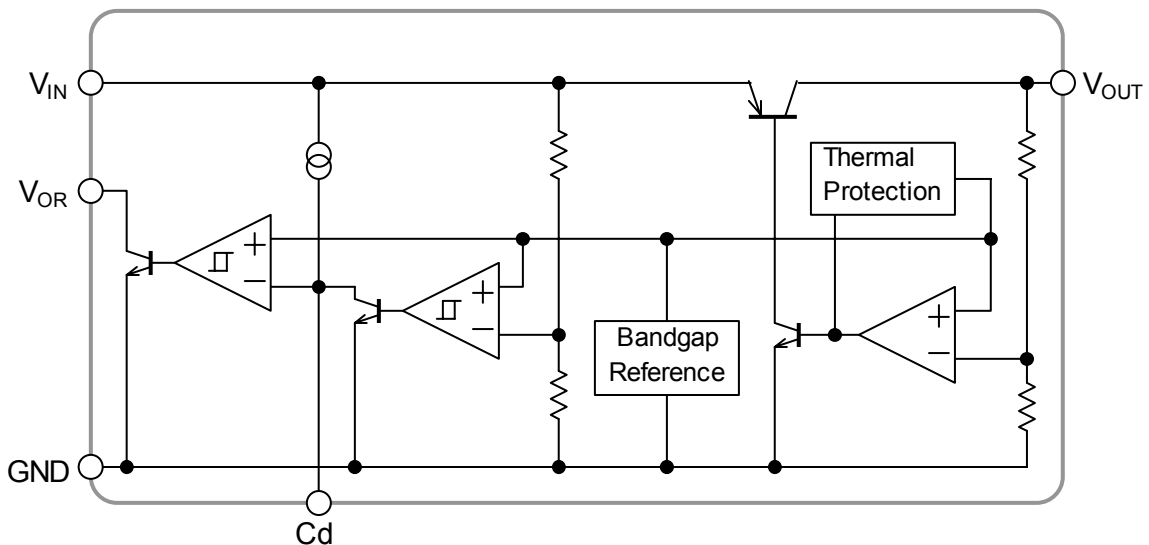
1. V_{OR}
2. V_{IN}
3. GND
4. V_{OUT}
5. Cd

NJM2806DL2

■ OUTPUT VOLTAGE/ DETECTION VOLTAGE

| Device Name | Output Voltage | Detection Voltage |
|-----------------|----------------|-------------------|
| NJM2806DL2-2528 | 2.5V | 2.8V |
| NJM2806DL2-3342 | 3.3V | 4.2V |

■ EQUIVALENT CIRCUIT



NJM2806

■ 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

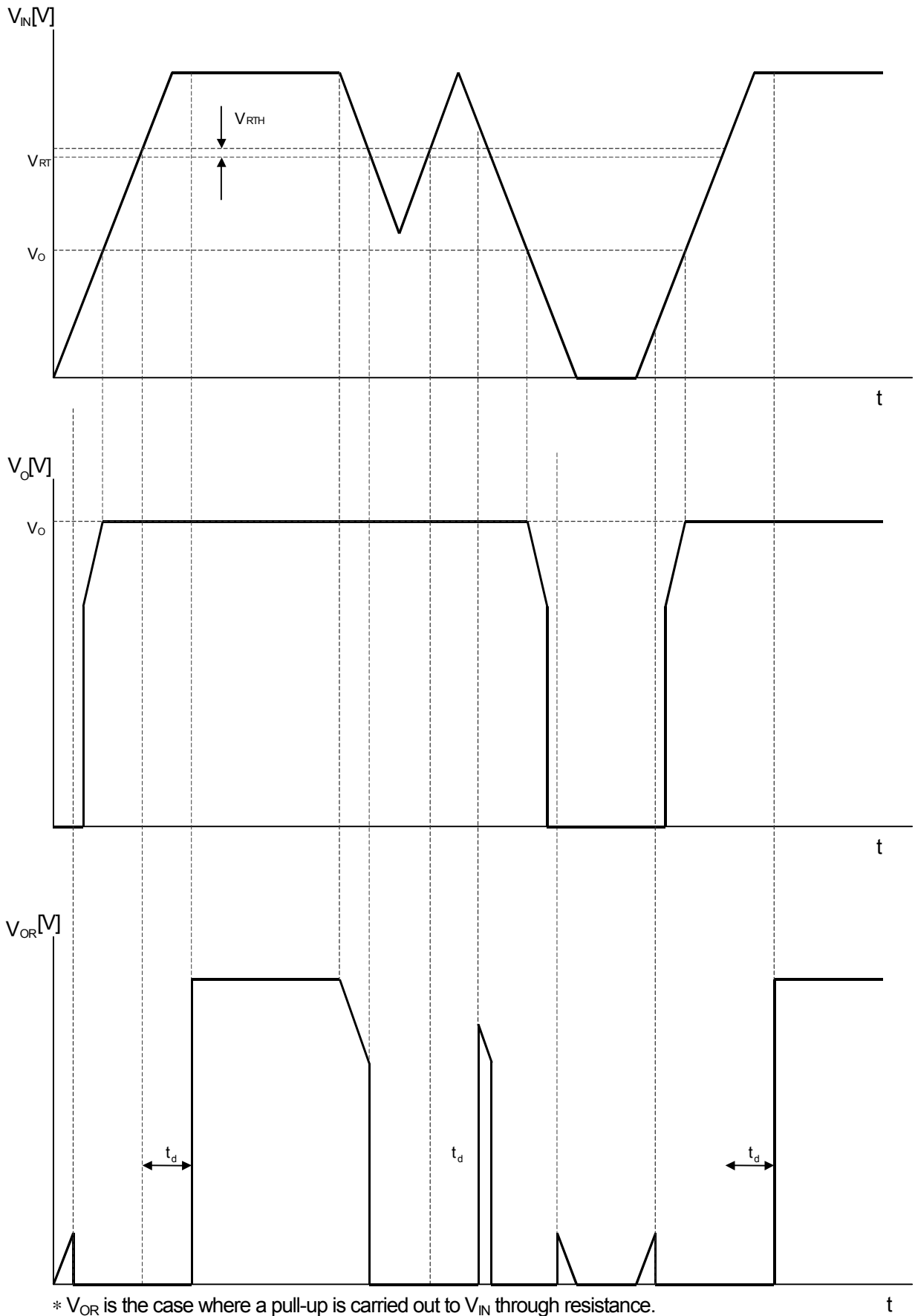
($V_{IN}=V_o+1V$, $C_{IN}=0.1\mu F$, $C_o=2.2\mu F$ ($C_o=4.7\mu F$: $V_o\leq 2.6V$) Ta=25°C)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--|----------------------------|--|------------------|------------------|------------------|---------------|
| Quiescent Current | I_Q | $V_{IN}=V_o+2V$, $I_o=0mA$ | - | 330 | 430 | μA |
| Regulator Block | | | | | | |
| Output Voltage | V_o | $I_o=30mA$ | -1.0% | - | +1.0% | V |
| Output Current | I_o | $V_o=0.3V$ | 500 | 650 | - | mA |
| Line Regulation | $\Delta V_o/\Delta V_{IN}$ | $V_{IN}=V_o+1V\sim V_o+6.0V$, $I_o=30mA$ | - | - | 0.10 | %/V |
| Load Regulation | $\Delta V_o/\Delta I_o$ | $I_o=0\sim 500mA$ | - | - | 0.03 | %/mA |
| Dropout Voltage | ΔV_{L_O} | $I_o=300mA$ | - | 0.18 | 0.28 | V |
| Ripple Rejection | RR | $e_{in}=200mV_{rms}$, $f=1kHz$, $I_o=10mA$, $V_o=3.0V$ Version | - | 75 | - | 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} | $f=10Hz\sim 100kHz$, $I_o=10mA$, $V_o=3.0V$ Version | - | 45 | - | μV_{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 | μA |
| 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.

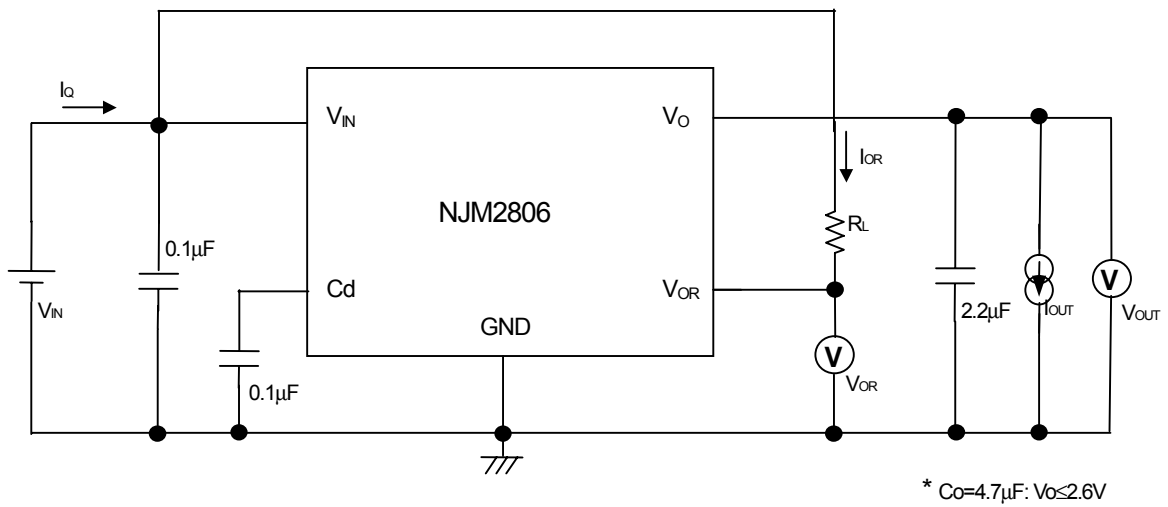
Therefore, it may be different from the individual specification for a specific output voltage.

■ TIMING CHART

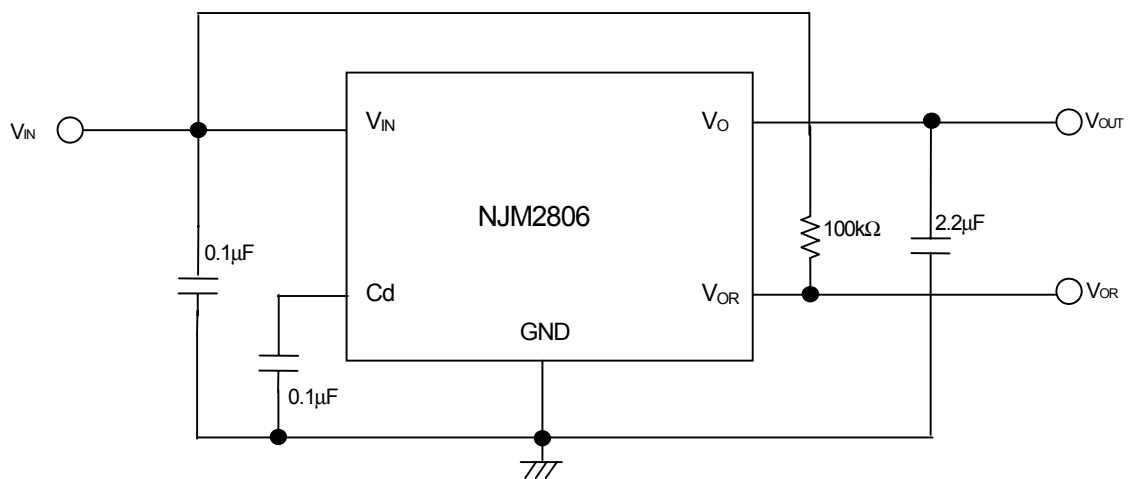


NJM2806

TEST CIRCUIT



TYPICAL APPLICATIONS



[CAUTION]

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook 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.