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New Japan Radio Co.,Ltd.

<http://www.njr.com/>

## Low Dropout Voltage Regulator with Reset

### ■ GENERAL DISCRIPTION

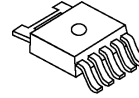
The NJM2807 is a low dropout voltage regulator with reset function.

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.

### ■ FEATURES

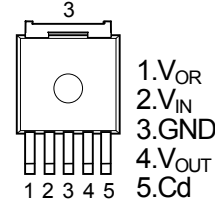
- Output Voltage Accuracy  $V_o \pm 1.0\%$
- Reset Voltage Accuracy  $V_{RT} \pm 1.0\%$
- Adjust reset delay time with external capacitor.
- Ripple Rejection 75dB typ. (f=1kHz)
- Output Voltage Monitor type
- Open Collector Output
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection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

### ■ PACKAGE OUTLINE



NJM2807DL3

### ■ PIN CONFIGURATION

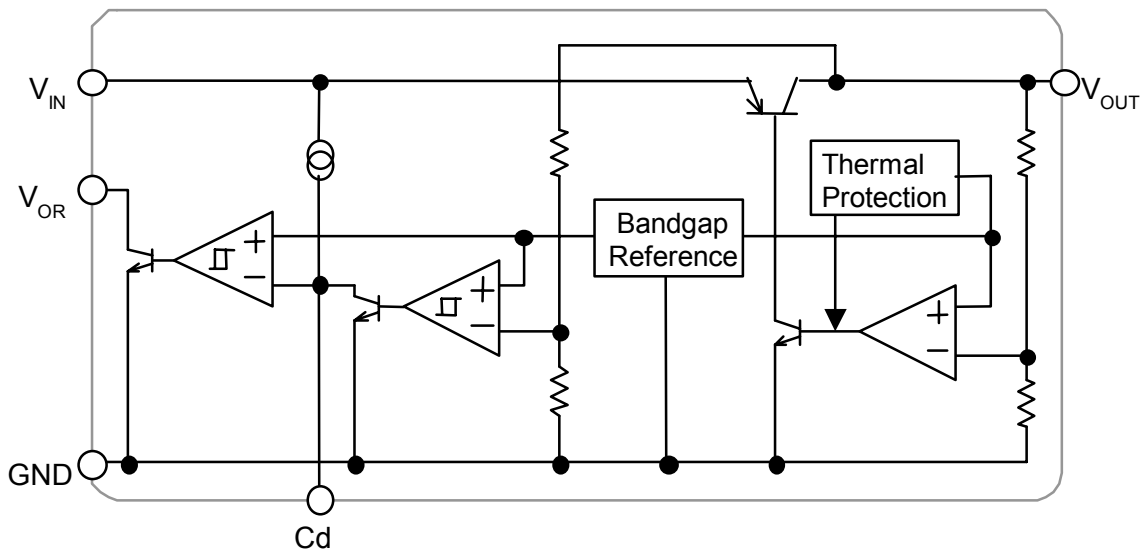


NJM2807DL3

### ■ OUTPUT VOLTAGE/ DETECTION VOLTAGE

| Device Name     | Output Voltage | Detection Voltage |
|-----------------|----------------|-------------------|
| NJM2807DL3-3325 | 3.3V           | 2.5V              |
| NJM2807DL3-0543 | 5.0V           | 4.3V              |

### ■ EQUIVALENT CIRCUIT



# NJM2807

## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER             | SYMBOL          | RATINGS      | UNIT |
|-----------------------|-----------------|--------------|------|
| Input Voltage         | V <sub>IN</sub> | +14          | V    |
| Power Dissipation     | P <sub>D</sub>  | 8 (Tc=25°C)  | W    |
|                       |                 | 0.8(Ta≤25°C) |      |
| Operating Temperature | Topr            | -40~+85      | °C   |
| Storage Temperature   | Tstg            | -40~+125     | °C   |

## ■ ELECTRICAL CHARACTERISTICS

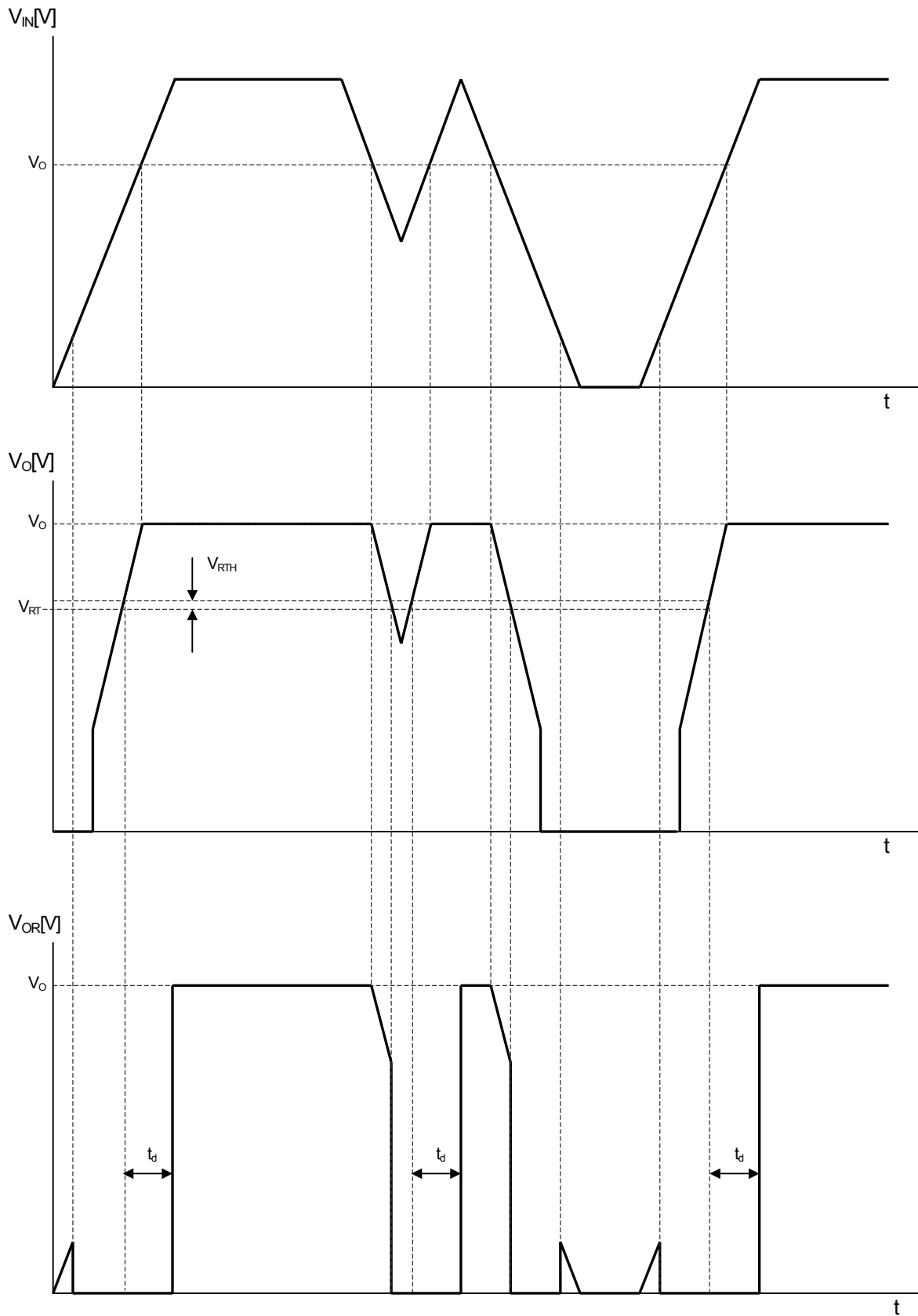
(V<sub>IN</sub>=V<sub>O</sub>+1V, C<sub>IN</sub>=0.33μF, C<sub>O</sub>=1.0μF (C<sub>O</sub>=2.2μF: V<sub>O</sub>≤2.4V) Ta=25°C)

| PARAMETER                              | SYMBOL                            | TEST CONDITION  | MIN.                | TYP.                | MAX.                | UNIT   |
|--|-----------------------------------|---|---------------------|---------------------|---------------------|--------|
| Quiescent Current                      | I <sub>Q</sub>                    | V <sub>IN</sub> =V <sub>O</sub> +2V, I <sub>O</sub> =0mA                                | -                   | 330                 | 430                 | μA     |
| Regulator Block                        |                                   |   |                     |                     |                     |        |
| Output Voltage                         | V <sub>O</sub>                    | I <sub>O</sub> =30mA  | -1.0%               | -                   | +1.0%               | V      |
| Output Current                         | I <sub>O</sub>                    | V <sub>O</sub> =0.3V  | 500                 | 650                 | -                   | mA     |
| Line Regulation                        | ΔV <sub>O</sub> /ΔV <sub>IN</sub> | V <sub>IN</sub> =V <sub>O</sub> +1V~V <sub>O</sub> +6.0V, I <sub>O</sub> =30mA          | -                   | -                   | 0.10                | %/V    |
| Load Regulation                        | ΔV <sub>O</sub> /ΔI <sub>O</sub>  | I <sub>O</sub> =0~500mA   | -                   | -                   | 0.03                | %/mA   |
| Dropout Voltage                        | ΔV <sub>I_O</sub>                 | I <sub>O</sub> =300mA   | -                   | 0.18                | 0.28                | V      |
| Ripple Rejection                       | RR                                | e <sub>in</sub> =200mVrms, f=1kHz, I <sub>O</sub> =10mA, V <sub>O</sub> =3.0V Version   | -                   | 75                  | -                   | dB     |
| Output Voltage Temperature Coefficient | ΔV <sub>O</sub> /ΔT               | Ta=0~85°C, I <sub>O</sub> =10mA   | -                   | ±50                 | -                   | ppm/°C |
| Output Noise Voltage                   | V <sub>NO</sub>                   | f=10Hz~80kHz, I <sub>O</sub> =10mA, V <sub>O</sub> =3.0V Version                        | -                   | 50                  | -                   | μVrms  |
| Reset Block                            |                                   |   |                     |                     |                     |        |
| Voltage Detection                      | V <sub>RT</sub>                   | V <sub>IN</sub> =H→L  | -1.0%               | -                   | +1.0%               | V      |
| Hysteresis Voltage                     | V <sub>RTH</sub>                  | V <sub>IN</sub> =H→L→H  | V <sub>RT</sub> ×3% | V <sub>RT</sub> ×5% | V <sub>RT</sub> ×8% | mV     |
| Low Level Output Voltage               | R <sub>ORL</sub>                  | V <sub>IN</sub> =V <sub>RT</sub> -0.5V, R <sub>L</sub> =100kΩ                           | -                   | 100                 | 300                 | mV     |
| Output Leak Current                    | I <sub>ORH</sub>                  | V <sub>IN</sub> =V <sub>RT</sub> +0.5V  | -                   | -                   | 0.1                 | μA     |
| On time Output Current                 | I <sub>ORL</sub>                  | V <sub>IN</sub> =V <sub>RT</sub> -0.5V, R <sub>L</sub> =0Ω                              | 5                   | -                   | -                   | mA     |
| Reset Output Delay Time                | t <sub>d</sub>                    | V <sub>IN</sub> =(V <sub>RT</sub> -0.5V)→(V <sub>RT</sub> +0.5V), C <sub>d</sub> =0.1μF | 9                   | 10                  | 11                  | ms     |
| Operation Voltage Limit                | V <sub>OPL</sub>                  | V <sub>ORL</sub> =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.

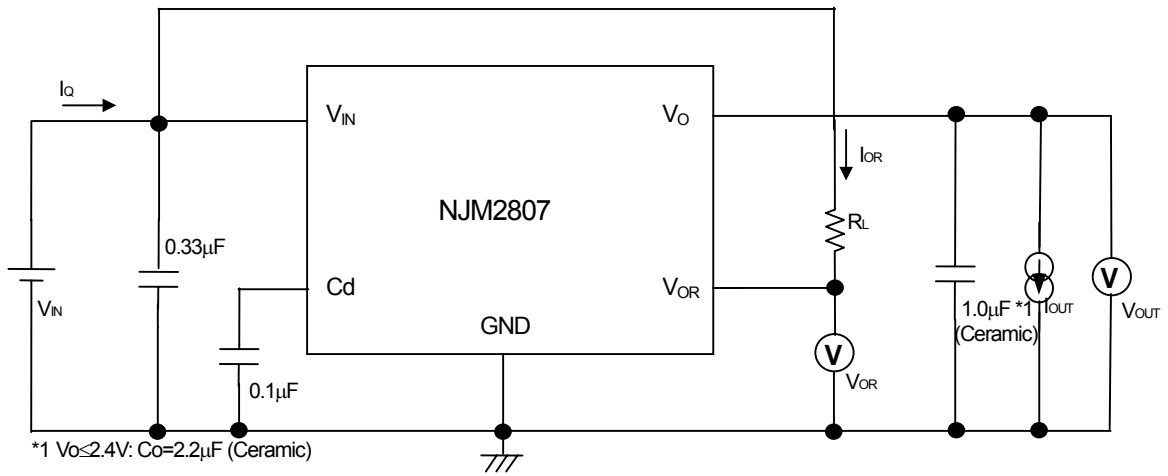
## ■ TIMING CHART



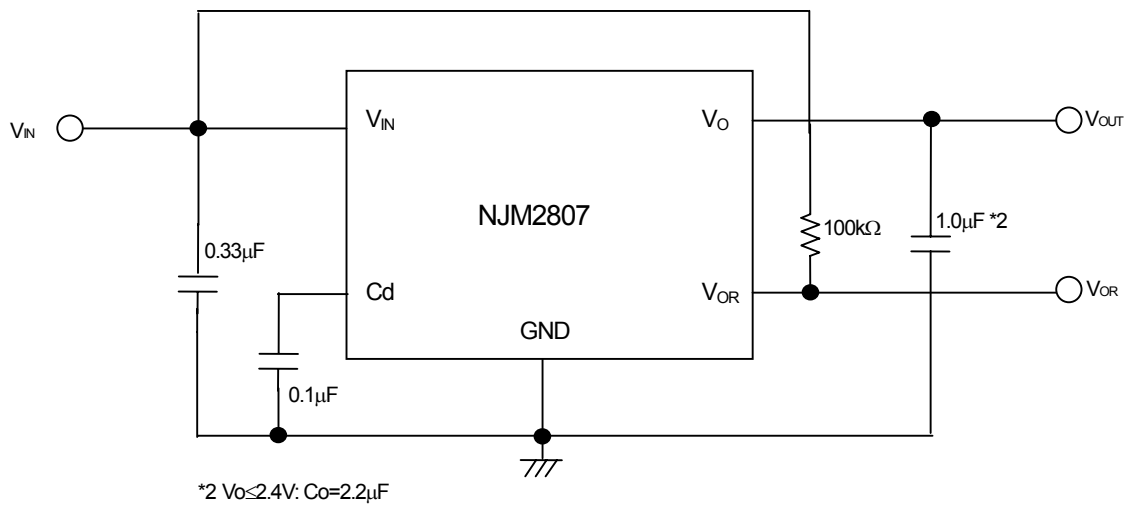
\* When the pull-up of the  $V_{OR}$  is carried out to  $V_{IN}$  through resistance.

# NJM2807

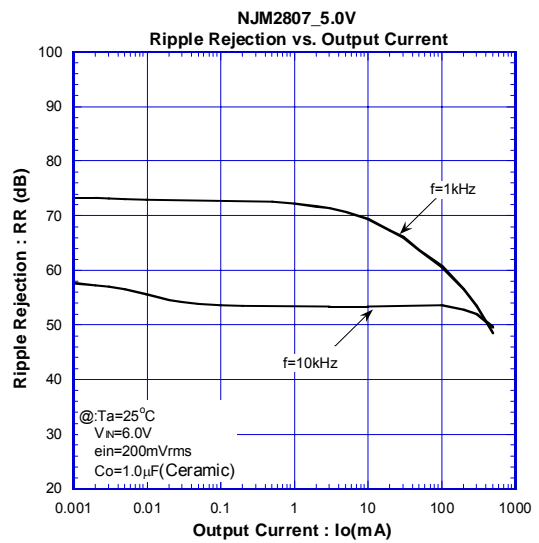
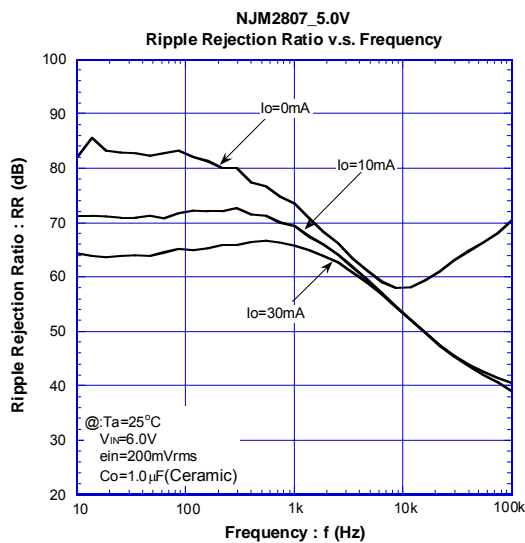
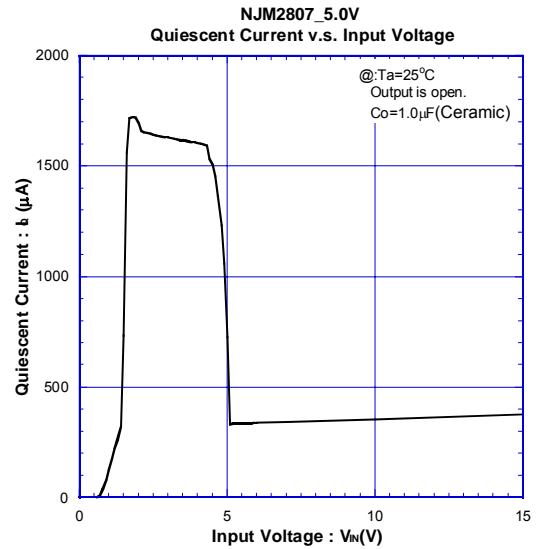
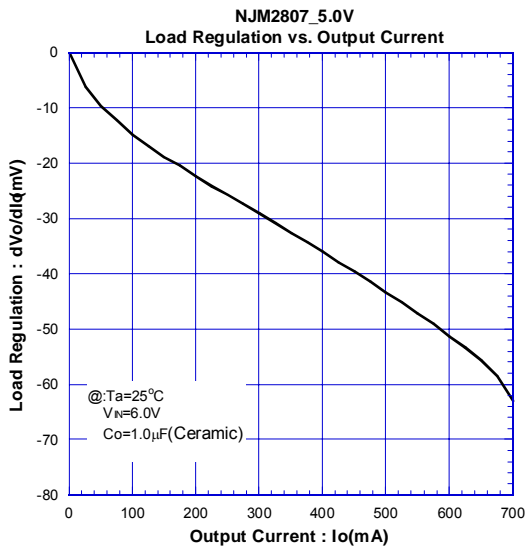
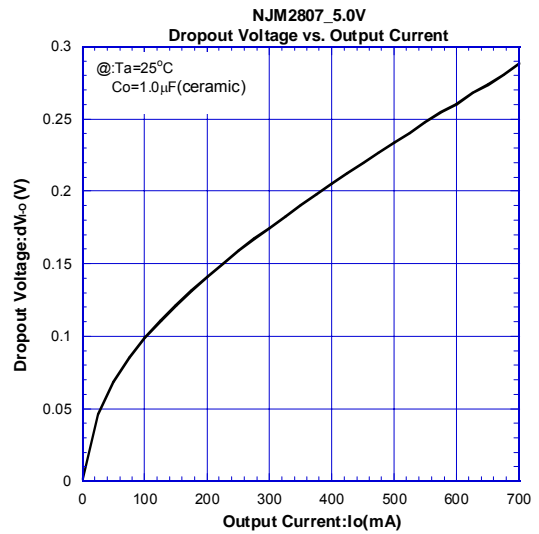
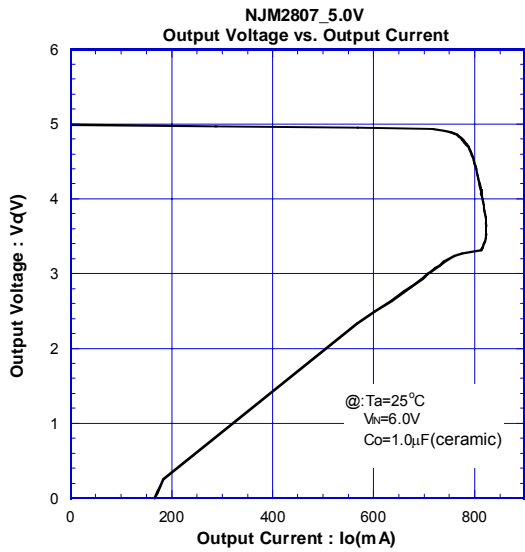
## TEST CIRCUIT



## TYPICAL APPLICATIONS

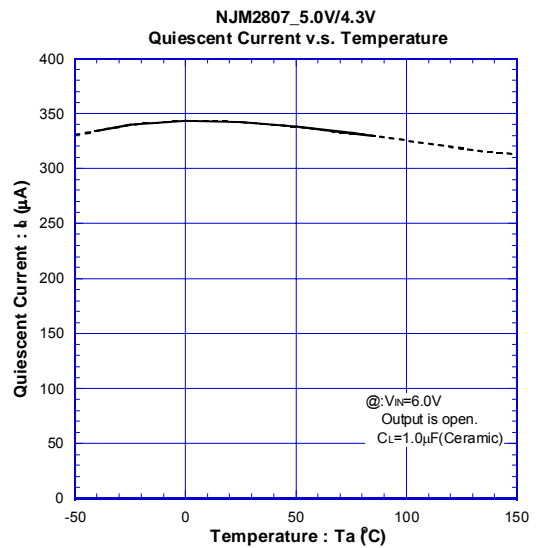
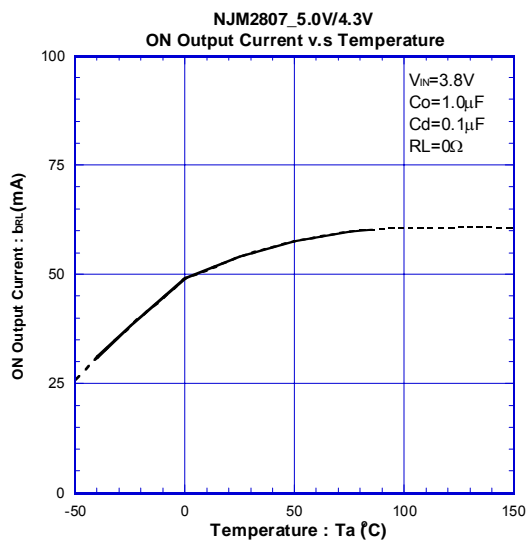
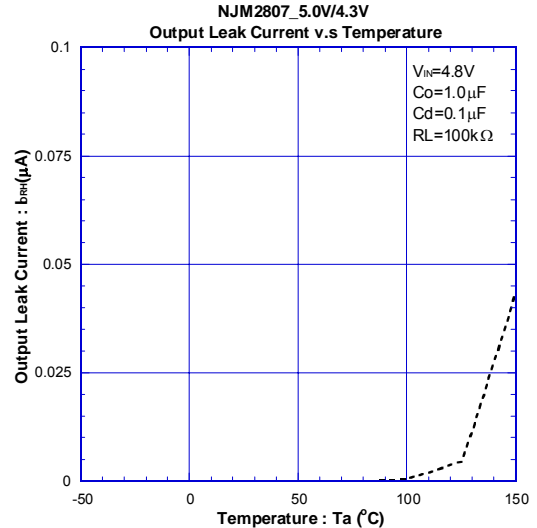
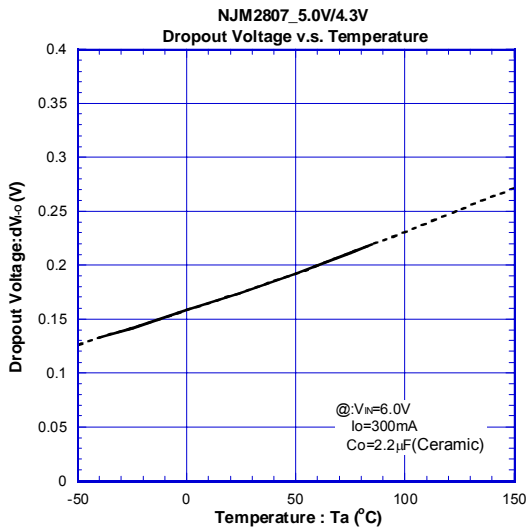
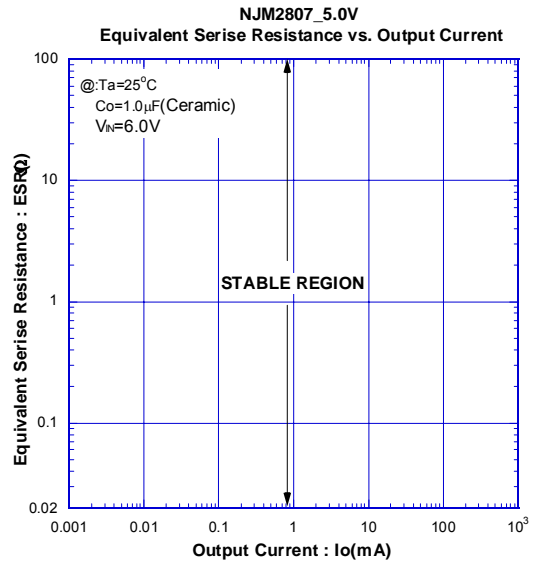
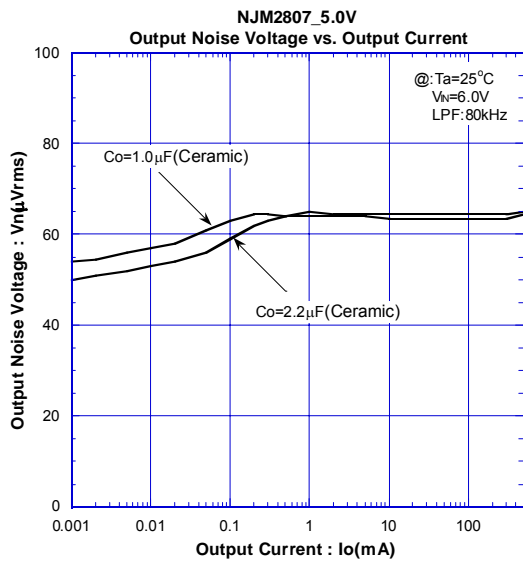


## ■ ELECTRICAL CHARISTICS

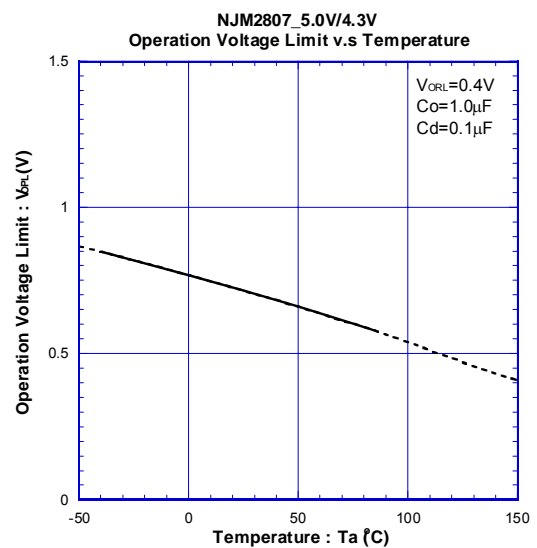
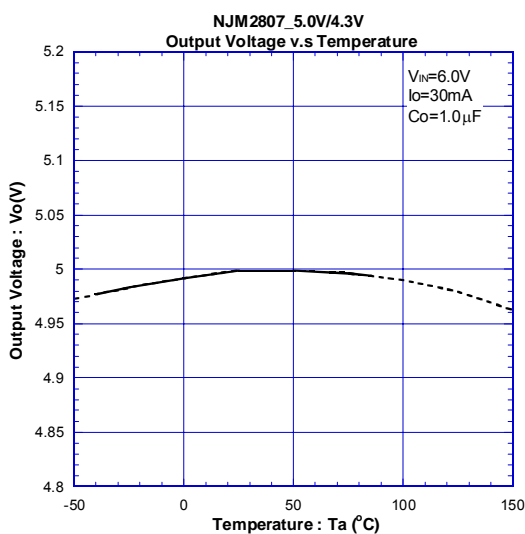
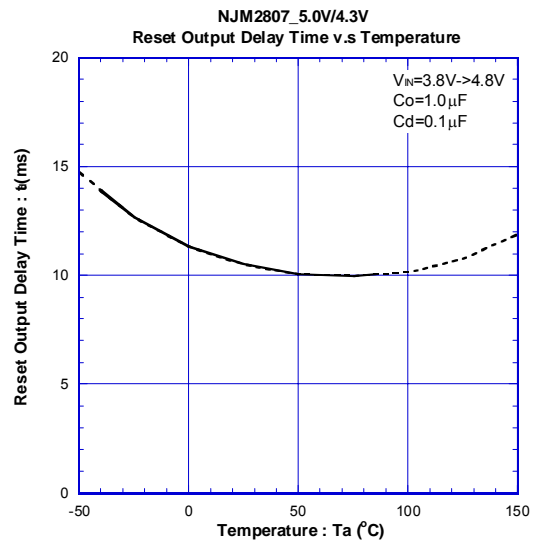
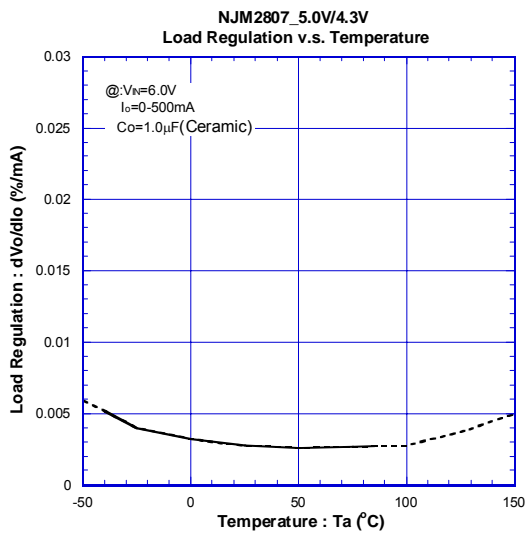
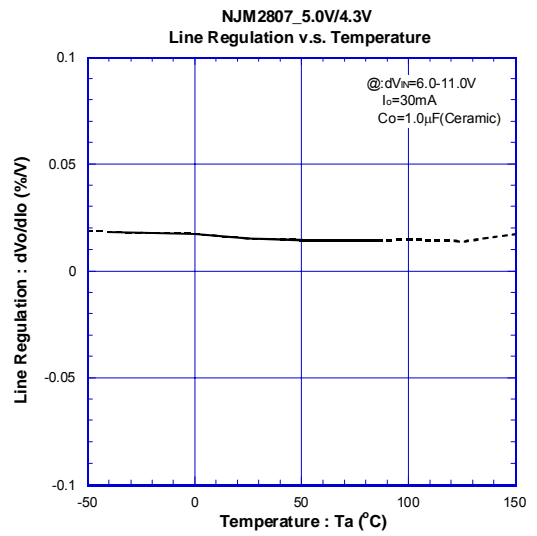
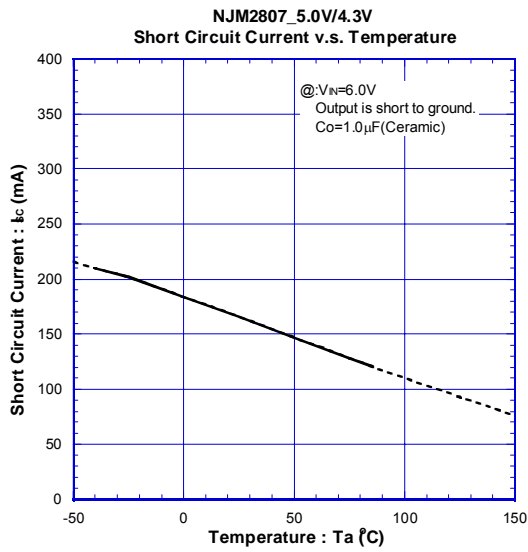


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## ELECTRICAL CHARISTICS



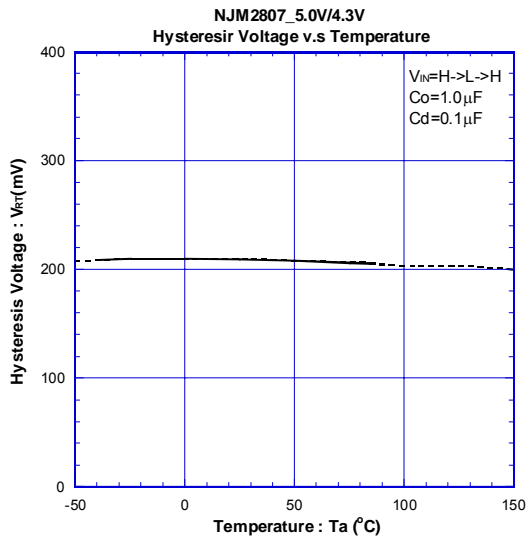
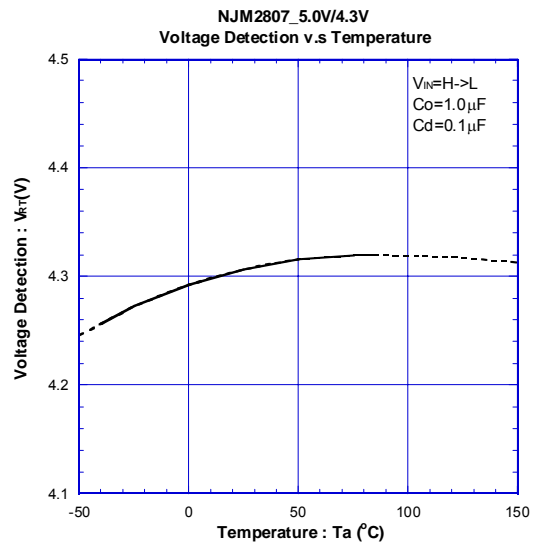
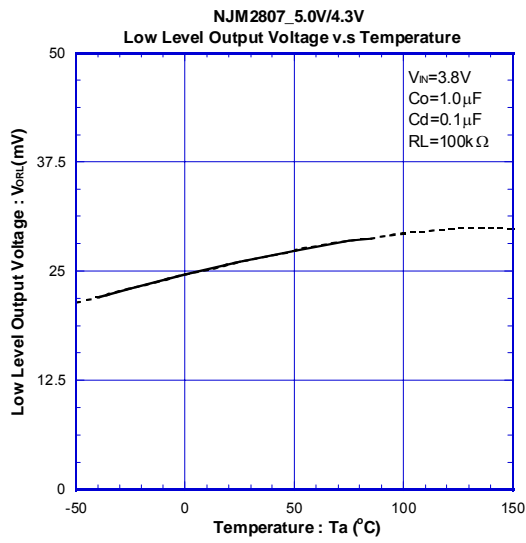
## ELECTRICAL CHARISTICS





# NJM2807

## ■ ELECTRICAL CHARISTICS



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