

LOW DROPOUT VOLTAGE REGULATOR

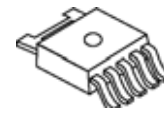
■ GENERAL DESCRIPTION

The NJM2836 is a 500mA output low dropout voltage regulator.

Advanced Bipolar technology achieves low noise, high ripple rejection and high supply voltage.

2.1V to 15.5V output voltage range, 2.2 μ F small decoupling capacitor, built-in noise bypass capacitor make the NJM2836 suitable for various applications.

■ PACKAGE OUTLINE

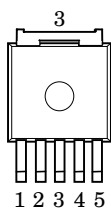


NJM2836DL3

■ FEATURES

- Output voltage options available 2.1 ~ 15.5V
- High Ripple Rejection 75dB typ. (f=1kHz, Vo=3V Version)
- Output Noise Voltage Vno=45 μ Vrms typ.
- Output Current Io(max.)=500mA
- High Precision Output Vo \pm 1.0%
- Output capacitor with 2.2 μ F ceramic capacitor (Vo \geq 5.1V)
- Low Dropout Voltage 0.18V typ. (Io=300mA)
- ON/OFF Control (Active High)
- Internal Thermal Overload Protection
- Internal Over Current Protection
- Bipolar Technology
- Package Outline TO-252-5

■ PIN CONFIGURATION

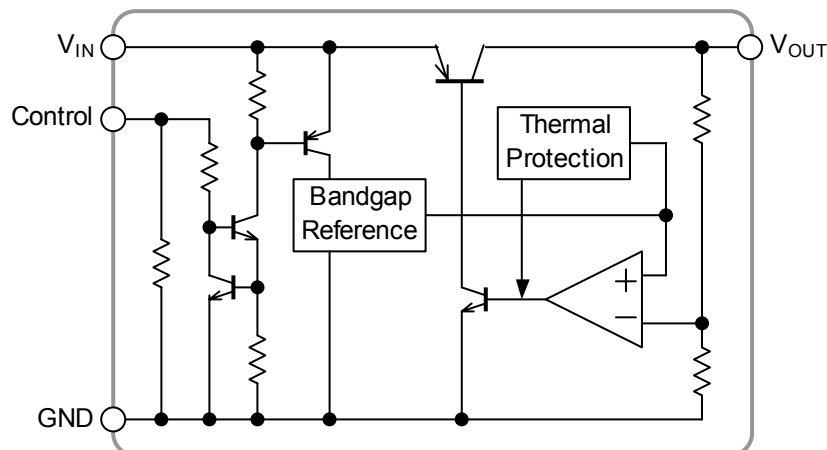


NJM2836DL3

PIN FUNCTION

- 1. CONTROL
- 2. V_{IN}
- 3. GND
- 4. V_O
- 5. NC

■ EQUIVALENT CIRCUIT



■ OUTPUT VOLTAGE RANK LIST

The WHITE column shows applicable Voltage Rank(s)

| Device Name | Vout | Device Name | Vout | Device Name | Vout |
|---------------|------|---------------|------|---------------|-------|
| NJM2836DL3-21 | 2.1V | NJM2836DL3-36 | 3.6V | NJM2836DL3-08 | 8.0V |
| NJM2836DL3-22 | 2.2V | NJM2836DL3-37 | 3.7V | NJM2836DL3-85 | 8.5V |
| NJM2836DL3-23 | 2.3V | NJM2836DL3-38 | 3.8V | NJM2836DL3-09 | 9.0V |
| NJM2836DL3-24 | 2.4V | NJM2836DL3-39 | 3.9V | NJM2836DL3-10 | 10.0V |
| NJM2836DL3-25 | 2.5V | NJM2836DL3-04 | 4.0V | NJM2836DL3-12 | 12.0V |
| NJM2836DL3-26 | 2.6V | NJM2836DL3-41 | 4.1V | NJM2836DL3-15 | 15.0V |
| NJM2836DL3-27 | 2.7V | NJM2836DL3-42 | 4.2V | | |
| NJM2836DL3-28 | 2.8V | NJM2836DL3-43 | 4.3V | | |
| NJM2836DL3-29 | 2.9V | NJM2836DL3-44 | 4.4V | | |
| NJM2836DL3-03 | 3.0V | NJM2836DL3-45 | 4.5V | | |
| NJM2836DL3-31 | 3.1V | NJM2836DL3-46 | 4.6V | | |
| NJM2836DL3-32 | 3.2V | NJM2836DL3-47 | 4.7V | | |
| NJM2836DL3-33 | 3.3V | NJM2836DL3-48 | 4.8V | | |
| NJM2836DL3-34 | 3.4V | NJM2836DL3-49 | 4.9V | | |
| NJM2836DL3-35 | 3.5V | NJM2836DL3-05 | 5.0V | | |

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------|-------------------|---------------------------|------|
| Input Voltage | V _{IN} | +20 | V |
| Control Voltage | V _{CONT} | +20(*1) | V |
| Power Dissipation | P _D | 10(Tc≤25°C) 1(Ta≤25°C) | W |
| Operating Temperature | Topr | -40 ~ +85 | °C |
| Storage Temperature | Tstg | -40 ~ +150 | °C |

(*1): When input voltage is less than +20V, the absolute maximum control voltage is equal to the input voltage.

(*2): Mounted on glass epoxy board based on EIA/JEDEC. (114.3 × 76.2 × 1.6mm: 2Layers FR-4)

■ ELECTRICAL CHARACTERISTICS

(V_{IN}=Vo+1V, C_{IN}=0.33μF, Co=2.2μF (2.9V<Vo≤5V:Co=4.7μF,Vo≤2.9V:Co=10μF), Ta=25°C)

| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT | |
|---|------------------------|---|--------------------|------|-------|--------|----|
| Output Voltage | Vo | Io=30mA | -1.0% | - | +1.0% | V | |
| Quiescent Current | I _Q | Io=0mA | Vo≤5V Version | - | 200 | 300 | μA |
| | | | 5V<Vo≤10V Version | - | 215 | 315 | μA |
| | | | 10V<Vo≤15V Version | - | 230 | 330 | μA |
| Quiescent Current at Control OFF | I _{Q(OFF)} | V _{CONT} =0V | - | - | 100 | nA | |
| Output Current | Io | Vo-0.3V | 500 | 650 | - | mA | |
| Line Regulation | ΔVo/ΔV _{IN} | V _{IN} =Vo+1V ~ Vo+6V(Vo≤12V), V _{IN} =Vo+1V ~ 18V(Vo>12V), Io=30mA | - | - | 0.10 | %/V | |
| Load Regulation | ΔVo/ΔIo | Io=0 ~ 500mA | - | - | 0.007 | %/mA | |
| Dropout Voltage(*3) | ΔV _{I-O} | Io=300mA | - | 0.18 | 0.28 | V | |
| Ripple Rejection | RR | ein=200mVrms, f=1kHz, Io=10mA Vo=3V Version | - | 75 | - | dB | |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔTa | Ta=0 ~ 85°C, Io=10mA | - | ± 50 | - | ppm/°C | |
| Output Noise Voltage | V _{NO} | f=10Hz ~ 80kHz, Io=10mA, Vo=3V Version | - | 45 | - | μVrms | |
| Control Current | I _{CONT} | V _{CONT} =1.6V | - | 3 | 12 | μA | |
| Control Voltage for ON-state | V _{CONT(ON)} | | 1.6 | - | - | V | |
| Control Voltage for OFF-state | V _{CONT(OFF)} | | - | - | 0.6 | V | |
| Input Voltage | V _{IN} | | - | - | 18 | V | |

(*3): 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.

