# 3-TERMINAL POSITIVE VOLTAGE REGULATOR

## ■ GENERAL DESCRIPTION

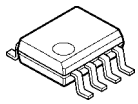
The **NJM78L00** series of 3-Terminal Positive Voltage Regulators are constructed using the New JRC Planar epitaxial process.

These regulators employ internal current limiting and thermal shut down, making them essentially indestructible. If adequate heat sinking is provided, they can deliver up to 100mA output current. They are intended as fixed voltage regulators in a wide range of applications including local or on-card regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power pass elements to make high-current voltage regulators.

The **NJM78L00** series used as a Zener diode/resistor combination replacement, offers an effective output impedance improvement of typically two orders of magnitude, along with lower quiescent current and lower noise.

## ■ PACKAGE OUTLINE

**NJM78L00UA**
**(SOT-89)**

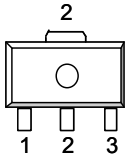


**NJM78L00EA**
**( SOP8 )**
**(5V, 9V, 12V Version Only)**

## ■ FEATURES

- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Excellent Ripple Rejection
- Guaranteed 100mA Output Current
- Package Outline SOT-89, SOP8 JEDEC 150mil
- Bipolar Technology

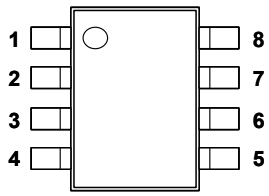
## ■ PIN CONFIGURATION




**PIN CONFIGURATION**

**1. OUT**
**2. GND**
**3. IN**

**NJM78L00UA**

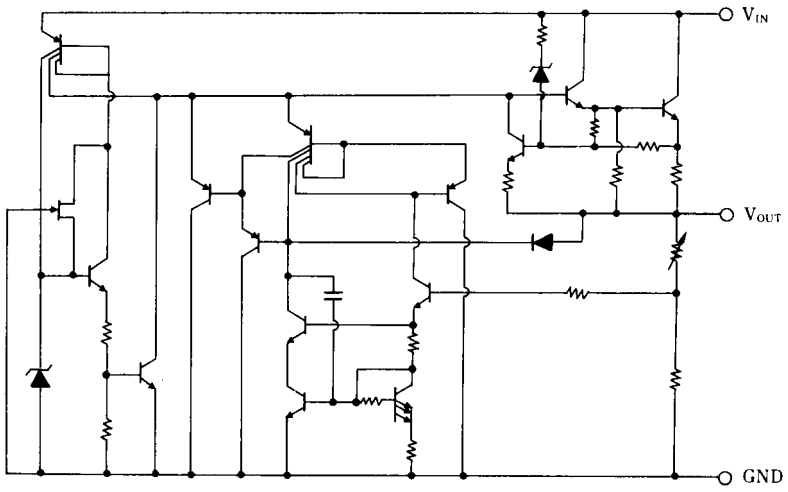



**PIN CONFIGURATION**

**1. OUT**
**2. GND**
**3. GND**
**4. NC**
**5. NC**
**6. GND**
**7. GND**
**8. IN**

**NJM78L00EA**

## ■ EQUIVALENT CIRCUIT



## ■ ABSOLUTE MAXIMUM RATINGS

($T_a$=25°C)

| PARAMETER | SYMBOL | MAXIMUM RATINGS | UNIT |
|---|---|---|---|
| Input Voltage | $V_{IN}$ | (78L02A to 78L09A) 30<br>(78L12A to 78L15A) 35<br>(78L18A to 78L24A) 40 | V |
| Power Dissipation | $P_D$ | (SOT-89) 350<br>(SOP8) 700(*1) | mW |
| Operating Temperature Range | $T_{opr}$ | -40 to +85 | °C |
| Storage Temperature Range | $T_{stg}$ | -40 to +150 | °C |

(*1) Mounted on glass epoxy board

## ■ ELECTRICAL CHARACTERISTICS

($C_{IN}$=0.33µF, $C_O$=0.1µF, $T_j$=25°C) Measurement is to be conducted is pulse testing.

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| NJM78L02UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=9V, $I_O$=40mA | 2.47 | 2.6 | 2.73 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=4.75V to 20V, $I_O$=40mA | - | - | 125 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=5V to 20V, $I_O$=40mA | - | - | 100 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=9V, $I_O$=1 to 40mA | - | - | 25 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=9V, $I_O$=1 to 100mA | - | - | 50 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=9V, $I_O$=0mA | - | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=9V, $I_O$=1mA | - | 0.2 | - | mV/°C |
| Ripple Rejection | RR | 6V< $V_{IN}$ <16V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 43 | 73 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=9V, BW=10Hz to 100kHz, $I_O$=40mA | - | 35 | - | µV |
| NJM78L03UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=9V, $I_O$=40mA | 2.85 | 3.0 | 3.15 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=5V to 20V, $I_O$=40mA | - | - | 125 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=6V to 20V, $I_O$=40mA | - | - | 100 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=9V, $I_O$=1 to 40mA | - | - | 25 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=9V, $I_O$=1 to 100mA | - | - | 50 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=9V, $I_O$=0mA | - | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=9V, $I_O$=1mA | - | 0.2 | - | mV/°C |
| Ripple Rejection | RR | 6V< $V_{IN}$ <16V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 43 | 72 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=9V, BW=10Hz to 100kHz, $I_O$=40mA | - | 40 | - | µV |
| NJM78L05UA/EA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=10V, $I_O$=40mA | 4.75 | 5.0 | 5.25 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=7V to 20V, $I_O$=40mA | - | - | 200 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=8V to 20V, $I_O$=40mA | - | - | 150 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=10V, $I_O$=1 to 40mA | - | - | 30 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=10V, $I_O$=1 to 100mA | - | - | 60 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=10V, $I_O$=0mA | - | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=10V, $I_O$=1mA | - | 0.4 | - | mV/°C |
| Ripple Rejection | RR | 8V< $V_{IN}$ <18V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 40 | 69 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=10V, BW=10Hz to 100kHz, $I_O$=40mA | - | 70 | - | µV |

## ■ ELECTRICAL CHARACTERISTICS

($C_{IN}$=0.33μF, $C_O$=0.1μF, $T_j$=25°C) Measurement is to be conducted is pulse testing.

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| NJM78L06UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=12V, $I_O$=40mA | 5.7 | 6.0 | 6.3 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=8.5V to 20V, $I_O$=40mA | - | - | 200 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=9V to 20V, $I_O$=40mA | - | - | 150 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=12V, $I_O$=1 to 40mA | - | - | 40 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=12V, $I_O$=1 to 100mA | - | - | 80 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=12V, $I_O$=0mA | - | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=12V, $I_O$=1mA | - | 0.5 | - | mV/°C |
| Ripple Rejection | RR | 9V< $V_{IN}$ <20V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 40 | 67 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=12V, BW=10Hz to 100kHz, $I_O$=40mA | - | 80 | - | μV |
| NJM78L07UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=13V, $I_O$=40mA | 6.65 | 7.0 | 7.35 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=9.5V to 22V, $I_O$=40mA | - | - | 210 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=10V to 22V, $I_O$=40mA | - | - | 160 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=13V, $I_O$=1 to 40mA | - | - | 45 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=13V, $I_O$=1 to 100mA | - | - | 90 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=13V, $I_O$=0mA | - | 2.1 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=13V, $I_O$=1mA | - | 0.55 | - | mV/°C |
| Ripple Rejection | RR | 10V< $V_{IN}$ <20V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 39 | 66 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=13V, BW=10Hz to 100kHz, $I_O$=40mA | - | 100 | - | μV |
| NJM78L08UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=14V, $I_O$=40mA | 7.6 | 8.0 | 8.4 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=10.5V to 23V, $I_O$=40mA | - | - | 225 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=11V to 23V, $I_O$=40mA | - | - | 175 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=14V, $I_O$=1 to 40mA | - | - | 50 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=14V, $I_O$=1 to 100mA | - | - | 100 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=14V, $I_O$=0mA | - | 2.1 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=14V, $I_O$=1mA | - | 0.6 | - | mV/°C |
| Ripple Rejection | RR | 11V< $V_{IN}$ <20V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 39 | 66 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=14V, BW=10Hz to 100kHz, $I_O$=40mA | - | 115 | - | μV |

## ■ ELECTRICAL CHARACTERISTICS

($C_{IN}$=0.33μF, $C_O$=0.1μF, $T_j$=25°C) Measurement is to be conducted is pulse testing.

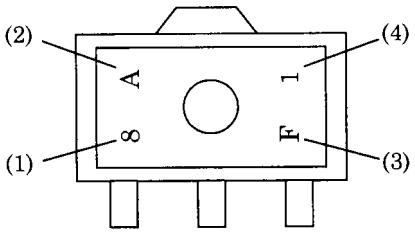
| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| NJM78L09UA/EA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=15V, $I_O$=40mA | 8.55 | 9.0 | 9.45 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=11.5V to 23V, $I_O$=40mA | - | - | 250 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=12V to 23V, $I_O$=40mA | - | - | 200 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=15V, $I_O$=1 to 40mA | - | - | 50 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=15V, $I_O$=1 to 100mA | - | - | 100 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=15V, $I_O$=0mA | - | 2.1 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=15V, $I_O$=1mA | - | 0.65 | - | mV/°C |
| Ripple Rejection | RR | 12V< $V_{IN}$ <21V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 38 | 65 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=15V, BW=10Hz to 100kHz, $I_O$=40mA | - | 125 | - | μV |
| NJM78L10UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=16V, $I_O$=40mA | 9.5 | 10.0 | 10.5 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=13V to 25V, $I_O$=40mA | - | - | 250 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=14V to 25V, $I_O$=40mA | - | - | 200 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=16V, $I_O$=1 to 40mA | - | - | 50 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=16V, $I_O$=1 to 100mA | - | - | 100 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=16V, $I_O$=0mA | - | 2.1 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=16V, $I_O$=1mA | - | 0.7 | - | mV/°C |
| Ripple Rejection | RR | 13V< $V_{IN}$ <22V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 37 | 64 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=16V, BW=10Hz to 100kHz, $I_O$=40mA | - | 135 | - | μV |
| NJM78L12UA/EA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=19V, $I_O$=40mA | 11.4 | 12.0 | 12.6 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=14.5V to 27V, $I_O$=40mA | - | - | 250 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=16V to 27V, $I_O$=40mA | - | - | 200 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=19V, $I_O$=1 to 40mA | - | - | 50 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=19V, $I_O$=1 to 100mA | - | - | 100 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=19V, $I_O$=0mA | - | 2.1 | 6.5 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=19V, $I_O$=1mA | - | 0.9 | - | mV/°C |
| Ripple Rejection | RR | 15V< $V_{IN}$ <25V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 37 | 62 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=19V, BW=10Hz to 100kHz, $I_O$=40mA | - | 160 | - | μV |
| NJM78L15UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=23V, $I_O$=40mA | 14.3 | 15.0 | 15.7 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=17.5V to 30V, $I_O$=40mA | - | - | 300 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=20V to 30V, $I_O$=40mA | - | - | 250 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=23V, $I_O$=1 to 40mA | - | - | 75 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=23V, $I_O$=1 to 100mA | - | - | 150 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=23V, $I_O$=0mA | - | 2.2 | 6.5 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=23V, $I_O$=1mA | - | 1.0 | - | mV/°C |
| Ripple Rejection | RR | 18.5V< $V_{IN}$ <28.5V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 34 | 60 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=23V, BW=10Hz to 100kHz, $I_O$=40mA | - | 190 | - | μV |

## ■ ELECTRICAL CHARACTERISTICS

($C_{IN}$=0.33μF, $C_O$=0.1μF, $T_j$=25°C) Measurement is to be conducted is pulse testing.

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| NJM78L18UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=27V, $I_O$=40mA | 17.1 | 18.0 | 18.9 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=22V to 33V, $I_O$=40mA | - | - | 320 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=22V to 33V, $I_O$=40mA | - | - | 270 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=27V, $I_O$=1 to 40mA | - | - | 80 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=27V, $I_O$=1 to 100mA | - | - | 160 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=27V, $I_O$=0mA | - | 2.2 | 6.5 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=27V, $I_O$=1mA | - | 1.1 | - | mV/°C |
| Ripple Rejection | RR | 23V< $V_{IN}$ <33V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 33 | 59 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=27V, BW=10Hz to 100kHz, $I_O$=40mA | - | 230 | - | μV |
| NJM78L20UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=29V, $I_O$=40mA | 19.0 | 20.0 | 21.0 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=23V to 34V, $I_O$=40mA | - | - | 330 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=24V to 34V, $I_O$=40mA | - | - | 280 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=29V, $I_O$=1 to 40mA | - | - | 90 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=29V, $I_O$=1 to 100mA | - | - | 180 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=29V, $I_O$=0mA | - | 2.3 | 7 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=29V, $I_O$=1mA | - | 1.2 | - | mV/°C |
| Ripple Rejection | RR | 24V< $V_{IN}$ <34V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 32 | 58 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=29V, BW=10Hz to 100kHz, $I_O$=40mA | - | 250 | - | μV |
| NJM78L24UA | | | | | | |
| Output Voltage | $V_O$ | $V_{IN}$=33V, $I_O$=40mA | 22.8 | 24 | 25.2 | V |
| Line Regulation 1 | $\Delta V_O$-$V_{IN}$1 | $V_{IN}$=27V to 38V, $I_O$=40mA | - | - | 350 | mV |
| Line Regulation 2 | $\Delta V_O$-$V_{IN}$2 | $V_{IN}$=28V to 38V, $I_O$=40mA | - | - | 300 | mV |
| Load Regulation 1 | $\Delta V_O$-$I_O$1 | $V_{IN}$=33V, $I_O$=1 to 40mA | - | - | 100 | mV |
| Load Regulation 2 | $\Delta V_O$-$I_O$2 | $V_{IN}$=33V, $I_O$=1 to 100mA | - | - | 200 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=33V, $I_O$=0mA | - | 2.3 | 7 | mA |
| Average Temperature Coefficient of Output Voltage | $\Delta V_O/\Delta T$ | $V_{IN}$=33V, $I_O$=1mA | - | 1.4 | - | mV/°C |
| Ripple Rejection | RR | 27.5V< $V_{IN}$ <37.5V, $I_O$=40mA, $e_{in}$=1$V_{P-P}$, f=120Hz | 32 | 57 | - | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=33V, BW=10Hz to 100kHz, $I_O$=40mA | - | 280 | - | μV |

## ■ SOT-89 MARK

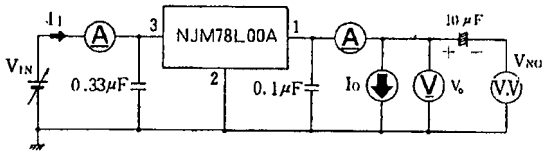



(1) 8 : Positive Output
(2) $V_O$ Rank
(3) The end of A.D.
(4) Production Mouth
Oct. ···X
Nov. ···Y
Dec. ···Z

| | | |
|---|---|---|
| NJM78L02A | 8 | A |
| NJM78L03A | 8 | B |
| NJM78L05A | 8 | C |
| NJM78L06A | 8 | E |
| NJM78L62A | 8 | Z |
| NJM78L07A | 8 | F |
| NJM78L08A | 8 | G |
| NJM78L09A | 8 | H |
| NJM78L10A | 8 | J |
| NJM78L12A | 8 | K |
| NJM78L15A | 8 | L |
| NJM78L18A | 8 | M |
| NJM78L20A | 8 | N |
| NJM78L24A | 8 | P |

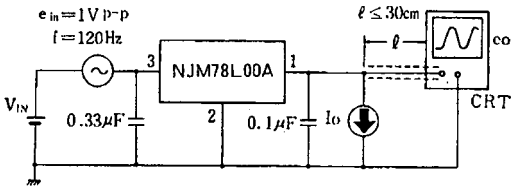
## ■ TEST CIRCUIT

1. Output Voltage Line Regulation, Load Regulation, Quiescent Current, Average Temperature Coefficient of Output Voltage, Output Noise Voltage, Peak Output/Short-Circuit Current




○ Measurement is to be conducted in pulse testing.
○ $I_Q = I_I - I_O$

2. Ripple Rejection

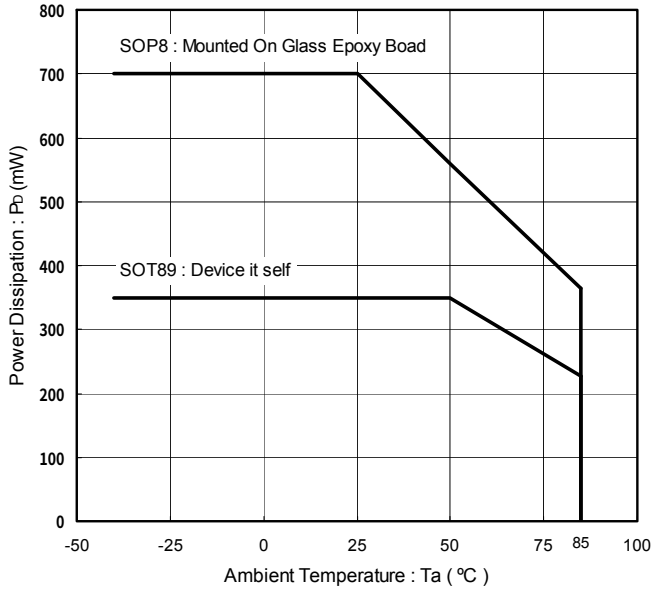



$$RR = 20\log_{10}\left(\frac{e_{in}}{e_O}\right) \quad (dB)$$

## ■ AMBIENT TEMPERATURE VS.POWER DISSIPATION

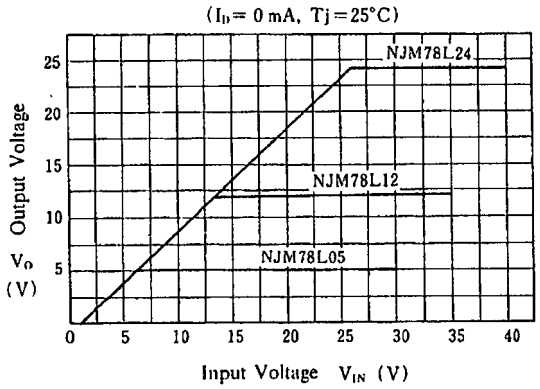
**Power Dissipation vs. Ambient Temperature**

( Topr = - 40ºC ~ + 85ºC, Tj = ~ +150ºC )

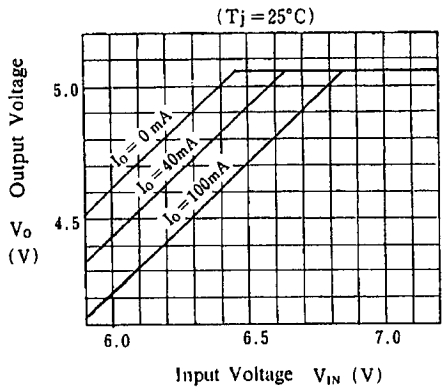


## ■ TYPICAL CHARACTERISTICS

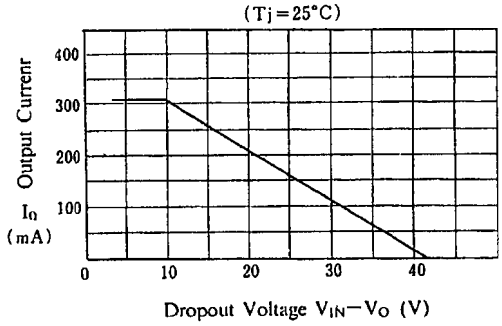
### NJM78L05 / L12 / L24 Output Characteristics



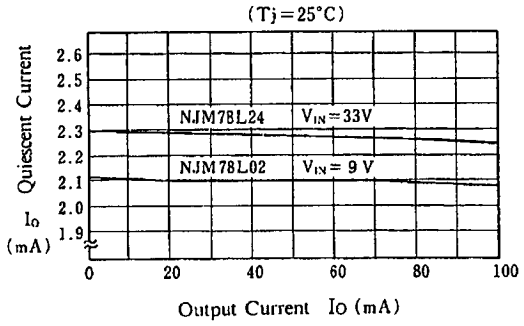

### NJM78L05 Dropout Characteristics



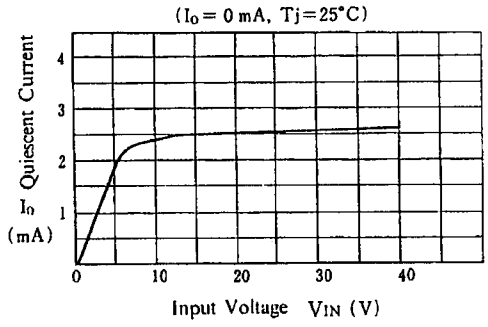

### NJM78L00 Series Short Circuit Output Current




### NJM78L02 / L24 Quiescent Current vs. Output Current

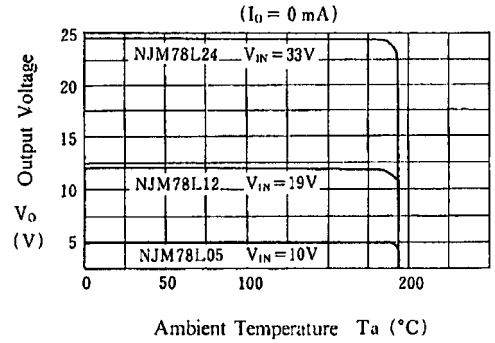



### NJM78L05 Quiescent Current vs. Input Voltage

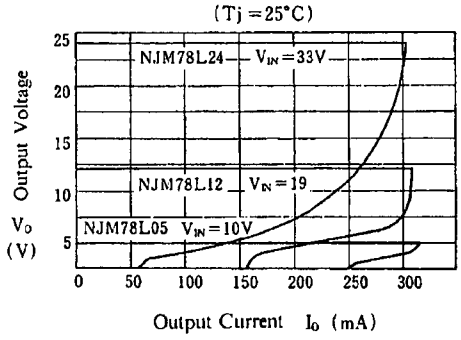


## ■ TYPICAL CHARACTERISTICS

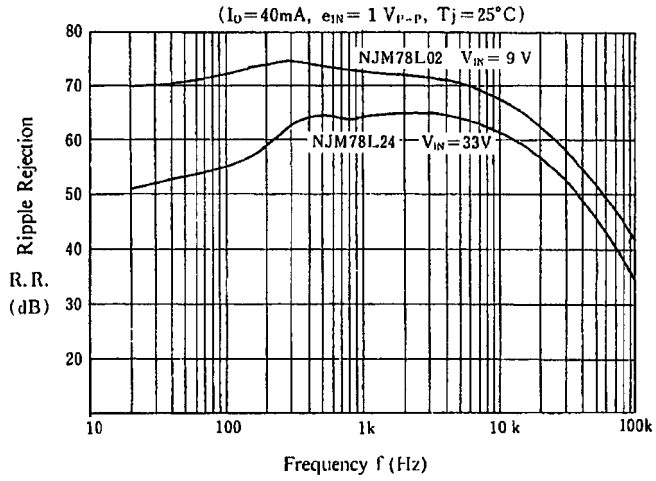
**NJM78L05 / L12 / L24**
**Thermal Shutdown Characteristics**



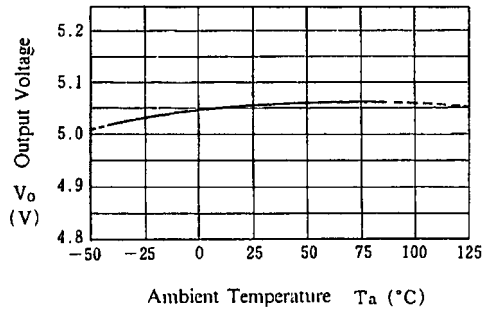

**NJM78L05 / L12 / L24**
**Load Characteristics**



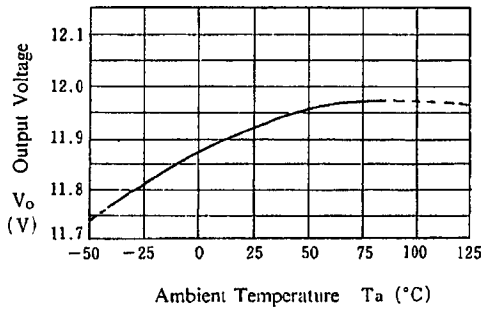

**NJM78L02 / L24 Ripple Rejection**




**NJM78L05 Output Voltage**
**vs. Temperature**




**NJM78L12 Output Voltage**
**vs. Temperature**



Стандарт Электрон Связь

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