# 3-TERMINAL POSITIVE VOLTAGE REGULATOR

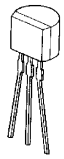
## ■ GENERAL DESCLIPTION

NJM78L00 is 3-terminal positive voltage regulator.

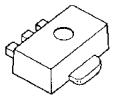
NJM78L00 series is mounted in EMP8 package of the surface mount package.

The EMP8 package possible flow soldering.

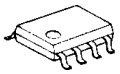
## ■ PACKAGE OUTLINE



NJM78L00A



NJM78L00UA

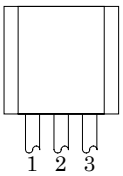


NJM78L00EA
(5V,9V,12V)

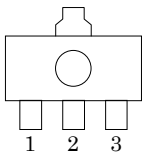
## ■ FEATURES

- ●Internal Short Circuit Current Limit
- ●Internal Thermal Overload Protection
- ●Excellent Ripple Rejection
- ●Guaranteed 100mA Output Current
- ●Bipolar Technology
- ●Package Outline T0-92,SOT-89,EMP8

## ■ PIN CONFIGURATION

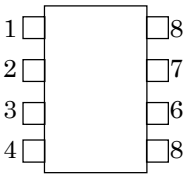



NJM78L00A




NJM78L00UA

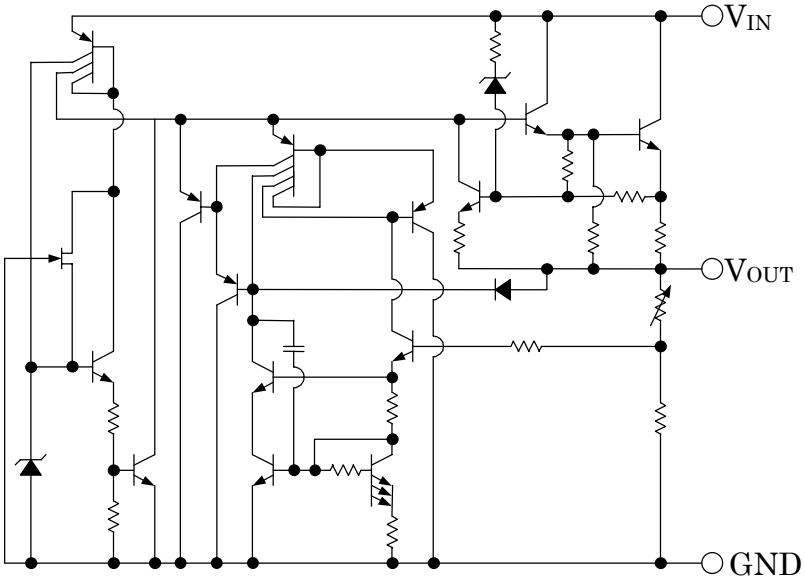
PIN FUNCTION
1.OUT
2.GND
3.IN




NJM78L00EA
(5V,9V,12V)

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

## ■ EQUIAVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | MAXIMUM RATINGS | UNIT |
|---|---|---|---|
| Input Voltage | $V_{IN}$ | (78L02A ~ 78L09A) 30<br>(78L12A ~ 78L15A) 35<br>(78L18A ~ 78L24A) 40 | V |
| Power Dissipation | $P_D$ | (TO-92) 500<br>(EMP8) 350<br>(SOT-89) 300 | mW |
| Operating Temperature Range | Topr | –40 ~ +85 | °C |
| Storage Temperature Range | Tstg | –40 ~ +150 | °C |

■ ELECTRICAL CHARACTERISTICS($C_{IN}$=0.33μF,Co=0.1μF,Tj=25°C)

Measurement is to be conducted is pulse testing.

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| NJM78L02A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=9V, Io=40mA | 2.47 | 2.6 | 2.73 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=4.75V ~ 20V, Io=40mA | – | – | 125 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=5V ~ 20V, Io=40mA | – | – | 100 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=9V, Io=1 ~ 40mA | – | – | 25 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=9V, Io=1 ~ 100mA | – | – | 50 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=9V, Io=0mA | – | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=9V, Io=1mA | – | 0.2 | – | mV/°C |
| Ripple Rejection | RR | 6V < $V_{IN}$ < 16V, Io=40mA ein=1Vp-p, f=120Hz | 43 | 73 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=9V,BW=10Hz ~ 100kHz Io=40mA | – | 35 | – | μV |
| NJM78L03A(*1) | | | | | | |
| Output Voltage | Vo | $V_{IN}$=9V, Io=40mA | 2.85 | 3.0 | 3.15 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=5V ~ 20V, Io=40mA | – | – | 125 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=6V ~ 20V, Io=40mA | – | – | 100 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=9V, Io=1 ~ 40mA | – | – | 25 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=9V, Io=1 ~ 100mA | – | – | 50 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=9V, Io=0mA | – | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=9V, Io=1mA | – | 0.2 | – | mV/°C |
| Ripple Rejection | RR | 6V < $V_{IN}$ < 16V, Io=40mA ein=1Vp-p, f=120Hz | 43 | 72 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=9V,BW=10Hz ~ 100kHz, Io=40mA | – | 40 | – | μV |
| NJM78L05A(*3) | | | | | | |
| Output Voltage | Vo | $V_{IN}$=10V, Io=40mA | 4.75 | 5.0 | 5.25 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=7V ~ 20V, Io=40mA | – | – | 200 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=8V ~ 20V, Io=40mA | – | – | 150 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=10V, Io=1 ~ 40mA | – | – | 30 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=10V, Io=1 ~ 100mA | – | – | 60 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=10V, Io=0mA | – | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=10V, Io=1mA | – | 0.4 | – | mV/°C |
| Ripple Rejection | RR | 8V < $V_{IN}$ < 18V, Io=40mA ein=1Vp-p, f=120Hz | 40 | 69 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=10V,BW=10Hz ~ 100kHz Io=40mA | – | 70 | – | μV |

(*1):SOT-89 package only.
(*2):TO-92 package only.
(*3):SOT-89,TO-92, EMP8

■ ELECTRICAL CHARACTERISTICS($C_{IN}$=0.33μF,Co=0.1μF,Tj=25°C)
Measurement is to be conducted is pulse testing.

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| NJM78L06A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=12V, Io=40mA | 5.7 | 6.0 | 6.3 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=8.5V ~ 20V, Io=40mA | – | – | 200 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=9V ~ 20V, Io=40mA | – | – | 150 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=12V, Io=1 ~ 40mA | – | – | 40 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=12V, Io=1 ~ 100mA | – | – | 80 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=12V, Io=0mA | – | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=12V, Io=1mA | – | 0.5 | – | mV/°C |
| Ripple Rejection | RR | 9V < $V_{IN}$ < 20V, Io=40mA ein=1Vp-p, f=120Hz | 40 | 67 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=12V,BW=10Hz ~ 100kHz Io=40mA | – | 80 | – | μV |
| NJM78L62A(*2) | | | | | | |
| Output Voltage | Vo | $V_{IN}$=12.2V, Io=40mA | 5.89 | 6.2 | 6.51 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=8.7V ~ 20.2V, Io=40mA | – | – | 200 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=9.2V ~ 20.2V, Io=40mA | – | – | 150 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=12.2V, Io=1 ~ 40mA | – | – | 40 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=12.2V, Io=1 ~ 100mA | – | – | 85 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=12.2V, Io=0mA | – | 2.0 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=12.2V, Io=1mA | – | 0.5 | – | mV/°C |
| Ripple Rejection | RR | 9.2V < $V_{IN}$ < 20.2V, Io=40mA ein=1Vp-p, f=120Hz | 40 | 67 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=12.2V,BW=10Hz ~ 100kHz Io=40mA | – | 85 | – | μV |
| NJM78L07A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=13V, Io=40mA | 6.65 | 7.0 | 7.35 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=9.5V ~ 22V, Io=40mA | – | – | 210 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=10V ~ 22V, Io=40mA | – | – | 160 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=13V, Io=1 ~ 40mA | – | – | 45 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=13V, Io=1 ~ 100mA | – | – | 90 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=13V, Io=0mA | – | 2.1 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=13V, Io=1mA | – | 0.55 | – | mV/°C |
| Ripple Rejection | RR | 10V < $V_{IN}$ < 20V, Io=40mA ein=1Vp-p, f=120Hz | 39 | 66 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=13V,BW=10Hz ~ 100kHz Io=40mA | – | 100 | – | μV |
| NJM78L08A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=14V, Io=40mA | 7.6 | 8.0 | 8.4 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=10.5V ~ 23V, Io=40mA | – | – | 225 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=11V ~ 23V, Io=40mA | – | – | 175 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=14V, Io=1 ~ 40mA | – | – | 50 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=14V, Io=1 ~ 100mA | – | – | 100 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=14V, Io=0mA | – | 2.1 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=14V, Io=1mA | – | 0.6 | – | mV/°C |
| Ripple Rejection | RR | 11V < $V_{IN}$ < 20V, Io=40mA ein=1Vp-p, f=120Hz | 39 | 66 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=14V,BW=10Hz ~ 100kHz Io=40mA | – | 115 | – | μV |

(*1):SOT-89 package only.
(*2):TO-92 package only.
(*3):SOT-89,TO-92, EMP8

■ ELECTRICAL CHARACTERISTICS($C_{IN}$=0.33μF,Co=0.1μF,Tj=25°C)
Measurement is to be conducted is pulse testing.

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| NJM78L09A(*3) | | | | | | |
| Output Voltage | Vo | $V_{IN}$=15V, Io=40mA | 8.55 | 9.0 | 9.45 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=11.5V ~ 23V, Io=40mA | – | – | 250 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=12V ~ 23V, Io=40mA | – | – | 200 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=15V, Io=1 ~ 40mA | – | – | 50 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=15V, Io=1 ~ 100mA | – | – | 100 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=15V, Io=0mA | – | 2.1 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=15V, Io=1mA | – | 0.65 | – | mV/°C |
| Ripple Rejection | RR | 12V < $V_{IN}$ < 21V, Io=40mA ein=1Vp-p, f=120Hz | 38 | 65 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=15V,BW=10Hz ~ 100kHz Io=40mA | – | 125 | – | μV |
| NJM78L10A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=16V, Io=40mA | 9.5 | 10.0 | 10.5 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=13V ~ 25V, Io=40mA | – | – | 250 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=14V ~ 25V, Io=40mA | – | – | 200 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=16V, Io=1 ~ 40mA | – | – | 50 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=16V, Io=1 ~ 100mA | – | – | 100 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=16V, Io=0mA | – | 2.1 | 6 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=16V, Io=1mA | – | 0.7 | – | mV/°C |
| Ripple Rejection | RR | 13V < $V_{IN}$ < 22V, Io=40mA ein=1Vp-p, f=120Hz | 37 | 64 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=16V,BW=10Hz ~ 100kHz Io=40mA | – | 135 | – | μV |
| NJM78L12A(*3) | | | | | | |
| Output Voltage | Vo | $V_{IN}$=19V, Io=40mA | 11.4 | 12.0 | 12.6 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=14.5V ~ 27V, Io=40mA | – | – | 250 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=16V ~ 27V, Io=40mA | – | – | 200 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=19V, Io=1 ~ 40mA | – | – | 50 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=19V, Io=1 ~ 100mA | – | – | 100 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=19V, Io=0mA | – | 2.1 | 6.5 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=19V, Io=1mA | – | 0.9 | – | mV/°C |
| Ripple Rejection | RR | 15V < $V_{IN}$ < 25V, Io=40mA ein=1Vp-p, f=120Hz | 37 | 62 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=19V,BW=10Hz ~ 100kHz Io=40mA | – | 160 | – | μV |
| NJM78L15A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=23V, Io=40mA | 14.3 | 15.0 | 15.7 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=17.5V ~ 30V, Io=40mA | – | – | 300 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=20V ~ 30V, Io=40mA | – | – | 250 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=23V, Io=1 ~ 40mA | – | – | 75 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=23V, Io=1 ~ 100mA | – | – | 150 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=23V, Io=0mA | – | 2.2 | 6.5 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=23V, Io=1mA | – | 1.0 | – | mV/°C |
| Ripple Rejection | RR | 18.5V < $V_{IN}$ < 28.5V, Io=40mA ein=1Vp-p, f=120Hz | 34 | 60 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=23V,BW=10Hz ~ 100kHz Io=40mA | – | 190 | – | μV |

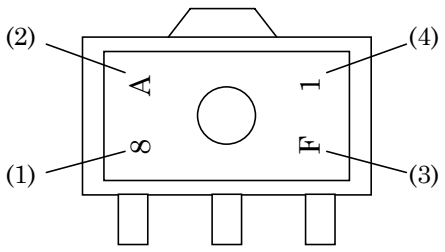
(*1):SOT-89 package only.
(*2):TO-92 package only.
(*3):SOT-89,TO-92, EMP8

■ ELECTRICAL CHARACTERISTICS($C_{IN}$=0.33μF,Co=0.1μF,Tj=25°C)
Measurement is to be conducted is pulse testing.

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| NJM78L18A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=27V, Io=40mA | 17.1 | 18.0 | 18.9 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=22V ~ 33V, Io=40mA | – | – | 320 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=23V ~ 33V, Io=40mA | – | – | 270 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=27V, Io=1 ~ 40mA | – | – | 80 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=27V, Io=1 ~ 100mA | – | – | 160 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=27V, Io=0mA | – | 2.2 | 6.5 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=27V, Io=1mA | – | 1.1 | – | mV/°C |
| Ripple Rejection | RR | 23V < $V_{IN}$ < 33V, Io=40mA ein=1Vp-p, f=120Hz | 33 | 59 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=27V,BW=10Hz ~ 100kHz Io=40mA | – | 230 | – | μV |
| NJM78L20A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=29V, Io=40mA | 19.0 | 20.0 | 21.0 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=23V ~ 34V, Io=40mA | – | – | 330 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=24V ~ 34V, Io=40mA | – | – | 280 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=29V, Io=1 ~ 40mA | – | – | 90 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=29V, Io=1 ~ 100mA | – | – | 180 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=29V, Io=0mA | – | 2.3 | 7 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=29V, Io=1mA | – | 1.2 | – | mV/°C |
| Ripple Rejection | RR | 24V < $V_{IN}$ < 34V, Io=40mA ein=1Vp-p, f=120Hz | 32 | 58 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=29V,BW=10Hz ~ 100kHz Io=40mA | – | 250 | – | μV |
| NJM78L24A | | | | | | |
| Output Voltage | Vo | $V_{IN}$=33V, Io=40mA | 22.8 | 24 | 25.2 | V |
| Line Regulation1 | ΔVo–$V_{IN}$1 | $V_{IN}$=27V ~ 38V, Io=40mA | – | – | 350 | mV |
| Line Regulation2 | ΔVo–$V_{IN}$2 | $V_{IN}$=28V ~ 38V, Io=40mA | – | – | 300 | mV |
| Load Regulation1 | ΔVo–Io1 | $V_{IN}$=33V, Io=1 ~ 40mA | – | – | 100 | mV |
| Load Regulation2 | ΔVo–Io2 | $V_{IN}$=33V, Io=1 ~ 100mA | – | – | 200 | mV |
| Quiescent Current | $I_Q$ | $V_{IN}$=33V, Io=0mA | – | 2.3 | 7 | mA |
| Average Temperature Coefficient of Output Voltage | ΔVo/ΔT | $V_{IN}$=33V, Io=1mA | – | 1.4 | – | mV/°C |
| Ripple Rejection | RR | 27.5V < $V_{IN}$ < 37.5V, Io=40mA ein=1Vp-p, f=120Hz | 32 | 57 | – | dB |
| Output Noise Voltage | $V_{NO}$ | $V_{IN}$=33V,BW=10Hz ~ 100kHz Io=40mA | – | 280 | – | μV |

(*1):SOT-89 package only.
(*2):TO-92 package only.
(*3):SOT-89,TO-92, EMP8

■ SOT-89 MARK

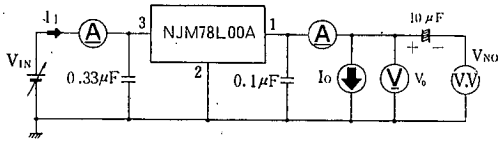



(1) 8 : Positive Output
(2) Vo Rank
(3) The end of A.D.
(4) Production Mouth
Oct. ··· X
Nov. ··· Y
Dec. ··· Z

| | | |
|---|---|---|
| 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 |

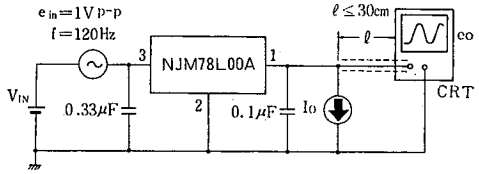
## ■ TEST CIRCUIT

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



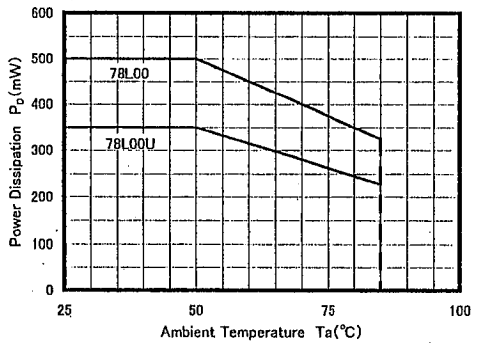

○ Measurement is to be conducted in pulse testing.
○ $I_Q = I_I - I_O$

2. Ripple Rejection




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

## ■ AMBIENT TEMPERATURE VS. POWER DISSIPATION

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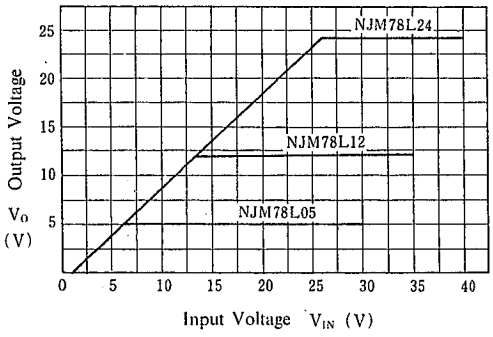
## ■ TYPICAL CHARACTERISTICS

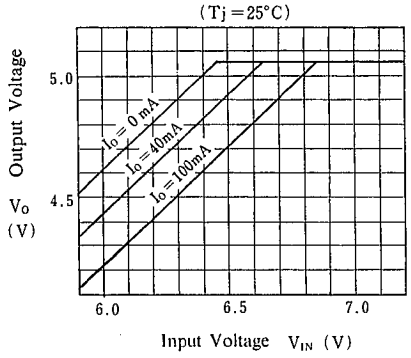
**NJM78L05/L12/L24 Output Characteristics**

($I_O$ = 0 mA, Tj = 25°C)



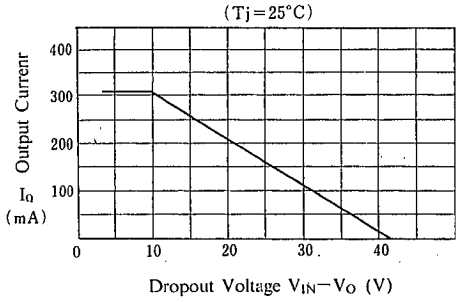

**NJM78L05 Dropout Characteristics**

(Tj = 25°C)



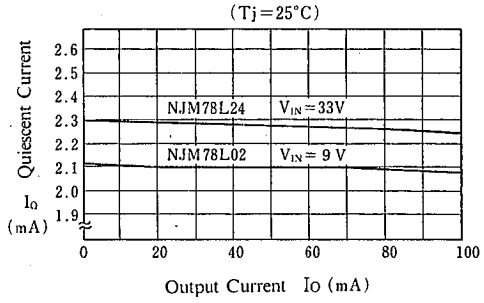

**NJM78L00 Series Short Circuit Output Current**

(Tj = 25°C)



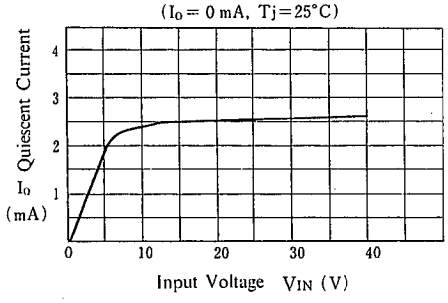

**NJM78L02/L24 Quiescent Current vs. Output Current**

(Tj = 25°C)



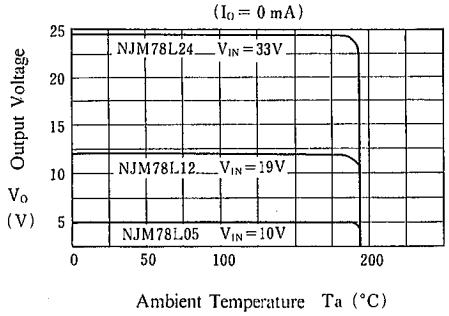

**NJM78L05 Quiescent Current vs. Input Voltage**

($I_O$ = 0 mA, Tj = 25°C)

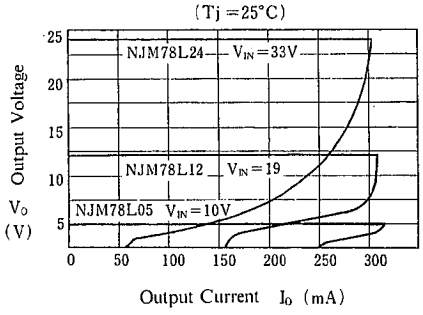


## ■ TYPICAL CHARACTERISTICS

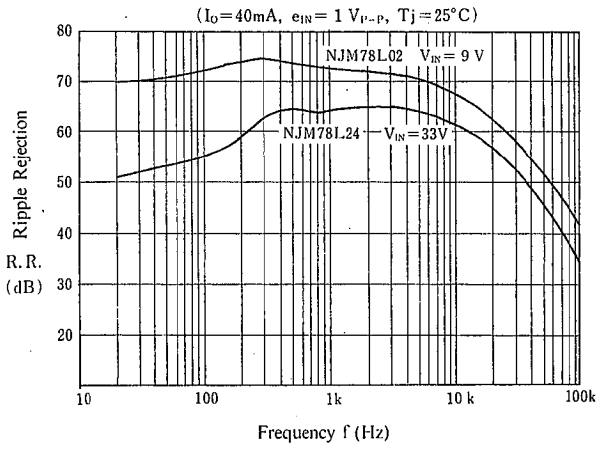
**NJM78L05/L12/L24**
**Thermal Shutdown Characteristics**



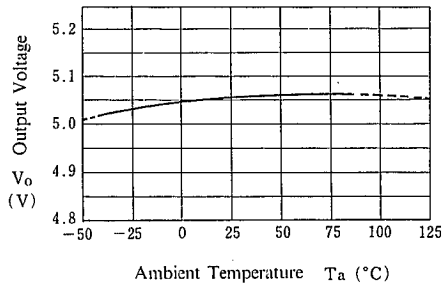

**NJM78L05/L12/L24**
**Load Characteristics**



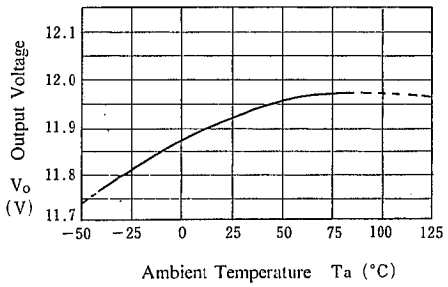

**NJM78L02/L24 Ripple Rejection**




**NJM78L05 Output Voltage vs. Temperature**




**NJM78L12 Output Voltage vs. Temperature**



MEMO

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