

3-TERMINAL 0.1A POSITIVE VOLTAGE REGULATORS

This series of fixed-voltage monolithic integrated-circuit voltage regulators is designed for a wide range of applications.

These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation.

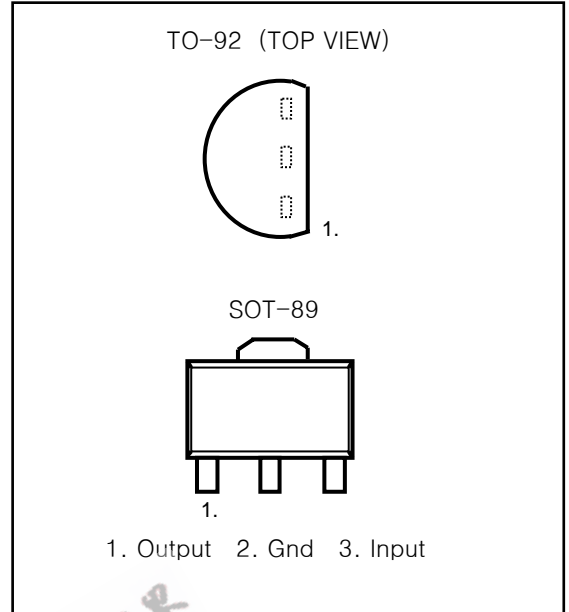
In addition, they can be used with power-pass elements to make high current voltage regulators.

Each of these regulators can deliver up to 100mA of output current.

The internal limiting and thermal shutdown features of these regulators make them essentially immune to overload. When used as a replacement for a zener diode-resistor combination, an effective improvement in output impedance can be obtained together with lower-bias current.

FEATURES

- ◇ Output Current Up to 100mA
- ◇ No External Components
- ◇ Internal Thermal Overload Protection
- ◇ Internal Short-Circuit Limiting
- ◇ Output Voltage of 5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V and 24V



ORDERING INFORMATION

| Device | Marking | Package |
|---------------|---------------|---------|
| LM78LXX | LM78LXX | TO-92 |
| LM78L05 /A /C | LM78L05 /A /C | |
| LM78L05NF | 805 | SOT-89 |
| LM78L05AF/CF | | |
| LM78L06F~24F | 806~824 | |

XX = Output Voltage or Grade

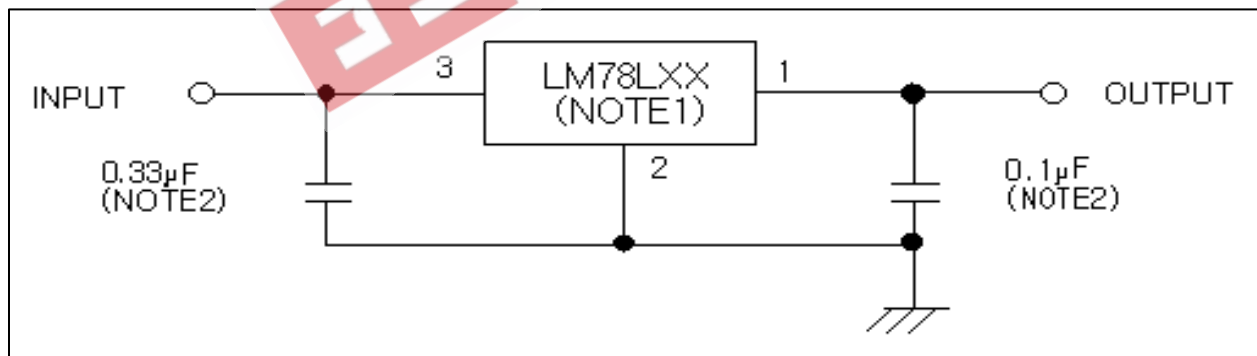
ABSOLUTE MAXIMUM RATINGS

| Characteristic | | Symbol | Value | Unit |
|--------------------------------|------------------------|-----------|------------|------|
| Input voltage | LM78L05 /A/C ~ LM78L10 | V_i | 30 | V |
| | LM78L12 ~ LM78L18 | | 35 | |
| | LM78L24 | | 40 | |
| Operating junction temperature | | T_{opr} | 0 ~ +150 | °C |
| Storage temperature | | T_{stg} | -65 ~ +150 | |
| Soldering temperature and time | | T_{sol} | 260/10sec | |

RECOMMENDED OPERATING CONDITIONS

| | | Min. | Max. | Unit |
|---|-----------------|------|------|------|
| Input Voltage V_i | LM78L05 / A / C | 7 | 20 | V |
| | LM78L06 | 8 | 20 | |
| | LM78L08 | 10.5 | 23 | |
| | LM78L09 | 11.5 | 24 | |
| | LM78L10 | 12.5 | 25 | |
| | LM78L12 | 14.5 | 27 | |
| | LM78L15 | 17.5 | 30 | |
| | LM78L18 | 20.5 | 33 | |
| | LM78L24 | 26.5 | 39 | |
| Output current, I_o | | | 100 | mA |
| operating virtual junction temperature, | | 0 | 125 | °C |

TYPICAL APPLICATION



Notes

1. To specify an output voltage, substitute voltage for "XX"
2. Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

LM78L05 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=10V$, $I_o=40mA$ (unless otherwise noted))

| Characteristic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|-------------------------------------|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 4.8 | 5 | 5.2 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 4.75 | 5 | 5.25 | V |
| | | $7V \leq V_i \leq 20V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | 4.75 | 5 | 5.25 | |
| Line regulation | Reg line | $7V \leq V_i \leq 20V$ | 25°C | | 32 | 150 | mV |
| | | $8V \leq V_i \leq 20V$ | | | 26 | 100 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 15 | 60 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 8 | 30 | |
| Bias current | I_B | | 25°C | | 3.8 | 6 | mA |
| | | | 125°C | | | 5.5 | |
| Bias current change | ΔI_B | $9V \leq V_i \leq 20V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 42 | | μV |
| Ripple rejection | RR | $8V \leq V_i \leq 18V$ $f=120Hz$ | 25°C | 41 | 49 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L05A ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=10V$, $I_o=40mA$ (unless otherwise noted))

| Characteistic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|-------------------------------------|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 4.9 | 5 | 5.1 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 4.9 | 5 | 5.1 | V |
| | | $7V \leq V_i \leq 20V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | 4.9 | 5 | 5.1 | |
| Line regulation | Reg line | $7V \leq V_i \leq 20V$ | 25°C | | 5 | 50 | mV |
| | | $8V \leq V_i \leq 20V$ | | | 3 | 25 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 15 | 60 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 8 | 30 | |
| Bias current | I_B | | 25°C | | 3.8 | 6 | mA |
| | | | 125°C | | | 5.5 | |
| Bias current change | ΔI_B | $9V \leq V_i \leq 20V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 42 | | μV |
| Ripple rejection | RR | $8V \leq V_i \leq 18V$ $f=120Hz$ | 25°C | 41 | 49 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L05C ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=10V$, $I_o=40mA$ (unless otherwise noted))

| Characteistic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|-------------------------------------|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 4.95 | 5 | 5.05 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 4.95 | 5 | 5.05 | V |
| | | $7V \leq V_i \leq 20V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | | | | |
| Line regulation | Reg line | $7V \leq V_i \leq 20V$ | 25°C | | 5 | 50 | mV |
| | | $8V \leq V_i \leq 20V$ | | | 3 | 25 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 15 | 50 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 8 | 25 | |
| Bias current | I_B | | 25°C | | 3.8 | 6 | mA |
| | | | 125°C | | | 5.5 | |
| Bias current change | ΔI_B | $9V \leq V_i \leq 20V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 42 | | μV |
| Ripple rejection | RR | $8V \leq V_i \leq 18V$ $f=120Hz$ | 25°C | 41 | 49 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L06 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=10V$, $I_o=40mA$ (unless otherwise noted))

| Characteistic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|---------------------------|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 5.75 | 6 | 6.25 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 5.7 | 6 | 6.3 | V |
| | | $8V \leq V_i \leq 20V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | | | | |
| Line regulation | Reg line | $8V \leq V_i \leq 20V$ | 25°C | | 35 | 175 | mV |
| | | $9V \leq V_i \leq 20V$ | | | 29 | 125 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 16 | 80 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 9 | 40 | |
| Bias current | I_B | | 25°C | | 3.9 | 6 | mA |
| | | | 125°C | | | 5.5 | |
| Bias current change | ΔI_B | $9V \leq V_i \leq 20V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 46 | | μV |
| Ripple rejection | RR | $9V \leq V_i \leq 19V$ | 25°C | 40 | 48 | | dB |
| | | $f=120Hz$ | | | | | |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L08 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=14V$, $I_o=40mA$ (unless otherwise noted))

| Characteristic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|--------------------------------------|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 7.7 | 8 | 8.3 | V |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 7.6 | 8 | 8.4 | |
| | | $10.5V \leq V_i \leq 23V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | 7.6 | 8 | 8.4 | |
| Line regulation | Reg line | $10.5V \leq V_i \leq 23V$ | 25°C | | 42 | 175 | mV |
| | | $11V \leq V_i \leq 23V$ | | | | 36 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 18 | 80 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | | 10 | |
| Bias current | I_B | | 25°C | | 4 | 6 | mA |
| | | | 125°C | | | 5.5 | |
| Bias current change | ΔI_B | $11V \leq V_i \leq 23V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 54 | | μV |
| Ripple rejection | RR | $13V \leq V_i \leq 23V$ $f=120Hz$ | 25°C | 37 | 46 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L09 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=16V$, $I_o=40mA$ (unless otherwise noted))

| Characteristic | Symbol | Test condition * | Min. | Typ. | Max. | Unit | |
|----------------------|--------------|---|-------------|------|------|---------|----|
| Output voltage ** | V_{OUT} | | 25°C | 8.6 | 9 | 9.4 | V |
| | | $1mA \leq I_o \leq 40mA$ $12V \leq V_i \leq 24V$ | 0°C ~ 125°C | 8.55 | 9 | 9.45 | |
| | | $1mA \leq I_o \leq 70mA$ | | 8.55 | 9 | 9.45 | |
| Line regulation | Reg line | $12V \leq V_i \leq 24V$ | 25°C | | 45 | 175 | mV |
| | | $13V \leq V_i \leq 24V$ | | | 40 | 125 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 19 | 90 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 11 | 40 | |
| Bias current | I_B | | 25°C | | 4.1 | 6 | mA |
| | | | 125°C | | | 5.5 | |
| Bias current change | ΔI_B | $13V \leq V_i \leq 24V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 58 | μV | |
| Ripple rejection | RR | $13V \leq V_i \leq 23V$ $f=120Hz$ | 25°C | 38 | 45 | dB | |
| Dropout voltage | V_D | | 25°C | | 1.7 | V | |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L10 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=17V$, $I_o=40mA$ (unless otherwise noted))

| Characteistic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|--------------------------------------|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 9.6 | 10 | 10.4 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 9.5 | 10 | 10.5 | V |
| | | $13V \leq V_i \leq 25V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | | | | |
| Line regulation | Reg line | $13V \leq V_i \leq 25V$ | 25°C | | 51 | 175 | mV |
| | | $14V \leq V_i \leq 25V$ | | | 42 | 125 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 20 | 90 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 11 | 40 | |
| Bias current | I_B | | 25°C | | 4.2 | 6 | mA |
| | | | 125°C | | | 5.5 | |
| Bias current change | ΔI_B | $14V \leq V_i \leq 25V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 62 | | μV |
| Ripple rejection | RR | $15V \leq V_i \leq 25V$ $f=120Hz$ | 25°C | 37 | 44 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L12 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=19V$, $I_o=40mA$ (unless otherwise noted))

| Characteristic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|--------------------------------------|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 11.5 | 12 | 12.5 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 11.4 | 12 | 12.6 | V |
| | | $14V \leq V_i \leq 27V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | 11.4 | 12 | 12.6 | |
| Line regulation | Reg line | $14.5V \leq V_i \leq 27V$ | 25°C | | 55 | 250 | mV |
| | | $16V \leq V_i \leq 27V$ | | | 49 | 200 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 22 | 100 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 13 | 50 | |
| Bias current | I_B | | 25°C | | 4.3 | 6.5 | mA |
| | | | 125°C | | | 6 | |
| Bias current change | ΔI_B | $16V \leq V_i \leq 27V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 70 | | μV |
| Ripple rejection | RR | $15V \leq V_i \leq 25V$ $f=120Hz$ | 25°C | 37 | 42 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L15 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=23V$, $I_o=40mA$ (unless otherwise noted))

| Characteristic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|--|-------------|-------|------|-------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 14.4 | 15 | 15.6 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 14.25 | 15 | 15.75 | V |
| | | $17.5V \leq V_i \leq 30V$ | | 14.25 | 15 | 15.75 | |
| Line regulation | Reg line | $17.5V \leq V_i \leq 30V$ | 25°C | | 65 | 300 | mV |
| | | $19V \leq V_i \leq 30V$ | | | 58 | 250 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 25 | 150 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 15 | 75 | |
| Bias current | I_B | | 25°C | | 4.2 | 6.5 | mA |
| | | | 125°C | | | 6 | |
| Bias current change | ΔI_B | $19V \leq V_i \leq 30V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 82 | | μV |
| Ripple rejection | RR | $18.5V \leq V_i \leq 28.5V$ $f=120Hz$ | 25°C | 37 | 44 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L18 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=26V$, $I_o=40mA$ (unless otherwise noted))

| Characteristic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|--|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 17.3 | 18 | 18.7 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 17.1 | 18 | 18.9 | V |
| | | $20.5V \leq V_i \leq 33V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | 17.1 | 18 | 18.9 | |
| Line regulation | Reg line | $20.5V \leq V_i \leq 33V$ | 25°C | | 70 | 360 | mV |
| | | $22V \leq V_i \leq 33V$ | | | 64 | 300 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 27 | 180 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 19 | 90 | |
| Bias current | I_B | | 25°C | | 4.7 | 6.5 | mA |
| | | | 125°C | | | 6 | |
| Bias current change | ΔI_B | $22V \leq V_i \leq 33V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 82 | | μV |
| Ripple rejection | RR | $21.5V \leq V_i \leq 31.5V$ $f=120Hz$ | 25°C | 32 | 36 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a $0.33\mu F$ capacitor across the input and a $0.1\mu F$ capacitor across the output.

** . This specification applies only for DC power dissipation permitted by absolute maximum ratings.

LM78L24 ELECTRICAL CHARACTERISTICS

(At specified virtual junction temperature, $V_i=32V$, $I_o=40mA$ (unless otherwise noted))

| Characteristic | Symbol | Test condition * | | Min. | Typ. | Max. | Unit |
|----------------------|--------------|--|-------------|------|------|------|---------|
| Output voltage ** | V_{OUT} | | 25°C | 23 | 24 | 25 | |
| | | $1mA \leq I_o \leq 40mA$ | 0°C ~ 125°C | 22.8 | 24 | 25.2 | V |
| | | $26.5V \leq V_i \leq 39V$ | | | | | |
| | | $1mA \leq I_o \leq 70mA$ | | 22.8 | 24 | 25.2 | |
| Line regulation | Reg line | $26.5V \leq V_i \leq 39V$ | 25°C | | 95 | 480 | mV |
| | | $29V \leq V_i \leq 39V$ | | | 78 | 400 | |
| Load regulation | Reg load | $1mA \leq I_o \leq 100mA$ | 25°C | | 41 | 240 | mV |
| | | $1mA \leq I_o \leq 40mA$ | | | 28 | 120 | |
| Bias current | I_B | | 25°C | | 4.8 | 6.5 | mA |
| | | | 125°C | | | 6 | |
| Bias current change | ΔI_B | $28V \leq V_i \leq 39V$ | 0°C ~ 125°C | | | 1.5 | mA |
| | | $1mA \leq I_o \leq 40mA$ | | | | 0.1 | |
| Output noise voltage | V_N | $10Hz \leq f \leq 100kHz$ | 25°C | | 82 | | μV |
| Ripple rejection | RR | $27.5V \leq V_i \leq 37.5V$ $f=120Hz$ | 25°C | 30 | 33 | | dB |
| Dropout voltage | V_D | | 25°C | | 1.7 | | V |

Notes

*. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible.

Thermal effects must be taken into account separately.

All characteristics are measured with a 0.33 μF capacitor across the input and a 0.1 μF capacitor across the output.

** This specification applies only for DC power dissipation permitted by absolute maximum ratings.