Ordering number:ENN2605B

Monolithic Linear IC

# L79M00T Series

## –5 to –12V 0.5A 3-Pin Voltage Regulators

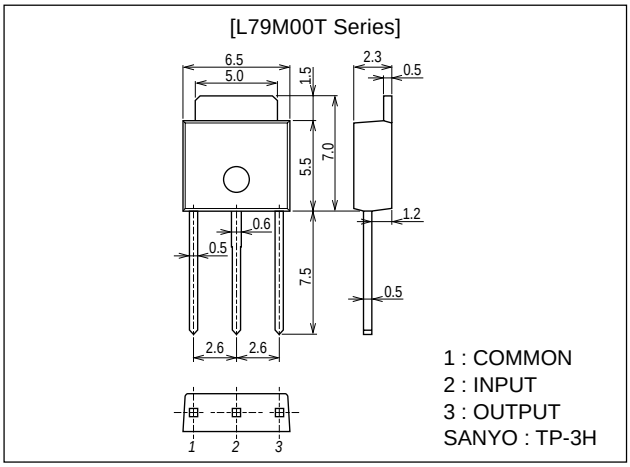
## Features

- Output voltage
  L79M05T : –5V L79M06T : –6V L79M08T : –8V
  L79M09T : –9V L79M10T : –10V L79M12T : –12V
- 500mA output.
- Small-sized power package TP-3H permitting the equipment to be made compact.
- The allowable power dissipation can be increased by being surface-mounted on the board.
- Capable of being mounted in a variety of methods because of various lead forming versions available.
- On-chip protectors (overcurrent limiter, ASO protector, thermal protector).
- Can meet tape-used automatic mounting requirements.

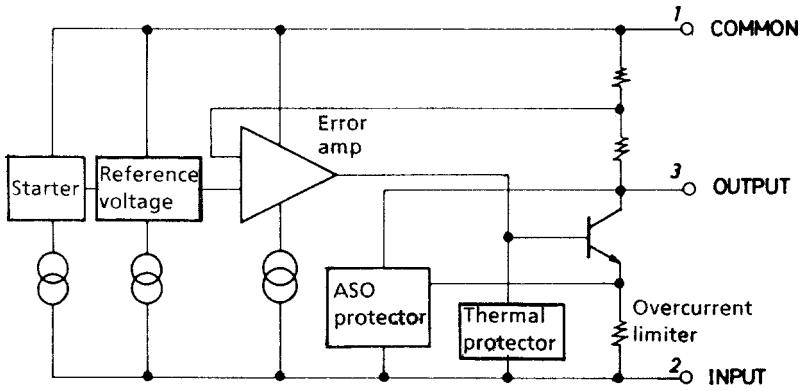
## Package Dimensions

unit:mm

3110




### Equivalent Circuit







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# Specifications

## [Common to L79M00T series]

### Maximum Ratings at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Maximum Supply Voltage | $V_{CC}$ max | –5 to –12V output | –35 | V |
| Allowable Power Dissipation | Pd max | | 1.0 | W |
| Operating Temperature | Topr | | –30 to +80 | ˚C |
| Storage Temperature | Tstg | | –40 to +150 | ˚C |

## [L79M05T]

### Recommended Operating Conditions at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Input Voltage | $V_{IN}$ | | –20 to –7.5 | V |
| Output Current | $I_{OUT}$ | | 5 to 500 | mA |

### Operating Characteristics at Ta = 25˚C, $V_{IN}$=–10V, $I_{OUT}$=350mA, $C_{IN}$=2µF, $C_{OUT}$=1µF

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Output Voltage | $V_{OUT}$ | Tj=25°C | –5.2 | –5.0 | –4.8 | V |
| Line Regulation | $\Delta V_{O}$ LINE | Tj=25°C, –25V≤$V_{IN}$≤–7V | | 7.0 | 50 | mV |
| | | Tj=25°C, –18V≤$V_{IN}$≤–8V | | 3.0 | 30 | mV |
| Load Regulation | $\Delta V_{O}$ LOAD | Tj=25°C, 5mA≤$I_{OUT}$≤500mA | | 10 | 100 | mV |
| | | Tj=25°C, 5mA≤$I_{OUT}$≤350mA | | 5 | | mV |
| Output Voltage | $V_{OUT}$ | –25V≤$V_{IN}$≤–7V, 5mA≤$I_{OUT}$≤350mA | –5.25 | | –4.75 | V |
| Current Dissipation | $I_{CC}$ | Tj=25°C | | 1.0 | 2.5 | mA |
| Current Dissipation Variation (Line) | $\Delta I_{CC}$ LINE | –25V≤$V_{IN}$≤–8V | | | 1.0 | mA |
| Current Dissipation Variation (Load) | $\Delta I_{CC}$ LOAD | 5mA≤$I_{OUT}$≤350mA | | | 0.4 | mA |
| Output Noise Voltage | $V_{NO}$ | 10Hz≤f≤100kHz | | 125 | | µV |
| Ripple Rejection | Rrej | f=120Hz, –18V≤$V_{IN}$≤–8V, Tj=25°C, $I_{OUT}$=100mA | 50 | | | dB |
| | | f=120Hz, –18V≤$V_{IN}$≤–8V, Tj=25°C, $I_{OUT}$=300mA | 50 | 65 | | dB |
| Minimum Input-Output Voltage Drop | $V_{DROP}$ | Tj=25°C, $I_{OUT}$=350mA | | 1.1 | | V |
| Short Current | $I_{OS}$ | Tj=25°C, $V_{IN}$=–30V | | 130 | | mA |
| Peak Output Current | $I_{OP}$ | | | 800 | | mA |

## [L79M06T]

### Recommended Operating Conditions at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Input Voltage | $V_{IN}$ | | –21 to –8.5 | V |
| Output Current | $I_{OUT}$ | | 5 to 500 | mA |

### Operating Characteristics at Ta = 25˚C, $V_{IN}$=–11V, $I_{OUT}$=350mA, $C_{IN}$=2µF, $C_{OUT}$=1µF

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Output Voltage | $V_{OUT}$ | Tj=25°C | –6.25 | –6.0 | –5.75 | V |
| Line Regulation | $\Delta V_{O}$ LINE | Tj=25°C, –25V≤$V_{IN}$≤–8V | | 7.0 | 60 | mV |
| | | Tj=25°C, –19V≤$V_{IN}$≤–9V | | 3.0 | 40 | mV |
| Load Regulation | $\Delta V_{O}$ LOAD | Tj=25°C, 5mA≤$I_{OUT}$≤500mA | | 10 | 120 | mV |
| | | Tj=25°C, 5mA≤$I_{OUT}$≤350mA | | 5 | | mV |
| Output Voltage | $V_{OUT}$ | –25V≤$V_{IN}$≤–8V, 5mA≤$I_{OUT}$≤350mA | –6.3 | | –5.7 | V |
| Current Dissipation | $I_{CC}$ | Tj=25°C | | 1.0 | 2.5 | mA |
| Current Dissipation Variation (Line) | $\Delta I_{CC}$ LINE | –25V≤$V_{IN}$≤–9V | | | 1.0 | mA |
| Current Dissipation Variation (Load) | $\Delta I_{CC}$ LOAD | 5mA≤$I_{OUT}$≤350mA | | | 0.4 | mA |
| Output Noise Voltage | $V_{NO}$ | 10Hz≤f≤100kHz | | 150 | | µV |
| Ripple Rejection | Rrej | f=120Hz, –19V≤$V_{IN}$≤–9V, Tj=25°C, $I_{OUT}$=100mA | 50 | | | dB |
| | | f=120Hz, –19V≤$V_{IN}$≤–9V, Tj=25°C, $I_{OUT}$=300mA | 50 | 65 | | dB |
| Minimum Input-Output Voltage Drop | $V_{DROP}$ | Tj=25°C, $I_{OUT}$=350mA | | 1.1 | | V |
| Short Current | $I_{OS}$ | Tj=25°C, $V_{IN}$=–30V | | 130 | | mA |
| Peak Output Current | $I_{OP}$ | | | 800 | | mA |

## [L79M08T]

### Recommended Operating Conditions at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Input Voltage | $V_{IN}$ | | –23 to –11 | V |
| Output Current | $I_{OUT}$ | | 5 to 500 | mA |

### Operating Characteristics at Ta = 25˚C, $V_{IN}$=–14V, $I_{OUT}$=350mA, $C_{IN}$=2µF, $C_{OUT}$=1µF

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Output Voltage | $V_{OUT}$ | Tj=25°C | –8.3 | –8.0 | –7.7 | V |
| Line Regulation | $\Delta V_{O}$ LINE | Tj=25°C, –25V≤$V_{IN}$≤–10.5V | | 8.0 | 80 | mV |
| | | Tj=25°C, –21V≤$V_{IN}$≤–11V | | 4.0 | 50 | mV |
| Load Regulation | $\Delta V_{O}$ LOAD | Tj=25°C, 5mA≤$I_{OUT}$≤500mA | | 11 | 160 | mV |
| | | Tj=25°C, 5mA≤$I_{OUT}$≤350mA | | 6 | | mV |
| Output Voltage | $V_{OUT}$ | –25V≤$V_{IN}$≤–10.5V, 5mA≤$I_{OUT}$≤350mA | –8.4 | | –7.6 | V |
| Current Dissipation | $I_{CC}$ | Tj=25°C | | 1.0 | 2.5 | mA |
| Current Dissipation Variation (Line) | $\Delta I_{CC}$ LINE | –25V≤$V_{IN}$≤–10.5V | | | 1.0 | mA |
| Current Dissipation Variation (Load) | $\Delta I_{CC}$ LOAD | 5mA≤$I_{OUT}$≤350mA | | | 0.4 | mA |
| Output Noise Voltage | $V_{NO}$ | 10Hz≤f≤100kHz | | 200 | | µV |
| Ripple Rejection | Rrej | f=120Hz, –21.5V≤$V_{IN}$≤–11.5V, Tj=25°C, $I_{OUT}$=100mA | 50 | | | dB |
| | | f=120Hz, –21.5V≤$V_{IN}$≤–11.5V, Tj=25°C, $I_{OUT}$=300mA | 50 | 64 | | dB |
| Minimum Input-Output Voltage Drop | $V_{DROP}$ | Tj=25°C, $I_{OUT}$=350mA | | 1.1 | | V |
| Short Current | $I_{OS}$ | Tj=25°C, $V_{IN}$=–30V | | 130 | | mA |
| Peak Output Current | $I_{OP}$ | | | 800 | | mA |

## [L79M09T]

### Recommended Operating Conditions at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Input Voltage | $V_{IN}$ | | –25 to –12 | V |
| Output Current | $I_{OUT}$ | | 5 to 500 | mA |

### Operating Characteristics at Ta = 25˚C, $V_{IN}$=–16V, $I_{OUT}$=350mA, $C_{IN}$=2µF, $C_{OUT}$=1µF

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Output Voltage | $V_{OUT}$ | Tj=25°C | –9.4 | –9.0 | –8.6 | V |
| Line Regulation | $\Delta V_{O}$ LINE | Tj=25°C, –25V≤$V_{IN}$≤–11.5V | | 8.0 | 80 | mV |
| | | Tj=25°C, –20V≤$V_{IN}$≤–12V | | 4.0 | 50 | mV |
| Load Regulation | $\Delta V_{O}$ LOAD | Tj=25°C, 5mA≤$I_{OUT}$≤500mA | | 12 | 200 | mV |
| | | Tj=25°C, 5mA≤$I_{OUT}$≤350mA | | 7 | | mV |
| Output Voltage | $V_{OUT}$ | –25V≤$V_{IN}$≤–11.5V, 5mA≤$I_{OUT}$≤350mA | –9.5 | | –8.5 | V |
| Current Dissipation | $I_{CC}$ | Tj=25°C | | 1.0 | 2.5 | mA |
| Current Dissipation Variation (Line) | $\Delta I_{CC}$ LINE | –25V≤$V_{IN}$≤–11.5V | | | 1.0 | mA |
| Current Dissipation Variation (Load) | $\Delta I_{CC}$ LOAD | 5mA≤$I_{OUT}$≤350mA | | | 0.4 | mA |
| Output Noise Voltage | $V_{NO}$ | 10Hz≤f≤100kHz | | 225 | | µV |
| Ripple Rejection | Rrej | f=120Hz, –22.5V≤$V_{IN}$≤–12.5V, Tj=25°C, $I_{OUT}$=100mA | 50 | | | dB |
| | | f=120Hz,–22.5V≤$V_{IN}$≤–12.5V, Tj=25°C, $I_{OUT}$=300mA | 50 | 63 | | dB |
| Minimum Input-Output Voltage Drop | $V_{DROP}$ | Tj=25°C, $I_{OUT}$=350mA | | 1.1 | | V |
| Short Current | $I_{OS}$ | Tj=25°C, $V_{IN}$=–30V | | 130 | | mA |
| Peak Output Current | $I_{OP}$ | | | 800 | | mA |

## [L79M10T]

### Recommended Operating Conditions at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Input Voltage | $V_{IN}$ | | –25 to –13 | V |
| Output Current | $I_{OUT}$ | | 5 to 500 | mA |

### Operating Characteristics at Ta = 25˚C, $V_{IN}$=–17V, $I_{OUT}$=350mA, $C_{IN}$=2µF, $C_{OUT}$=1µF

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Output Voltage | $V_{OUT}$ | Tj=25°C | –10.4 | –10 | –9.6 | V |
| Line Regulation | $\Delta V_{O}$ LINE | Tj=25°C, –25V≤$V_{IN}$≤–12.5V | | 9.0 | 80 | mV |
| | | Tj=25°C, –22V≤$V_{IN}$≤–13V | | 5.0 | 50 | mV |
| Load Regulation | $\Delta V_{O}$ LOAD | Tj=25°C, 5mA≤$I_{OUT}$≤500mA | | 12 | 200 | mV |
| | | Tj=25°C, 5mA≤$I_{OUT}$≤350mA | | 7 | | mV |
| Output Voltage | $V_{OUT}$ | –25V≤$V_{IN}$≤–12.5V, 5mA≤$I_{OUT}$≤350mA | –10.5 | | –9.5 | V |
| Current Dissipation | $I_{CC}$ | Tj=25°C | | 1.0 | 2.5 | mA |
| Current Dissipation Variation (Line) | $\Delta I_{CC}$ LINE | –25V≤$V_{IN}$≤–12.5V | | | 1.0 | mA |
| Current Dissipation Variation (Load) | $\Delta I_{CC}$ LOAD | 5mA≤$I_{OUT}$≤350mA | | | 0.4 | mA |
| Output Noise Voltage | $V_{NO}$ | 10Hz≤f≤100kHz | | 250 | | µV |
| Ripple Rejection | Rrej | f=120Hz, –23.5V≤$V_{IN}$≤–13.5V, Tj=25°C, $I_{OUT}$=100mA | 50 | | | dB |
| | | f=120Hz, –23.5V≤$V_{IN}$≤–13.5V, Tj=25°C, $I_{OUT}$=300mA | 50 | 63 | | dB |
| Minimum Input-Output Voltage Drop | $V_{DROP}$ | Tj=25°C, $I_{OUT}$=350mA | | 1.1 | | V |
| Short Current | $I_{OS}$ | Tj=25°C, $V_{IN}$=–30V | | 130 | | mA |
| Peak Output Current | $I_{OP}$ | | | 800 | | mA |

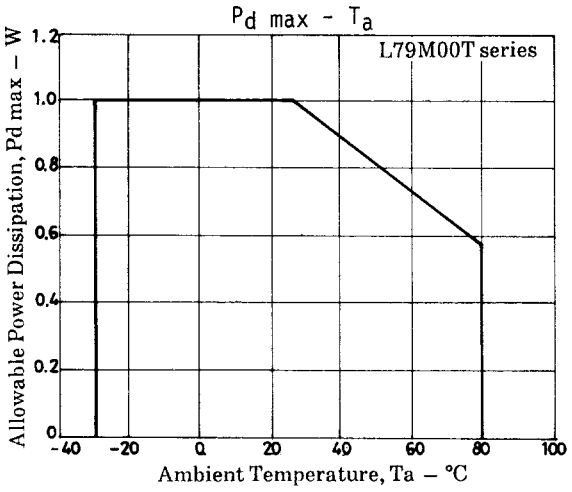
## [L79M12T]

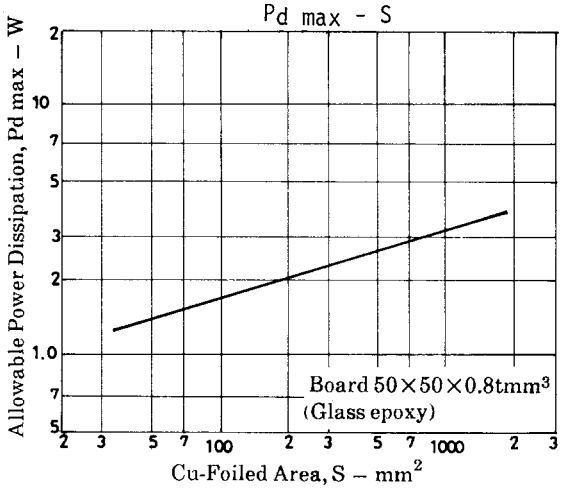
### Recommended Operating Conditions at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Input Voltage | $V_{IN}$ | | –25 to –15 | V |
| Output Current | $I_{OUT}$ | | 5 to 500 | mA |

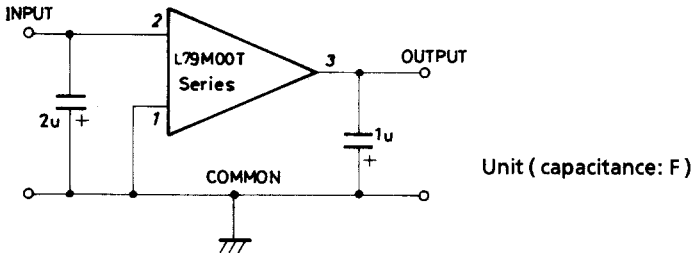
### Operating Characteristics at Ta = 25˚C, $V_{IN}$=–19V, $I_{OUT}$=350mA, $C_{IN}$=2µF, $C_{OUT}$=1µF

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Output Voltage | $V_{OUT}$ | Tj=25°C | –12.5 | –12 | –11.5 | V |
| Line Regulation | $\Delta V_{O}$ LINE | Tj=25°C, –30V≤$V_{IN}$≤–14.5V | | 9.0 | 80 | mV |
| | | Tj=25°C, –25V≤$V_{IN}$≤–15V | | 5.0 | 50 | mV |
| Load Regulation | $\Delta V_{O}$ LOAD | Tj=25°C, 5mA≤$I_{OUT}$≤500mA | | 9 | 240 | mV |
| | | Tj=25°C, 5mA≤$I_{OUT}$≤350mA | | 6 | | mV |
| Output Voltage | $V_{OUT}$ | –30V≤$V_{IN}$≤–14.5V, 5mA≤$I_{OUT}$≤350mA | –12.6 | | –11.4 | V |
| Current Dissipation | $I_{CC}$ | Tj=25°C | | 1.6 | 3.5 | mA |
| Current Dissipation Variation (Line) | $\Delta I_{CC}$ LINE | –30V≤$V_{IN}$≤–14.5V | | | 1.0 | mA |
| Current Dissipation Variation (Load) | $\Delta I_{CC}$ LOAD | 5mA≤$I_{OUT}$≤350mA | | | 0.4 | mA |
| Output Noise Voltage | $V_{NO}$ | 10Hz≤f≤100kHz | | 300 | | µV |
| Ripple Rejection | Rrej | f=120Hz, –25V≤$V_{IN}$≤–15V, Tj=25°C, $I_{OUT}$=100mA | 50 | | | dB |
| | | f=120Hz, –25V≤$V_{IN}$≤–15V, Tj=25°C, $I_{OUT}$=300mA | 50 | 72 | | dB |
| Minimum Input-Output Voltage Drop | $V_{DROP}$ | Tj=25°C, $I_{OUT}$=350mA | | 1.1 | | V |
| Short Current | $I_{OS}$ | Tj=25°C, $V_{IN}$=–30V | | 130 | | mA |
| Peak Output Current | $I_{OP}$ | | | 800 | | mA |




**Specified Test Circuit** (Common to L79M00T series)




Note) $V_{IN}$ max must be in the range specified above, with regulation, etc. considered.