

UTC 79LXX LINEAR INTEGRATED CIRCUIT

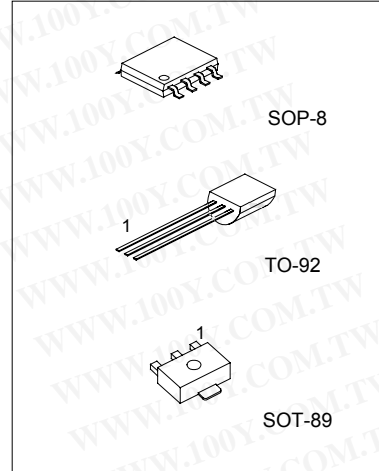
3-TERMINAL 0.1A NEGATIVE VOLTAGE REGULATOR

DESCRIPTION

The UTC 79LXX family is monolithic fixed voltage regulator integrated circuit. They are suitable for applications that required supply current up to 100mA.

FEATURES

- *Output current up to 100mA
- *Fixed output voltage of -5V, -6V, -8V, -9V, -12V, -15V, -18V and -24V available
- *Thermal overload shutdown protection
- *Short circuit current limiting



SOP-8 : 1. Vout ; 2,3,6,7 Vin ; 5. GND; 4,8 NC

TO-92 : 1: GND 2: Input 3: Output

SOT-89: 1: GND 2: Input 3: Output

*Pb-free plating product number: 79LXXL

ORDERING INFORMATION

| Order Number | | Package | Packing |
|--------------|--------------|---------|-----------|
| Normal | Lead free | | |
| 79Lxx-S08-R | 79LxxL-S08-R | SOP-8 | Tape Reel |
| 79Lxx-S08-T | 79LxxL-S08-T | SOP-8 | Tube |
| 79Lxx-AB3-R | 79LxxL-AB3-R | SOT-89 | Tape Reel |
| 79Lxx-T92-B | 79LxxL-T92-B | TO-92 | Tape Box |
| 79Lxx-T92-K | 79LxxL-T92-K | TO-92 | Bulk |

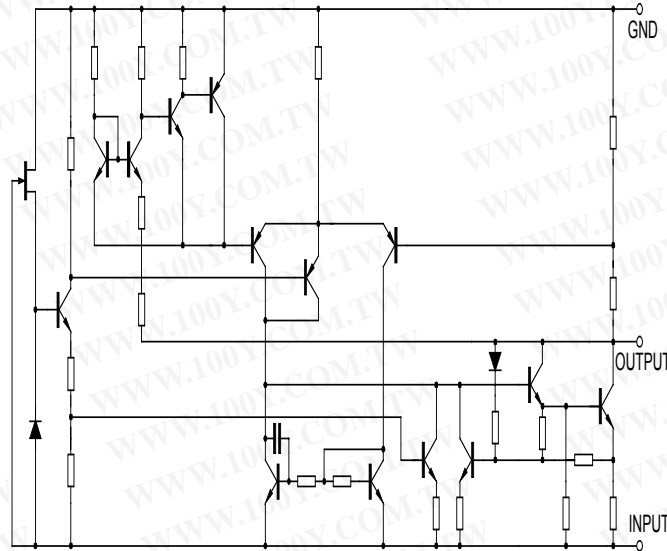
Note:1. xx: Output Voltage, refer to Marking Information.

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UTC 79LXX

LINEAR INTEGRATED CIRCUIT

TEST CIRCUIT



ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|-----------|--|------|
| Input voltage (for $V_o = -5 \sim -9V$) (for $V_o = -12 \sim -15V$) (for $V_o = -18 \sim -24V$) | V_i | -30 | V |
| | V_i | -35 | V |
| | V_i | | |
| Power Dissipation | P_d | 350 (SOT-89) 300 (SOP-8) 625 (TO-92) | mW |
| Operating Junction Temperature Range | T_{opr} | -30 ~ +125 | °C |
| Storage Temperature Range | T_{stg} | -40 ~ +125 | °C |

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UTC 79LXX LINEAR INTEGRATED CIRCUIT

UTC79L05 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|---------------------------------|--|------|------|------|------|
| Output Voltage | V _o | V _{IN} =-10V, I _o =40mA | -4.8 | -5.0 | -5.2 | V |
| Line Regulation | V _o -V _{IN} | V _{IN} =-7~-20V, I _o =40mA | | 15 | 150 | mV |
| Load Regulation | V _o -I _o | V _{IN} =-10V, I _o =1~100mA | | 7 | 60 | mV |
| Quiescent current | I _q | V _{IN} =-10V, I _o =40mA | | 3.5 | 6.0 | mA |
| Ripple Rejection | RR | V _{IN} =-8~-18V, I _o =40mA, E _{in} =1Vp-p, f=120Hz | 41 | 71 | | dB |
| Output Noise Voltage | V _{NO} | V _{IN} =-10V, BW=10Hz~100kHz, I _o =40mA | | 120 | | μV |

UTC79L06 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|---------------------------------|--|-------|------|-------|------|
| Output Voltage | V _o | V _{IN} =-12V, I _o =40mA | -5.76 | -6.0 | -6.24 | V |
| Line Regulation | V _o -V _{IN} | V _{IN} =-8.5~-20V, I _o =40mA | | 15 | 150 | mV |
| Load Regulation | V _o -I _o | V _{IN} =-12V, I _o =1~100mA | | 7 | 60 | mV |
| Quiescent current | I _q | V _{IN} =-12V, I _o =40mA | | 3.5 | 6.0 | mA |
| Ripple Rejection | RR | V _{IN} =-9~-19V, I _o =40mA, E _{in} =1Vp-p, f=120Hz | 41 | 71 | | dB |
| Output Noise Voltage | V _{NO} | V _{IN} =-12V, BW=10Hz~100kHz, I _o =40mA | | 120 | | μV |

UTC79L08 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

| PARAMETER | SYMBOL | Test conditions | MIN | TYP | MAX | UNIT |
|----------------------|---------------------------------|---|-------|------|-------|------|
| Output Voltage | V _o | V _{IN} =-14V, I _o =40mA | -7.68 | -8.0 | -8.32 | V |
| Line Regulation | V _o -V _{IN} | V _{IN} =-10.5~-23V, I _o =40mA | | 24 | 175 | mV |
| Load Regulation | V _o -I _o | V _{IN} =-14V, I _o =1~100mA | | 10 | 80 | mV |
| Quiescent current | I _q | V _{IN} =-14V, I _o =40mA | | 3.5 | 6.0 | mA |
| Ripple Rejection | RR | V _{IN} =-11~-21V, I _o =40mA, E _{in} =1Vp-p, f=140Hz | 39 | 68 | | dB |
| Output Noise Voltage | V _{NO} | V _{IN} =-14V, BW=10Hz~100kHz, I _o =40mA | | 190 | | μV |

UTC79L09 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|---------------------------------|---|-------|------|-------|------|
| Output Voltage | V _o | V _{IN} =-15V, I _o =40mA | -8.64 | -9.0 | -9.36 | V |
| Line Regulation | V _o -V _{IN} | V _{IN} =-12.5~-24V, I _o =40mA | | 27 | 200 | mV |
| Load Regulation | V _o -I _o | V _{IN} =-15V, I _o =1~100mA | | 12 | 90 | mV |
| Quiescent current | I _q | V _{IN} =-15V, I _o =40mA | | 3.5 | 6.0 | mA |
| Ripple Rejection | RR | V _{IN} =-12~-22V, I _o =40mA, E _{in} =1Vp-p, f=150Hz | 37 | 64 | | dB |
| Output Noise Voltage | V _{NO} | V _{IN} =-15V, BW=10Hz~100kHz, I _o =40mA | | 210 | | μV |

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UTC79L12 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|---------------------------------|---|--------|-------|--------|------|
| Output Voltage | V _o | V _{IN} =-19V, I _o =40mA | -11.52 | -12.0 | -12.48 | V |
| Line Regulation | V _o -V _{IN} | V _{IN} =-14.5~-27V, I _o =40mA | | 36 | 250 | mV |
| Load Regulation | V _o -I _o | V _{IN} =-19V, I _o =1~100mA | | 16 | 100 | mV |
| Quiescent current | I _q | V _{IN} =-19V, I _o =40mA | | 3.5 | 6.0 | mA |
| Ripple Rejection | RR | V _{IN} =-15~-25V, I _o =40mA, E _{in} =1Vp-p, f=190Hz | 37 | 64 | | dB |
| Output Noise Voltage | V _{NO} | V _{IN} =-19V, BW=10Hz~100kHz, I _o =40mA | | 210 | | μV |

UTC79L15 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|---------------------------------|---|-------|-------|-------|------|
| Output Voltage | V _o | V _{IN} =-23V, I _o =40mA | -14.4 | -15.0 | -15.6 | V |
| Line Regulation | V _o -V _{IN} | V _{IN} =-17.5~-30V, I _o =40mA | | 45 | 300 | mV |
| Load Regulation | V _o -I _o | V _{IN} =-23V, I _o =1~100mA | | 20 | 150 | mV |
| Quiescent current | I _q | V _{IN} =-23V, I _o =40mA | | 3.5 | 6.0 | mA |
| Ripple Rejection | RR | V _{IN} =-18.5~-28.5V, I _o =40mA, E _{in} =1Vp-p, f=230Hz | 34 | 63 | | dB |
| Output Noise Voltage | V _{NO} | V _{IN} =-23V, BW=10Hz~100kHz, I _o =40mA | | 340 | | μV |

UTC79L18 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|---------------------------------|---|--------|-------|--------|------|
| Output Voltage | V _o | V _{IN} =-27V, I _o =40mA | -17.28 | -18.0 | -18.72 | V |
| Line Regulation | V _o -V _{IN} | V _{IN} =-20.5~-33V, I _o =40mA | | 54 | 300 | mV |
| Load Regulation | V _o -I _o | V _{IN} =-27V, I _o =1~100mA | | 23 | 170 | mV |
| Quiescent current | I _q | V _{IN} =-27V, I _o =40mA | | 3.5 | 6.0 | mA |
| Ripple Rejection | RR | V _{IN} =-23~-33V, I _o =40mA, E _{in} =1Vp-p, f=270Hz | 33 | 60 | | dB |
| Output Noise Voltage | V _{NO} | V _{IN} =-27V, BW=10Hz~100kHz, I _o =40mA | | 410 | | μV |

UTC79L24 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|---------------------------------|---|--------|-------|--------|------|
| Output Voltage | V _o | V _{IN} =-33V, I _o =40mA | -23.04 | -24.0 | -24.96 | V |
| Line Regulation | V _o -V _{IN} | V _{IN} =-27~-38V, I _o =40mA | | 72 | 350 | mV |
| Load Regulation | V _o -I _o | V _{IN} =-33V, I _o =1~100mA | | 30 | 200 | mV |
| Quiescent current | I _q | V _{IN} =-33V, I _o =40mA | | 3.5 | 6.0 | mA |
| Ripple Rejection | RR | V _{IN} =-29~-35V, I _o =40mA, E _{in} =1Vp-p, f=330Hz | 31 | 55 | | dB |
| Output Noise Voltage | V _{NO} | V _{IN} =-33V, BW=10Hz~100kHz, I _o =40mA | | 550 | | μV |

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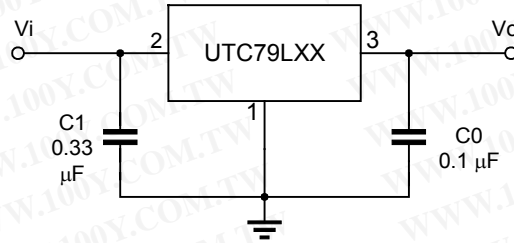
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APPLICATION CIRCUIT



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TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 Power dissipation vs. ambient temperature

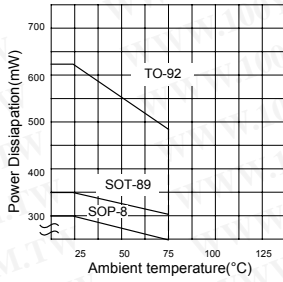


Fig.2 Input Voltage vs. Output Voltage

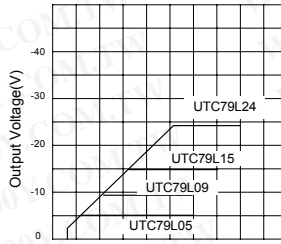


Fig.3 Load Characteristics (T_J=25°C)

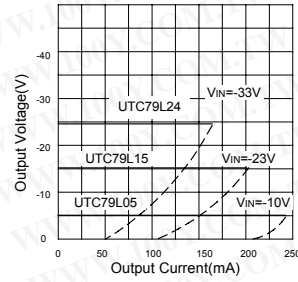


Fig.4 Short Circuit Current (T_J=25°C)

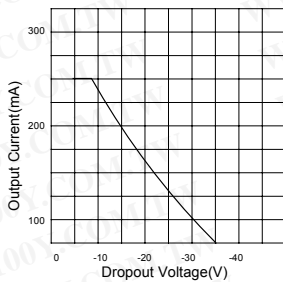


Fig.5 Output Voltage vs. Junction temperature

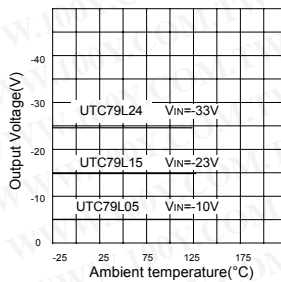


Fig.6 Output Voltage vs. ambient temperature

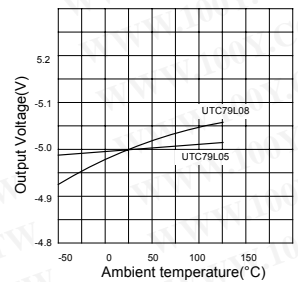


Fig.7 UTC79L05 Dropout Characteristics (T_J=25°C)

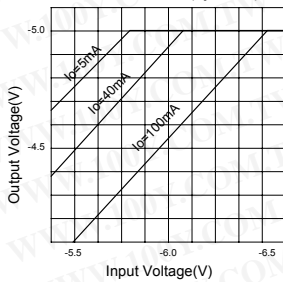


Fig.8 UTC79L08 Dropout Characteristics (T_J=25°C)

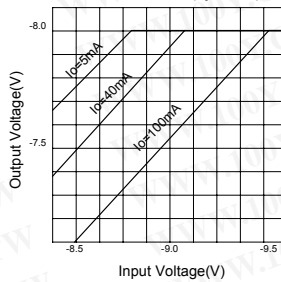
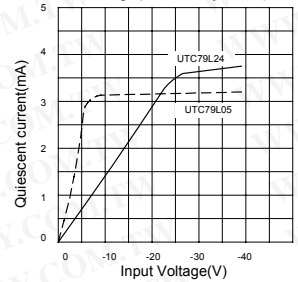


Fig.9 Current vs. Input Voltage (I_O=0mA, T_J=25°C)



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