



79DXXAA

LINEAR INTEGRATED CIRCUIT

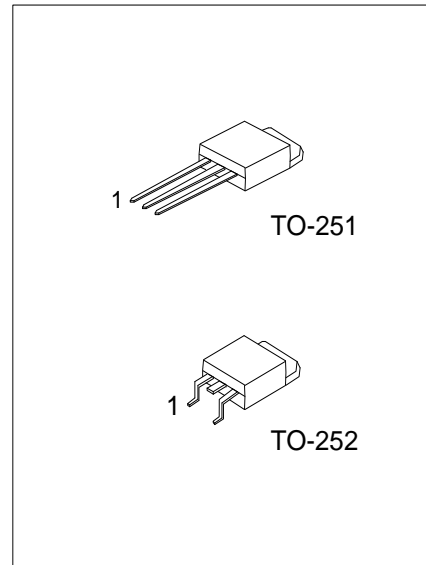
3 TERMINAL 1.5A NEGATIVE VOLTAGE REGULATOR

DESCRIPTION

The UTC 79DXXAA series of three-terminal negative regulators is available several fixed output voltage, making them useful in a wide range of application. Each type employs internal current limiting, thermal shut-down, making it essentially indestructible.

FEATURES

- * Output current up to 1.5A
- * -5V, -12V output voltage available
- * Thermal overload protection



NORDERING INFORMATIO

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-----------------|----------------|---------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| 79DXXAAL-TM3-T | 79DXXAAG-TM3-T | TO-251 | G | I | O | Tube |
| 79DXXAAL-TN3-T | 79DXXAAG-TN3-T | TO-252 | G | I | O | Tube |
| 79DXXAAL-TN3-R | 79DXXAAG-TN3-R | TO-252 | G | I | O | Tape Reel |

Note: Pin Assignment : G: GND I: Input O: Output

| | |
|--|--|
| <p>79DXXAAG-TM3-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package (4)Output Voltage Code</p> | <p>(1) T: Tube, R: Tape Reel (2) TM3: TO-251, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free (4) xx: refer to Marking Information</p> |
|--|--|

MARKING INFORMATION

| PACKAGE | VOLTAGE CODE | MARKING |
|------------------|---------------------|---|
| TO-251 TO-252 | 05: -5V 12: -12V | <p>UTC 79D□□AA□ Voltage Code ← Lot Code ← Date Code → 1 2 3</p> <p>L: Lead Free G: Halogen Free</p> |

BLOCK DIAGRAM

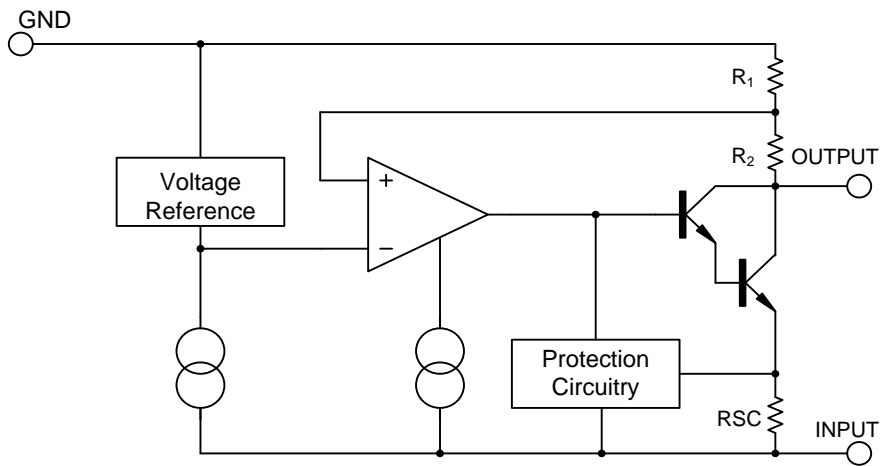


Fig.1

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

| PARAMETER | SYMBOL | RATING | UNIT |
|-----------------------|------------------|--------------------|------|
| Input Voltage | V _{IN} | -35 | V |
| Output Current | I _{OUT} | 1.5 | A |
| Power Dissipation | P _D | Internally Limited | W |
| Operating Temperature | T _{OPR} | -40 ~ +125 | °C |
| Storage Temperature | T _{STG} | -65 ~ +150 | °C |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

| PARAMETER | SYMBOL | RATING | UNIT |
|---------------------|-----------------|--------|------|
| Junction to Ambient | θ _{JA} | 112 | °C/W |
| Junction to Case | θ _{JC} | 12.5 | °C/W |

■ ELECTRICAL CHARACTERISTICS

(I_{OUT}=0.5A, T_J=0°C~125°C, C_I=2.2uF, C_O=1uF, unless otherwise specified)

For UTC 79D05AA (V_{IN}=-10V)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------|-----------------------|---|-------|------|-------|-------|
| Output Voltage | V _{OUT} | T _J =25°C | -4.80 | -5.0 | -5.20 | V |
| | | V _{IN} =-7V~-20V I _{OUT} =5mA~1.5A, P _D ≤ 15W | -4.75 | | -5.25 | V |
| Dropout Voltage | V _D | I _{OUT} =1.5A T _J =25°C | | 2 | | V |
| Line Regulation | ΔV _{OUT} | V _{IN} =-7V~-25V T _J =25°C | | 10 | 100 | mV |
| | | V _{IN} =-8V~-12V T _J =25°C | | 4 | 50 | mV |
| Load Regulation | ΔV _{OUT} | I _{OUT} =5mA~1.5A T _J =25°C | | 10 | 100 | mV |
| | | I _{OUT} =250mA~750mA T _J =25°C | | 3 | 50 | mV |
| Quiescent Current | I _Q | T _J =25°C | | 3 | 6 | mA |
| Quiescent Current Change | ΔI _Q | I _{OUT} =5mA~1A | | 0.05 | 0.5 | mA |
| | | V _{IN} =-7V~-25V | | 0.1 | 1.3 | mA |
| Output Noise Voltage | eN | f=10Hz~100kHz T _A =25°C | | 100 | | μV |
| Output Voltage Drift | ΔV _{OUT} /ΔT | I _{OUT} =5mA | | -0.4 | | mV/°C |
| Ripple Rejection | RR | V _{IN} =-8V~-18V, f=120Hz | 54 | 60 | | dB |
| Peak Current | I _{PEAK} | T _J =25°C | | 2.2 | | A |

For UTC 79D12AA (V_{IN}=-18V)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------|-----------------------|---|--------|-------|--------|-------|
| Output Voltage | V _{OUT} | T _J =25°C | -11.52 | -12.0 | -12.48 | V |
| | | V _{IN} =-14.5V~-27V, I _{OUT} =5mA~1.5A, P _D ≤ 15W | -11.40 | | -12.60 | V |
| Dropout Voltage | V _D | I _{OUT} =1.5A T _J =25°C | | 2 | | V |
| Line Regulation | ΔV _{OUT} | V _{IN} =-14.5V~-30V T _J =25°C | | 12 | 240 | mV |
| | | V _{IN} =-16V~-22V T _J =25°C | | 6 | 120 | mV |
| Load Regulation | ΔV _{OUT} | I _{OUT} =5mA~1.5A T _J =25°C | | 12 | 240 | mV |
| | | I _{OUT} =250mA~750mA T _J =25°C | | 4 | 120 | mV |
| Quiescent Current | I _Q | T _J =25°C | | 3 | 6 | mA |
| Quiescent Current Change | ΔI _Q | I _{OUT} =5mA~1A | | 0.05 | 0.5 | mA |
| | | V _{IN} =-7V~-25V | | 0.1 | 1.0 | mA |
| Output Noise Voltage | eN | f=10Hz~100kHz T _a =25°C | | 200 | | μV |
| Output Voltage Drift | ΔV _{OUT} /ΔT | I _{OUT} =5mA | | -0.8 | | mV/°C |
| Ripple Rejection | RR | V _{IN} =-15V~-25V, f=120Hz | 54 | 60 | | dB |
| Peak Current | I _{PEAK} | T _J =25°C | | 2.2 | | A |

■ ELECTRICAL CHARACTERISTICS

For UTC 79D15A ($V_{IN}=-23V$)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------|---------------------------|--|--------|-------|--------|----------------|
| Output Voltage | V_{OUT} | $T_J=25^{\circ}C$ | -14.40 | -15.0 | -15.60 | V |
| | | $V_{IN}=-17.5V\sim-30V, I_{OUT}=5mA\sim1.5A$ | -14.25 | | -15.75 | V |
| Dropout Voltage | V_D | $I_{OUT}=1.5A$ | | 2 | | V |
| Line Regulation | ΔV_{OUT} | $V_{IN}=-17.5V\sim-30V$ | | 12 | 300 | mV |
| | | $V_{IN}=-20V\sim-26V$ | | 6 | 150 | mV |
| Load Regulation | ΔV_{OUT} | $I_{OUT}=5mA\sim1.5A$ | | 12 | 300 | mV |
| | | $I_{OUT}=250mA\sim750mA$ | | 4 | 150 | mV |
| Quiescent Current | I_Q | $T_J=25^{\circ}C$ | | 3 | 6 | mA |
| Quiescent Current Change | ΔI_Q | $I_{OUT}=5mA\sim1A$ | | 0.05 | 0.5 | mA |
| | | $V_{IN}=-17.5V\sim-30.5V$ | | 0.1 | 1.0 | mA |
| Output Noise Voltage | eN | $f=10Hz\sim100kHz$ | | 250 | | μV |
| Output Voltage Drift | $\Delta V_{OUT}/\Delta T$ | $I_{OUT}=5mA$ | | -0.9 | | $mV/^{\circ}C$ |
| Ripple Rejection | RR | $V_{IN}=-18.5V\sim-28.5V, f=120Hz$ | 54 | 60 | | dB |
| Peak Current | I_{PEAK} | $T_J=25^{\circ}C$ | | 2.2 | | A |

■ APPLICATION CIRCUITS

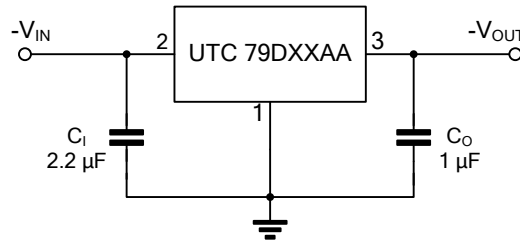


Fig.1 Fixed output regulator

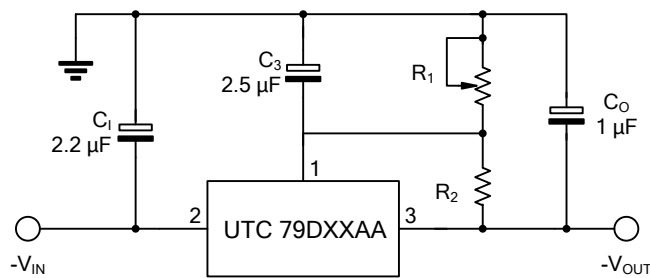


Fig.2 Circuit for increasing output voltage

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