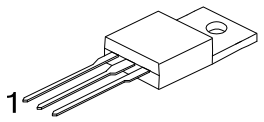
# LM79XXA

**LINEAR INTEGRATED CIRCUIT**

## 3 TERMINAL 1.5A NEGATIVE VOLTAGE REGULATOR




TO-220

### ■ DESCRIPTION

The UTC **LM79XXA** 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 and safe area protection, making it essentially indestructible.

### ■ FEATURES

* Output Current Up to 1.5A
*-7V, -15V Output Voltage Available
* Thermal Overload Protection

### ■ ORDERING INFORMATION

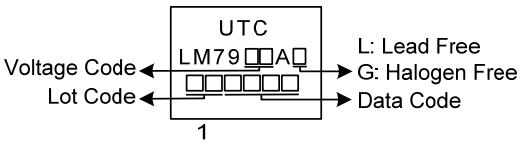
| Ordering Number | | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| LM79XXAL-TA3-T | LM79XXAG-TA3-T | TO-220 | G | I | O | Tube |

Note: O: Output G: GND I: Input

LM79xxAL-TA3-T

| | |
|---|---|
| (1)Packing Type | (1) T: Tube |
| (2)Package Type | (2) TA3: TO-220 |
| (3)Lead Plating | (3) L: Lead Free, G: Halogen Free |
| (4)Output Voltage Code | (4) xx: refer to Marking Information |

### ■ MARKING INFORMATION

| PACKAGE | VOLTAGE CODE | MARKING |
|---|---|---|
| TO-220 | 07:-7.0V<br>15: -15V |  |

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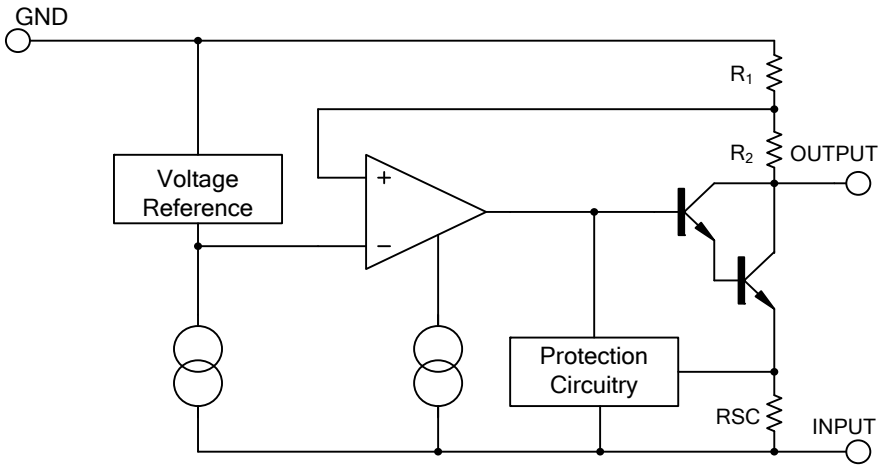
## ■ BLOCK DIAGRAM



## ■ ABSOLUTE MAXIMUM RATINGS ($T_A$=25°C, unless otherwise specified)

| 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 ~ +85 | °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 | $\theta_{JA}$ | 65 | °C /W |
| Junction to Case | $\theta_{JC}$ | 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 LM7907** ($V_{IN}$=-13V)

| PARAMETER | SYMBOL | TEST CONDITIONS | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Output Voltage | $V_{OUT}$ | | $T_J$=25°C | -6.72 | -7.0 | -7.28 | V |
| | | $V_{IN}$=-9V~-22V, $I_{OUT}$=5mA~1A, $P_D \leqq$ 15W | | -6.65 | | -7.35 | V |
| Dropout Voltage | $V_D$ | $I_{OUT}$=1.5A | $T_J$=25°C | | 2 | | V |
| Line Regulation | $\Delta V_{OUT}$ | $V_{IN}$=-9V~-25V | $T_J$=25°C | | 10 | 140 | mV |
| | | $V_{IN}$=-10V~-15V | $T_J$=25°C | | 5 | 70 | mV |
| Load Regulation | $\Delta V_{OUT}$ | $I_{OUT}$=5mA~1.5A | $T_J$=25°C | | 12 | 170 | mV |
| | | $I_{OUT}$=250mA~750mA | $T_J$=25°C | | 4 | 90 | mV |
| Quiescent Current | $I_Q$ | | $T_J$=25°C | | 3 | 6 | mA |
| Quiescent Current Change | $\Delta I_Q$ | $I_{OUT}$=5mA~1A | | | 0.05 | 0.5 | mA |
| | | $V_{IN}$=-9V~-25V | | | 0.1 | 1.0 | mA |
| Output Noise Voltage | eN | f=10Hz~100kHz | $T_A$=25°C | | 175 | | μV |
| Output Voltage Drift | $\Delta V_{OUT}/\Delta T$ | $I_{OUT}$=5mA | | | -0.6 | | mV/°C |
| Ripple Rejection | RR | $V_{IN}$=-10V~-20V, f=120Hz | | 54 | 60 | | dB |
| Peak Current | $I_{PEAK}$ | | $T_J$=25°C | | 2.2 | | A |

## ■ ELECTRICAL CHARACTERISTICS(Cont.)

**For UTC LM7915** ($V_{IN}$=-23V)

| PARAMETER | SYMBOL | TEST CONDITIONS | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Output Voltage | $V_{OUT}$ | | $T_J$=25°C | -14.40 | -15.0 | -15.60 | V |
| | | $V_{IN}$=-17.5V~-30V<br>$I_{OUT}$=5mA~1A, $P_D \leqq$15W | | -14.25 | | -15.75 | V |
| Dropout Voltage | $V_D$ | $I_{OUT}$=1.5A | $T_J$=25°C | | 2 | | V |
| Line Regulation | $\Delta V_{OUT}$ | $V_{IN}$=-17.5V~-30V | $T_J$=25°C | | 12 | 300 | mV |
| | | $V_{IN}$=-20V~-26V | $T_J$=25°C | | 6 | 150 | mV |
| Load Regulation | $\Delta V_{OUT}$ | $I_{OUT}$=5mA~1.5A | $T_J$=25°C | | 12 | 300 | mV |
| | | $I_{OUT}$=250mA~750mA | $T_J$=25°C | | 4 | 150 | mV |
| Quiescent Current | $I_Q$ | | $T_J$=25°C | | 3 | 6 | mA |
| Quiescent Current Change | $\Delta I_Q$ | $I_{OUT}$=5mA~1A | | | 0.05 | 0.5 | mA |
| | | $V_{IN}$=-17.5V~-30.5V | | | 0.1 | 1.0 | mA |
| Output Noise Voltage | eN | f=10Hz~100kHz | $T_A$=25°C | | 250 | | μV |
| Output Voltage Drift | $\Delta V_{OUT}/\Delta T$ | $I_{OUT}$=5mA | | | -0.9 | | mV/°C |
| Ripple Rejection | RR | $V_{IN}$=-18.5V~-28.5V, f=120Hz | | 54 | 60 | | dB |
| Peak Current | $I_{PEAK}$ | | $T_J$=25°C | | 2.2 | | A |

## ■ APPLICATION CIRCUITS

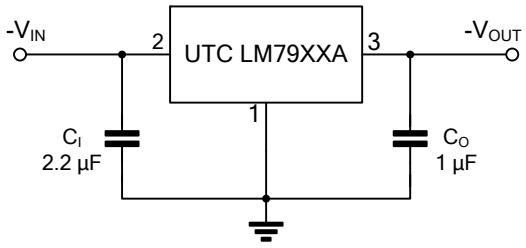



Fig.1 Fixed output regulator

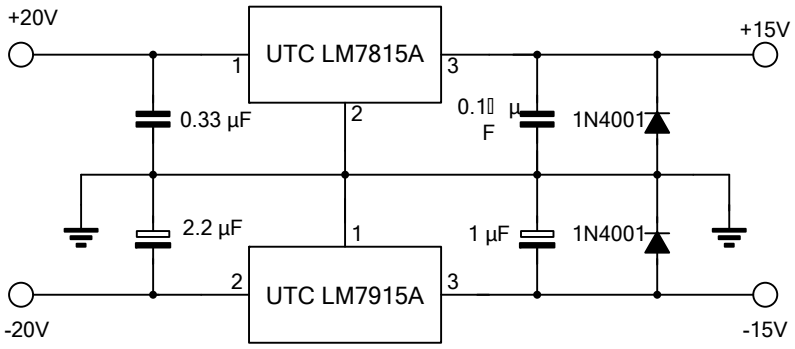



Fig.2 Split power supply(+-15V,1A)

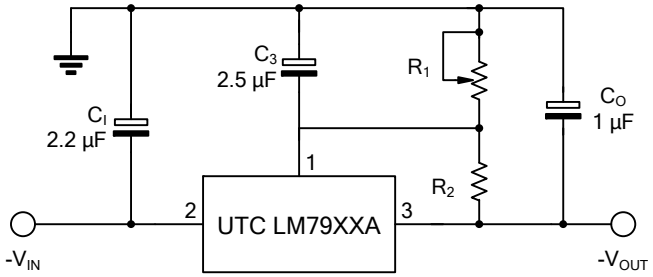



Fig.3 Circuit for increasing output voltage

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