

## GU79XX

### 3-TERMINAL NEGATIVE VOLTAGE REGULATORS

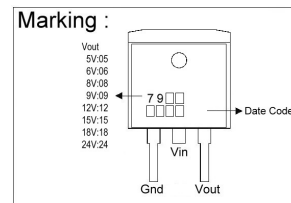
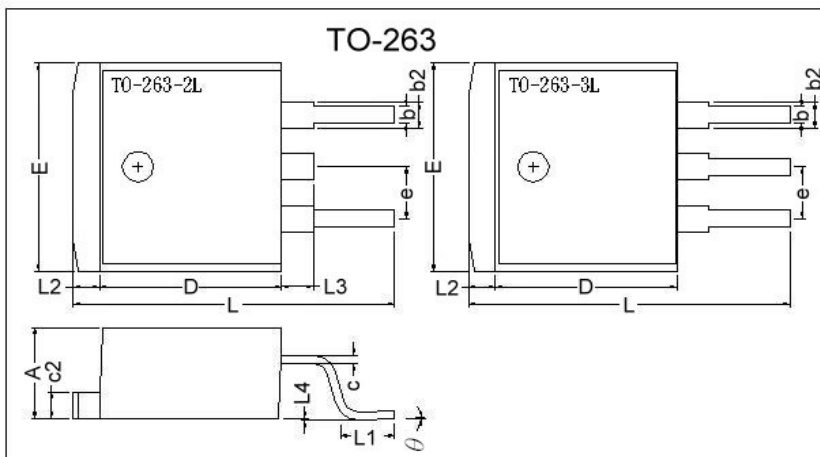
#### Description

The GU79XX series of fixed-voltage monolithic integrated-circuit voltage regulators are designed to complement Series GU78XX in a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. Each of these regulators can deliver up to 1.0 amperes of output current. The internal current limiting and thermal shutdown features of these regulators make them essentially immune to overload. In addition to use as fixed-voltage regulators, these devices can be used with external components to obtain adjustable output voltage and current and also as the power pass element in precision regulators.

#### Features

- -5V, -6V, -8V, -9V, -12V, -15V, -18V, -24V output voltage available
- Internal Thermal Overload Protection
- Internal Short-Circuit Current Limiting
- No External Components
- Output Transistor Safe-Area Compensation

#### Package Dimensions



| REF. | Millimeter |      | REF.  | Millimeter |      |
|------|------------|------|-------|------------|------|
|      | Min.       | Max. |       | Min.       | Max. |
| A    | 4.40       | 4.80 | c2    | 1.25       | 1.45 |
| b    | 0.76       | 1.00 | b2    | 1.17       | 1.47 |
| L4   | 0.00       | 0.30 | D     | 8.6        | 9.0  |
| c    | 0.36       | 0.5  | e     | 2.54 REF.  |      |
| L3   | 1.50 REF.  |      | L     | 14.6       | 15.8 |
| L1   | 2.29       | 2.79 | theta | 0°         | 8°   |
| E    | 9.80       | 10.4 | L2    | 1.27 REF.  |      |

#### Absolute Maximum Ratings (Ta=25°C)

| Parameter                                |             | Ratings   | Unit |
|--|-------------|-----------|------|
| Input voltage                            | GU7905 ~ 18 | -35V      | V    |
|  | GU7924      | -40V      | V    |
| Output current                           |             | 1.0       | A    |
| Operating junction temperature range     |             | 0 ~ 150   | °C   |
| Storage temperature range                |             | -55 ~ 150 | °C   |
| Thermal resistance junction-air (RθJA)   |             | 65        | °C/W |
| Thermal resistance junction-cases (RθJC) |             | 5         | °C/W |

## Electrical Characteristics

GU7905 (Refer to the test circuits, T<sub>j</sub>=0~125°C, I<sub>o</sub>=500mA, V<sub>in</sub>=-10V, C<sub>in</sub>=2.2μF, C<sub>o</sub>=1μF unless otherwise specified)

| Symbol                               |             | Min.  | Typ. | Max.  | Unit  | Test Conditions   |
|--------------------------------------|-------------|-------|------|-------|-------|---|
| V <sub>O</sub>                       | A-Rank (3%) | -4.85 | -5.0 | -5.15 | V     | V <sub>in</sub> =-10V, I <sub>o</sub> =500mA, T <sub>j</sub> =25°C<br>-7V ≤ V <sub>in</sub> ≤ -20V, 5mA ≤ I <sub>o</sub> ≤ 1A, PD ≤ 15W |
|                                      | B-Rank (5%) | -4.75 | -    | -5.25 |       |   |
| ΔV <sub>O</sub><br>(Line Regulation) |             | -     | 10   | 50    | mV    | -7V ≤ V <sub>in</sub> ≤ -25V, I <sub>o</sub> =500mA, T <sub>j</sub> =25°C   |
|                                      |             | -     | -    | 25    |       | -8V ≤ V <sub>in</sub> ≤ -12V, I <sub>o</sub> =500mA, T <sub>j</sub> =25°C   |
| ΔV <sub>O</sub><br>(Load Regulation) |             | -     | 10   | 100   | mV    | V <sub>in</sub> =-10V, 5mA ≤ I <sub>o</sub> ≤ 1A, T <sub>j</sub> =25°C  |
|                                      |             | -     | 3    | 50    |       | V <sub>in</sub> =-10V, 250mA ≤ I <sub>o</sub> ≤ 750mA, T <sub>j</sub> =25°C   |
| I <sub>Q</sub>                       |             | -     | -    | 6.0   | mA    | V <sub>in</sub> =-10V, I <sub>o</sub> =500mA, T <sub>j</sub> =25°C  |
| Δ I <sub>Q</sub>                     |             | -     | -    | 0.5   | mA    | V <sub>in</sub> =-10V, 5mA ≤ I <sub>o</sub> ≤ 1A  |
|                                      |             | -     | -    | 1.3   |       | -7V ≤ V <sub>in</sub> ≤ -25V, I <sub>o</sub> =500mA   |
| V <sub>n</sub>                       |             | -     | 100  | -     | μV    | 10Hz ≤ f ≤ 100KHz, T <sub>a</sub> =25°C   |
| RR                                   |             | 54    | -    | -     | dB    | -8V ≤ V <sub>in</sub> ≤ -18V, f=120Hz, T <sub>j</sub> =25°C   |
| VD                                   |             | -     | 2    | -     | V     | I <sub>o</sub> =1A, T <sub>j</sub> =25°C  |
| I <sub>pk</sub>                      |             | -     | 2.2  | -     | A     | T <sub>j</sub> =25°C  |
| ΔV <sub>o</sub> / ΔT <sub>j</sub>    |             | -     | -0.4 | -     | mV/°C | I <sub>o</sub> =5mA, 0°C ≤ T <sub>j</sub> ≤ 125°C   |

GU7906 (Refer to the test circuits, T<sub>j</sub>=0~125°C, I<sub>o</sub>=500mA, V<sub>in</sub>=-11V, C<sub>in</sub>=2.2μF, C<sub>o</sub>=1μF unless otherwise specified)

| Symbol                               |             | Min.  | Typ. | Max.  | Unit  | Test Conditions   |
|--------------------------------------|-------------|-------|------|-------|-------|---|
| V <sub>O</sub>                       | A-Rank (3%) | -5.82 | -6.0 | -6.18 | V     | V <sub>in</sub> =-11V, I <sub>o</sub> =500mA, T <sub>j</sub> =25°C<br>-8V ≤ V <sub>in</sub> ≤ -21V, 5mA ≤ I <sub>o</sub> ≤ 1A, PD ≤ 15W |
|                                      | B-Rank (5%) | -5.70 | -    | -6.30 |       |   |
| ΔV <sub>O</sub><br>(Line Regulation) |             | -     | 10   | 120   | mV    | -8V ≤ V <sub>in</sub> ≤ -25V, I <sub>o</sub> =500mA, T <sub>j</sub> =25°C   |
|                                      |             | -     | 5    | 60    |       | -9V ≤ V <sub>in</sub> ≤ -13V, I <sub>o</sub> =500mA, T <sub>j</sub> =25°C   |
| ΔV <sub>O</sub><br>(Load Regulation) |             | -     | 10   | 120   | mV    | V <sub>in</sub> =-11V, 5mA ≤ I <sub>o</sub> ≤ 1A, T <sub>j</sub> =25°C  |
|                                      |             | -     | 3    | 60    |       | V <sub>in</sub> =-11V, 250mA ≤ I <sub>o</sub> ≤ 750mA, T <sub>j</sub> =25°C   |
| I <sub>Q</sub>                       |             | -     | -    | 6.0   | mA    | V <sub>in</sub> =-11V, I <sub>o</sub> =500mA, T <sub>j</sub> =25°C  |
| Δ I <sub>Q</sub>                     |             | -     | -    | 0.5   | mA    | V <sub>in</sub> =-11V, 5mA ≤ I <sub>o</sub> ≤ 1A  |
|                                      |             | -     | -    | 1.3   |       | -8V ≤ V <sub>in</sub> ≤ -25V, I <sub>o</sub> =500mA   |
| V <sub>n</sub>                       |             | -     | 130  | -     | μV    | 10Hz ≤ f ≤ 100KHz, T <sub>a</sub> =25°C   |
| RR                                   |             | 54    | -    | -     | dB    | -9V ≤ V <sub>in</sub> ≤ -19V, f=120Hz, T <sub>j</sub> =25°C   |
| VD                                   |             | -     | 2    | -     | V     | I <sub>o</sub> =1A, T <sub>j</sub> =25°C  |
| I <sub>pk</sub>                      |             | -     | 2.2  | -     | A     | T <sub>j</sub> =25°C  |
| ΔV <sub>o</sub> / ΔT <sub>j</sub>    |             | -     | -0.5 | -     | mV/°C | I <sub>o</sub> =5mA, 0°C ≤ T <sub>j</sub> ≤ 125°C   |

**GU7908** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-14\text{V}$ ,  $C_{in}=2.2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

| Symbol                                 |             | Min.  | Typ. | Max.  | Unit                       | Test Conditions  |
|--|-------------|-------|------|-------|----------------------------|--|
| VO                                     | A-Rank (3%) | -7.76 | -8.0 | -8.24 | V                          | $V_{in}=-14\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$<br>$-10.5\text{V} \leq V_{in} \leq -23\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$ |
|  | B-Rank (5%) | -7.60 | -    | -8.40 |                            |  |
| $\Delta\text{VO}$<br>(Line Regulation) |             | -     | 10   | 160   | mV                         | $-10.5\text{V} \leq V_{in} \leq -25\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
|  |             | -     | 5    | 80    |                            | $-11.5\text{V} \leq V_{in} \leq -17\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
| $\Delta\text{VO}$<br>(Load Regulation) |             | -     | 12   | 160   | mV                         | $V_{in}=-14\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $T_j=25^\circ\text{C}$   |
|  |             | -     | 4    | 80    |                            | $V_{in}=-14\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$  |
| IQ                                     |             | -     | -    | 6.0   | mA                         | $V_{in}=-14\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
| $\Delta\text{IQ}$                      |             | -     | -    | 0.5   | mA                         | $V_{in}=-14\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$  |
|  |             | -     | -    | 1.0   |                            | $-11.5\text{V} \leq V_{in} \leq -25\text{V}$ , $I_o=500\text{mA}$  |
| Vn                                     |             | -     | 175  | -     | $\mu\text{V}$              | $10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_a=25^\circ\text{C}$   |
| RR                                     |             | 54    | -    | -     | dB                         | $-11.5\text{V} \leq V_{in} \leq -21.5\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$   |
| VD                                     |             | -     | 2    | -     | V                          | $I_o=1\text{A}$ , $T_j=25^\circ\text{C}$   |
| Ipk                                    |             | -     | 2.2  | -     | A                          | $T_j=25^\circ\text{C}$   |
| $\Delta\text{Vo} / \Delta\text{Tj}$    |             | -     | -0.6 | -     | $\text{mV}/^\circ\text{C}$ | $I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$   |

**GU7909** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-15\text{V}$ ,  $C_{in}=2.2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

| Symbol                                 |             | Min.  | Typ. | Max.  | Unit                       | Test Conditions  |
|--|-------------|-------|------|-------|----------------------------|--|
| VO                                     | A-Rank (3%) | -8.73 | -9.0 | -9.27 | V                          | $V_{in}=-15\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$<br>$-11.5\text{V} \leq V_{in} \leq -23\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$ |
|  | B-Rank (5%) | -8.55 | -    | -9.45 |                            |  |
| $\Delta\text{VO}$<br>(Line Regulation) |             | -     | 10   | 180   | mV                         | $-11.5\text{V} \leq V_{in} \leq -26\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
|  |             | -     | 5    | 90    |                            | $-12\text{V} \leq V_{in} \leq -18\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
| $\Delta\text{VO}$<br>(Load Regulation) |             | -     | 12   | 180   | mV                         | $V_{in}=-15\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $T_j=25^\circ\text{C}$   |
|  |             | -     | 4    | 90    |                            | $V_{in}=-15\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$  |
| IQ                                     |             | -     | -    | 6.0   | mA                         | $V_{in}=-15\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
| $\Delta\text{IQ}$                      |             | -     | -    | 0.5   | mA                         | $V_{in}=-15\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$  |
|  |             | -     | -    | 1.0   |                            | $-11.5\text{V} \leq V_{in} \leq -26\text{V}$ , $I_o=500\text{mA}$  |
| Vn                                     |             | -     | 175  | -     | $\mu\text{V}$              | $10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_a=25^\circ\text{C}$   |
| RR                                     |             | 54    | -    | -     | dB                         | $-12.5\text{V} \leq V_{in} \leq -22.5\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$   |
| VD                                     |             | -     | 2    | -     | V                          | $I_o=1\text{A}$ , $T_j=25^\circ\text{C}$   |
| Ipk                                    |             | -     | 2.2  | -     | A                          | $T_j=25^\circ\text{C}$   |
| $\Delta\text{Vo} / \Delta\text{Tj}$    |             | -     | -0.6 | -     | $\text{mV}/^\circ\text{C}$ | $I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$   |

**GU7912** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-19\text{V}$ ,  $C_{in}=2.2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

| Symbol                                 |             | Min.   | Typ.  | Max.   | Unit                       | Test Conditions  |
|--|-------------|--------|-------|--------|----------------------------|--|
| VO                                     | A-Rank (3%) | -11.64 | -12.0 | -12.36 | V                          | $V_{in}=-19\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$<br>$-14.5\text{V} \leq V_{in} \leq -27\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$ |
|  | B-Rank (5%) | -11.40 | -     | -12.60 |                            |  |
| $\Delta\text{VO}$<br>(Line Regulation) |             | -      | 12    | 240    | mV                         | $-14.5\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
|  |             | -      | 6     | 120    |                            | $-16\text{V} \leq V_{in} \leq -22\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
| $\Delta\text{VO}$<br>(Load Regulation) |             | -      | 12    | 240    | mV                         | $V_{in}=-19\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $T_j=25^\circ\text{C}$   |
|  |             | -      | 4     | 120    |                            | $V_{in}=-19\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$  |
| IQ                                     |             | -      | -     | 6.0    | mA                         | $V_{in}=-19\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
| $\Delta\text{IQ}$                      |             | -      | -     | 0.5    | mA                         | $V_{in}=-19\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$  |
|  |             | -      | -     | 1.0    |                            | $-14.5\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$  |
| Vn                                     |             | -      | 200   | -      | $\mu\text{V}$              | $10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_a=25^\circ\text{C}$   |
| RR                                     |             | 54     | -     | -      | dB                         | $-15\text{V} \leq V_{in} \leq -25\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$   |
| VD                                     |             | -      | 2     | -      | V                          | $I_o=1\text{A}$ , $T_j=25^\circ\text{C}$   |
| Ipk                                    |             | -      | 2.2   | -      | A                          | $T_j=25^\circ\text{C}$   |
| $\Delta\text{Vo} / \Delta\text{Tj}$    |             | -      | -0.8  | -      | $\text{mV}/^\circ\text{C}$ | $I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$   |

**GU7915** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-23\text{V}$ ,  $C_{in}=2.2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

| Symbol                                 |             | Min.   | Typ.  | Max.   | Unit                       | Test Conditions  |
|--|-------------|--------|-------|--------|----------------------------|--|
| VO                                     | A-Rank (3%) | -14.55 | -15.0 | -15.45 | V                          | $V_{in}=-23\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$<br>$-17.5\text{V} \leq V_{in} \leq -30\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$ |
|  | B-Rank (5%) | -14.25 | -     | -15.75 |                            |  |
| $\Delta\text{VO}$<br>(Line Regulation) |             | -      | 12    | 300    | mV                         | $-17.5\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
|  |             | -      | 6     | 150    |                            | $-20\text{V} \leq V_{in} \leq -26\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
| $\Delta\text{VO}$<br>(Load Regulation) |             | -      | 12    | 300    | mV                         | $V_{in}=-23\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $T_j=25^\circ\text{C}$   |
|  |             | -      | 4     | 150    |                            | $V_{in}=-23\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$  |
| IQ                                     |             | -      | -     | 6.0    | mA                         | $V_{in}=-23\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$   |
| $\Delta\text{IQ}$                      |             | -      | -     | 0.5    | mA                         | $V_{in}=-23\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$  |
|  |             | -      | -     | 1.0    |                            | $-17.5\text{V} \leq V_{in} \leq -30.5\text{V}$ , $I_o=500\text{mA}$  |
| Vn                                     |             | -      | 250   | -      | $\mu\text{V}$              | $10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_a=25^\circ\text{C}$   |
| RR                                     |             | 54     | -     | -      | dB                         | $-18.5\text{V} \leq V_{in} \leq -28.5\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$   |
| VD                                     |             | -      | 2     | -      | V                          | $I_o=1\text{A}$ , $T_j=25^\circ\text{C}$   |
| Ipk                                    |             | -      | 2.2   | -      | A                          | $T_j=25^\circ\text{C}$   |
| $\Delta\text{Vo} / \Delta\text{Tj}$    |             | -      | -0.9  | -      | $\text{mV}/^\circ\text{C}$ | $I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$   |

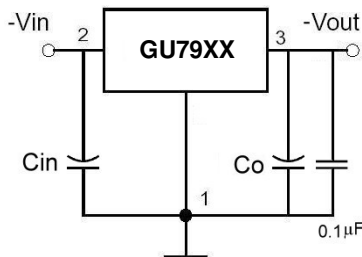
**GU7918** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-27\text{V}$ ,  $C_{in}=2.2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

| Symbol                            | Min.        | Typ.   | Max.  | Unit                       | Test Conditions   |  |
|-----------------------------------|-------------|--------|-------|----------------------------|---|--|
| VO                                | A-Rank (3%) | -17.46 | -18.0 | -18.54                     | V   | $V_{in}=-27\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$<br>$-21\text{V} \leq V_{in} \leq -33\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$ |
|                                   | B-Rank (5%) | -17.10 | -     | -18.9                      |   |  |
| $\Delta V_O$<br>(Line Regulation) | -           | 15     | 360   | mV                         | $-21\text{V} \leq V_{in} \leq -33\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$  |  |
|                                   | -           | 8      | 180   |                            | $-24\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$  |  |
| $\Delta V_O$<br>(Load Regulation) | -           | 15     | 360   | mV                         | $V_{in}=-27\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $T_j=25^\circ\text{C}$      |  |
|                                   | -           | 5      | 180   |                            | $V_{in}=-27\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$ |  |
| IQ                                | -           | -      | 6.0   | mA                         | $V_{in}=-27\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$                        |  |
| $\Delta I_Q$                      | -           | -      | 0.5   | mA                         | $V_{in}=-27\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$                               |  |
|                                   | -           | -      | 1.0   |                            | $-21\text{V} \leq V_{in} \leq -33\text{V}$ , $I_o=500\text{mA}$                           |  |
| Vn                                | -           | 300    | -     | $\mu\text{V}$              | $10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_a=25^\circ\text{C}$                          |  |
| RR                                | 54          | -      | -     | dB                         | $-22\text{V} \leq V_{in} \leq -32\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$    |  |
| VD                                | -           | 2      | -     | V                          | $I_o=1\text{A}$ , $T_j=25^\circ\text{C}$  |  |
| Ipk                               | -           | 2.2    | -     | A                          | $T_j=25^\circ\text{C}$  |  |
| $\Delta V_o / \Delta T_j$         | -           | -1.0   | -     | $\text{mV}/^\circ\text{C}$ | $I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$                      |  |

**GU7924** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-33\text{V}$ ,  $C_{in}=2.2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

| Symbol                            | Min.        | Typ.   | Max.  | Unit                       | Test Conditions   |  |
|-----------------------------------|-------------|--------|-------|----------------------------|---|--|
| VO                                | A-Rank (3%) | -23.28 | -24.0 | -24.72                     | V   | $V_{in}=-33\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$<br>$-27\text{V} \leq V_{in} \leq -38\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$ |
|                                   | B-Rank (5%) | -22.80 | -     | -25.20                     |   |  |
| $\Delta V_O$<br>(Line Regulation) | -           | 15     | 480   | mV                         | $-27\text{V} \leq V_{in} \leq -38\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$  |  |
|                                   | -           | 8      | 240   |                            | $-30\text{V} \leq V_{in} \leq -36\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$  |  |
| $\Delta V_O$<br>(Load Regulation) | -           | 15     | 480   | mV                         | $V_{in}=-33\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $T_j=25^\circ\text{C}$      |  |
|                                   | -           | 5      | 240   |                            | $V_{in}=-33\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$ |  |
| IQ                                | -           | -      | 6.0   | mA                         | $V_{in}=-33\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$                        |  |
| $\Delta I_Q$                      | -           | -      | 0.5   | mA                         | $V_{in}=-33\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$                               |  |
|                                   | -           | -      | 1.0   |                            | $-27\text{V} \leq V_{in} \leq -38\text{V}$ , $I_o=500\text{mA}$                           |  |
| Vn                                | -           | 400    | -     | $\mu\text{V}$              | $10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_a=25^\circ\text{C}$                          |  |
| RR                                | 54          | -      | -     | dB                         | $-28\text{V} \leq V_{in} \leq -38\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$    |  |
| VD                                | -           | 2      | -     | V                          | $I_o=1\text{A}$ , $T_j=25^\circ\text{C}$  |  |
| Ipk                               | -           | 2.2    | -     | A                          | $T_j=25^\circ\text{C}$  |  |
| $\Delta V_o / \Delta T_j$         | -           | -1.0   | -     | $\text{mV}/^\circ\text{C}$ | $I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$                      |  |

## Typical Application


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