



UR75XX

CMOS IC

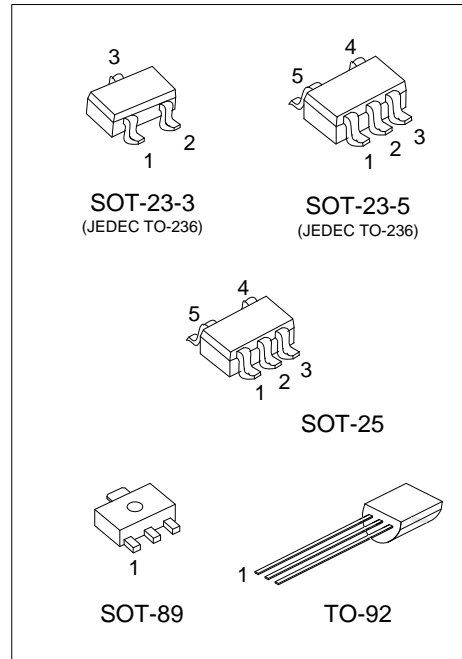
HIGH VOLTAGE , ULTRA LOW IQ VOLTAGE REGULATOR

DESCRIPTION

The UTC UR75XX Series are a low dropout regulator with wide input voltage range, high output voltage accuracy, ultra low quiescent current and low dropout. This regulator is based on a CMOS process, and it's input voltage could high enough more than 36V, thus they are very suitable for high voltage application.

FEATURES

- * High output voltage accuracy: $\pm 2\%$
- * Ultra low quiescent current: 1.2uA (Typ.)
- * Low temperature-drift coefficient of V_{OUT} : $\pm 50\text{ppm}/^\circ\text{C}$ (Typ.)
- * Wide Input voltage range: 0 ~ 36V



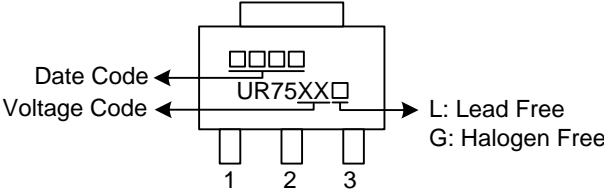
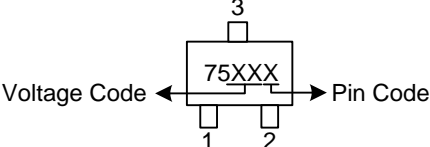
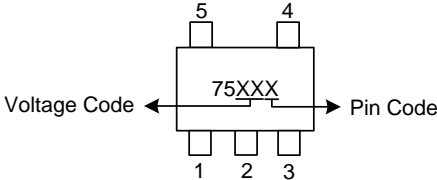
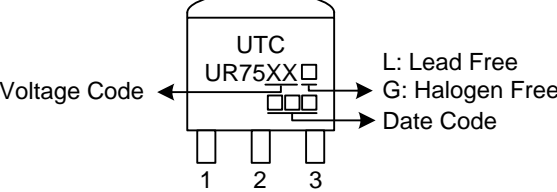
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | | | Packing |
|-----------------|-----------------|----------|----------------|---|---|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | 4 | 5 | |
| UR75XXL-AB3-R | UR75XXG-AB3-R | SOT-89 | G | I | O | - | - | Tape Reel |
| UR75XXL-AE2-1-R | UR75XXG-AE2-1-R | SOT-23-3 | G | I | O | - | - | Tape Reel |
| UR75XXL-AE2-3-R | UR75XXG-AE2-3-R | SOT-23-3 | G | O | I | - | - | Tape Reel |
| UR75XXL-AE2-4-R | UR75XXG-AE2-4-R | SOT-23-3 | I | O | G | - | - | Tape Reel |
| UR75XXL-AE5-C-R | UR75XXG-AE5-C-R | SOT-23-5 | I | G | N | N | O | Tape Reel |
| UR75XXL-AE5-F-R | UR75XXG-AE5-F-R | SOT-23-5 | G | I | O | N | N | Tape Reel |
| UR75XXL-AF5-C-R | UR75XXG-AF5-C-R | SOT-25 | I | G | N | N | O | Tape Reel |
| UR75XXL-AF5-F-R | UR75XXG-AF5-F-R | SOT-25 | G | I | O | N | N | Tape Reel |
| UR75XXL-T92-B | UR75XXG-T92-B | TO-92 | G | I | O | - | - | Tape Box |
| UR75XXL-T92-K | UR75XXG-T92-K | TO-92 | G | I | O | - | - | Bulk |

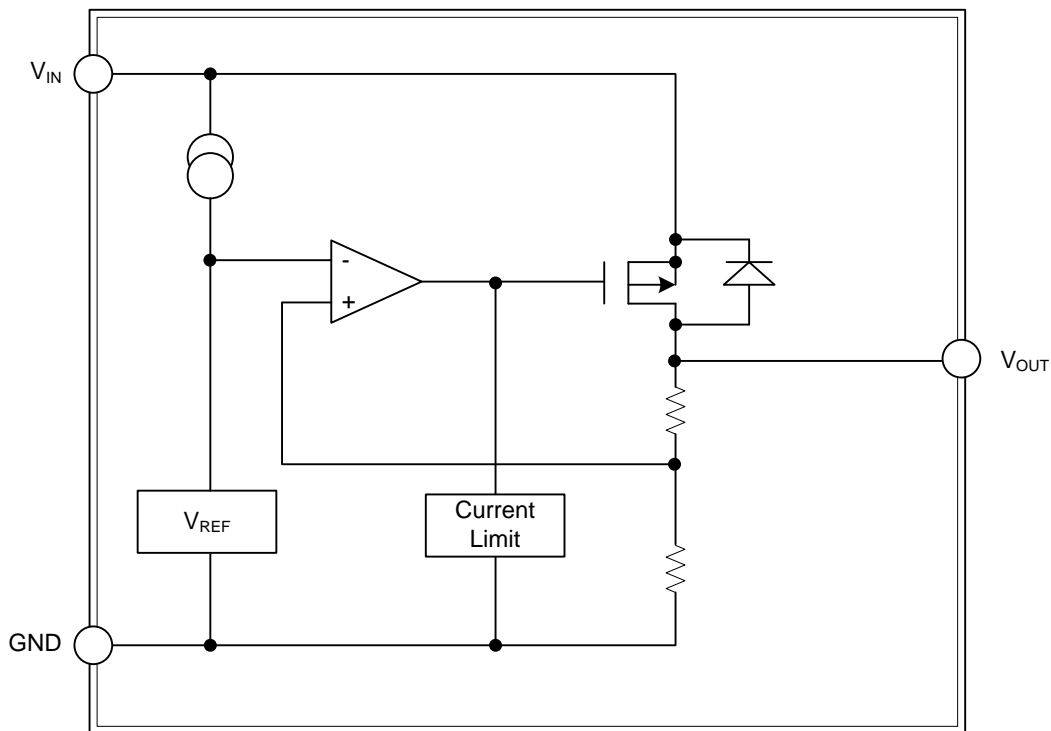
Note: Pin assignment: G: Ground I: V_{IN} O: V_{OUT} N: NC

| | |
|------------------------|---|
| <p>UR75XXG-AE2-1-R</p> | <p>(1) R: Tape Reel, B: Tape Box, K: Bulk (2) refer to Pin Assignment (3) AB3: SOT-89, AE2: SOT-23-3, AE5: SOT-23-5 AF5: SOT-25, T92: TO-92 (4) G: Halogen Free and Lead Free, L: Lead Free (5) XX: Refer to Marking Information</p> |
|------------------------|---|

MARKING INFORMATION

| PACKAGE | VOLTAGE CODE | MARKING |
|--------------------|--|---|
| SOT-89 | 15:1.5V 18:1.8V 21:2.1V |  |
| SOT-23-3 | 23:2.3V 25:2.5V 27:2.7V 30:3.0V 33:3.3V 36:3.6V |  |
| SOT-23-5 SOT-25 | 40:4.0V 44:4.4V 50:5.0V 60:6.0V 70:7.0V 80:8.0V |  |
| TO-92 | 90:9.0V 10:10V 12:12V |  |

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|-----------------------------|--------------|-----------|------------|------|
| Input Voltage | | V_{IN} | 36 | V |
| Power Dissipation | SOT-23-3 | P_D | 200 | mW |
| | SOT-23-5 | | 250 | mW |
| | SOT-25 | | | |
| | SOT-89/TO-92 | | 500 | mW |
| Operating Temperature Range | | T_{OPR} | -40 ~ +125 | °C |
| Storage Temperature Range | | T_{STG} | -40 ~ +125 | °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.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

UTC UR7515

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|--|------|------|------|--------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$ | 1.47 | 1.5 | 1.53 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 70 | 100 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1\text{mA}$ | | 45 | 100 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1\text{mA}$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 50\text{mA}$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}, -40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$ | | ±50 | ±100 | Ppm/°C |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | uA |

UTC UR7518

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|--|-------|------|-------|--------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$ | 1.764 | 1.8 | 1.836 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 70 | 100 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1\text{mA}$ | | 45 | 100 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1\text{mA}$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 50\text{mA}$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}, -40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$ | | ±50 | ±100 | Ppm/°C |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | uA |

UTC UR7521

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|--|-------|------|-------|--------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$ | 2.058 | 2.1 | 2.142 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 70 | 100 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1\text{mA}$ | | 40 | 100 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1\text{mA}$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 50\text{mA}$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}, -40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$ | | ±50 | ±100 | Ppm/°C |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | uA |

■ ELECTRICAL CHARACTERISTICS (Cont.)

UTC UR7523

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|-------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 2.254 | 2.3 | 2.346 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 70 | 100 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 40 | 100 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7525

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 2.45 | 2.5 | 2.55 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 70 | 100 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 40 | 100 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7527

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|-------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 2.646 | 2.7 | 2.754 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 70 | 100 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 40 | 100 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7530

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 2.94 | 3.0 | 3.06 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 70 | 100 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 40 | 100 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

■ ELECTRICAL CHARACTERISTICS (Cont.)

UTC UR7533

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|-------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 3.234 | 3.3 | 3.366 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 30 | 80 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7536

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|-------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 3.528 | 3.6 | 3.672 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 30 | 65 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7540

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 3.92 | 4.0 | 4.08 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 30 | 65 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7544

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|-------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 4.312 | 4.4 | 4.488 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 30 | 65 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

■ ELECTRICAL CHARACTERISTICS (Cont.)

UTC UR7550

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|-----|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 4.9 | 5.0 | 5.1 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 30 | 65 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7560

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 5.88 | 6.0 | 6.12 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 30 | 60 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7570

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 6.86 | 7.0 | 7.14 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 30 | 60 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7580

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 7.84 | 8.0 | 8.16 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 30 | 60 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

■ ELECTRICAL CHARACTERISTICS (Cont.)

UTC UR7590

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 8.82 | 9.0 | 9.18 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 25 | 55 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

UTC UR7510

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|-----|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 9.8 | 10.0 | 10.2 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 25 | 55 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

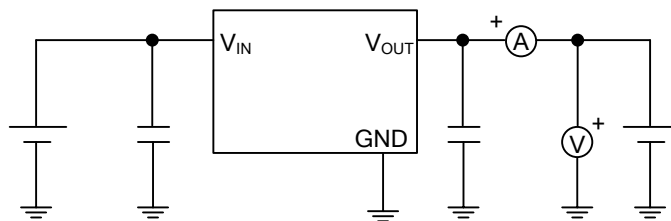
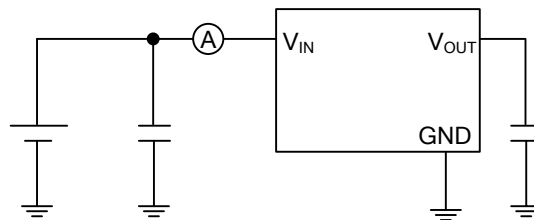
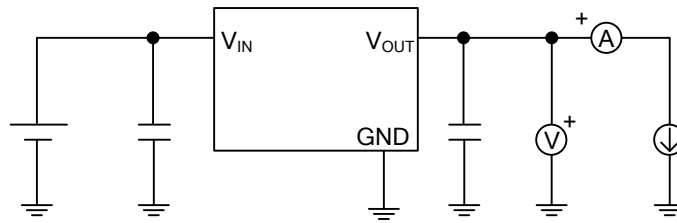
UTC UR7512

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---|---|-------|----------|-----------|-----------------|
| Output Voltage | V_{OUT} | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$ | 11.76 | 12.0 | 12.24 | V |
| Output Current (Note 1) | I_{OUT} | $V_{IN}=V_{OUT}+2V$ | 100 | 150 | | mA |
| Dropout Voltage (Note 2) | V_{DROP} | $I_{OUT}=1mA$ | | 25 | 55 | mV |
| Line Regulation | $\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$ | $V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$ | | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{OUT2} | $V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$ | | 30 | 80 | mV |
| Output Voltage Temperature Coefficient | $\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$ | $V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$ | | ± 50 | ± 100 | Ppm/ $^\circ C$ |
| Supply Current | I_{SS1} | $V_{IN}=V_{OUT}+2V$ | | 1.2 | 3.0 | μA |

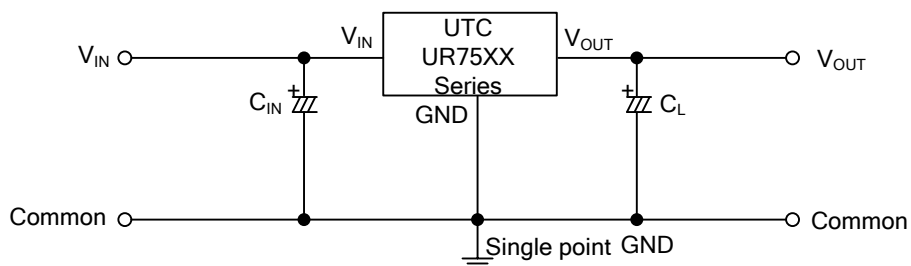
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT} .

2. $V_{drop}=V_{IN1}-(V_{OUT} \times 0.98)$, $V_{OUT}: V_{IN}=V_{OUT}+2V, I_{OUT}=1mA$

■ TEST CIRCUIT

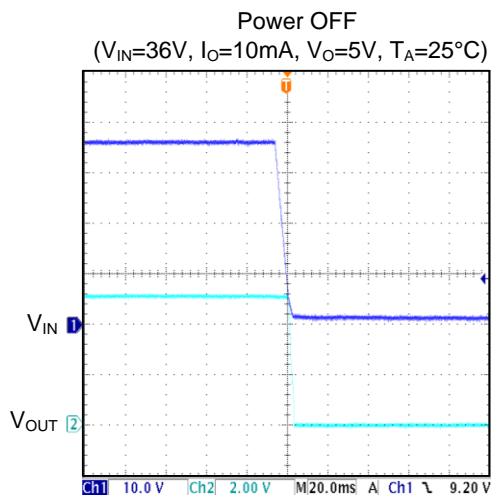
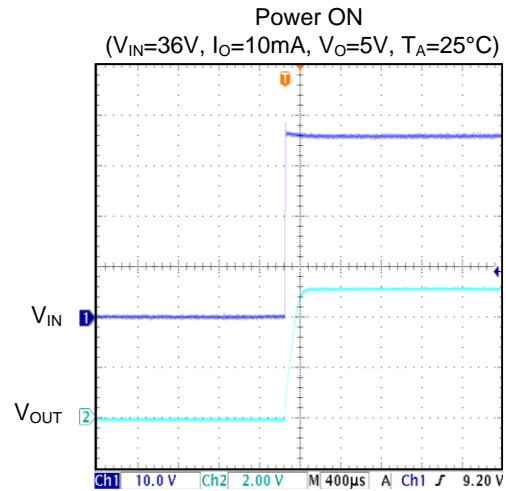
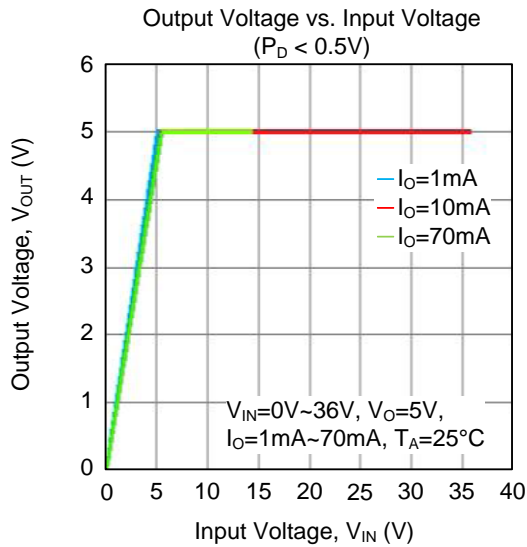


■ TYPICAL APPLICATION CIRCUIT



$C_{IN} > 1.0\mu\text{F}$
 $C_L > 2.2\mu\text{F}$ (tantalum capacitor)

■ TYPICAL CHARACTERISTICS



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