

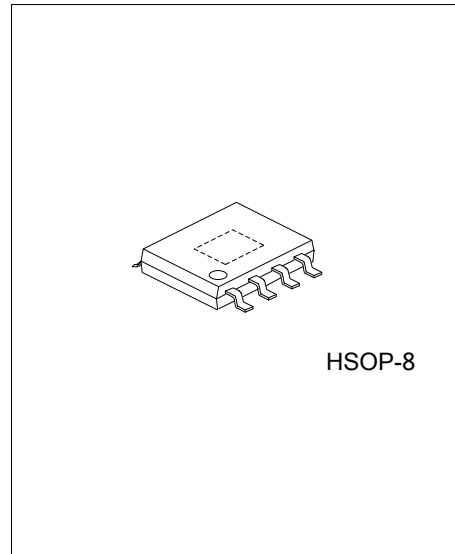


LR6XXYY

Preliminary

CMOS IC

DUAL OUTPUT LOW ESR CAP. LOW-DROPOUT 600MA LINEAR REGULATOR



DESCRIPTION

The UTC **LR6XXYY** is a low noise and high accuracy LDO voltage regulator which has the soft start function. Designers can reduce power consumption more easily by applying EN function that can turn off the output of each device and control the in rush current through the soft start function.

The UTC **LR6XXYY** comes with low design cost and outstanding output stability and its compatibility of working with low ESR ceramic capacitors is undoubted. Besides, the level of stability is ensured by the perfect transient response and PSRR derived from a large frequency range.

FEATURES

- * $V_D=470mV @600mA (Typ.)$, $V_{OUT} \geq 3.3V$
- * Range of Output Current:600mA / Channel
- * Low Power Consumption:50 μA (V_{OUT1} and V_{OUT2} Enable Mode).
- * Standby Current:0.1 μA (Typ.)
- * Accurate : $\pm 2\%$
- * High PSRR: 65 dB at 1kHz.
- * Each Channel Output Current Limit Protection:950mA
- * With Short Circuit Protection
- * Output ON/OFF Control Function

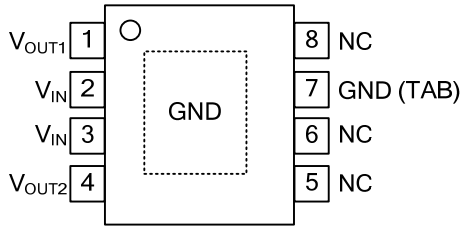
ORDERING INFORMATION

| Ordering Number | | Package | Packing |
|-----------------|----------------|---------|-----------|
| Lead Free | Halogen Free | | |
| LR6XXYYL-SH2-R | LR6XXYYG-SH2-R | HSOP-8 | Tape Reel |
| LR6XXYYL-SH2-T | LR6XXYYG-SH2-T | HSOP-8 | Tube |

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

| | |
|-----------------------|--|
| <p>LR6XXYYL-SH2-R</p> | <p>(1) R: Tape Reel, T: Tube</p> <p>(2) SH2: HSOP-8</p> <p>(3) G: Halogen Free, L: Lead Free</p> <p>(4) XX: refer to Marking Information</p> <p>(5) YY: refer to Marking Information</p> |
|-----------------------|--|

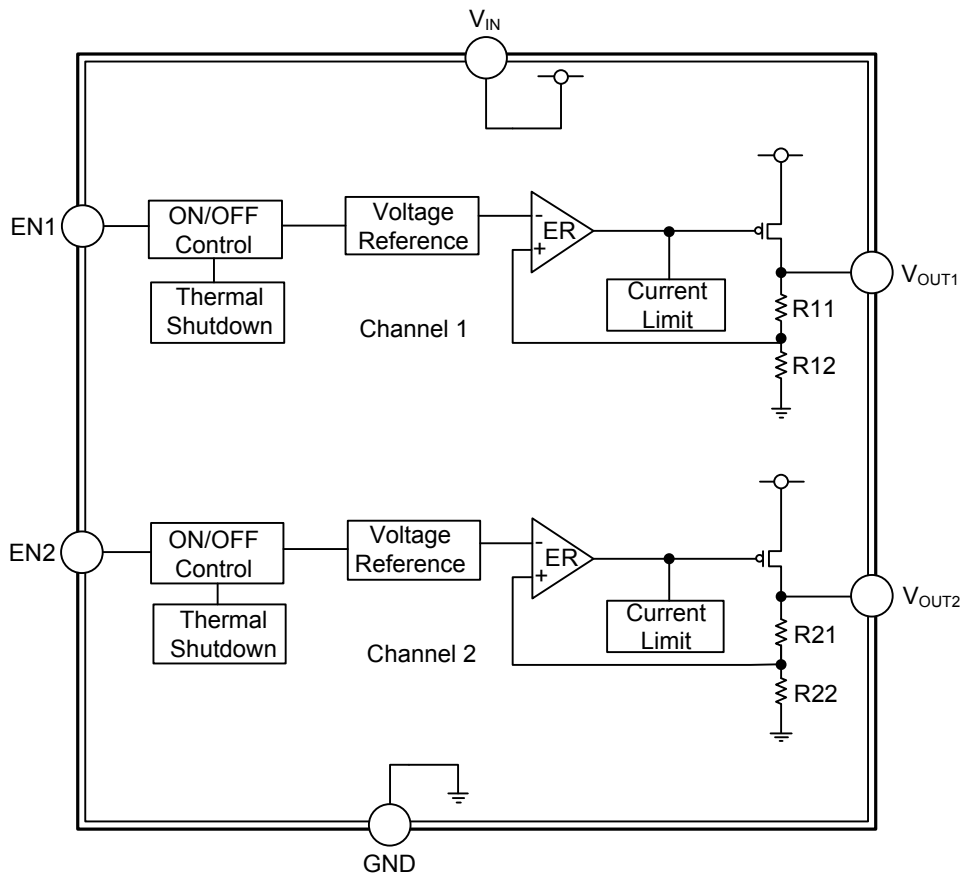
■ PIN CONFIGURATION



■ PIN DESCRIPTION

| PIN NO. | PIN NAME | DESCRIPTION |
|---------|-------------------|----------------|
| 1 | V _{OUT1} | Output 1. |
| 2, 3 | V _{IN} | Power input. |
| 4 | V _{OUT2} | Output 2. |
| 5, 6, 8 | NC | No connection. |
| 7 | GND (TAB) | Ground. |

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

| PARAMETER | SYMBOL | RATINGS | UNIT |
|----------------------|-----------|-----------|------|
| Input Voltage | V_{IN} | 7 | V |
| EN Pin Voltage | V_{EN} | 7 | V |
| Ambient Temperature | T_A | -40 ~ 85 | °C |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature | T_{STG} | -65 ~ 150 | °C |

Notes: 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} | 60 | °C/W |
| Junction to Case | θ_{JC} | 15 | °C/W |

■ ELECTRICAL CHARACTERISTICS

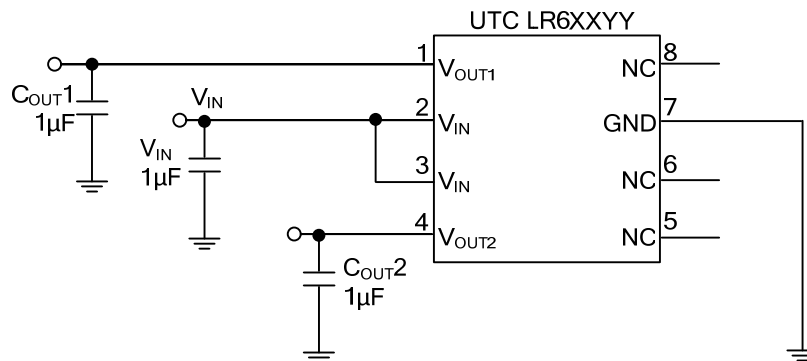
($V_{IN}=V_{OUT}+1V$, $V_{EN1}=V_{EN2}=V_{IN}$, $T_J=25^\circ\text{C}$, unless otherwise specified) (Note 1)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|------------------|--|----------------|-----|------|------------------|
| Input Voltage (Note 2) | V_{IN} | | 1.6 | | 6.0 | V |
| Output Voltage Tolerance | V_{OUT} | $V_{IN}=6.0V$, $I_{OUT}=1mA$ | -2 | | 2 | % |
| Continuous Output Current | I_{OUT} | | 600 | | | mA |
| Quiescent Current | I_Q | $V_{EN2}=V_{EN1}=V_{IN}$ | | 50 | 80 | μA |
| GND Pin Current | I_{GND} | $I_{OUT1}=600mA$, $I_{OUT2}=600mA$, $V_{EN2}=V_{EN1}=V_{IN}$ | | 55 | 80 | μA |
| Standby Current | I_{STBY} | $V_{EN1}=V_{EN2}=0$ | | | 0.1 | μA |
| Output Current Limit | I_{IL} | $V_{OUT}=GND$ | 650 | 950 | | mA |
| Dropout Voltage | V_{DROP} | $I_{OUT}=600mA$ | $V_{OUT}=1.8V$ | 710 | 850 | mV |
| | | | $V_{OUT}=2.5V$ | 580 | 700 | mV |
| | | | $V_{OUT}=3.3V$ | 470 | 560 | mV |
| Line Regulation | ΔV_{LIR} | $V_{IN}=V_{OUT}+1V\sim 6V$ | | 3 | 16 | mV |
| Load Regulation | ΔV_{LOR} | $I_{OUT}=1mA\sim 600mA$ | | 2 | 10 | mV |
| Ripple Rejection | PSRR | $f=1kHz$, Ripple=0.5V _{P-P} , | | 65 | | dB |
| Output Noise Voltage | | $f=10\sim 100KHz$ | | 24 | | μVrms |
| Temperature Coefficient | TC | | | 50 | | ppm/°C |
| Thermal Shutdown Temperature | | $V_{IN}=V_{OUT}+1V$ | | 150 | | °C |
| Thermal Shutdown Hysteresis | | | | 35 | | °C |
| EN PIN SPECIFICATIONS | | | | | | |
| EN Pin Current | I_{EN} | $V_{EN1}=V_{EN2}=V_{IN}$ | | | 0.1 | μA |
| Shutdown Exit Delay Time | Δt | | | 100 | | μS |
| Max Output Discharge Resistance to GND During Shutdown | R_{DSON_CLMP} | | | 20 | | Ω |
| EN Input Threshold | V_{ENH} | Output ON | 1.6 | | | V |
| | V_{ENL} | Output OFF | | | 0.25 | V |

Notes: 1. Specifications are production tested at $T_A=25^\circ\text{C}$. Specifications over the $-40^\circ\text{C}\sim 85^\circ\text{C}$ operating temperature range are assured by design, characterization and correlation with Statistical Quality Controls (SQC).

2. $V_{IN}(\text{min})$ is the higher value of $V_{OUT} + \text{Dropout Voltage}$ or 1.6V.

■ TYPICAL APPLICATION CIRCUIT



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.