

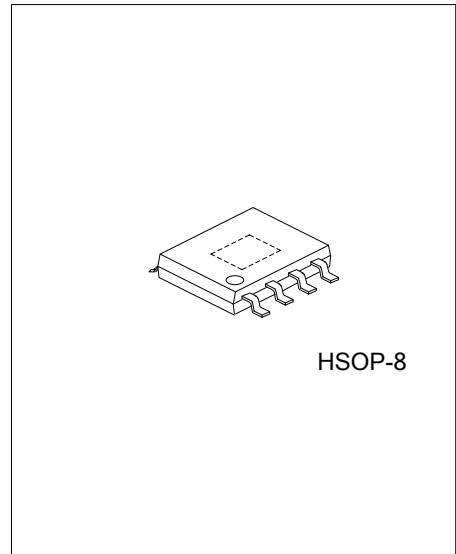


## LR6XXYY

Preliminary

CMOS IC

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



HSOP-8

#### 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 $\mu A$  ( $V_{OUT1}$  and  $V_{OUT2}$  Enable Mode).
- \* Standby Current:0.1 $\mu A$  (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
LR6XXYYG-SH2-R	HSOP-8	Tape Reel

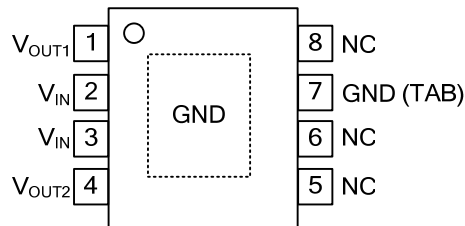
Note: xx: Output Voltage, refer to Marking Information.

<p>LR6XXYYG-SH2-R</p>	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p> <p>(4) Voltage Code at <math>V_{OUT1}</math></p> <p>(5) Voltage Code at <math>V_{OUT2}</math></p>	<p>(1) R: Tape Reel</p> <p>(2) SH2: HSOP-8</p> <p>(3) G: Halogen Free and Lead Free</p> <p>(4) XX: refer to Marking Information</p> <p>(5) YY: refer to Marking Information</p>
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### MARKING INFORMATIONS

PACKAGE	VOLTAGE CODE		MARKING
	XX	YY	
HSOP-8	12:1.2V	33:3.3V	
	33:3.3V	33:3.3V	

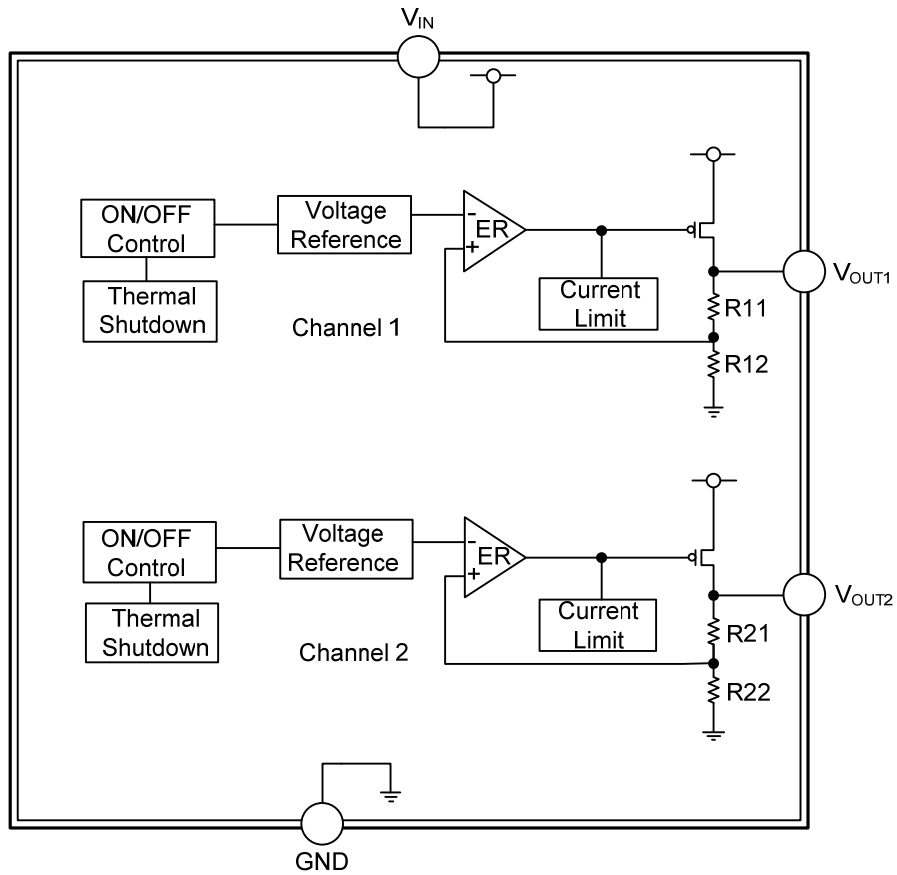
### PIN CONFIGURATION



### 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	$\theta_{JA}$	60	°C/W
Junction to Case	$\theta_{JC}$	15	°C/W

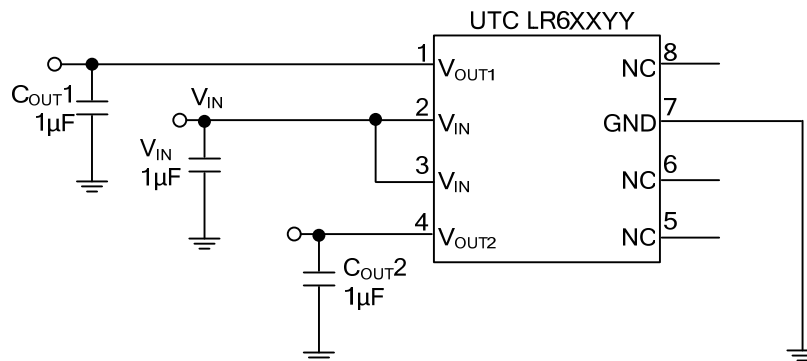
### ■ ELECTRICAL CHARACTERISTICS

( $V_{IN}=V_{OUT}+1V$ ,  $V_{EN1}=V_{EN2}=V_{IN}$ ,  $T_J=25^\circ\text{C}$ , 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	$\mu\text{A}$	
GND Pin Current	$I_{GND}$	$I_{OUT1}=600mA$ , $I_{OUT2}=600mA$ , $V_{EN2}=V_{EN1}=V_{IN}$		55	80	$\mu\text{A}$	
Standby Current	$I_{STBY}$	$V_{EN1}=V_{EN2}=0$			0.1	$\mu\text{A}$	
Output Current Limit	$I_{IL}$		650	950		mA	
Short Circuit Current		$V_{OUT}=GND$		400		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	$\Delta V_{LIR}$	$V_{IN}=V_{OUT}+1V\sim 6V$		3	16	mV	
Load Regulation	$\Delta V_{LOR}$	$I_{OUT}=1mA\sim 600mA$		2	10	mV	
Ripple Rejection	PSRR	$f=1kHz$ , Ripple=0.5V <sub>P-P</sub>		65		dB	
Output Noise Voltage		$f=10\sim 100kHz$		24		$\mu\text{Vrms}$	
Temperature Coefficient	TC			50		ppm/°C	
Thermal Shutdown Temperature		$V_{IN}=V_{OUT}+1V$		150		°C	
Thermal Shutdown Hysteresis				35		°C	
<b>EN PIN SPECIFICATIONS</b>							
EN Pin Current	$I_{EN}$	$V_{EN1}=V_{EN2}=V_{IN}$			0.1	$\mu\text{A}$	
Shutdown Exit Delay Time	$\Delta t$			100		$\mu\text{s}$	
Max Output Discharge Resistance to GND During Shutdown	$R_{DSON\_CLMP}$			20		$\Omega$	
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



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