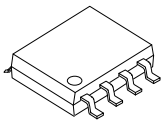
1.5A LDO REGULATOR



SOP-8

■ DESCRIPTION

The UTC **UR1171** is a typical LDO (linear regulator) with the features of high output voltage accuracy, low supply current, low ON-resistance, and high ripple rejection.

During operation of the UTC **UR1171**, the dropout voltage is very low and the response of line transient and load transient are very well.

Internally, there're many functions of UTC **UR1171** which can be seen in the block figure. There are a voltage reference unit, an error amplifier, resistor-net for voltage setting, a current limit circuit, and a chip enable circuit in each UTC **UR1171**.

The UTC **UR1171** can be used as an ideal of the power supply for hand-held communication equipment, such as: power source for portable communication equipment, power source for electrical appliances, for example, cameras, VCRs and camcorders and power source for battery-powered equipment.

■ FEATURES

* Low standby current (TYP=0.1μA)
* Supply current (TYP=80μA)
* Output current (MIN=1.5A@V_{IN}=V_{OUT}+1.0V)
* Output voltage accuracy (±2.0%)
* Output voltage (1.2V~5.0V)
* Low dropout voltage (TYP=0.09V@V_{OUT}=3.0V, I_{OUT}=300mA)
* Line regulation (TYP=0.05%/V)
* Low temperature-drift coefficient of output voltage
* Built-in thermal shunt circuit
* Built-in current limit circuit

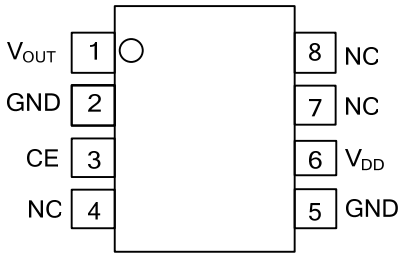
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UR1171xxL-S08-T	UR1171xxG-S08-T	SOP-8	Tube
UR1171xxL-S08-R	UR1171xxG-S08-R	SOP-8	Tape Reel

UR1171xxL-S08-T
- (1)Packing Type
- (2)Package Type
- (3)Lead Free
- (4)Enable Threshold Level

(1) T: Tube, R: Tape Reel
(2) S08: SOP-8
(3) L: Lead Free, G: Halogen Free
(4) AH: 1.5A/Active High

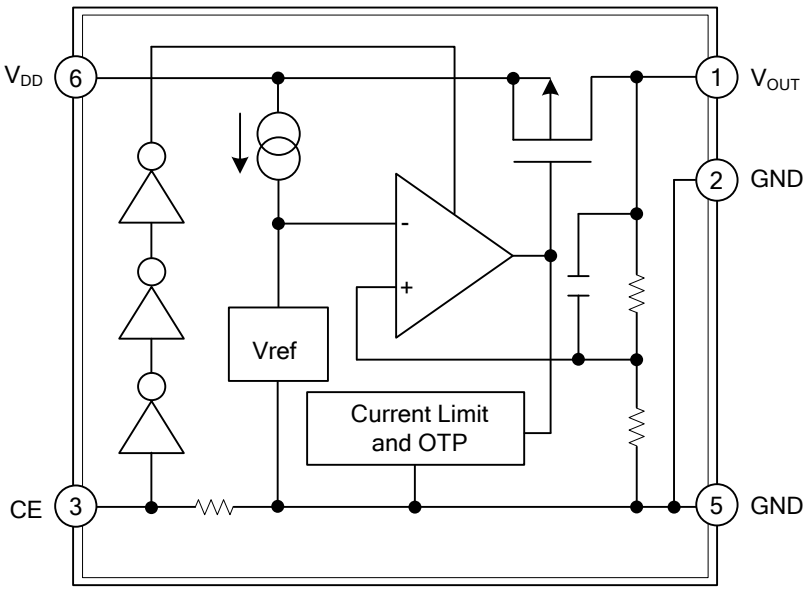
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V_{OUT}	Output Pin
2, 5	GND	Ground Pin
3	CE	Chip Enable Pin
4, 7, 8	NC	No Connection
6	V_{DD}	Input Pin

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	7.0	V
Input Voltage(CE or CE Input Pin)	V_{CE}	-0.3~V_{IN}+0.3	V
Output Voltage	V_{OUT}	-0.3~V_{IN}+0.3	V
Output Current	I_{OUT}	3.5	A
Power Dissipation	P_D	606	mW
Operating Temperature	T_{OPT}	-40~85	°C
Storage Temperature	T_{STG}	-55~125	°C

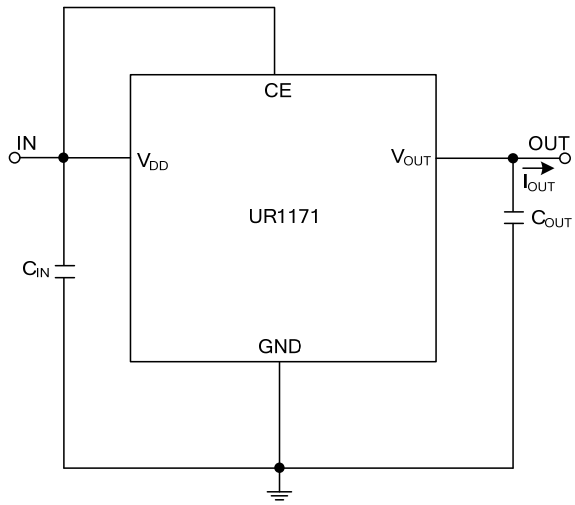
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

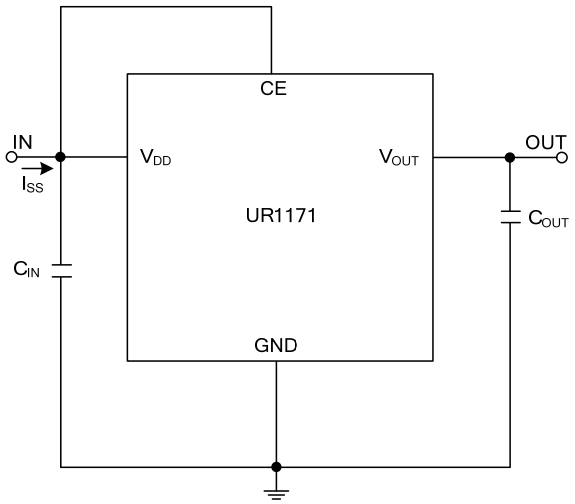
UR1171AH

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage		V_{IN}				6.0	V
Supply Current		I_{SS}	V_{IN}-V_{OUT}=1.0V, V_{CE}=V_{IN}		80	160	μA
Standby Current		I_{STB}	V_{IN}-V_{OUT}=1.0V, V_{CE}=0V		0.1	2.0	μA
Output Voltage		V_{OUT}	V_{IN}-V_{OUT}=1.0V, I_{OUT}=200mA	x0.98		x1.02	V
Output Current		I_{OUT}	V_{IN}-V_{OUT}=1.0V	1.5			A
Load Regulation		$\Delta V_{OUT}/\Delta I_{OUT}$	V_{IN}-V_{OUT}=1.0V, 1mA≤I_{OUT}≤300mA		10	60	mV
Dropout Voltage		V_{DIF}	I_{OUT}=300mA, V_{OUT}=1.5≤V_{OUT}<1.6		0.16	0.35	V
			I_{OUT}=300mA, V_{OUT}=1.6≤V_{OUT}<1.7		0.14	0.32	V
			I_{OUT}=300mA, V_{OUT}=1.7≤V_{OUT}<1.8		0.13	0.28	V
			I_{OUT}=300mA, V_{OUT}=1.8≤V_{OUT}<2.0		0.12	0.24	V
			I_{OUT}=300mA, V_{OUT}=2.0≤V_{OUT}<2.5		0.10	0.21	V
			I_{OUT}=300mA, V_{OUT}=2.5≤V_{OUT}≤5.0		0.09	0.18	V
Line Regulation	1.5≤V_{OUT}<1.6	$\Delta V_{OUT}/\Delta V_{IN}$	I_{OUT}=200mA, V_{OUT}=2.1V≤V_{IN}<6.0V		0.05	0.30	%/V
	1.6≤V_{OUT}≤5.0		I_{OUT}=200mA, V_{OUT}+0.5V≤V_{IN}≤6.0V				
Ripple Rejection	1.5≤V_{OUT}<4.7	RR	f=1kHz, Ripple 0.5 V_{P-P},V_{IN}−V_{OUT}=1.0V		50		dB
	4.7≤V_{OUT}≤5.0		f=1kHz, Ripple 0.5V_{P-P}, V_{IN}=5.75V				
Output Voltage Temperature Coefficient		$\Delta V_{OUT}/\Delta T$	I_{OUT}=10mA, -40°C ≤ T_A ≤ 85°C		±100		ppm /°C
Short Current Limit		I_{LIM}	V_{OUT}=0V		200		mA
Pull-down resistance for CE pin		R_{PD}		2.5	5.0	10.0	MΩ
CE Input Voltage “H”		V_{CEH}		1.5		V_{IN}	V
Thermal Shutdown Detector Threshold Temperature		T_{TSD}	Junction Temperature		150		°C
Thermal Shutdown Released Temperature		T_{TSR}	Junction Temperature		120		°C

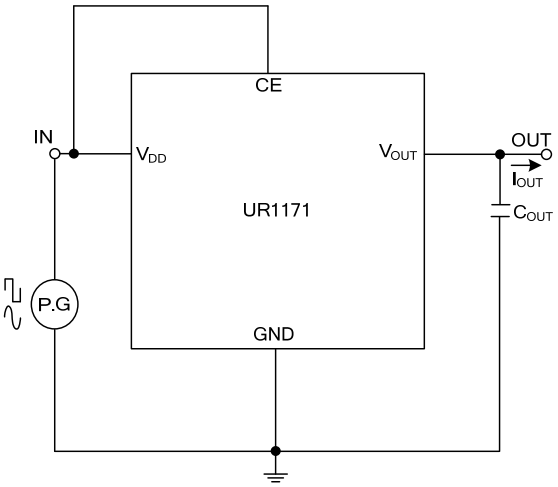
■ TEST CIRCUIT



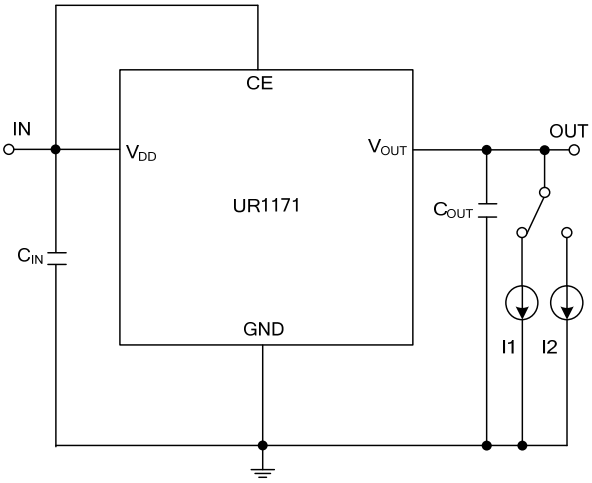
Standard Test Circuit



Supply Current Test Circuit

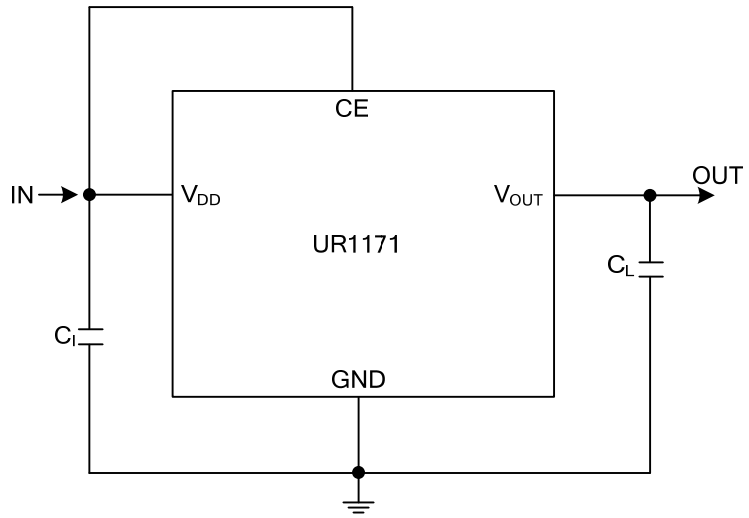


Test Circuit for Ripple Rejection, Input Transient Response



Test Circuit for Load Transient Response

■ TYPICAL APPLICATION CIRCUIT



$1.5V \le V_{OUT} < 1.8V$: C_I=10μF (Ceramic), C_L=10μF (Ceramic)
$1.8V \le V_{OUT} \le 5.0V$: C_I=4.7μF (Ceramic), C_L=4.7μF (Ceramic)