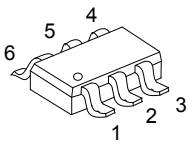
LR6401

CMOS IC

DUAL CHANNEL LDO REGULATORS WITH ENABLE FUNCTION



SOT-26

■ DESCRIPTION

UTC **LR6401** is a low noise and high accuracy LDO voltage regulator which has enable and soft start functions. Designers can reduce power consumption more easily by applying EN function and control the in rush current through soft the start function.

The compatibility of working with low ESR ceramic capacitors is undoubted and it comes with low design cost and outstanding output stability.

More detail about available V_{OUT} of UTC **LR6401** can be found in the marking information.

■ FEATURES

* V_D=150mV @100mA (Typ.) ,V_{OUT} ≥2.8V
* Range of operating voltage:2.7V ~ 7.0V
* Range of output voltage range:1.2V ~ 4.0V
* Range of output current:300mA / Channel
* Low power consumption:90μA (Typ.) for each channel
* Standby current:0.1μA (Typ.)
* Accurate：±2%
* High PSRR: 65 dB
* Each channel output current limit protection:350mA
* With Short circuit protection
* Output ON/OFF control function
* Halogen Free

■ ORDERING INFORMATION

Ordering Number	Package	Packing
LR6401xG-AG6-R	SOT-26	Tape Reel

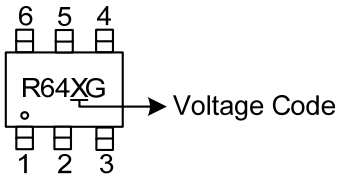
Note: x: Output Voltage, refer to Marking Information.

LR6401xG-AG6-R

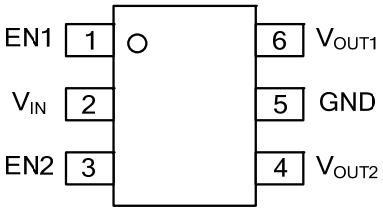
(1) Packing Type
(2) Package Type
(3) Halogen Free
(4) Output Voltage Code

(1) R: Tape Reel
(2) AG6: SOT-26
(3) G: Halogen Free
(4) xx: Refer to Marking Information

■ MARKING INFORMATION

PACKAGE	VOLTAGE	VOLTAGE CODE	MARKING
SOT-26	1.8V + 3.3V	A	

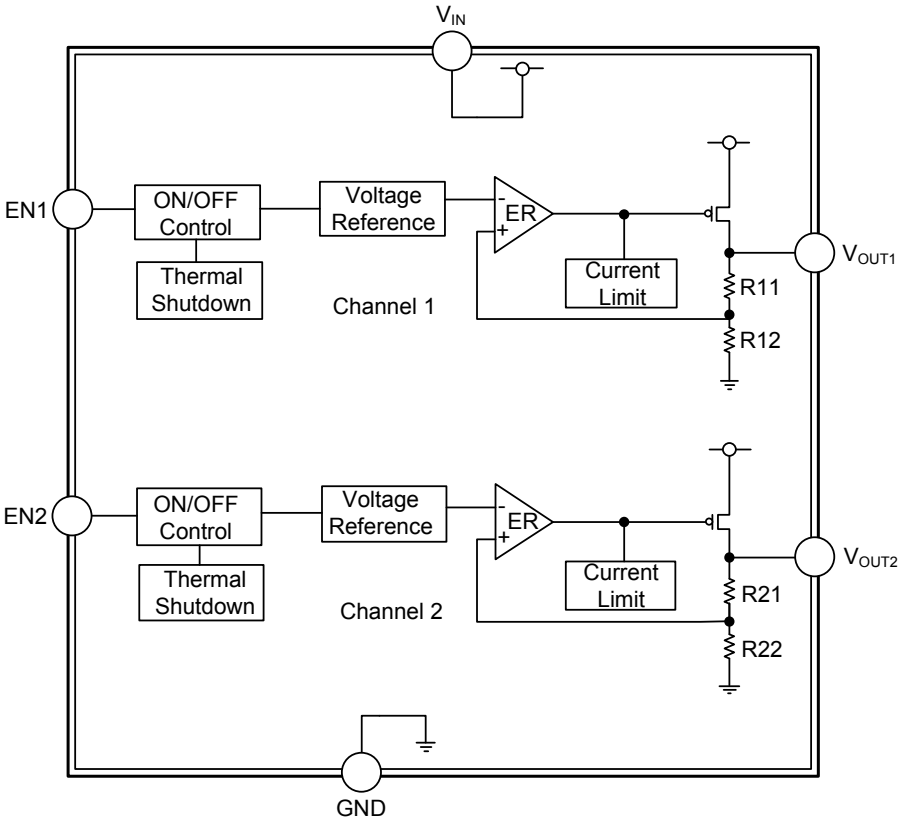
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	EN1	Channel 1's output enable control Pin
2	V_{IN}	Voltage Input pin
3	EN2	Channel 2's output enable control Pin
4	V_{OUT2}	Channel 2's voltage output
5	GND	Ground
6	V_{OUT1}	Channel 1's voltage output

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	7.0	V
EN Pin Voltage	V_{EN}	V_{SS}-0.3~V_{IN}+0.3	V
Output Voltage	V_{OUT}	V_{SS}-0.3~V_{IN}+0.3	V
Output Current	I_{OUT1}+I_{OUT2}	700	mA
Power Dissipation	P_D	400	mW
Junction Temperature	T_J	150	°C
Operating Temperature	T_{OPR}	-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.

■ THERMAL DATA

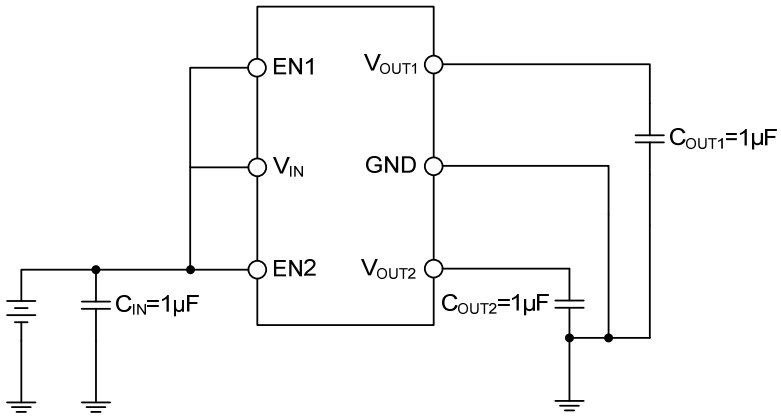
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	250	°C/W

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

PARAMETER		SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Input Voltage		V_{IN}			2.7		7.0	V
Output Voltage		V_{OUT}	V_{IN}=V_{OUT}+1.0V, I_{OUT}=30mA		V_{OUT} ×0.98	V_{OUT}	V_{OUT} ×1.02	V
Line Regulation		$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{OUT}+1.0V≤V_{IN}≤6.0V I_{OUT}=30mA			0.02	0.1	%/V
Load Regulation		ΔV_{OUT}	V_{IN}=V_{OUT}+1.0V, 1mA ≤ I_{OUT} ≤ 300mA			15	40	mV
Output Current		I_{OUT}	V_{OUT}+1.0V≤V_{IN}≤6V (Note 1)			300		mA
Supply Current		I_{SS}	V_{IN}=V_{EN}=V_{OUT}+1.0V, I_{OUT}=0mA			90	120	μA
Standby Current		I_{STN-BY}	V_{IN}=V_{OUT}+1.0V, V_{EN}=V_{SS}			0.1	1	μA
Current Limiter		I_{LIMIT}	V_{IN}=V_{OUT}+1.0V, V_{IN}=V_{EN}			350		mA
Short-Circuit Current		I_{SC}	V_{IN}=V_{OUT}+1.0V, V_{IN}=V_{EN}			150		mA
Dropout Voltage		V_D	I_{OUT}=100mA	V_{OUT} ≥2.8V		150	250	mV
			I_{OUT}=300mA	1.8V≤V_{OUT}≤2.0V		320	550	mV
				2.1V≤V_{OUT}≤2.7V		280	500	mV
				2.8V≤V_{OUT}≤4.0V		220	350	mV
EN Pin Input Voltage	High	V_{IH}	(Note 2)		V_{IN} ×0.6			V
	Low	V_{IL}	(Note 2)				V_{IN} ×0.3	V
Temperature Coefficient of Output Voltage		T_CV_O	I_{OUT}=30mA, -25°C≤T_{OPR}≤+85°C			±100		ppm/°C
Over Temperature Shutdown		OTS				150		°C
Over Temperature Hysteresis		OTH				40		°C
Power Supply Rejection Rate		PSRR	I_{OUT}=30mA, F=100Hz			65		dB

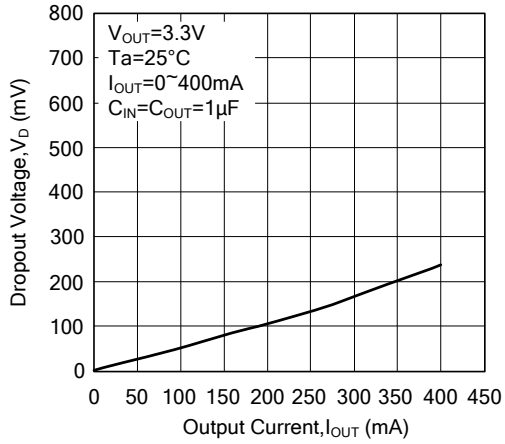
Notes: 1. Measured using a double sided board with 1" x 2" square inches of copper area connected to the GND pins for "heat spreading".
2. EN pin input voltage must be always less than or equal to input voltage.

■ TYPICAL APPLICATION CIRCUIT

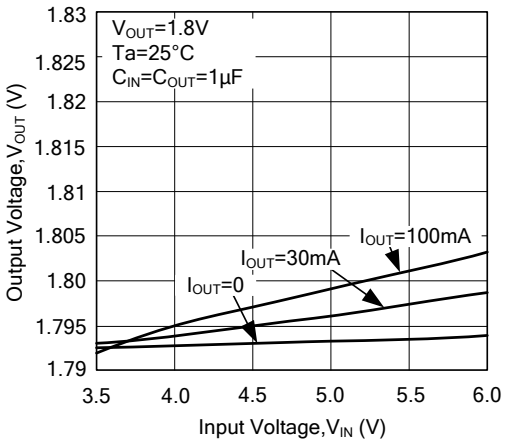


■ TYPICAL CHARACTERISTICS

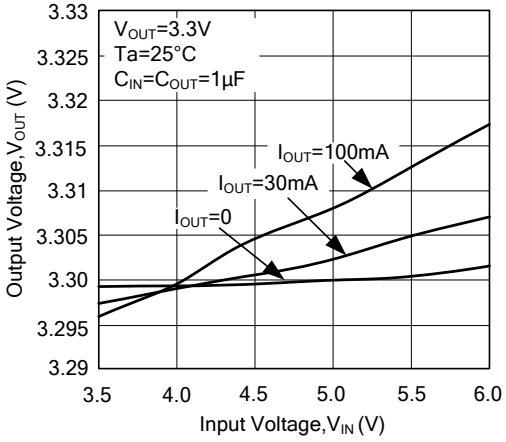
Dropout Voltage vs. Output Current



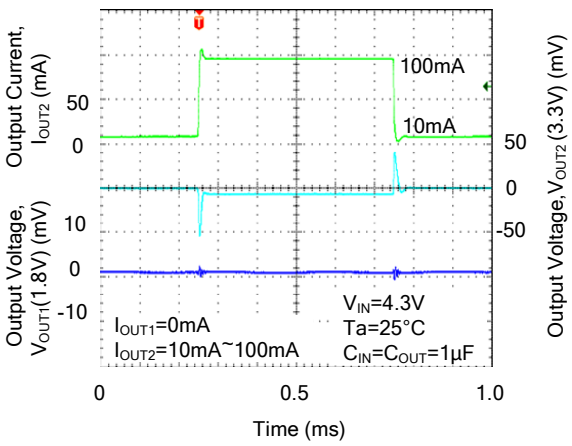
Output Voltage vs. Input Voltage



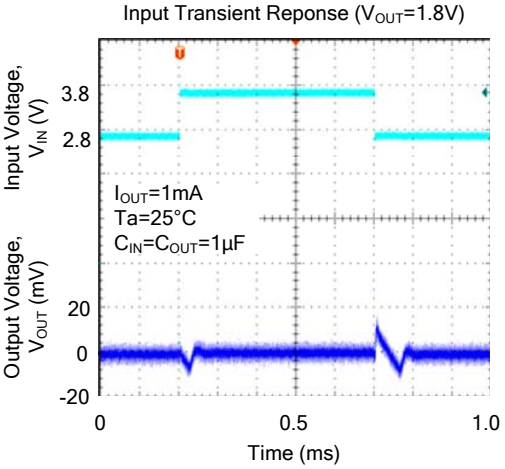
Output Voltage vs. Input Voltage



Cross Talk



Input Transient Reponse (V_{OUT}=1.8V)



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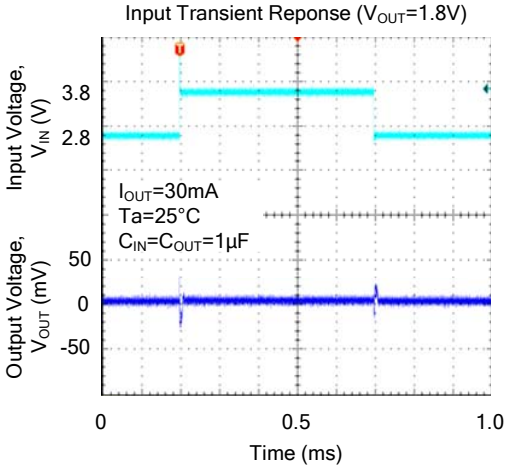
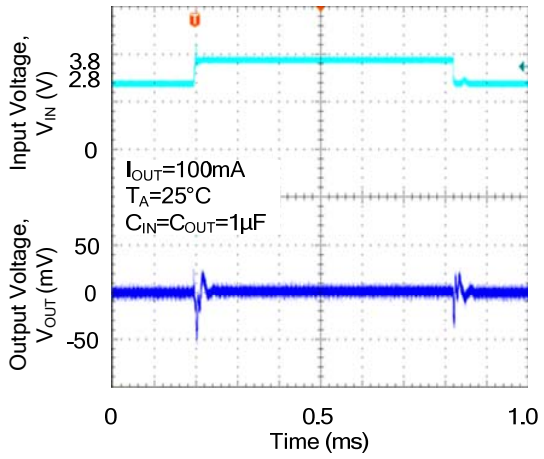
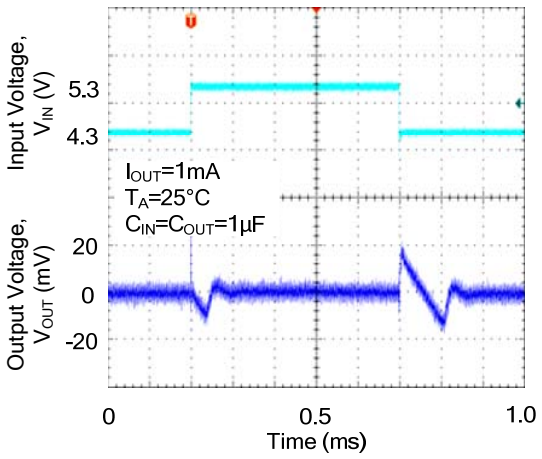


■ TYPICAL CHARACTERISTICS(Cont.)

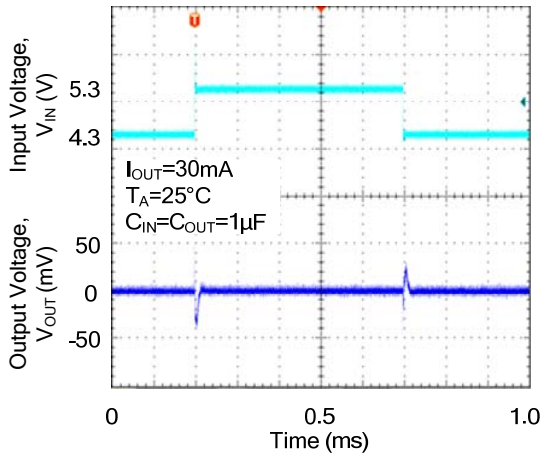
Input Transient Reponse (V_{OUT}=1.8V)



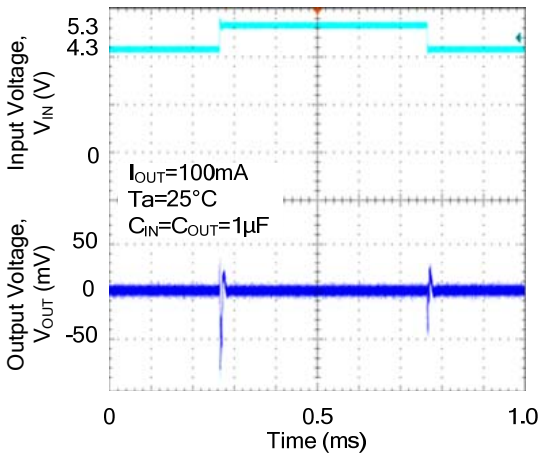
Input Transient Reponse (V_{OUT}=3.3V)



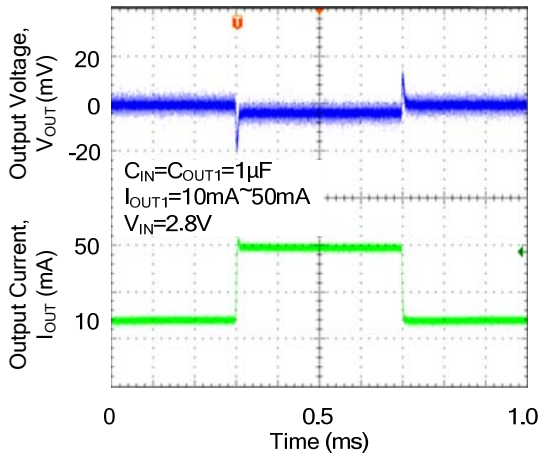
Input Transient Reponse (V_{OUT}=3.3V)



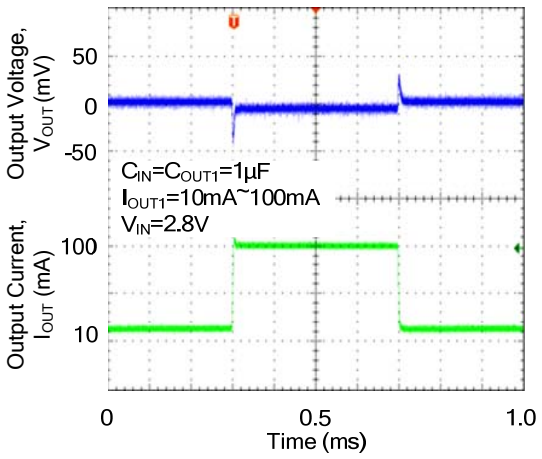
Input Transient Reponse (V_{OUT}=3.3V)



Load Transient Response (V_{OUT}=1.8V)



Load Transient Response (V_{OUT}=1.8V)



■ TYPICAL CHARACTERISTICS(Cont.)