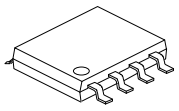
ULC3491 **Preliminary** ***LINEAR INTEGRATED CIRCUIT***

1.8V, NANOPOWER, CMOS INPUT, PUSH-PULL OUTPUT COMPARATOR



SOP-8

■ DESCRIPTION

The UTC **ULC3491** is a push-pull output comparators with <1.2μA (maximum) nanopower capability and fast 6μs response time. Designed to operate over a wide range of supply voltages, from 1.8V to 5.5V. Input common-mode range beyond supply rails make the UTC **ULC3491** an ideal choice for low-voltage applications.

Micro-sized packages provide options for portable and space-restricted applications.

■ FEATURES

* Very Low Supply Current: 0.85μA (Typical)
* Supply Voltage: 1.8V~5.5V
* Rail-to-Rail Input
* Input Common-Mode Range: 200-mV Beyond Supply Rails
* High Speed: 6μs
* Push-Pull CMOS Output Stage

■ ORDERING INFORMATION

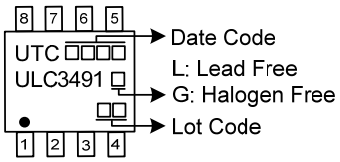
Ordering Number		Package	Packing
Lead Free	Halogen Free		
ULC3491L-S08-R	ULC3491G-S08-R	SOP-8	Tape Reel

ULC3491G-S08-R

(1)Packing Type
(2)Package Type
(3)Green Package

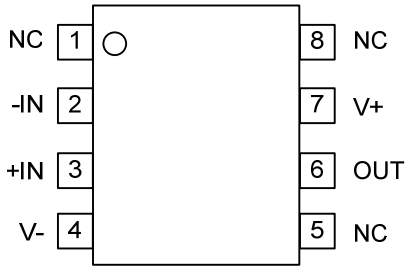
(1) R: Tape Reel
(2) S08: SOP-8
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



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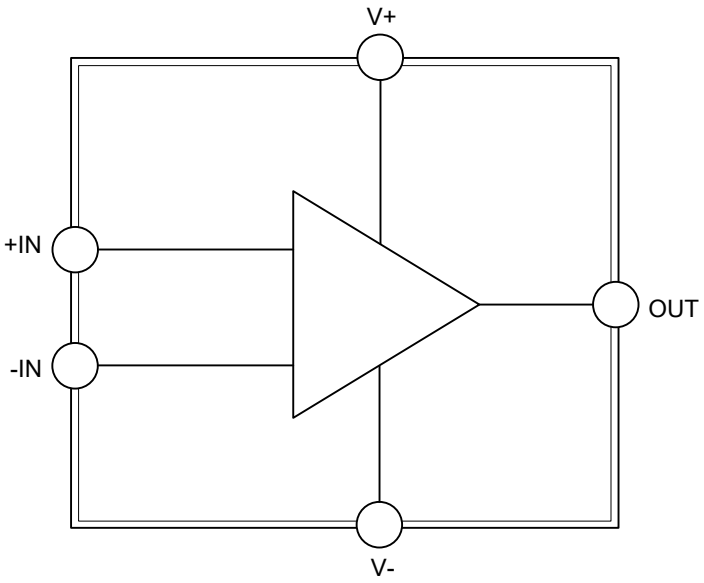
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1, 5, 8	NC	No internal connection (can be left floating)
2	-IN	Inverting input
3	+IN	Noninverting input
4	V-	Negative (lowest) power supply
6	OUT	Output
7	V+	Positive (highest) power supply

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

(over operating free-air temperature range, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage		5.5	V
Signal Input Pin Voltage		(V-) - 0.5 ~ (V+) + 0.5	V
Signal Input Pin Current		-10 ~ 10	mA
Output Short Circuit Current		Continuous	
Operating Temperature	T_A	-40 ~ +125	°C
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-65 ~ +150	°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.

■ RECOMMENDED OPERATING CONDITIONS

(over operating free-air temperature range, unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage		1.8		5.5	V
Specified Temperature	T_A	-40		125	°C

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	202	°C/W

■ ELECTRICAL CHARACTERISTICS

(V_S=1.8V~5.5V, T_A=25°C, unless otherwise specified)

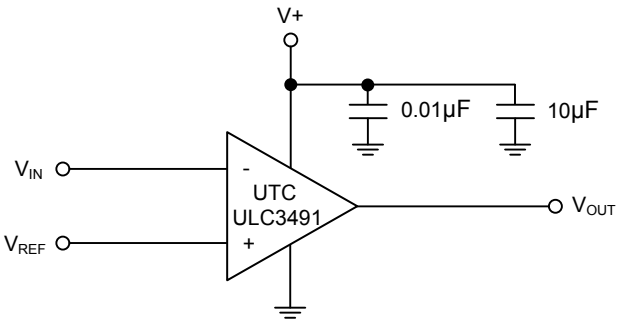
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFFSET VOLTAGE						
Input Offset Voltage	V_{OS}	T_A=25°C, V_{CM}=0V, I_O=0V		±3	±15	mV
Input Offset Voltage Versus Temperature	dV_{OS}/dT	T_A=-40°C~125°C		±12		μV/°C
Input Offset Voltage Versus Power Supply	PSRR	V_S=1.8V~5.5V		350	1000	μV/V
INPUT BIAS CURRENT						
Input Bias Current	I_B	V_{CM}=V_{CC}/2		±1	±10	pA
Input Offset Current	I_{OS}	V_{CM}=V_{CC}/2		±1	±10	pA
INPUT VOLTAGE						
Common-Mode Voltage	V_{CM}		(V-) - 0.2V		(V+) + 0.2V	V
Common-Mode Rejection Ratio	CMRR	V_{CM}=-0.2V~(V+) -1.5V	60	74		dB
		V_{CM}=-0.2V~(V+) +0.2V	54	62		dB
INPUT CAPACITANCE						
Common-Mode				2		pF
Differential				4		pF
OUTPUT (V_S=5V)						
Voltage Output High from Rail	V_{OH}	I_{OUT}=5mA		90	200	mV
Voltage Output Low from Rail	V_{OL}	I_{OUT}=5mA		160	200	mV
POWER SUPPLY						
Operating Voltage			1.8		5.5	V
Quiescent Current	I_Q	V_O=5V, V_O=high		0.85	1.2	μA

■ SWITCHING CHARACTERISTICS

(f =10kHz, V_{STEP}=1V, V_S=1.8V~5.5V, T_A=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Time, Low-to-High	$t_{(PLH)}$	Input Overdrive =10mV		12		μs
		Input Overdrive =100mV		6		μs
Propagation Delay Time, High-to-Low	$t_{(PLH)}$	Input Overdrive =10mV		13.5		μs
		Input Overdrive =100mV		6.5		μs
Rise Time	t_R	C_L=10pF		100		ns
Fall Time	t_F	C_L=10pF		100		ns

■ TYPICAL APPLICATION CIRCUIT



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