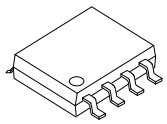
LOW POWER DUAL OPERATIONAL AMPLIFIERS



SOP-8

■ DESCRIPTION

The UTC **LMH358** is low noise, high voltage, and high slew rate operational amplifier.This circuit consists of two independent, high gain, internally frequency compensated operational amplifiers.

The input common mode range of the UTC **LMH358** can be beyond the rails. The UTC **LMH358** are with rail-to-rails output voltage swing. The quiescent current is 500μA per amplifier.

The UTC **LMH358** also feature fast slewing and settle-times, as well as high output drive capability of 60mA (source/sink).

These features make these amplifiers ideal for use as reference buffers for TFT-LCD. Other applications include battery power, portable devices, and anywhere low power consumption is important.

■ FEATURES

* Operates on 4.5V~16V supplies
* Input common voltage range beyond the rails
* Rail-to-Rail output voltage swing
* Low input offset voltage 3mV (Typical)
* High gain-bandwidth product 4MHz
* Low quiescent current: 500μA per amplifier
* Large DC voltage gain 100dB (Typical)
* High slew rate 1.3V/μs
* Unit-Gain stable

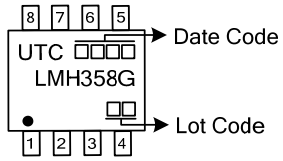
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
LMH358L-S08-R	LMH358G-S08-R	SOP-8	Tape Reel

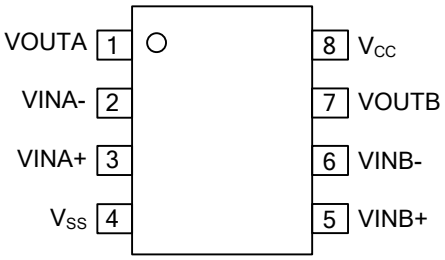
LMH358G-S08-R

(1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) S08: SOP-8
(3)Green Package	(3) G: Halogen Free and Lead Free

■ MARKING



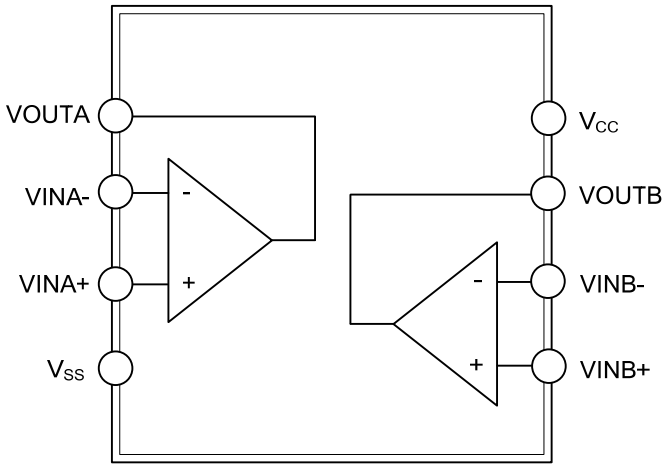
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	VOUTA	Output of channel A
2	VINA-	Inverting input of channel A
3	VINA+	Non-Inverting input of channel A
4	V_{SS}	Ground
5	VINB+	Non-Inverting input of channel B
6	VINB-	Inverting input of channel B
7	VOUTB	Output of channel B
8	V_{CC}	Supply voltage

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	18	V
Input Voltage IN+, IN-		-0.3~V_{CC}+0.3	V
Continuous Power Dissipation (T_A=+25°C)	P_D	0.7	W
Operating Ambient Temperature Range	T_A	-40~+85	°C
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-65~+150	°C
Reflow Temperature (Soldering, 10sec)	T_R	260	°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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	170	°C/W

■ ELECTRICAL CHARACTERISTICS

(T_A=25°C; V_{CC}=5V; V_{SS}=-5V; C_L=10pF, R_L=10kΩ to 0V; unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supplies						
Supply Voltage Range (Note)	V_{CC}-V_{SS}		4.5		16	V
Supply Current	I_{CC1}	V_O=0V No Load (Per Amplifier)		0.5	0.75	mA
DC Characteristics						
Input Offset Voltage	V_{IO}			3	10	mV
Common Mode Voltage	V_{CM}	Inferred from CMRR Test	V_{SS}-0.5		V_{CC}+0.5	V
Input Bias Current	I_B	V_{CM}=0		2	50	nA
Input Impendence				1		GΩ
Open Loop Gain	A_V	V_O=-4.5V~+4.5V	80	105		dB
Output Voltage Swing High	V_{OH}		4.85	4.92		V
Output Voltage Swing Low	V_{OL}			-4.92	-4.85	V
Short Circuit Current	I_{SC}			±160		mA
Output Current	I_O			±50		mA
Power Supply Rejection Ratio	PSRR	5V≤V_{CC}≤16V	60	85		dB
Common-Mode Rejection Ratio	CMRR	V_{SS}≤V_{CM}≤V_{CC}	50	80		dB
Channel Separation	CS	f=100KHz		75		dB
Slew Rate	SR	-4V~+4V 10%~90%		1.3		V/μS
Settle Time (to 0.1% AV=1)		V_O=2V Step		450		nS
Bandwidth		R_L=10KΩ C_L=10pF		4		MHz
Phase Margin				50		degree

Note: Guaranteed by the Power-Supply Rejection Ratio (PSRR) test.