



L272

Preliminary

LINEAR INTEGRATED CIRCUIT

1.0A OUTPUT CURRENT, DUAL POWER, OPERATIONAL AMPLIFIERS

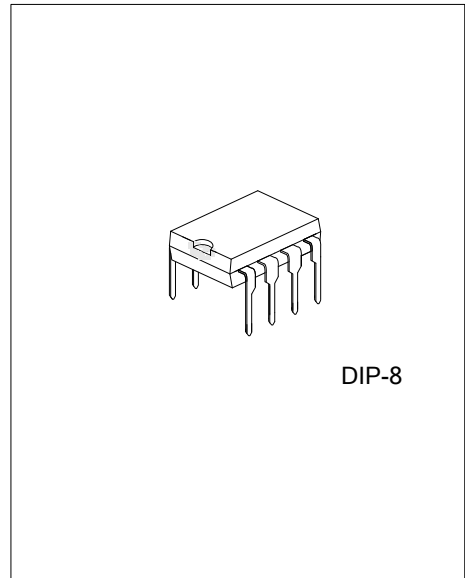
DESCRIPTION

The UTC **L272** as power operational amplifiers in a wide range of applications including servo amplifiers and power supplies, compacts disc, VCR, etc.

The high gain and high output power capability provide superior performance whatever an operational amplifier/power booster combination is required.

FEATURES

- * Supply Voltage:4~28V
- * Supply Current/Amplifier:6 mA (Max)
- * Input Offset Voltage:60mV (Max)
- * Common Mode Input Includes Ground
- * Slew Rate: 3.2V/μs (Typ.)
- *Output Current to 1.0A
- *Internal Thermal Shutdown

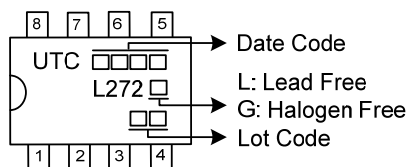


ORDERING INFORMATION

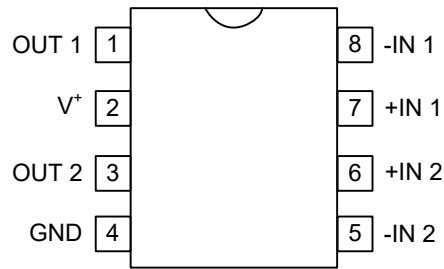
Ordering Number		Package	Packing
Lead Free	Halogen Free		
L272L-D08-T	L272G-D08-T	DIP-8	Tube

<p>L272G-D08-T</p> <ul style="list-style-type: none"> (1)Packing Type (2)Package Type (3)Green Package 	<ul style="list-style-type: none"> (1) T: Tube (2) D08: DIP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



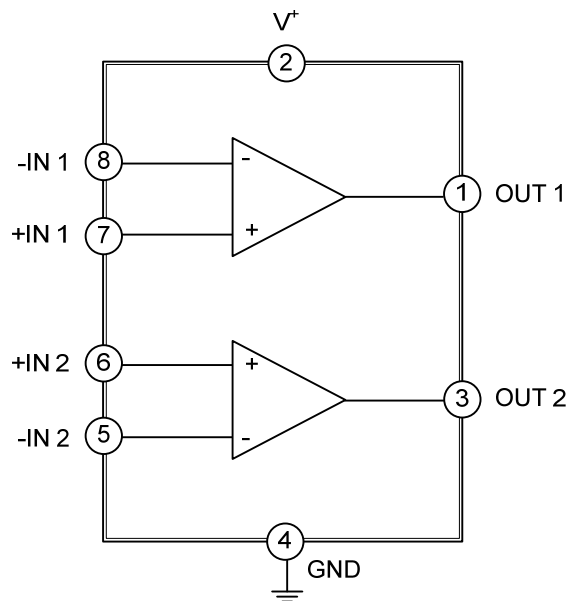
■ PIN CONFIGURATION



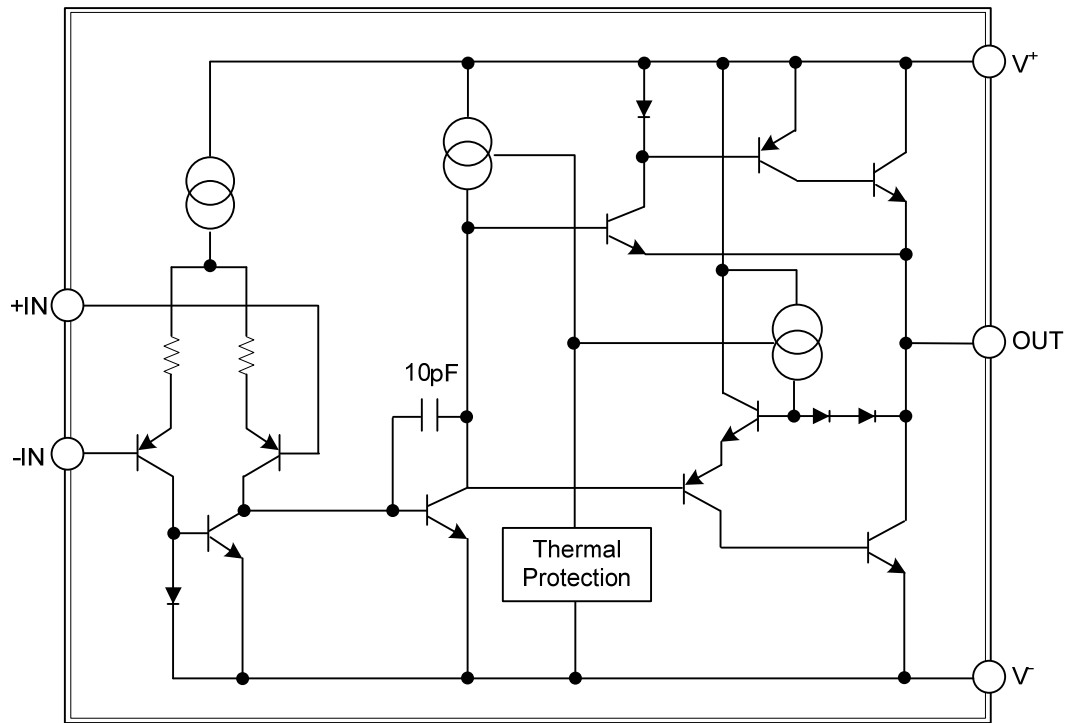
■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	OUT 1	Output of 1 AMP
2	-IN 1	Inverting input of 1 AMP
3	+IN 1	Non-inverting input of 1 AMP
4	V ⁻	Negative power supply
5	+IN 2	Non-inverting input of 2 AMP
6	-IN 2	Inverting input of 2 AMP
7	OUT 2	Output of 2 AMP
8	V ⁺	Positive power supply

■ BLOCK DIAGRAM



■ SCHEMATIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$, unless other specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	28	V
Input Voltage	V_{IN}	$V^- \sim V^+$	V
Differential Input Voltage	V_{ID}	Supply Voltage	V
DC Output Current	I_O	1	A
Peak Output Current (Non Repetitive)	I_P	1.5	A
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Power Dissipation ($T_A=50^{\circ}\text{C}$)	P_D	1.0	W
Storage Temperature	T_{STG}	-40 ~ +150	$^{\circ}\text{C}$

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	RATING	UNIT
Junction to Ambient	θ_{JA}	100	$^{\circ}\text{C}/\text{W}$

■ RECOMMENDED OPWRAING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+ - V^-$	4 ~ 28	V
Operating Free-Air Temperature	T_{OPR}	-40 ~ +85	$^{\circ}\text{C}$

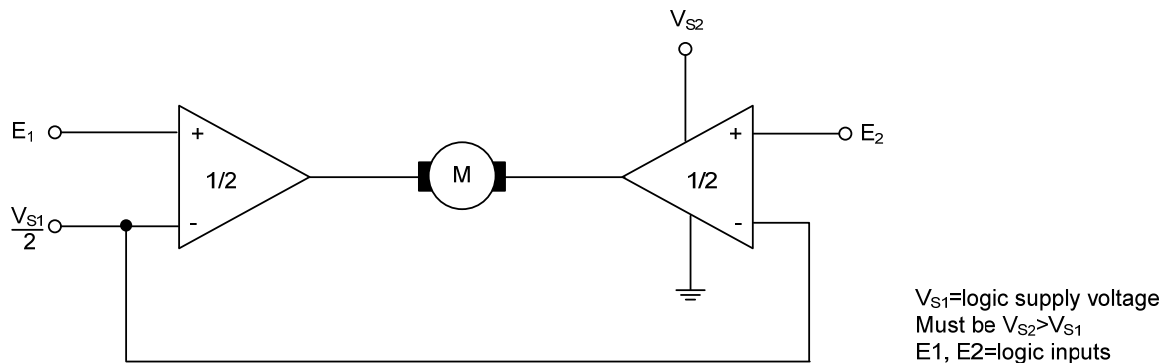
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, $V^+=24\text{V}$, $V^-=0\text{V}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Supply Current/Amplifier	I_Q	$V^+=24\text{V}$, $V_O=V^+/2$		4	6	mA	
Power Supply Rejection Ratio	PSRR	$V^{\pm}=\pm 12\text{V}$	54	75		dB	
Input Offset Voltage	V_{OS}			10	60	mV	
Input Bias Current	I_B			0.2	2.5	μA	
Input Offset Current	I_{OS}			30	250	nA	
Common Mode Rejection Ratio	CMRR		60	80		dB	
Large Signal Voltage Gain	A_V	$V_O=\pm 10\text{V}$, $R_L=2.0\text{k}$	60	80		dB	
Output Voltage	V_O	$I_L=0.1\text{A}$	V_{OH}		$V^+-0.6$	V	
			V_{OL}		$V^-+0.4$	V	
		$I_L=0.5\text{A}$	V_{OH}	22.5	V^+-1		V
			V_{OL}		0.9	1.5	V
Slew Rate	SR			3.2		V/ μs	
Gain-Bandwidth Product	GBW			2.8		MHz	
Input-Referred Voltage Noise	e_n	$f=20\text{kHz}$		9		μV	
Input-Referred Current Noise	i_n	$f=20\text{kHz}$		180		pA	
Total Harmonic Distortion	THD	$f=1\text{kHz}$, $G_V=3\text{dB}$		0.5		%	
Channel Separation	C_S	$f=1\text{kHz}$, $G_V=30\text{dB}$	$V_S=24\text{V}$		60	dB	
Thermal Shutdown Junction Temperature	T_{SD}			145		$^{\circ}\text{C}$	

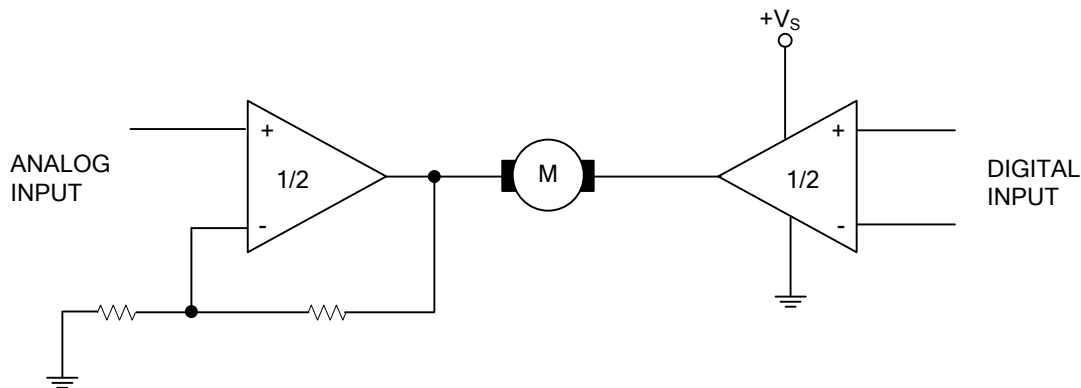
■ TYPICAL APPLICATION CIRCUIT

In order to avoid possible instability occurring into final stage the usual suggestions for the linear power stages are useful, as for instance:

1. layout accuracy
2. a 100nF capacitor corrected between supply pins and ground
3. boucherot cell (0.1 to 0.2 μF + 1 Ω series) between



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Capstan Motor Control in Video Recorders

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