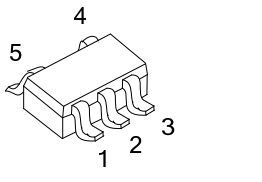
LOW VOLTAGE, AND LOW POWER OPERATIONAL AMPLIFIER



SOT-25

■ DESCRIPTION

The UTC **LV721** is a low noise, low voltage, and low power amp, that can be designed into a wide range of application. The UTC **LV721** has a slew rate of 5.1V/us.

The UTC **LV721** is designed to provide optimal performance in low voltage and low noise system. It provides rail-to-rail output swing into heavy load. The input common-mode voltage range includes ground, and the maximum input offset voltage is 3mV for the UTC **LV721**. Its capacitive load capability is also good at low supply voltages. The operating range is from 2.2V to 5.5V.

■ FEATURES

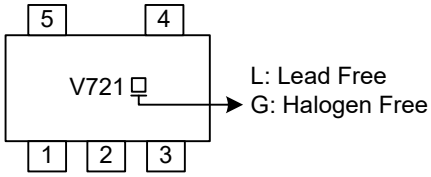
* Supply Voltage:2.2~5.5V
* Supply Current/Amplifier:1.4 mA (Max)
* Input Offset Voltage:3mV (Max)
* Slew Rate: 5.1V/μs (Typ.)

■ ORDERING INFORMATION

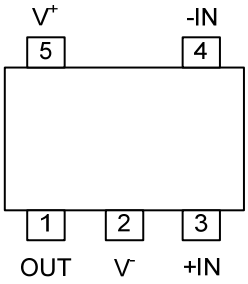
Ordering Number		Package	Packing
Lead Free	Halogen Free		
LV721L-AF5-R	LV721G-AF5-R	SOT-25	Tape Reel

LV721G-AF5-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AF5: SOT-25 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



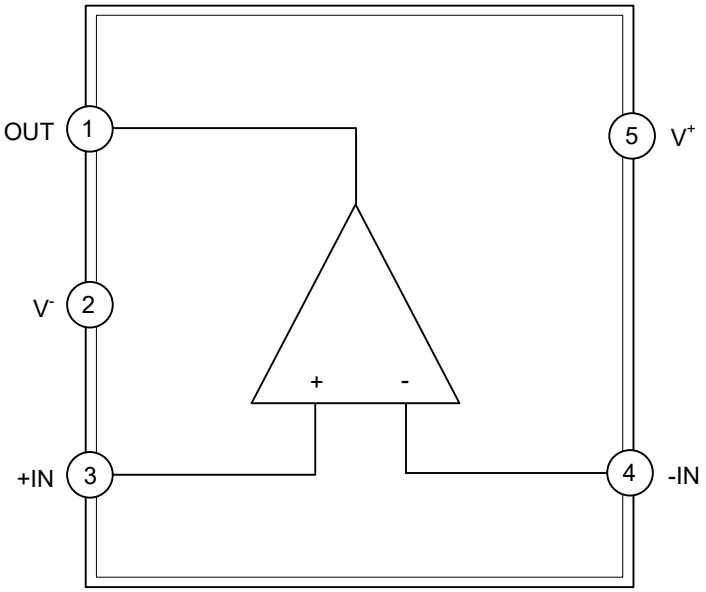
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	OUT	Output
2	V^-	Negative power supply
3	+IN	Non-inverting Input
4	-IN	Inverting Input
5	V^+	Positive power supply

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage (V^+ - V^-)		6	V
Differential Input Voltage	V_{ID}	Supply voltage	V
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 (T_A=25°C, unless otherwise specified)

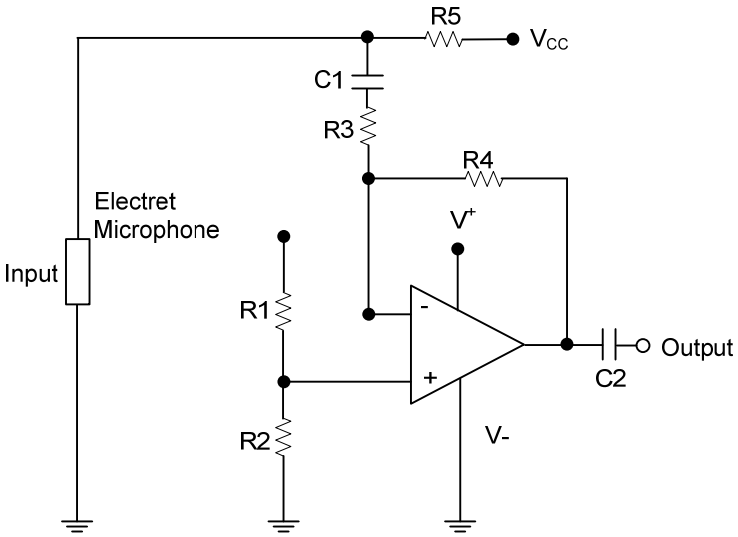
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	V^+ - V^-	2.2		5.5	V
Operating Free-Air Temperature	T_{OPR}	-40		+125	°C

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, V^+=2.2~5.5V, V^-=0V, V_O=V_{CM}=V^+/2, and R_L > 1MΩ.)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP (Note 1)	MAX (Note 2)	UNIT
Supply Current/Amplifier	I_Q				1.03	1.4	mA
Power Supply Rejection Ratio	PSRR	2≤V^+≤5V, V_O=0, V_{CM}=0		70	90		dB
Input Offset Voltage	V_{OS}				0.02	3	mV
Input Bias Current	I_B				260		nA
Input Offset Current	I_{OS}				25		nA
Common-Mode Voltage Range	V_{CM}	CMRR ≥ 50dB			-0.30~ V^+-0.9		V
Common-Mode Rejection Ratio	CMRR	0V ≤ V_{CM} ≤ V^+-0.9V		70	88		dB
Large Signal Voltage Gain	A_V	R_L=600Ω, V_O=0.75 ~ V^+ -0.2V		75	81		dB
		R_L=2kΩ, V_O=0.70 ~ V^+ -0.1V		75	84		dB
Output Voltage	V_O	R_L=2kΩ	V_{OH}	V^+-0.07	V^+-0.05		V
			V_{OL}		0.07	0.11	V
		R_L=600Ω	V_{OH}	V^+-0.16	V^+-0.1		V
			V_{OL}		0.13	0.19	V
Short-Circuit Current	I_{SC}	Sourcing, V_O=V^-, V_{IN}(diff)=±0.5V		10	14.9		V
		Sinking, V_O=V^+, V_{IN}(diff)=±0.5V		10	17.6		V
Slew Rate	SR	(Note 3)			5.1		V/μs
Gain-Bandwidth Product	GBW				10		MHz
Total Harmonic Distortion	THD	f=1kHz, A_V=1, R_L=600Ω, V_O=500mV_{PP}			0.004		%
Input-Referred Voltage Noise	e_n	f =1kHz			9		nV/$\sqrt{Hz}$
Input-Referred Current Noise	i_n	f =1kHz			0.3		pA/$\sqrt{Hz}$

Notes: 1. Typical Values represent the most likely parametric norm.
2. All limits are guaranteed by testing or statistical analysis.
3. Connected as voltage follower with 1V step input. Number specified is the slower of the positive and negative slew rate.

■ TYPICAL APPLICATION CIRCUIT



A Battery Powered Microphone Preamplifier