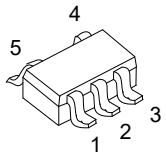
ULV77701

CMOS IC

WIDE-BAND, HIGH-SPEED, LOW-OFFSET RAIL-TO-RAIL INPUT/OUTPUT CMOS OPERATIONAL AMPLIFIER



SOT-25
(JEDEC MO-178AB)

■ DESCRIPTION

The UTC **ULV77701** is Rail-to-Rail input/output high-speed CMOS operational amplifiers. It features wide-band, low-input-offset voltage. With their rail-to-rail output characteristic and 600-ohm load driving, the device is able to secure wide dynamic range for various applications.

The UTC **ULV77701** has a high-speed characteristic of slew rate 35V/μs while gain bandwidth as high as 34MHz. Therefore, the UTC **ULV77701** devices easily offer various sensing applications that require high speed and accuracy.

■ FEATURES

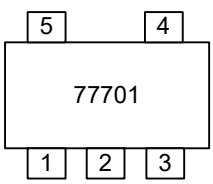
* Supply Voltage: 2.4~5.5V
* Supply Current/Amplifier:4.5 mA (Max.)
* Input Offset Voltage: 2mV (Max.)
* Slew Rate: 35V/μs (Typ.)
* Rail-to-Rail Input/Output

■ ORDERING INFORMATION

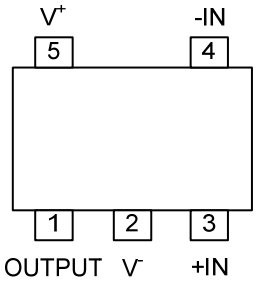
Ordering Number		Package	Packing
Lead Free	Halogen Free		
ULV77701L-AF5-R	ULV77701G-AF5-R	SOT-25	Tape Reel

ULV77701G-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



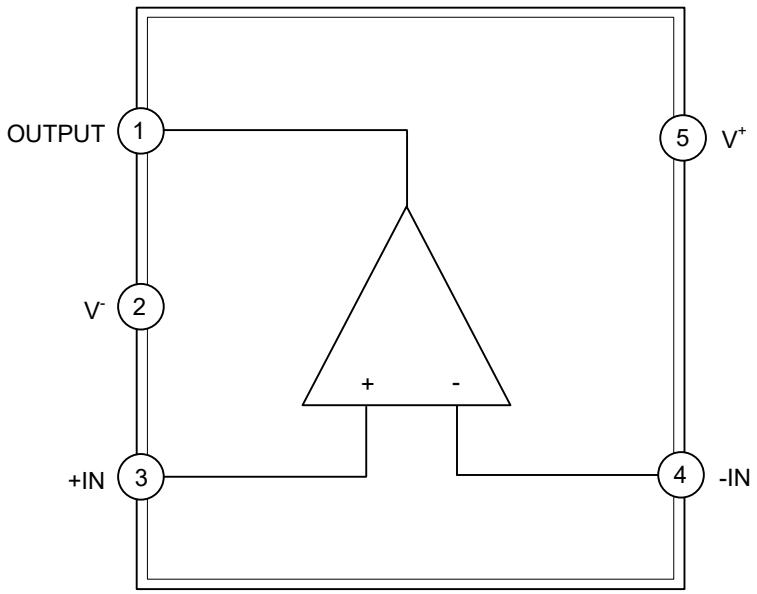
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	OUTPUT	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 (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage (V^+ - V^-)		7	V
Differential Input Voltage	V_{ID}	Supply voltage	V
Input Voltage	V_{IN}	V^- - 0.3 ~ V^+ + 0.3	V
Input Current	I_{IN}	10	mA
Junction Temperature	T_J	+150	°C
Storage Temperature Range	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	V^+ - V^-	2.4		5.5	V
Operating Free-Air Temperature	T_{OPR}	-40		+125	°C

■ ELECTRICAL CHARACTERISTICS

(V^+=2.4~5V, V_{IC}= V^+/2, R_L=600Ω, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Supply Current/Amplifier	I_Q	I_{OUT}=0			3.8	4.5	mA
Power Supply Rejection Ratio	PSRR	V^+=2.4V ~ 5.5V		78	90		dB
Input Offset Voltage	V_{OS}				0.4	2.0	mV
Input Bias Current	I_B				1		pA
Input Offset Current	I_{OS}				1		pA
Common-Mode Voltage Range	V_{CM}	CMRR ≥ 70dB		0		V^+	V
Common-Mode Rejection Ratio	CMRR	V_{IC}=0V ~ 5V		70	92		dB
Large Signal Voltage Gain	A_V	R_L=10kΩ		92	110		dB
Output Voltage	V_O	R_L=10kΩ	V_{OH}	V^+-0.05	V^+-0.02		V
			V_{OL}		0.01	0.04	V
		R_L=600Ω	V_{OH}	V^+-0.1	V^+-0.05		V
			V_{OL}		0.04	0.08	V
Short-Circuit Current	I_{SC}	Sourcing, Vo= V^+		60	75		mA
		Sinking, Vo= V^-		35	60		mA
Slew Rate	SR	G_V=14dB (Non-Inverting Amplifier) R_S=500Ω, R_F=2kΩ, C_L=20pF, V_{IN}=0.4Vpp		16	35		V/μs
Gain-Bandwidth Product	GBW	G_V=60dB, R_S=500Ω, R_L=10kΩ, C_L=20pF			34		MHz
Total Harmonic Distortion	THD	G_V=14dB (Non-Inverting Amplifier) R_S=500Ω, R_F=2kΩ, V_O=2Vpp, f=1kHz			0.003		%
Input-Referred Voltage Noise	e_n	f = 1kHz			8		$nV/\sqrt{Hz}$
		f=100kHz			7		$nV/\sqrt{Hz}$

■ TYPICAL CHARACTERISTICS