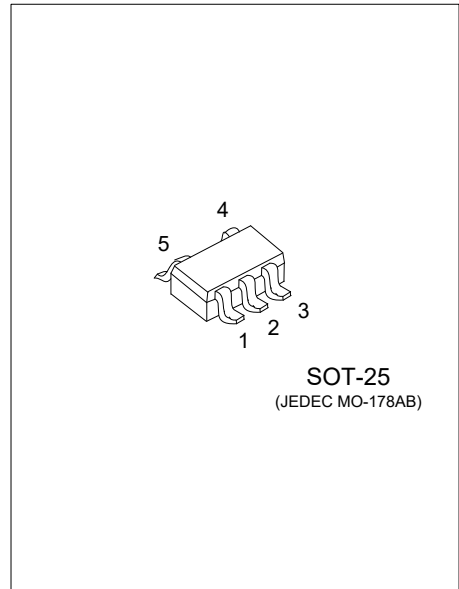




ULV77701

CMOS IC

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



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

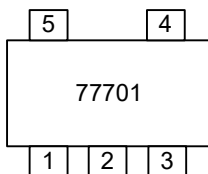
- * Supply Voltage: 2.4~5.5V
- * Supply Current/Amplifier: 4.5 mA (Max.)
- * Input Offset Voltage: 2mV (Max.)
- * Slew Rate: 35V/μs (Typ.)
- * Rail-to-Rail Input/Output

ORDERING INFORMATION

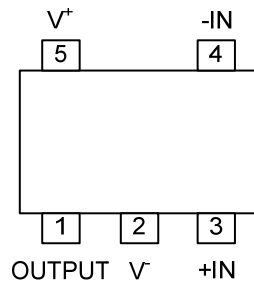
Ordering Number		Package	Packing
Lead Free	Halogen Free		
ULV77701L-AF5-R	ULV77701G-AF5-R	SOT-25	Tape Reel

<p>ULV77701G-AF5-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AF5: SOT-25 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



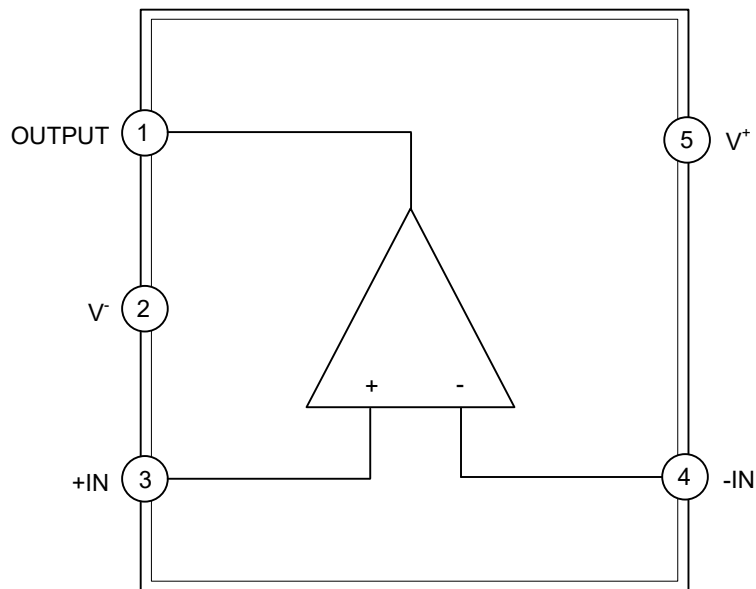
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	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)

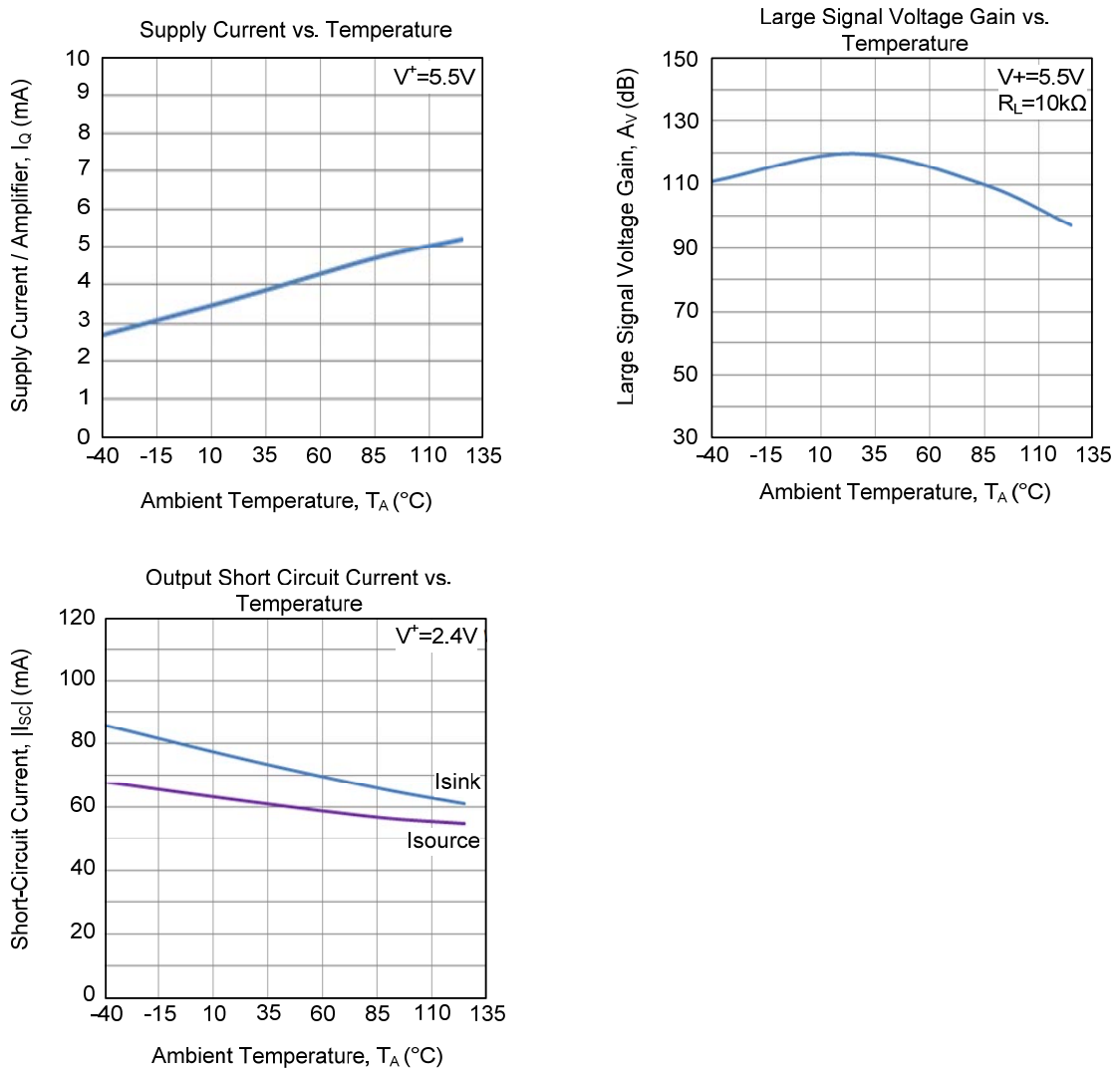
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	V ⁺ - V ⁻	2.4		5.5	V
Operating Free-Air Temperature	T _{OPR}	-40		+125	°C

■ 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
		R _L =600Ω	V _{OH}	V ⁺ -0.1	V ⁺ -0.05	V
			V _{OL}		0.04	0.08
Short-Circuit Current	I _{SC}	Sourcing, V _O = V ⁺	60	75		mA
		Sinking, V _O = V ⁻	35	60		mA
Slew Rate	SR	G _V =14dB (Non-Inverting Amplifier) R _S =500Ω, R _F =2kΩ, C _L =20pF, V _{IN} =0.4V _{pp}	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 =2V _{pp} , f=1kHz		0.003		%
Input-Referred Voltage Noise	e _n	f = 1kHz		8		nV/ √Hz
		f=100kHz		7		nV/ √Hz

■ TYPICAL CHARACTERISTICS



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