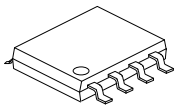
UNE5532

LINEAR INTEGRATED CIRCUIT

DUAL LOW-NOISE OPERATIONAL AMPLIFIER



SOP-8

■ DESCRIPTION

The UTC **UNE5532** is high-performance operational amplifiers with excellent DC/AC and very low noise characteristics. It features high output-drive capability (with internal short-circuit protection), high unity-gain and maximum-output-swing bandwidths, low distortion, high slew rate, unity-gain operation, differential mode input clamp diodes. The device has specified maximum limits for equivalent input noise voltage.

■ FEATURES

* Supply Voltage:±5~±15V
* Supply Current/Amplifier: 7mA (Max.)
* Input Offset Voltage: 4mV (Max.)
* Slew Rate: 8.5V/μs (Typ.)

■ ORDERING INFORMATION

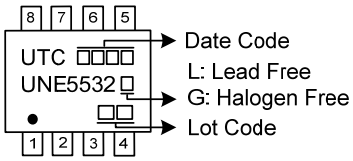
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UNE5532L-S08-R	UNE5532G-S08-R	SOP-8	Tape Reel

UNE5532G-S08-R

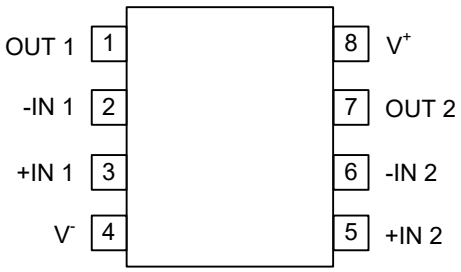
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) S08: SOP-8
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



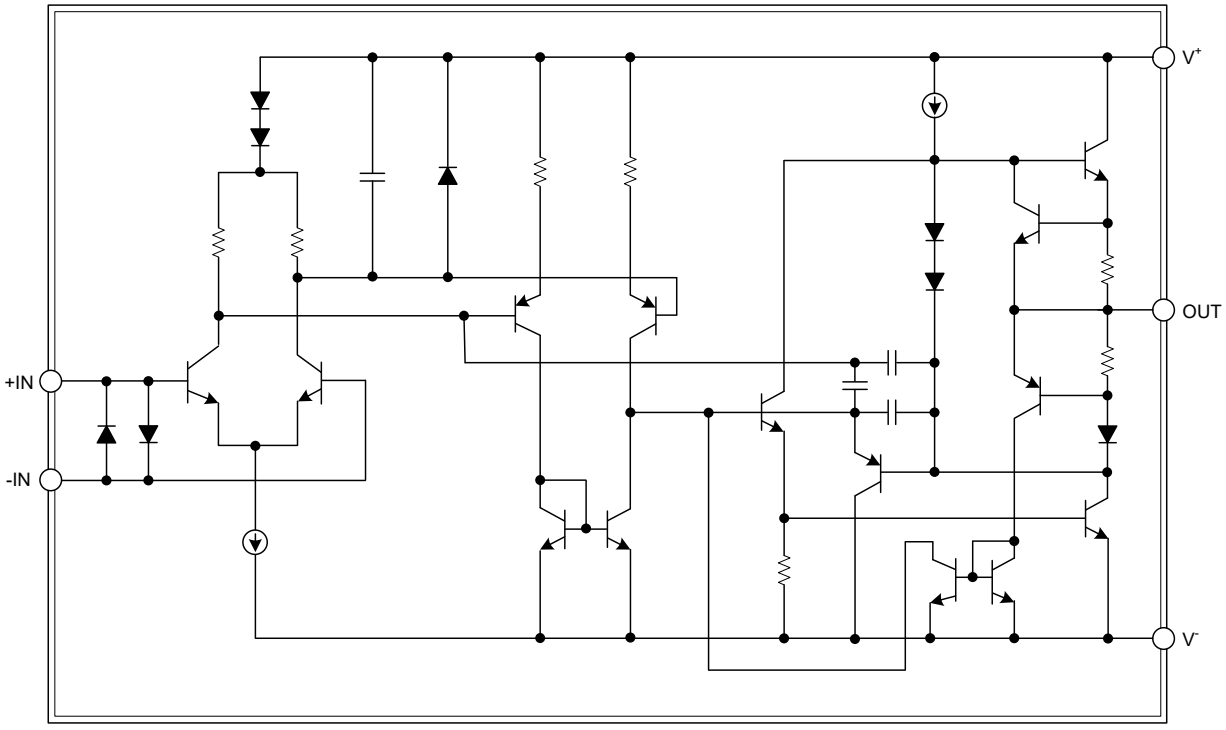
■ PIN CONFIGURATION



■ 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



■ ABSOLUTE MAXIMUM RATING

over operating free-air temperature range (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage (Note 1)	V^+	0 ~ 22	V
	V^-	-22 ~ 0	V
Differential Input Voltage (Note 2, 3)	V_{ID}	Supply Voltage	V
Input Current (Note 4)		-10~10	mA
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

Notes: 1. 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.
2. All voltage values, except differential voltages, are with respect to the midpoint between V^+ and V^-.
3. The magnitude of the input voltage must never exceed the magnitude of the supply voltage.
4. Excessive input current will flow if a differential input voltage in excess of approximately 0.6V is applied between the inputs, unless some limiting resistance is used.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	V^+	5		15	V
Supply Voltage	V^-	-5		-15	V
Operating Free-Air Temperature	T_{OPR}	-40		+125	°C

■ THERMAL DATA

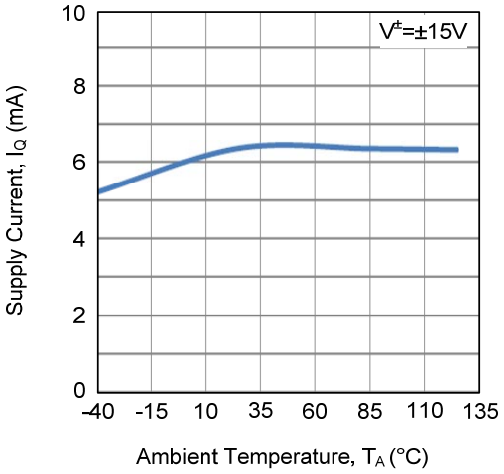
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	100	°C/W

■ ELECTRICAL CHARACTERISTICS ($V^{\pm}$ =±15V, T_A=25°C, unless otherwise specified)

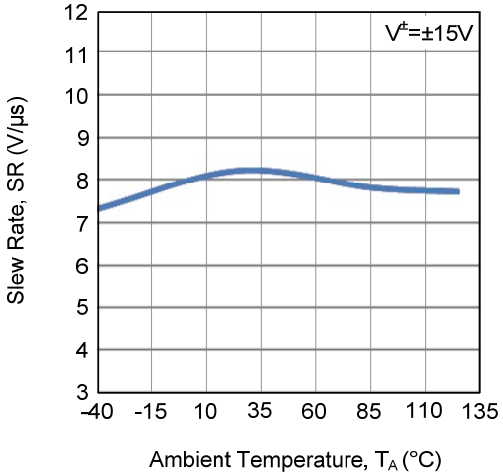
PARAMETER	SYMBOL	TEST CONDITIONS (Note 1)		MIN	TYP	MAX	UNIT
Supply Current/Amplifier	I_Q	V_O=0, No Load			3.2	7	mA
Power Supply Rejection Ratio	PSRR	$V^{\pm}$=±9V to ±15V, V_O=0		80	100		dB
Input Offset Voltage	V_{OS}	V_O=0			0.6	4.0	mV
Input Bias Current	I_B				400	900	nA
Input Offset Current	I_{OS}				30	150	nA
Common-Mode Voltage Range	V_{CM}			-12		12	V
Common-Mode Rejection Ratio	CMRR	V_{IC}=±12V		70	100		dB
Large Signal Voltage Gain	A_V	R_L≥600Ω, V_O=±10V		80	95		dB
		R_L≥2kΩ, V_O=±10V		84	98		dB
Output Voltage	V_O	$V^{\pm}$=±15V, R_L≥600Ω	V_{OH}	12	13		V
			V_{OL}		-13	-12	
Short-Circuit Current	I_{SC}			10	47	70	mA
Slew Rate	SR				8.5		V/μs
Gain-Bandwidth Product	GBW	R_L=600Ω, C_L=100pF			7		MHz
Input-Referred Voltage Noise	e_n	f=30Hz			9		nV/$\sqrt{Hz}$
		f=1kHz			7		nV/$\sqrt{Hz}$
Input-Referred Current Noise	i_n	f=30Hz			3		pA/$\sqrt{Hz}$
		f=1kHz			1		pA/$\sqrt{Hz}$

■ TYPICAL CHARACTERISTICS

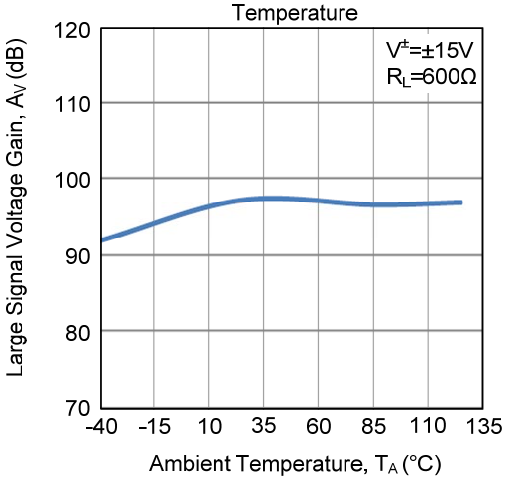
Supply Current vs. Temperature



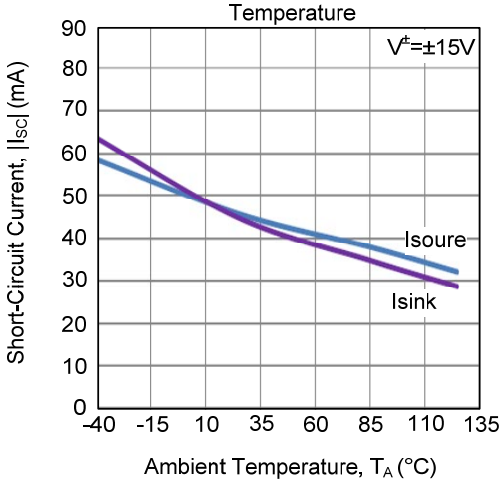
Slew Rate vs. Temperature



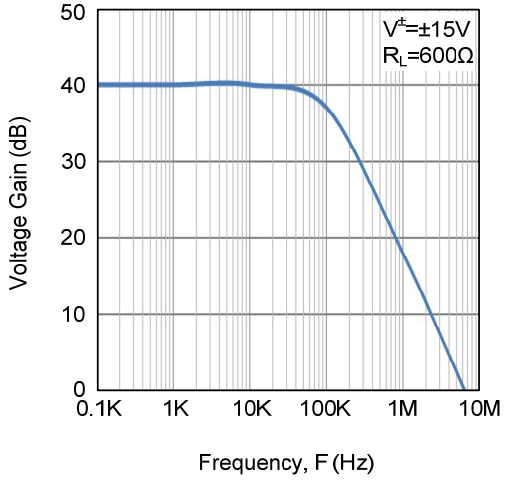
Large Signal Voltage Gain vs. Temperature



Output Short Circuit Current vs. Temperature



Voltage Gain vs. Frequency



Phase Shift vs. Frequency