



UNE5534

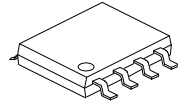
LINEAR INTEGRATED CIRCUIT

LOW-NOISE OPERATIONAL AMPLIFIER

DESCRIPTION

The UTC **UNE5534** is high-performance operational amplifiers with excellent DC/AC and very low noise characteristics. It features high output-drive capability, high unity-gain and maximum-output-swing bandwidths, low distortion, high slew rate.

This operational amplifier is compensated internally for a gain equal to or greater than three. Optimization of the frequency response for various applications can be obtained by use of an external compensation capacitor between COMP and COMP/BAL. The device features input-protection diodes, output short-circuit protection, and offset-voltage nulling capability with use of the BALANCE and COMP/BAL pins.



SOP-8

FEATURES

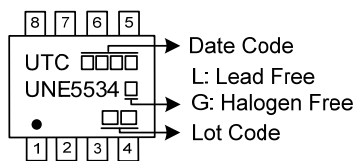
- * Supply Voltage: $\pm 5 \sim \pm 20V$
- * Supply Current/Amplifier: 8 mA (Max.)
- * Input Offset Voltage: 4mV (Max)
- * Slew Rate: 7.8V/ μs (Typ.)
- * Offset Nulling Capability
- * External Compensation Capability.

ORDERING INFORMATION

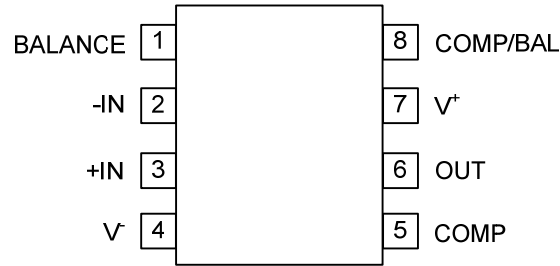
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UNE5534L-S08-R	UNE5534G-S08-R	SOP-8	Tape Reel

<p>UNE5534G-S08-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



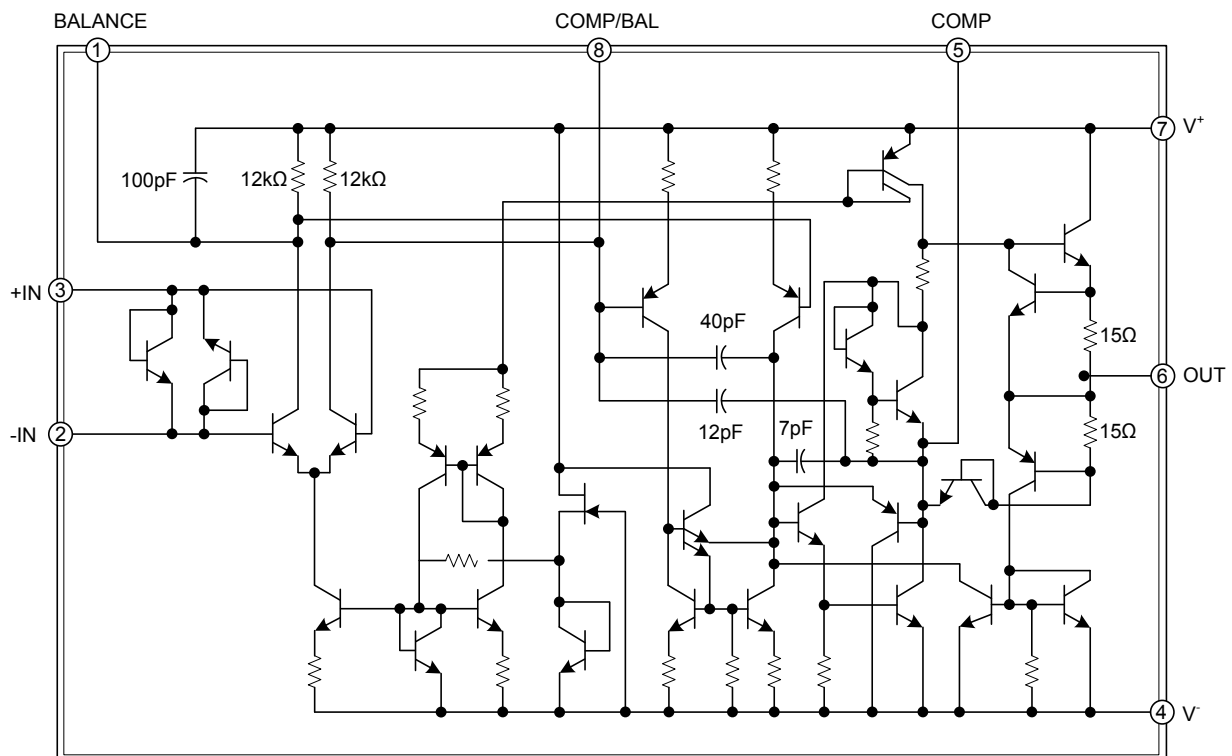
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	BALANCE	External frequency compensation
2	-IN	Inverting Input
3	+IN	Non-inverting Input
4	V ⁻	Negative power supply
5	COMP	External offset voltage adjustment
6	OUT	Output
7	V ⁺	Positive power supply
8	COMP/BAL	External offset voltage adjustment/External frequency compensation

■ 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 t (Note 2, 3)	V_{ID}	Supply Voltage	V
Input Current (Note 4)		-10 ~ 10	mA
Junction Temperature	T_J	+150	°C
Storage Temperature Range	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.

- All voltage values, except differential voltages, are with respect to the midpoint between V^+ and V^- .
- The magnitude of the input voltage must never exceed the magnitude of the supply voltage.
- 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.
- The output may be shorted to ground or either power supply. Temperature and/or supply voltages must be limited to ensure the maximum dissipation rating is not exceeded.

■ 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

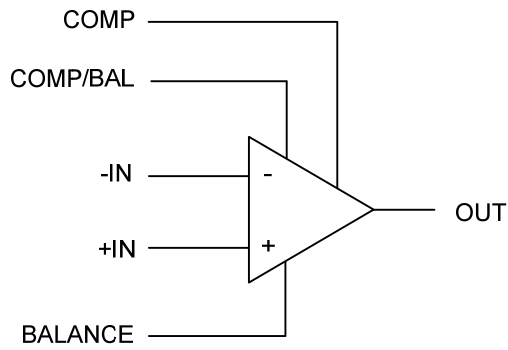
■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	125	°C/W

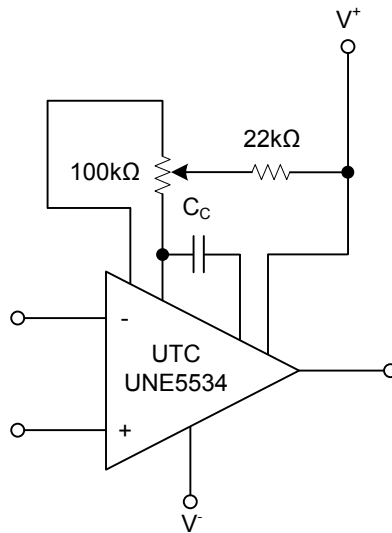
■ ELECTRICAL CHARACTERISTICS ($V^{\pm} = \pm 15V$, $T_A = 25^{\circ}C$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current/Amplifier	I_Q	$V_O = 0$, No Load.		3	8	mA
Power Supply Rejection Ratio	PSRR	$V^{\pm} = \pm 9V \sim \pm 15V$, $V_O = 0$	80	115		dB
Input Offset Voltage	V_{OS}	$V_O = 0$		1	4	mV
Input Bias Current	I_B	$V_O = 0$		700	1500	nA
Input Offset Current	I_{OS}	$V_O = 0$		40	300	nA
Common-Mode Voltage Range	V_{CM}		-12		12	V
Common-Mode Rejection Ratio	CMRR	$-12V < V_{IC} < 12V$	70	100		dB
Large Signal Voltage Gain	A_V	$R_L \geq 2k\Omega$, $V_O = \pm 10V$	80	97		dB
		$R_L \geq 600\Omega$, $V_O = \pm 10V$	80	95		dB
Output Voltage	V_O	$R_L \geq 600\Omega$	V_{OH}	12	13.5	V
			V_{OL}		-12.9	-12
Short-Circuit Current	I_{SC}	Sourcing		43		mA
		Sinking		25		mA
Slew Rate	SR	$C_C = 0$		7.8		V/ μ s
		$C_C = 22pF$		4		V/ μ s
Gain-Bandwidth Product	GBW	$C_C = 0$		9		MHz
		$C_C = 22pF$		5.5		MHz
Input-Referred Voltage Noise	e_n	$f = 1kHz$		5		nV/ \sqrt{Hz}
Input-Referred Current Noise	i_n	$f = 1kHz$		1		pA/ \sqrt{Hz}

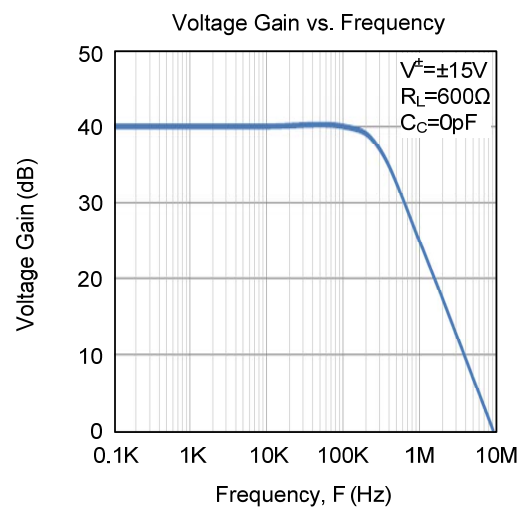
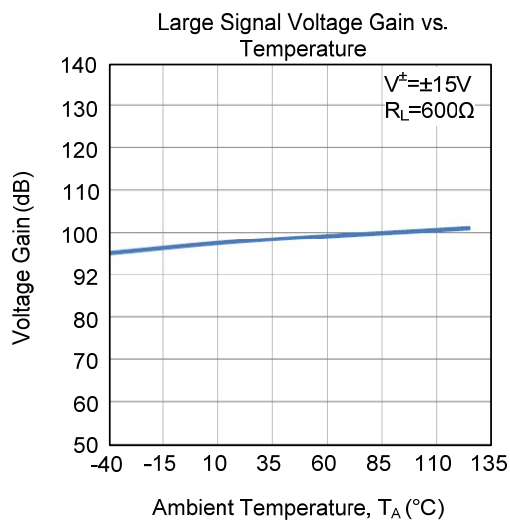
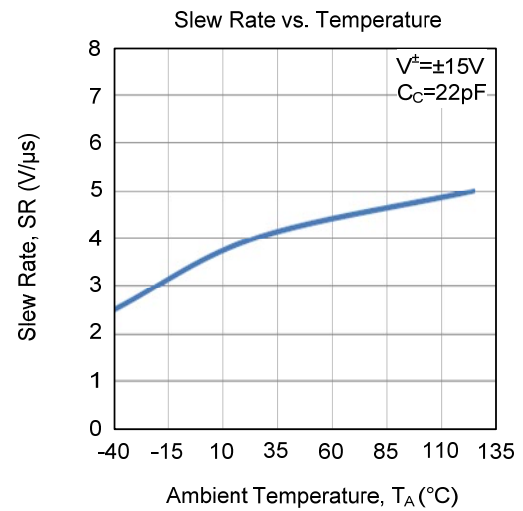
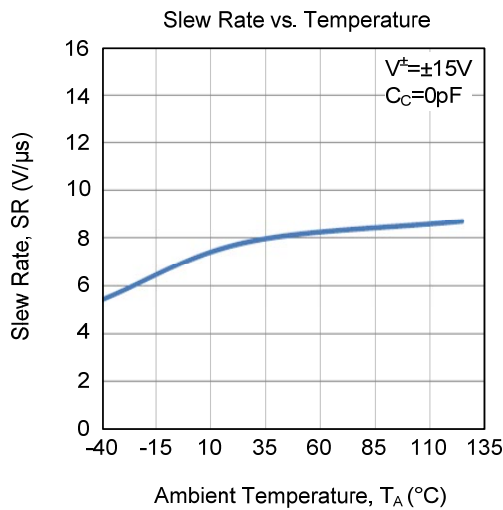
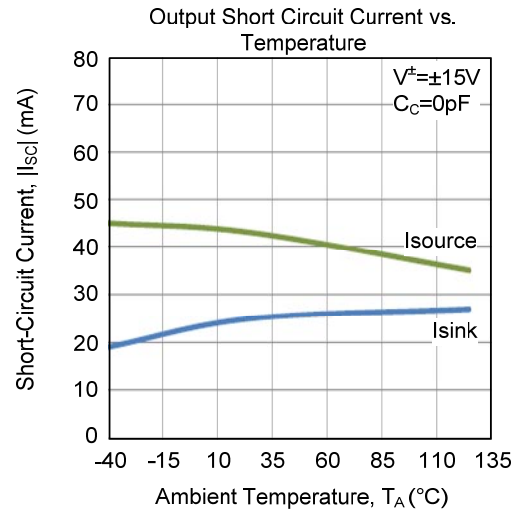
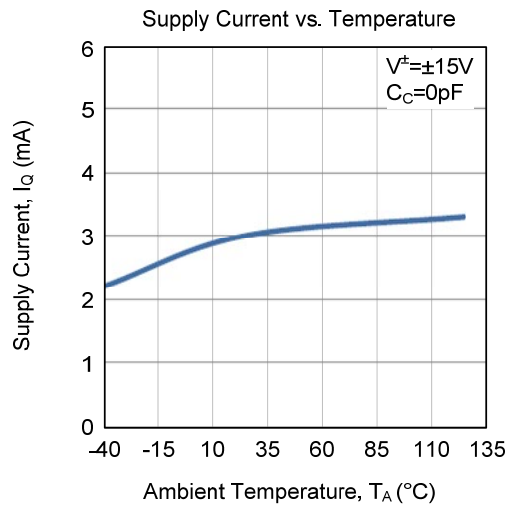
■ SIMPLIFIED SCHEMATIC



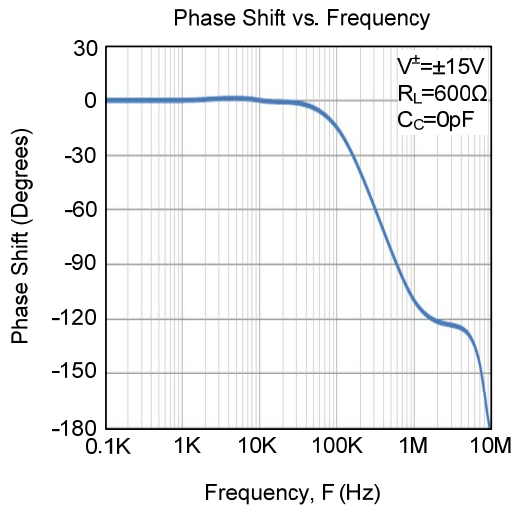
■ TYPICAL APPLICATION CIRCUIT



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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