

## DUAL AUDIO OPERATIONAL AMPLIFIER

**Operating Voltage . . .  $\pm 2$  V to  $\pm 18$  V**

**Low Noise Voltage . . .  $1.2 \mu\text{Vrms}$  (Typ)**

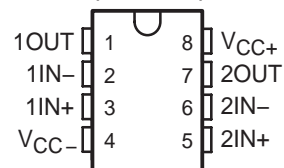
**Wide GBW . . . 15 MHz (Typ)**

**Low THD . . . 0.05% (Typ)**

**Slew Rate . . .  $5.5\text{V}/\mu\text{sec}$  (Typ)**

**Suitable for Applications Such as Audio  
Preamplifier, Active Filter, Headphone  
Amplifier, Industrial Measurement  
Equipment**

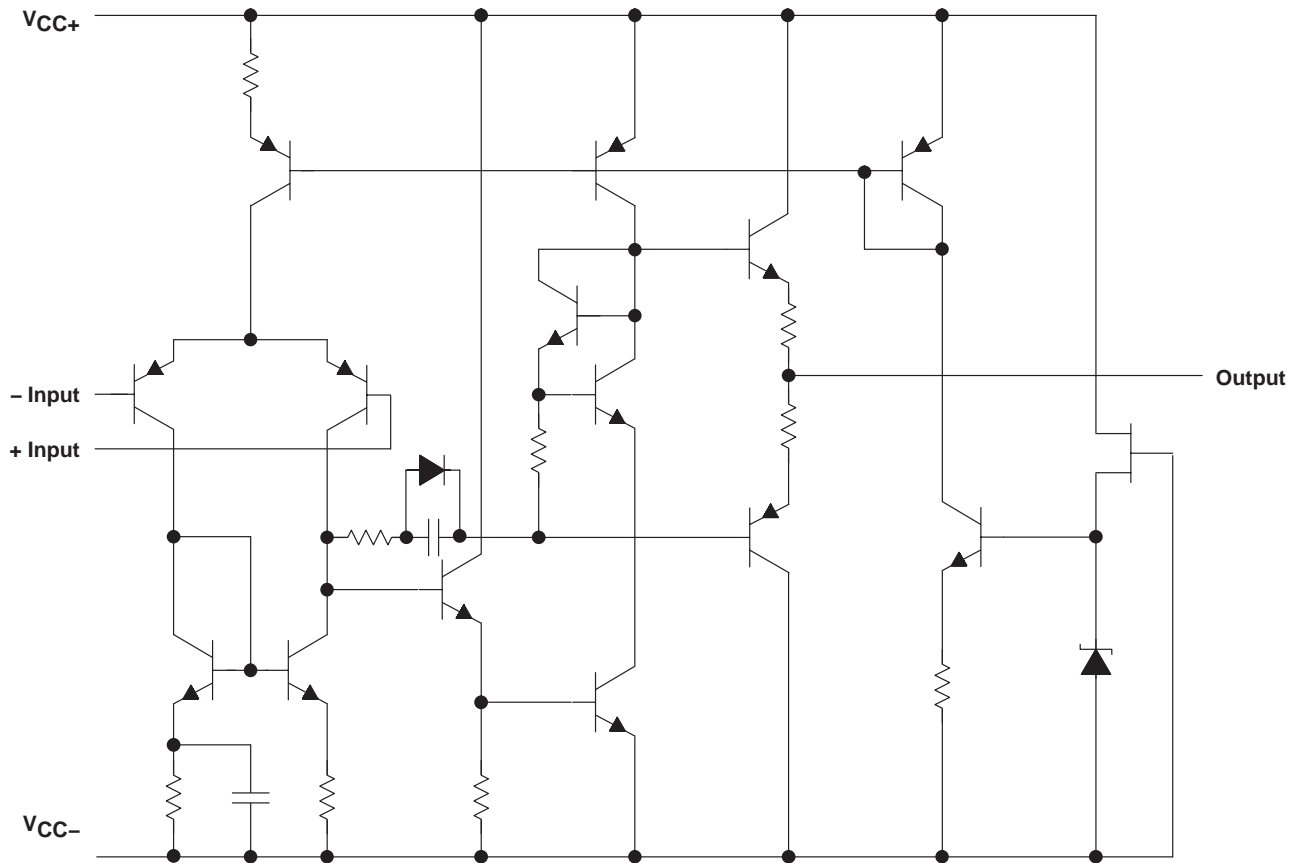
**D (SOIC), DGK (VSSOP/MSOP), P (PDIP),  
OR PW (TSSOP) PACKAGE  
(TOP VIEW)**



### description/ordering information

The RC4560 is a high-gain, wide-bandwidth, dual operational amplifier capable of driving 20 V peak-to-peak into 400- $\Omega$  loads. The RC4560 combines many of the features of the RC4558, but with wider bandwidth and higher slew rate, making this device ideal for active filters, data and telecommunications, and many instrumentation applications.

**equivalent circuit**



**absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†**

Supply voltage, $V_{CC\pm}$	.....	$\pm 18$ V
Input voltage (any input)	.....	$\pm 15$ V
Output current	.....	$\pm 50$ mA
Package thermal impedance, $\theta_{JA}$ (see Notes 1 and 2):	D package	..... 97°C/W
	DGK package	..... 172°C/W
	P package	..... 85°C/W
	PW package	..... 149°C/W
Operating virtual junction temperature, $T_J$	.....	150°C
Storage temperature range, $T_{Stg}$	.....	-60°C to 125°C

† Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

- NOTES: 1. Maximum power dissipation is a function of  $T_J(\max)$ ,  $\theta_{JA}$ , and  $T_A$ . The maximum allowable power dissipation at any allowable ambient temperature is  $P_D = (T_J(\max) - T_A)/\theta_{JA}$ . Operating at the absolute maximum  $T_J$  of 150°C can affect reliability.  
 2. The package thermal impedance is calculated in accordance with JESD 51-7.

**recommended operating conditions**

		MIN	MAX	UNIT
V <sub>CC+</sub>	Supply voltage	2	16	V
V <sub>CC-</sub>		-2	-16	
V <sub>ID</sub>	Differential input voltage		±30	V
V <sub>ICR</sub>	Input common mode range	-14	14	V
T <sub>A</sub>	Operating free-air temperature range	-40	85	°C

**electrical characteristics, V<sub>CC±</sub> = ±15 V, T<sub>A</sub> = 25°C (unless otherwise noted)**

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
V <sub>IO</sub>	Input offset voltage		0.5	6	mV
I <sub>IO</sub>	Input offset current		5	200	nA
I <sub>IB</sub>	Input bias current		40	500	nA
A <sub>VD</sub>	Large-signal differential voltage amplification	R <sub>L</sub> ≥ 2 kΩ, V <sub>O</sub> = ±10 V	86	100	dB
r <sub>i</sub>	Input resistance		0.3	5	MΩ
V <sub>O</sub>	Output voltage swing	R <sub>L</sub> ≥ 2 kΩ I <sub>O</sub> = 25 mA	±12 ±10	±14 ±12.5	V
V <sub>ICR</sub>	Common-mode input voltage range		±12	±14	V
CMRR	Common-mode rejection ratio	R <sub>S</sub> ≤ 10 kΩ	70	90	dB
k <sub>SVR</sub> <sup>†</sup>	Supply-voltage rejection ratio	R <sub>S</sub> ≤ 10 kΩ	76.5	90	dB
I <sub>CC</sub>	Supply current (all amplifiers)		4.3	5.7	mA

<sup>†</sup> Measured with V<sub>CC±</sub> differentially varied simultaneously from ±4 V to ±15 V

**operating characteristics, V<sub>CC±</sub> = ±15 V, T<sub>A</sub> = 25°C (unless otherwise noted)**

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SR	Slew rate at unity gain		5.5		V/μs
GBW	Gain bandwidth product		15		MHz
THD	Total harmonic distortion	V <sub>O</sub> = 5 V, R <sub>L</sub> = 2 kΩ, f = 1 kHz, A <sub>VD</sub> = 20 dB	0.05		%
V <sub>n</sub>	Equivalent input noise voltage	RIAA, R <sub>S</sub> ≤ 2 kΩ, 30 kHz LPF	1.2		μVrms

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