

## DUAL OPERATIONAL AMPLIFIER

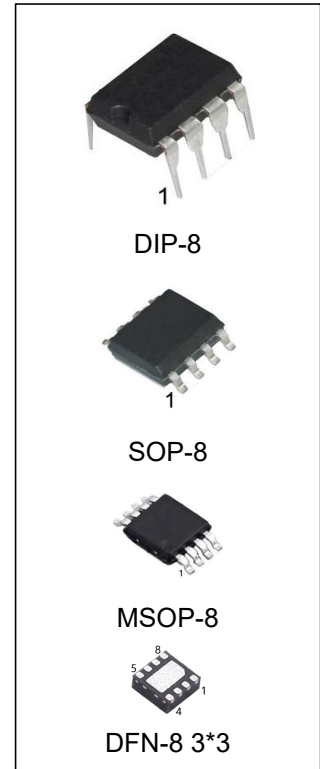
### DESCRIPTION

The RC4580 is the dual operational amplifier, specially designed for improving the tone control, which is most suitable for the audio application.

Featuring noiseless, higher gain bandwidth, high output current and low distortion ratio, and it is most suitable not only for acoustic electronic parts of audio pre-amp and active filter, but also for the industrial measurement tools. It is also suitable for the head phone amp at higher output current, and further more, it can be applied for the handy type set operational amplifier of general purpose in application of low voltage single supply type which is properly biased of the input low voltage source.

### FEATURES

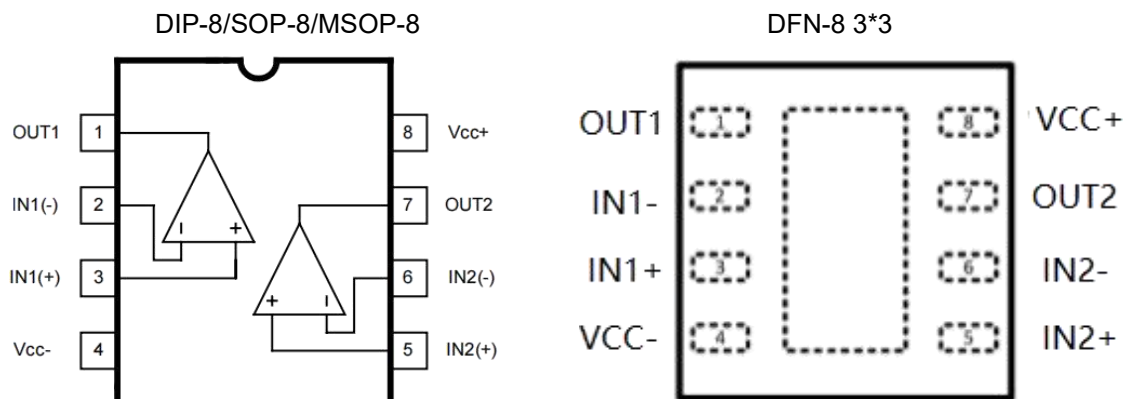
- Operating Voltage ( $\pm 2V$  to  $\pm 16V$ )
- Low Input Noise Voltage ( $0.8\mu V_{rms}$  typ.)
- Wide Gain Bandwidth Product (15MHz typ.)
- Low Distortion (0.0005% typ.)
- Slew Rate ( $5V/\mu s$  typ.)
- Bipolar Technology

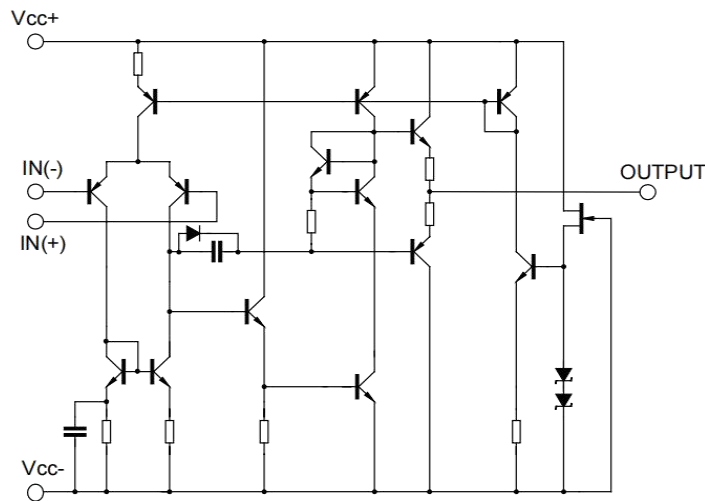


### ORDERING INFORMATION

DEVICE	Package Type	MARKING	Packing	Packing Qty
RC4580N	DIP-8	RC4580,4580	TUBE	2000pcs/box
RC4580M/TR	SOP-8	RC4580,4580	REEL	2500pcs/reel
RC4580MM/TR	MSOP-8	RC4580,4580	REEL	3000pcs/reel
RC4580DQ/TR RC4580DQ3/TR	DFN-8 3*3	RC4580,4580	REEL	5000pcs/reel

### PIN CONFIGURATION



**TEST CIRCUIT**

**ABSOLUTE MAXIMUM RATINGS** (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup> /V <sup>-</sup>	±16	V
Input Voltage	V <sub>IC</sub>	±15	V
Differential Input Voltage	V <sub>ID</sub>	±30	V
Output Current	I <sub>o</sub>	±50	mA
Power Dissipation	PD	300 (SOP-8) 800 (DIP-8) 250(MSOP-8)	mW
Lead Temperature (Soldering, 10 seconds)	T <sub>L</sub>	260	°C
Operating Temperature Range	T <sub>opr</sub>	-40 to+85	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +125	°C

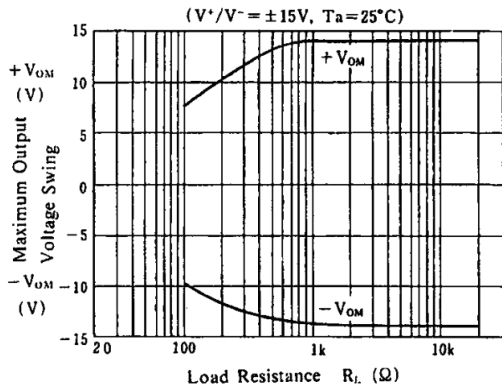
**Note:** Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is intended to be functional, but specific performance is not ensured.

**ELECTRICAL CHARACTERISTICS** (V<sup>+</sup>/V<sup>-</sup>=±15V, Ta=25°C )

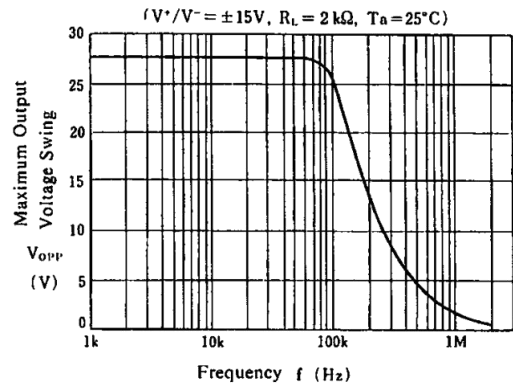
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Offset Voltage	V <sub>IO</sub>	R <sub>S</sub> ≤ 10kΩ	-	0.5	3	mV
Input Offset Current	I <sub>IO</sub>		-	5	200	nA
Input Bias Current	I <sub>B</sub>		-	100	500	nA
Large Signal Voltage Gain	A <sub>V</sub>	V <sub>o</sub> =±10V, R <sub>L</sub> ≥ 2kΩ	90	110	-	dB
Output Voltage Swing	V <sub>oM</sub>	R <sub>L</sub> ≥ 2kΩ	±12	±13.5	-	V
Input Common Mode Voltage Range	V <sub>ICM</sub>		±12	±13.5	-	V
Common Mode Rejection Ratio	CMR	R <sub>S</sub> ≤ 10kΩ	80	110	-	dB
Supply Voltage Rejection Ratio	SVR	R <sub>S</sub> ≤ 10kΩ	80	110	-	dB
Operating Current	I <sub>CC</sub>		-	6	9	mA
Slew Rate	SR	R <sub>L</sub> ≥ 2kΩ	-	5	-	V/μs
Gain bandwidth Product	GB	f=10KHz	-	15	-	MHz
Total Harmonic Distortion	THD	A <sub>v</sub> =20dB, V <sub>o</sub> =5V, R <sub>L</sub> =2kΩ, f=1KHz	-	0.0005	-	%
Input Noise Voltage	V <sub>NI</sub>	RIAA R <sub>S</sub> =2.2 kΩ, 30kHzLPF	-	0.8	-	μVrms

**TYPICAL CHARACTERISTICS**

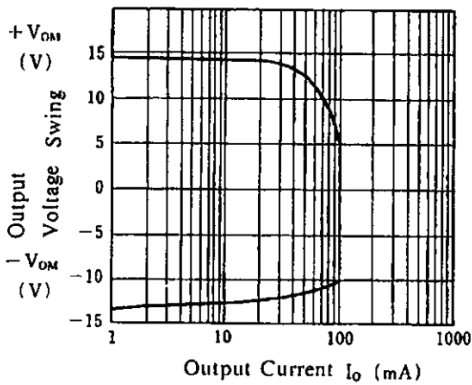
Maximum Output Voltage Swing vs. Load Resistance



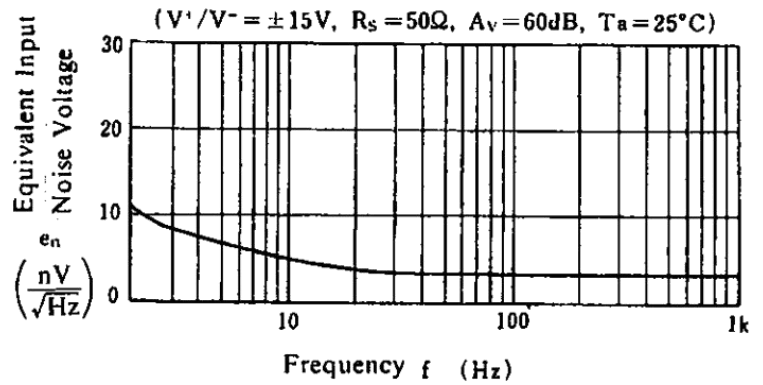
Maximum Output Voltage Swing vs. Frequency



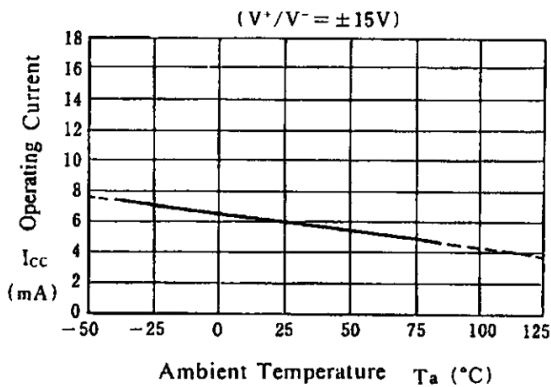
Output Voltage Swing vs. Output Current



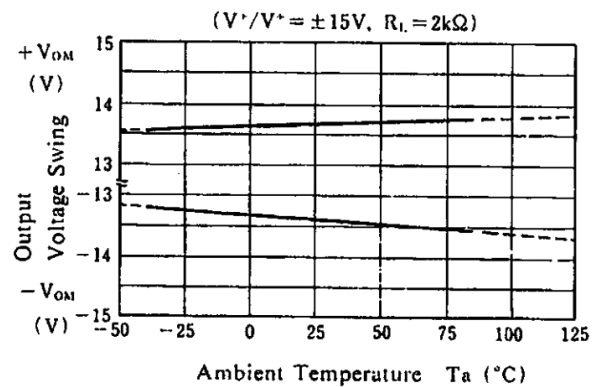
Equivalent Input Noise Voltage vs. Frequency



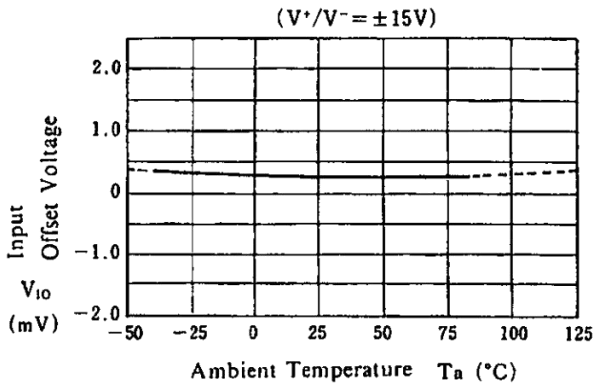
Operating Current vs. Temperature



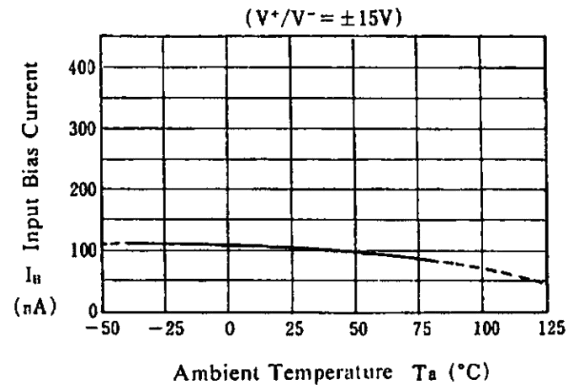
Output Voltage Swing vs. Temperature



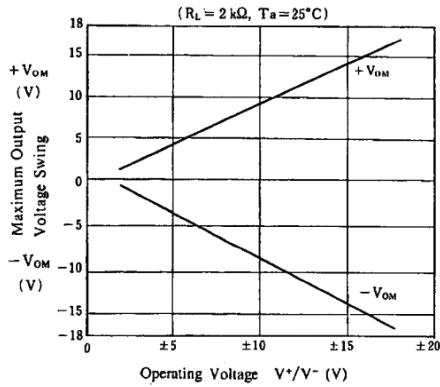
Input Offset Voltage vs. Temperature



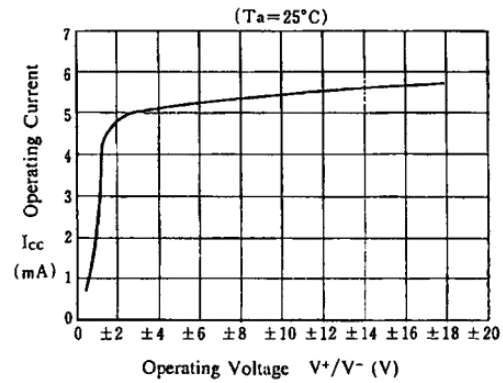
Input Bias Current vs. Temperature



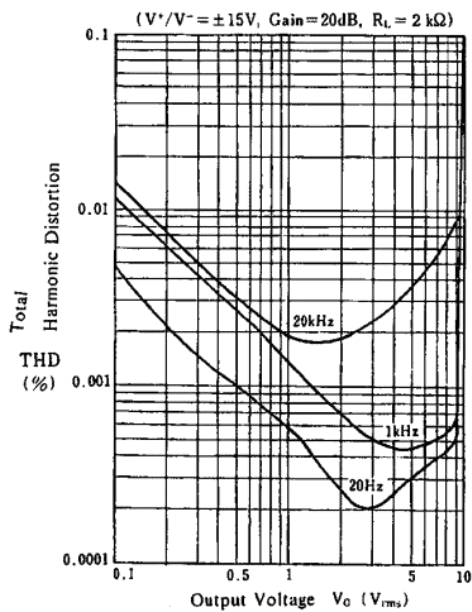
Maximum Output Voltage Swing vs. Operating Voltage



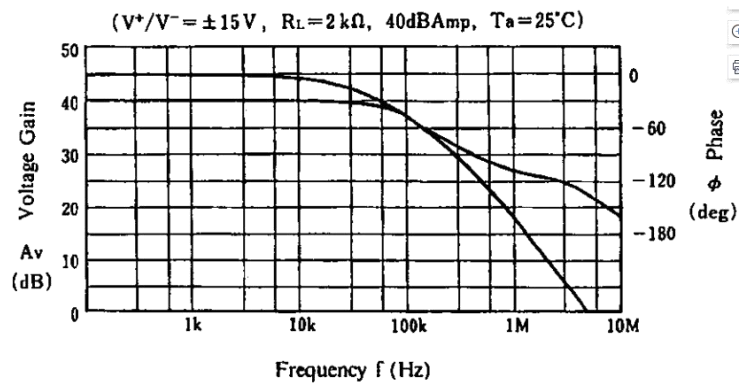
Operating Current vs. Operating Voltage

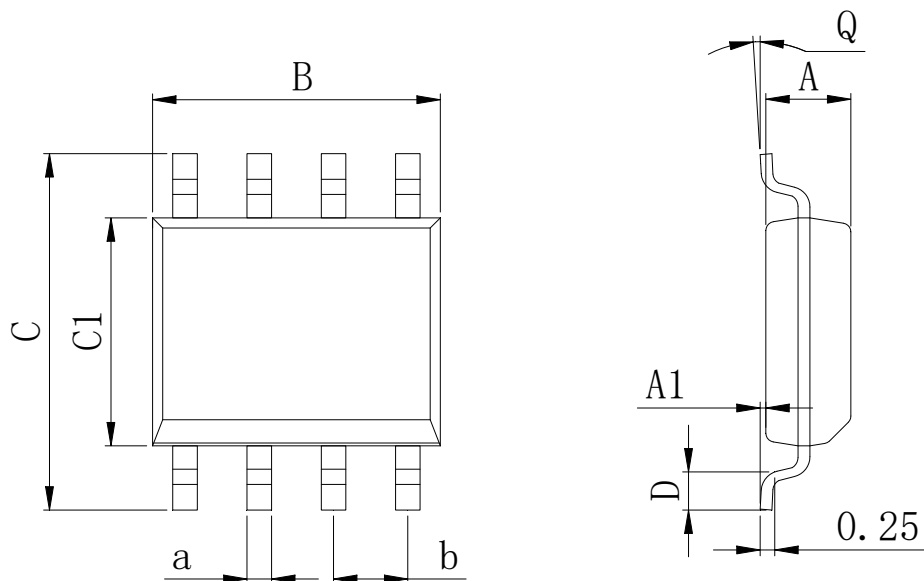


Total Harmonic Distortion vs. Output Voltage

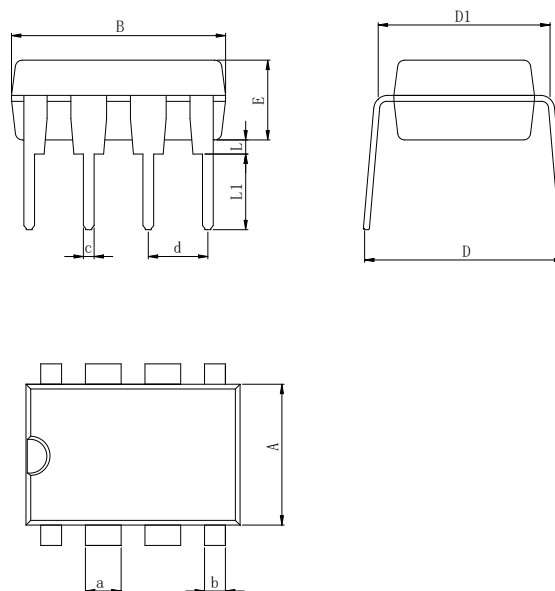


Voltage Gain, Phase vs. Frequency



**PHYSICAL DIMENSIONS**
**SOP-8**

**Dimensions In Millimeters(SOP-8)**

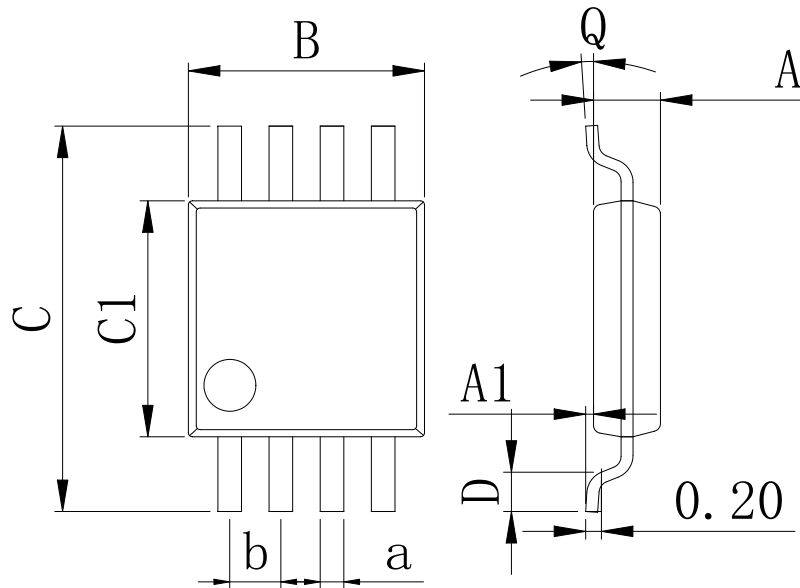
Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	1.35	0.05	4.90	5.80	3.80	0.40	0°	0.35	1.27 BSC
Max:	1.55	0.20	5.10	6.20	4.00	0.80	8°	0.45	

**DIP-8**

**Dimensions In Millimeters(DIP-8)**

Symbol:	A	B	D	D1	E	L	L1	a	b	c	d
Min:	6.10	9.00	8.10	7.42	3.10	0.50	3.00	1.50	0.85	0.40	2.54 BSC
Max:	6.68	9.50	10.9	7.82	3.55	0.70	3.60	1.55	0.90	0.50	

**PHYSICAL DIMENSIONS**

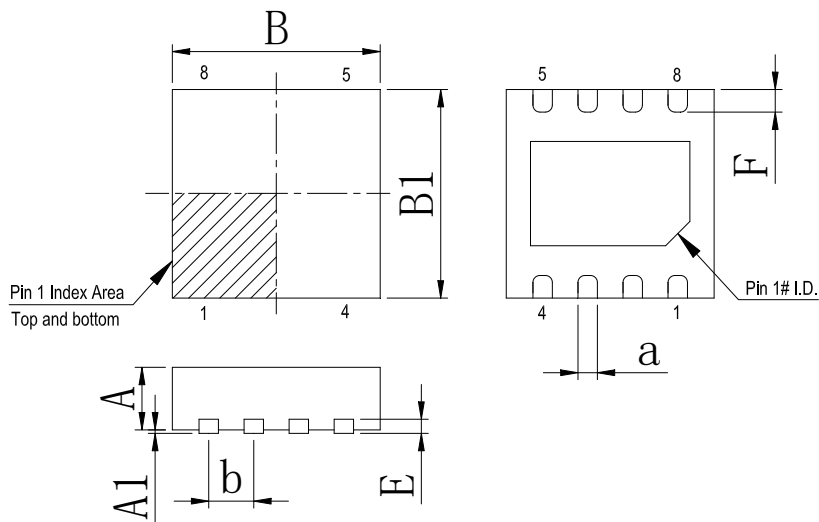
MSOP-8



**Dimensions In Millimeters(MSOP-8)**

Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	0.80	0.05	2.90	4.75	2.90	0.35	0°	0.25	0.65 BSC
Max:	0.90	0.20	3.10	5.05	3.10	0.75	8°	0.35	

DFN-8 3\*3



**Dimensions In Millimeters(DFN-8 3\*3)**

Symbol:	A	A1	B	B1	E	F	a	b
Min:	0.85	0.00	2.90	2.90	0.20	0.30	0.20	0.65 BSC
Max:	0.95	0.05	3.10	3.10	0.25	0.50	0.34	

## Revision History

DATE	REVISION	PAGE
2018-8-13	New	1-8
2023-9-14	Update encapsulation type、 Updated DIP-8 dimension	1、 5
2024-11-6	Update Lead Temperature	2

**IMPORTANT STATEMENT:**

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