

## DUAL OPERATIONAL AMPLIFIER

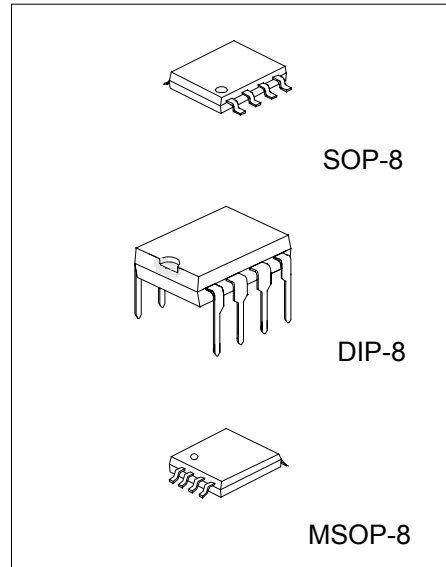
### DESCRIPTION

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

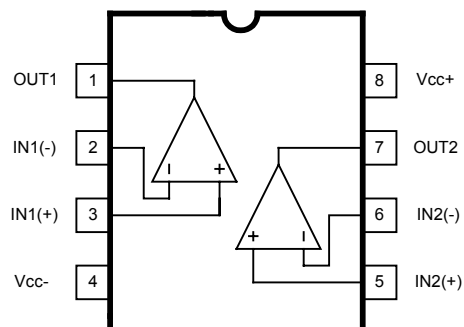
- \*Operating Voltage ( $\pm 2V$  to  $\pm 16V$ )
- \*Low Input Noise Voltage ( $0.8 \mu V_{rms}$  typ.)
- \*Wide Gain Bandwidth Product ( $15MHz$  typ.)
- \*Low Distortion ( $0.0005\%$  typ.)
- \*Slew Rate ( $5V/\mu s$  typ.)
- \*Bipolar Technology



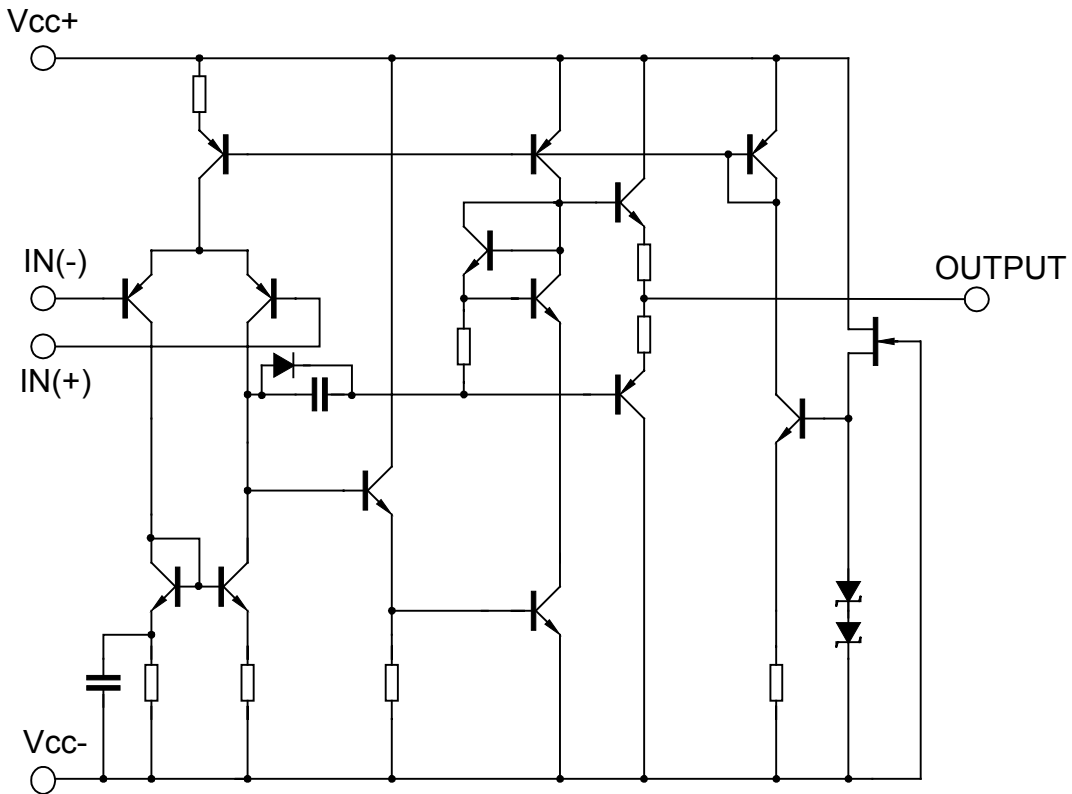
### ORDERING INFORMATION

DEVICE	Package Type	MARKING	Packing	Packing Qty
RC4580N	DIP8L	RC4580	TUBE	2000pcs/box
RC4580M/TR	SOP8L	RC4580	REEL	2500pcs/reel
RC4580MM/TR	MSOP8L	RC4580	REEL	3000pcs/reel

### PIN CONFIGURATION



TEST CIRCUIT



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

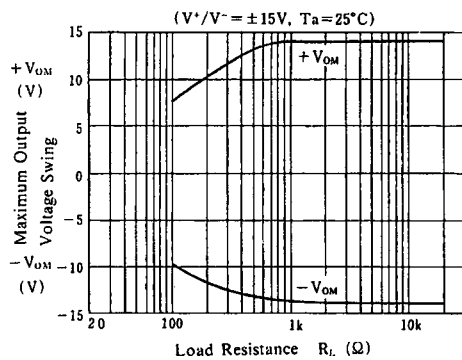
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+V^-$	$\pm 16$	V
Input Voltage	$V_{IC}$	$\pm 15$	V
Differential Input Voltage	$V_{ID}$	$\pm 30$	V
Output Current	$I_o$	$\pm 50$	mA
Power Dissipation	$P_d$	300 (SOP-8) 800 (DIP-8) 250(TSSOP-8)	mW
Operating Temperature Range	$T_{opr}$	-40 to +85	°C
Storage Temperature Range	$T_{stg}$	-40 to +125	°C

**ELECTRICAL CHARACTERISTICS** ( $V^+/V^- = \pm 15V$ ,  $T_a = 25^\circ C$ )

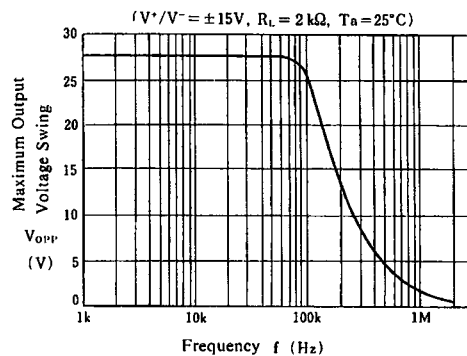
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Offset Voltage	$V_{IO}$	$R_S \leq 10k\Omega$	-	0.5	3	mV
Input Offset Current	$I_{IO}$		-	5	200	nA
Input Bias Current	$I_B$		-	100	500	nA
Large Signal Voltage Gain	$A_V$	$V_o = \pm 10V$ , $R_L \geq 2k\Omega$	90	110	-	dB
Output Voltage Swing	$V_{OM}$	$R_L >= 2k\Omega$	$\pm 12$	$\pm 13.5$	-	V
Input Common Mode Voltage Range	$V_{ICM}$		$\pm 12$	$\pm 13.5$	-	V
Common Mode Rejection Ratio	CMR	$R_S \leq 10k\Omega$	80	110	-	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leq 10k\Omega$	80	110	-	dB
Operating Current	$I_{CC}$		-	6	9	mA
Slew Rate	SR	$R_L \geq 2k\Omega$	-	5	-	V/ $\mu s$
Gain bandwidth Product	GB	$f = 10KHz$	-	15	-	MHz
Total Harmonic Distortion	THD	$A_v = 20dB$ , $V_o = 5V$ , $R_L = 2k\Omega$ , $f = 1KHz$	-	0.0005	-	%
Input Noise Voltage	$V_{NI}$	RIAA $R_s = 2.2 k\Omega$ , 30kHz LPF	-	0.8	-	$\mu V_{rms}$

**TYPICAL CHARACTERISTICS**

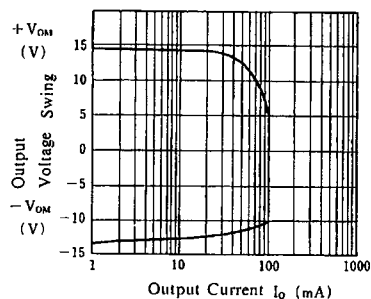
Maximum Output Voltage Swing vs. Load Resistance



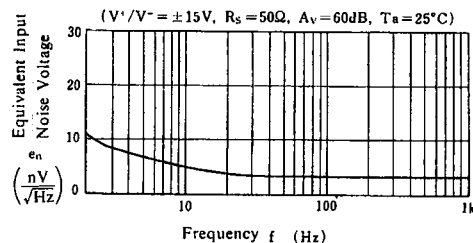
Maximum Output Voltage Swing vs. Frequency



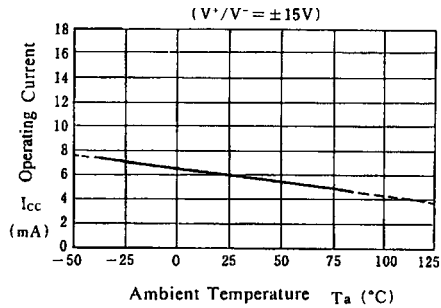
Output Voltage Swing vs. Output Current



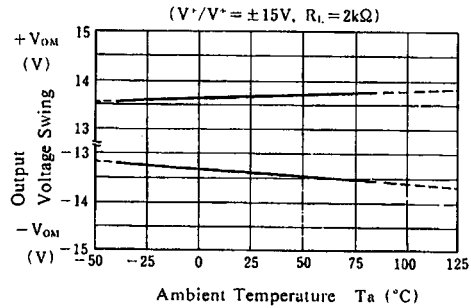
Equivalent Input Noise Voltage vs. Frequency



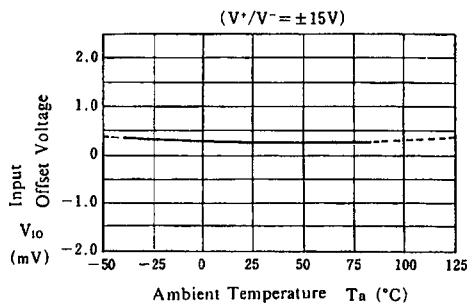
Operating Current vs. Temperature



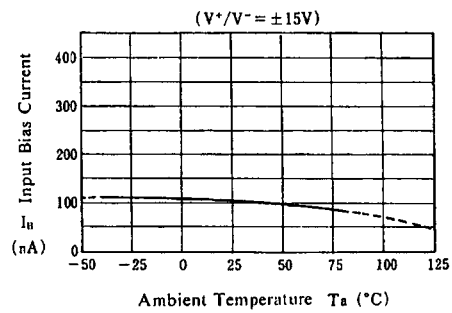
Output Voltage Swing vs. Temperature



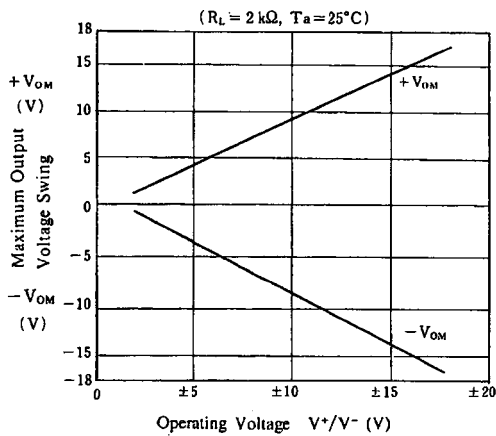
Input Offset Voltage vs. Temperature



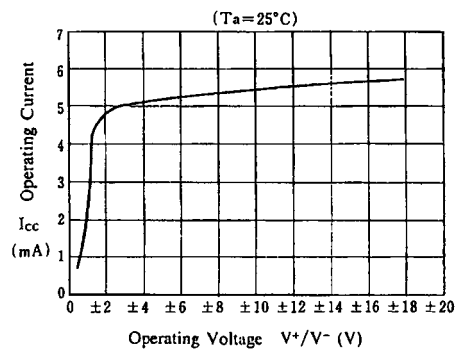
Input Bias Current vs. Temperature



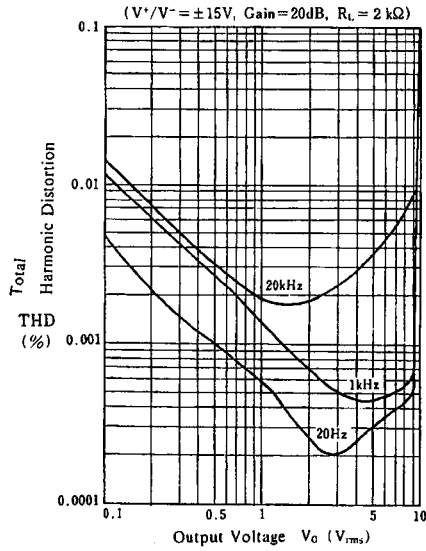
Maximum Output Voltage Swing vs. Operating Voltage



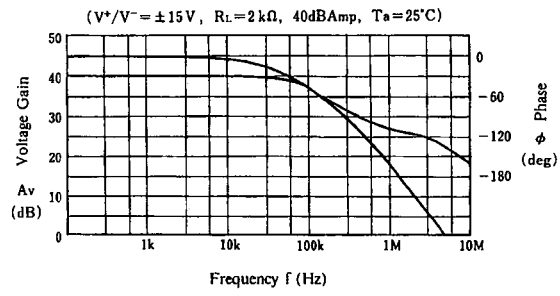
Operating Current vs. Operating Voltage



Total Harmonic Distortion vs. Output Voltage

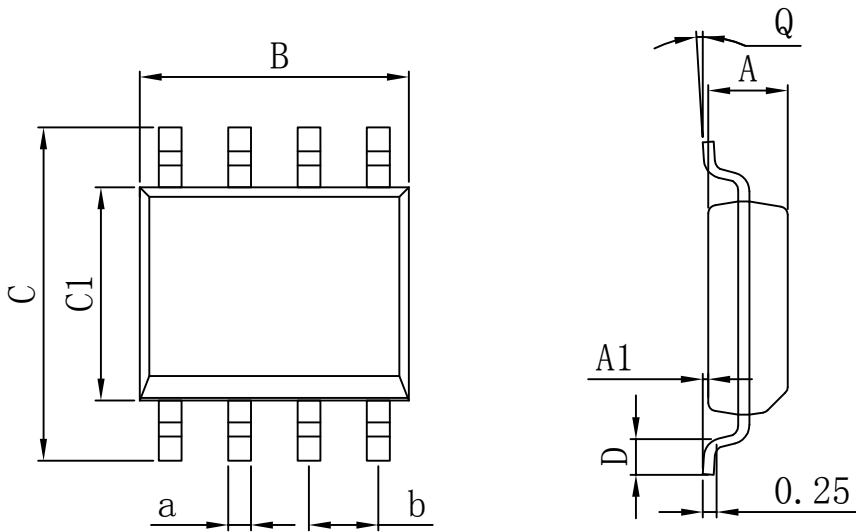


Voltage Gain, Phase vs. Frequency



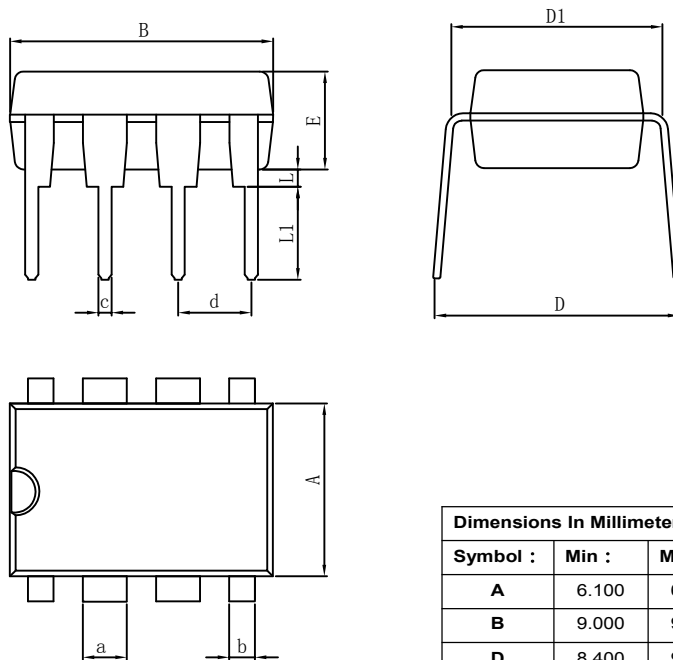
PACKAGE

SOP8



Dimensions In Millimeters					
Symbol :	Min :	Max :	Symbol :	Min :	Max :
A	1.225	1.570	D	0.400	0.950
A1	0.100	0.250	Q	0°	8°
B	4.800	5.100	a	0.420 TYP	
C	5.800	6.250	b	1.270 TYP	
C1	3.800	4.000			

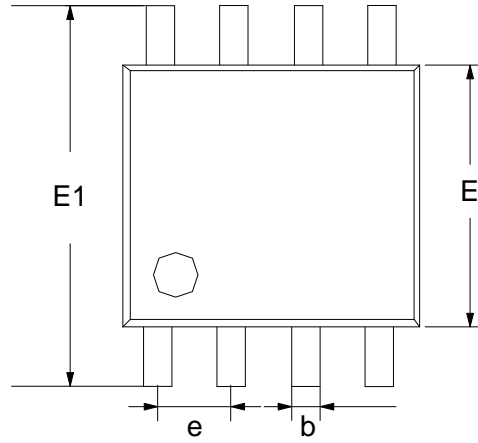
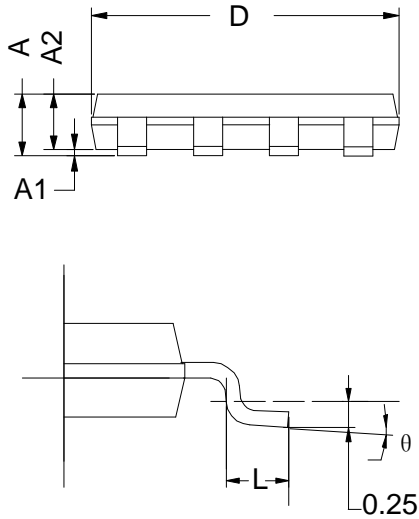
DIP8



Dimensions In Millimeters					
Symbol :	Min :	Max :	Symbol :	Min :	Max :
A	6.100	6.680	L1	3.000	3.600
B	9.000	9.500	a	1.524 TYP	
D	8.400	9.000	b	0.889 TYP	
D1	7.420	7.820	c	0.457 TYP	
E	3.100	3.550	d	2.540 TYP	
L	0.500	0.700			

**PACKAGE**

MSOP8



Dimensions In Millimeters					
Symbol :	Min :	Max :	Symbol :	Min :	Max :
A	0.800	1.200	E1	4.700	5.100
A1	0	0.200	L	0.410	0.650
A2	0.760	0.970	$\theta$	0°	6°
D	2.900	3.100	b	0.300 TYP	
E	2.900	3.100	e	0.650 TYP	

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