

# UTC MC4556 LINEAR INTEGRATED CIRCUIT

## DUAL OPERATIONAL AMPLIFIER

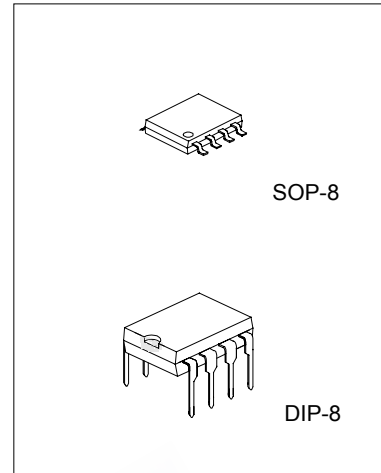
### DESCRIPTION

The UTC MC4556 integrated circuit is a high-gain, high output current dual operational amplifier capable of driving  $\pm 70\text{mA}$  into  $150\Omega$  loads ( $\pm 10.5\text{V}$  output voltage), and operating low supply voltage ( $V^+/V^- = \pm 2\text{V}$ ).

The UTC MC4556 combines many of the features of the popular UTC MC4558 as well as having the capability of driving  $150\Omega$  loads. In addition, the wide band-width, low noise, high slew rate and low distortion of the UTC MC4556 make it ideal for many audio, telecommunications and instrumentation applications.

### FEATURES

- \*Operating Voltage ( $\pm 2\text{V} \sim \pm 18\text{V}$ )
- \*High Output Current ( $I_o = 70\text{mA}$ )
- \*Slew Rate ( $3\text{V} / \mu\text{s}$  typ.)
- \*Gain Band Width Product ( $8\text{MHz}$  typ.)
- \*Bipolar Technology



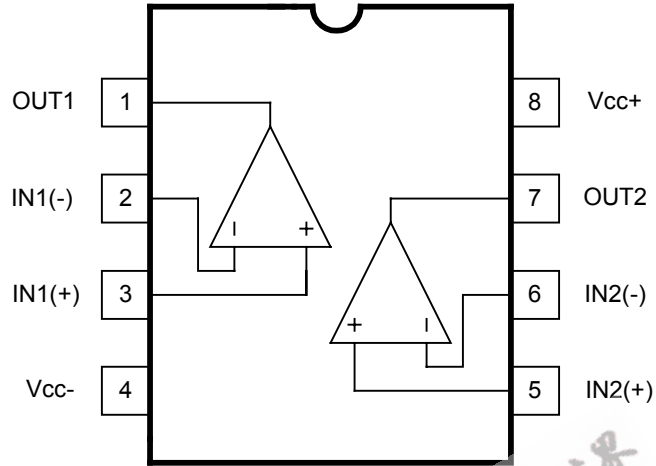
\*Pb-free plating product number: MC4556L

### ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead free		
MC4556-S08-R	MC4556L-S08-R	SOP-8	Tape Reel
MC4556-S08-T	MC4556L-S08-T	SOP-8	Tube
MC4556-D08-T	MC4556L-D08-T	DIP-8	Tube

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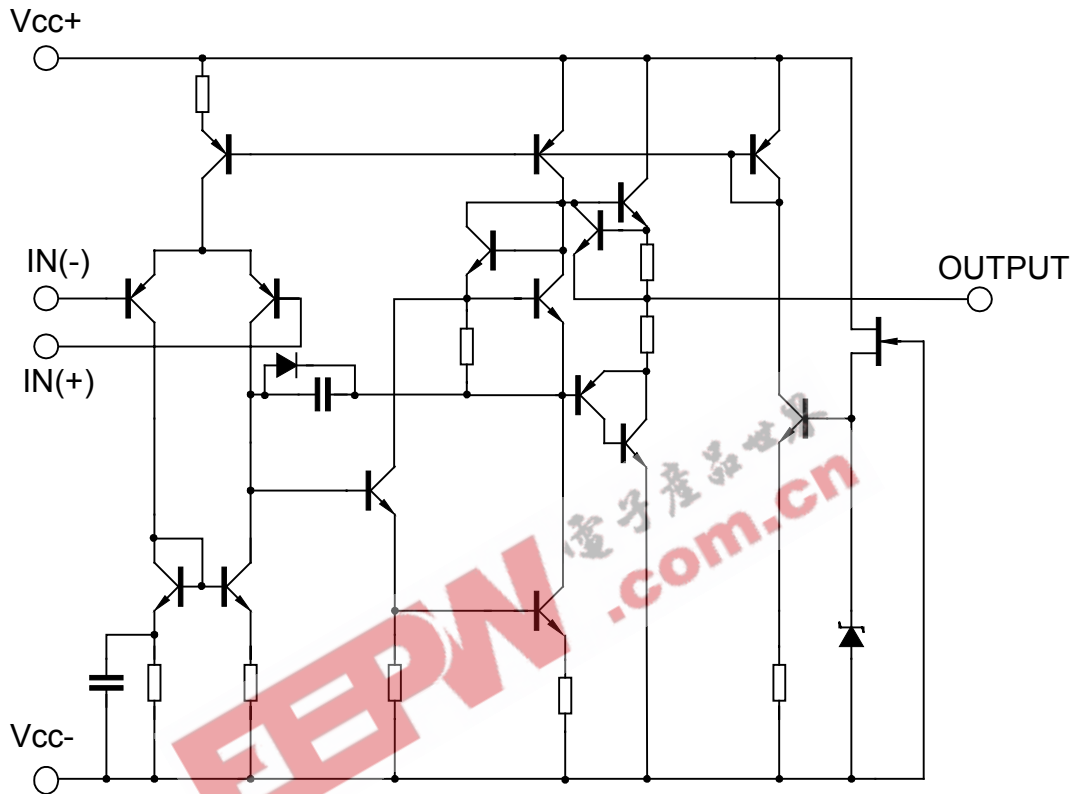
## PIN CONFIGURATION



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## BLOCK DIAGRAM



## ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V+/V-	±18	V
Differential Input Voltage	V <sub>ID</sub>	±30	V
Input Voltage	V <sub>I</sub>	±15(note)	V
Power Dissipation	P <sub>D</sub>		
DIP-8		700	mW
SOP-8		300	mW
Operating Temperature Range	T <sub>OPR</sub>	-20 ~ +75	°C
Storage Temperature Range	T <sub>STG</sub>	-40 ~ +125	°C

Note: For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

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## ELECTRICAL CHARACTERISTICS (Ta=25°C, V+ / V- = ±15V)

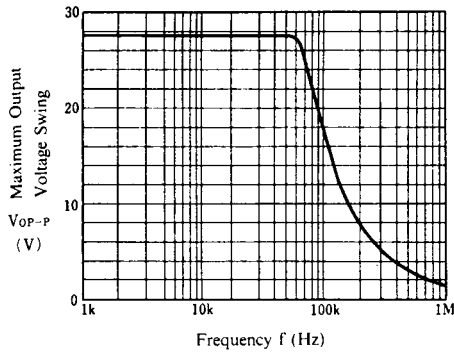
PARAMETER	SYMBOL	TEST CONDUCTION	MIN	TYP	MAX	UNIT
Input offset voltage	V <sub>IO</sub>	R <sub>s</sub> ≤ 10kΩ	-	0.5	6	mV
Input offset current	I <sub>IO</sub>		-	5	60	nA
Input bias current	I <sub>B</sub>		-	50	500	nA
Input Resistance	R <sub>IN</sub>		0.3	5	-	MΩ
Large Signal Voltage Gain	A <sub>V</sub>	R <sub>L</sub> ≥ 2kΩ, V <sub>o</sub> = ±10V	86	100	-	dB
Maximum Output Voltage 1	V <sub>OM1</sub>	R <sub>L</sub> ≥ 2kΩ	±12.0	±13.5	-	V
Maximum Output Voltage 2	V <sub>OM2</sub>	R <sub>L</sub> ≥ 150Ω	±10.5	±11.0	-	V
Input Common Mode Voltage Range	V <sub>ICM</sub>		±13.5	±14.0	-	V
Common Mode Rejection Ratio	CMR	R <sub>s</sub> ≤ 10kΩ	70	90	-	dB
Supply Voltage Rejection Ratio	SVR	R <sub>s</sub> ≤ 10kΩ	76.5	90	-	dB
Operating Current	I <sub>CC</sub>		-	9	12	mA
Slew Rate	SR		-	3	-	V/μs
Unity Gain Bandwidth	GB		-	8	-	MHz

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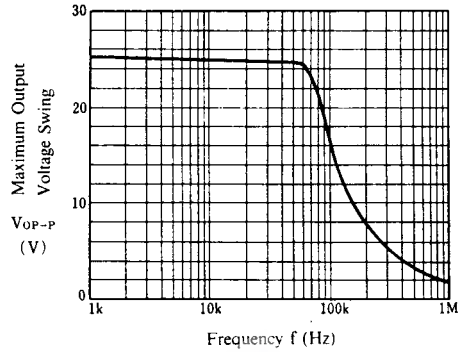
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## TYPICAL CHARACTERISTICS

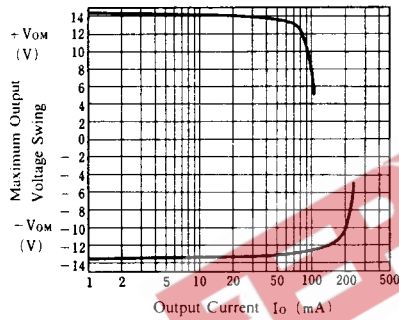
MAXIMUM OUTPUT VOLTAGE SWING vs. FREQUENCY  
( $V^+/V^- = \pm 15V$ ,  $R_L = 2k\Omega$ ,  $T_a = 25^\circ C$ )



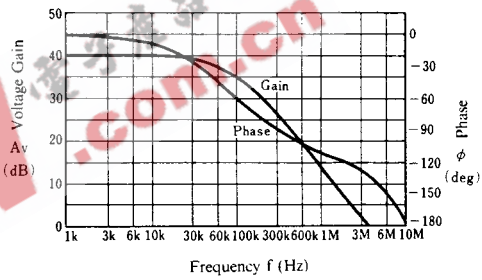
MAXIMUM OUTPUT VOLTAGE SWING vs. FREQUENCY  
( $V^+/V^- = \pm 15V$ ,  $R_L = 150\Omega$ ,  $T_a = 25^\circ C$ )



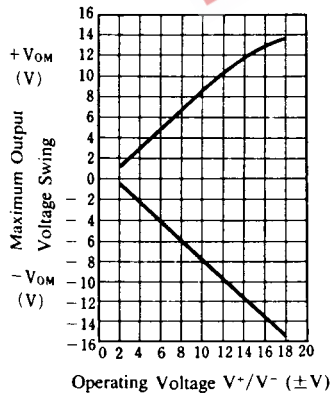
MAXIMUM OUTPUT VOLTAGE SWING vs. OUTPUT CURRENT  
( $V^+/V^- = \pm 15V$ ,  $T_a = 25^\circ C$ )



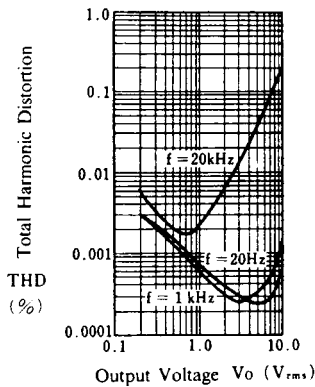
VOLTAGE GAIN, PHASE SHIFT vs. FREQUENCY  
( $V^+/V^- = \pm 15V$ ,  $R_L = 2k\Omega$ , 40dB Amp,  $T_a = 25^\circ C$ )



MAXIMUM OUTPUT VOLTAGE SWING vs. OPERATING VOLTAGE  
( $R_L = 150\Omega$ ,  $T_a = 25^\circ C$ )

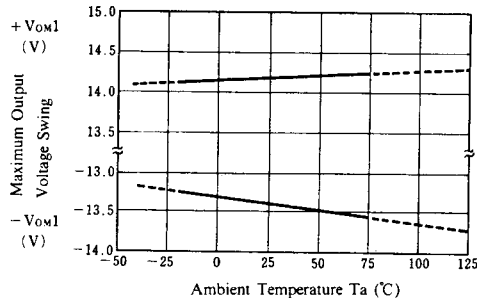


TOTAL HARMONIC DISTORTION vs. OUTPUT VOLTAGE  
( $V^+/V^- = \pm 15V$ ,  $R_L = 200\Omega$ , GAIN=30dB,  $T_a = 25^\circ C$ )

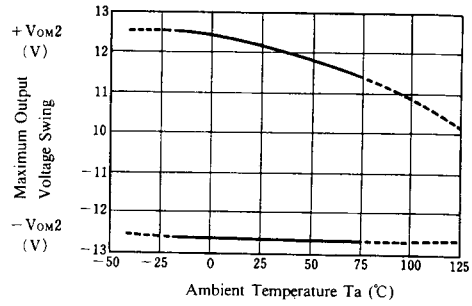


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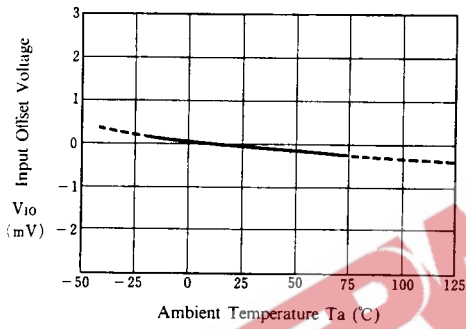
MAXIMUM OUTPUT VOLTAGE SWING vs. TEMPERATURE  
( $V^+/V^- = \pm 15V$ ,  $R_L = 2k\Omega$ )



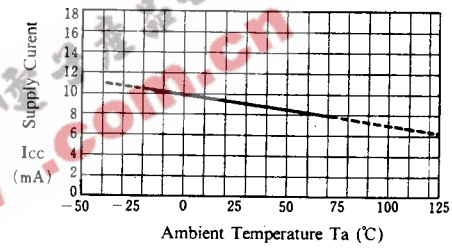
MAXIMUM OUTPUT VOLTAGE SWING vs. TEMPERATURE  
( $V^+/V^- = \pm 15V$ ,  $R_L = 150\Omega$ )



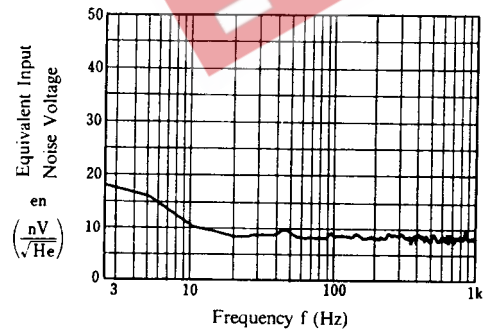
INPUT OFFSET VOLTAGE vs. TEMPERATURE  
( $V^+/V^- = \pm 15V$ )



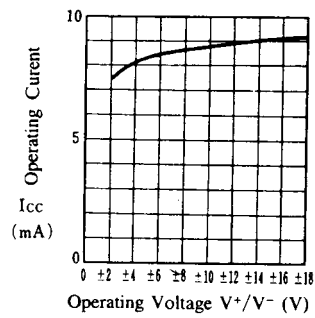
SUPPLY CURRENT vs. TEMPERATURE  
( $V^+/V^- = \pm 15V$ )



EQUIVALENT INPUT NOISE VOLTAGE vs. FREQUENCY  
( $V^+/V^- = \pm 15V$ ,  $R_s = 100\Omega$ ,  $A_v = 40dB$ ,  $T_a = 25^\circ C$ )



OPERATING CURRENT vs. OPERATING VOLTAGE  
( $T_a = 25^\circ C$ )



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