

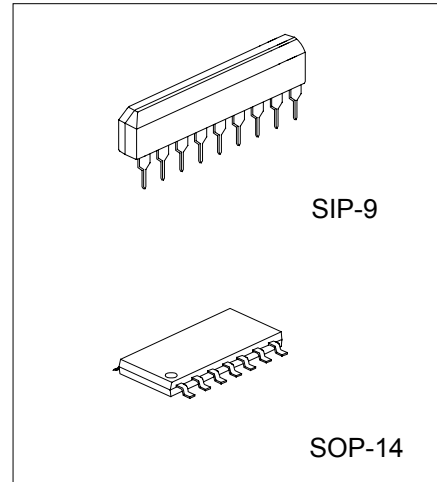
DUAL PREAMPLIFIER WITH ALC

DESCRIPTION

The UTC **BA3308** is designed to have dual preamplifier ICs with built – in ALC circuits for use in stereo amplification. The preamplifiers have high gain and low distortion. A built-in rectifier for ALC circuit implies good channel balance and large dynamic range can be constructed with addition of just an external time constant circuit.

FEATURES

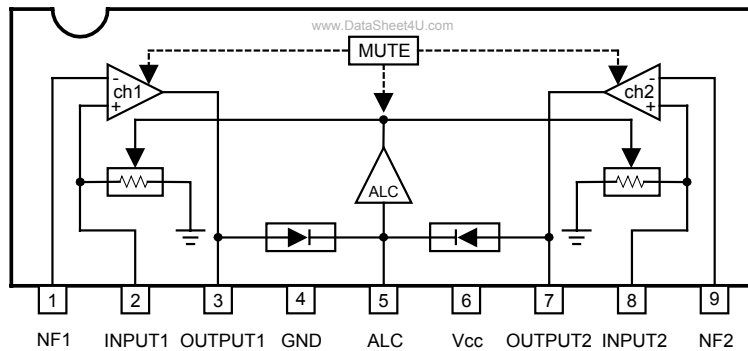
- \* Wide operating power supply voltage range ( $V_{CC}=6.0V \sim 14V$ )
- \* Power-on mute circuit to avoid “pop” noise generation.
- \* No input coupling capacitors are necessary
- \* High gain ( $G_{VO}=80dB$ )and low noise ( $V_{NIN}=1\mu V_{rms}$ )
- \* Low distortion (THD=0.1%)
- \* Good ALC channel balance with built-in ALC rectifier diode
- \* Adjustable ALC dynamic range by external input resistor.



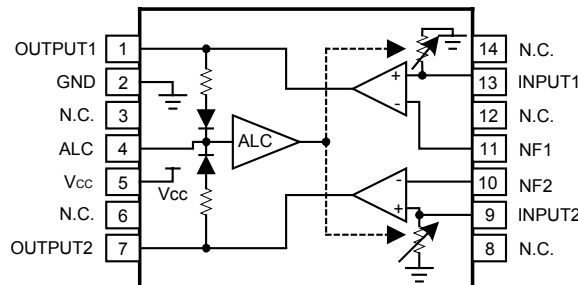
\*Pb-free plating product number: BA3308L

BLOCK DIAGRAM

SIP-9



SOP-14



**ABSOLUTE MAXIMUM RATINGS**

(Ta = 25 )

PARAMETER	SYMBOL	RATINGS	UNIT
Power Supply Voltage	V <sub>CC</sub>	16	V
Power Dissipation	SIP-9	950 <sup>*1</sup>	mW
	SOP-14	450 <sup>*2</sup>	
Operating Temperature	T <sub>OPR</sub>	0 ~ +70	
Storage Temperature	T <sub>STG</sub>	-65 ~ +125	

\*1 Reduced by 9.5mW for each increase in Ta of 1°C over 25°C.

\*2 Reduced by 4.5mW for each increase in Ta of 1°C over 25°C.

(when mounted on a 70mm x70mm x1.6mm glass epoxy board)

**RECOMMENDED OPERATING CONDITIONS**

(Ta = 25 )

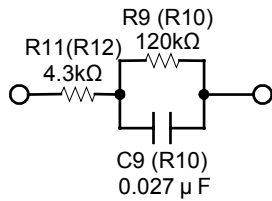
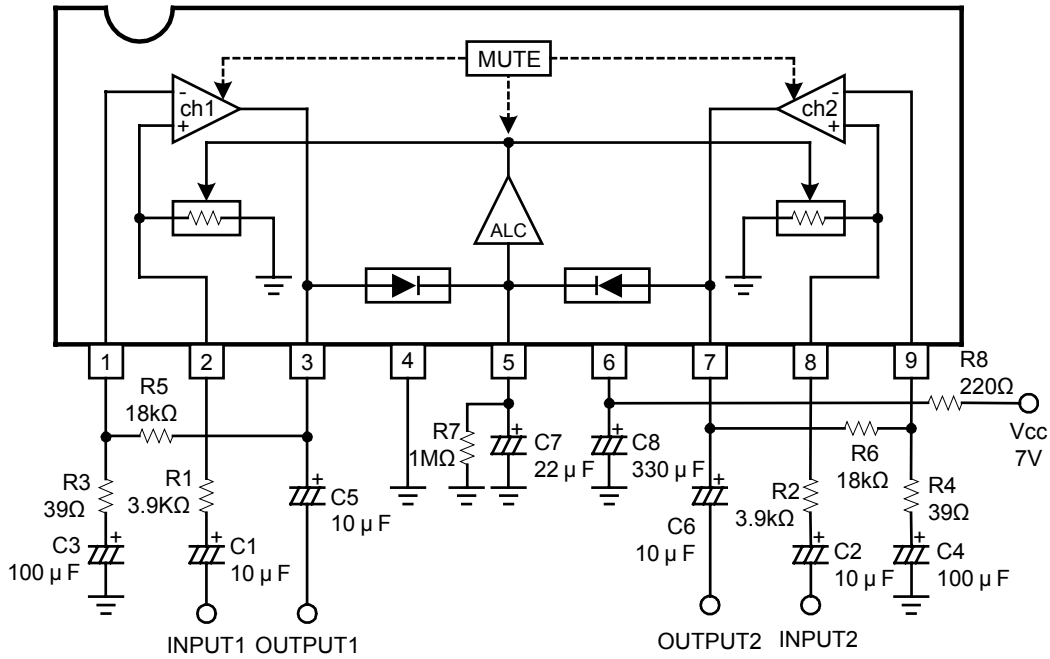
Power supply voltage range 1	+6.0V ~ +14V ( Ta = 25~ +75 )
Power supply voltage range 2	+4.5V ~ +14V ( Ta = 0~ +75 )

\* When it is used below Ta = 0 , please use it within the range of operating power supply voltage1.

**ELECTRICAL CHARACTERISTICS**(Ta =25 , V<sub>CC</sub> =7.0V, f =1kHz and BPF: 20Hz ~ 20kHz, unless otherwise noted.)

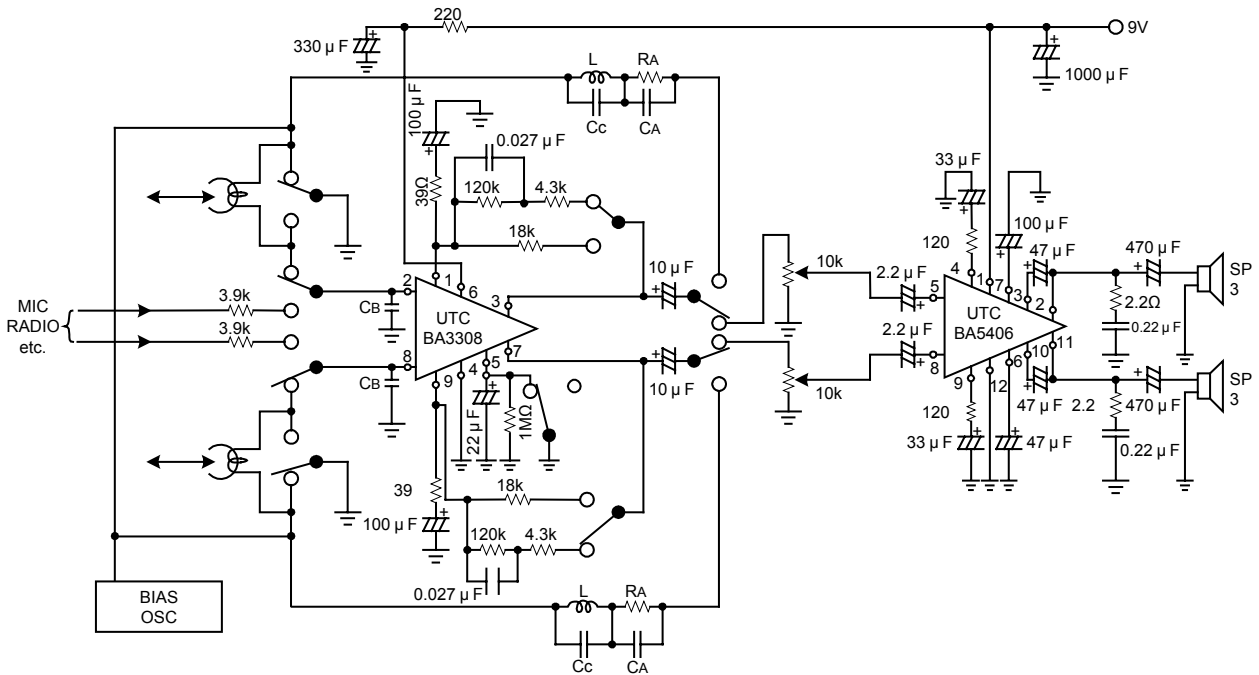
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Maximum output voltage	V <sub>OM</sub>	THD=1%	0.6	1.2		V <sub>rms</sub>
Input conversion noise voltage	V <sub>NIN</sub>	Conversion with R <sub>g</sub> =2.2kΩ and NAB34dB at 1kHz		1.0	2.0	μV <sub>rms</sub>
Quiescent current	I <sub>Q</sub>	V <sub>IN</sub> =0Vrms	1.5	3.3	4.5	mA
Input resistance	R <sub>IN</sub>		15	31.5	45	kΩ
Total harmonic distortion	THD	NAB34dB, V <sub>OUT</sub> =40mV <sub>rms</sub>		0.1	0.3	%
Open loop voltage gain	G <sub>VO</sub>	V <sub>OUT</sub> = -10dBV	70	80		dB
ALC range	ALC	R <sub>G</sub> =3.9kΩ, V <sub>IN</sub> =-70dBV reference, THD=3%	40	70		dB
ALC channel balance	ΔALC	V <sub>IN</sub> = -60dBV, -30dBV		0	2.5	dB
Channel separation	CS	V <sub>O</sub> =0dBV, NAB34dB	60	75		dB

APPLICATION CIRCUIT



For playback, instead of R5 and R6, connect the following NAB time constant circuit between pins 1 and 3 and 7 and 9.

TOTAL APPLICATION CIRCUIT



Notes:

- (1) Switches are in the playback positions.
- (2) Set the values of  $R_A$  and  $C_A$  depending on the characteristics of the playback/recording head.
- (3) The capacitor  $C_B$  is for head resonance treble compensation during playback, and prevention of high-frequency noise. The recommended value is about 1000pF.
- (4) L and  $C_C$  are a bias trap.

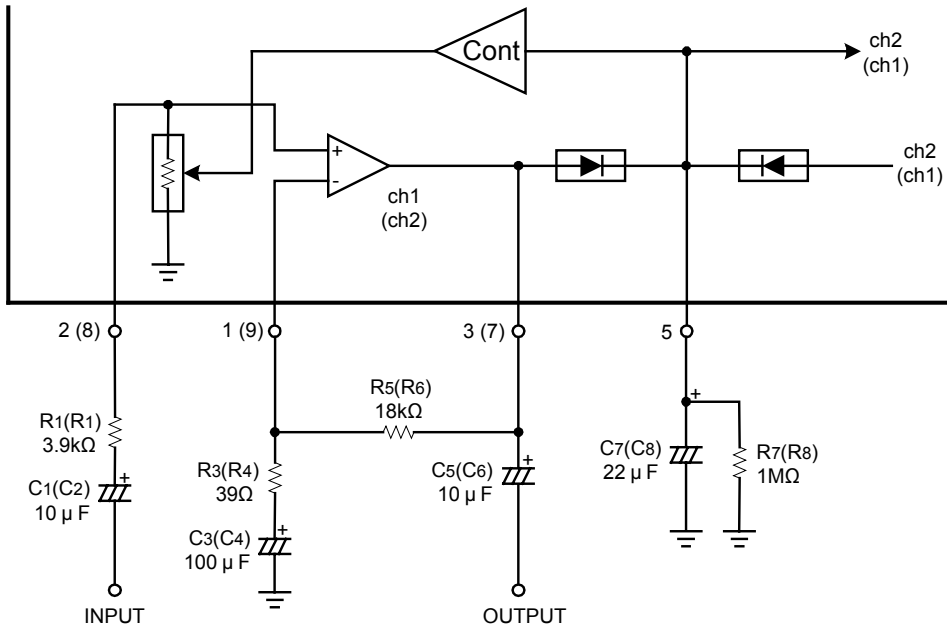


Fig.1

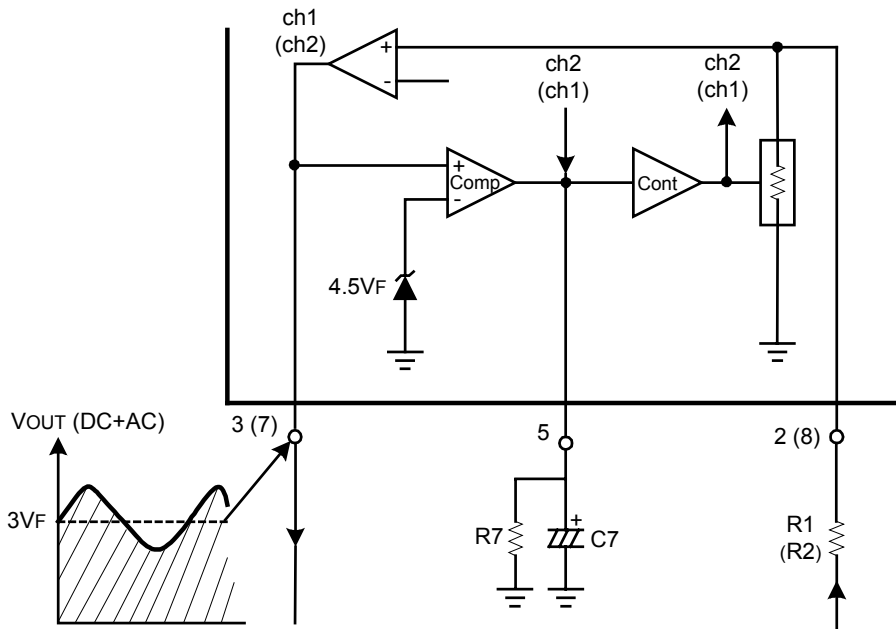


Fig.2

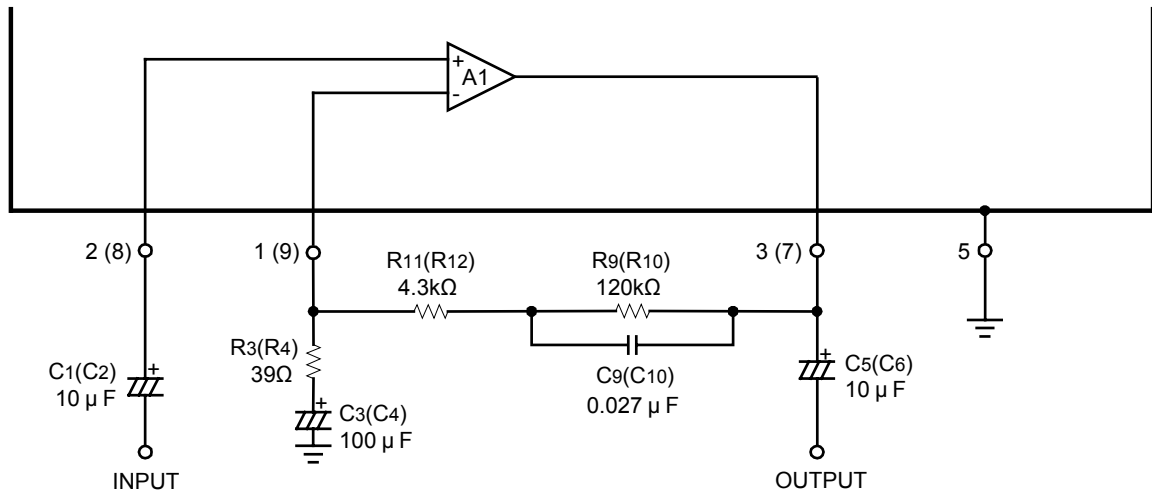


Fig.3

**OPERATION NOTES**

The UTC **BA3308** has a built-in power-on mute circuit to prevent generation of a “pop” sound when the power is applied. The generation of the “pop” sound is prevented by the DC blocking capacitors C3 and C4 connected to pins 1 and 9, and the charge time required for the ripple filter capacitor C8 that is connected to pin 6.

To ensure correct operation of this circuit, use the values given in the application circuit for C3, C4, R3, R4, C8 and R8.

ELECTRICAL CHARACTERISTIC CURVES

Fig.4 Quiescent current vs.power supply voltage

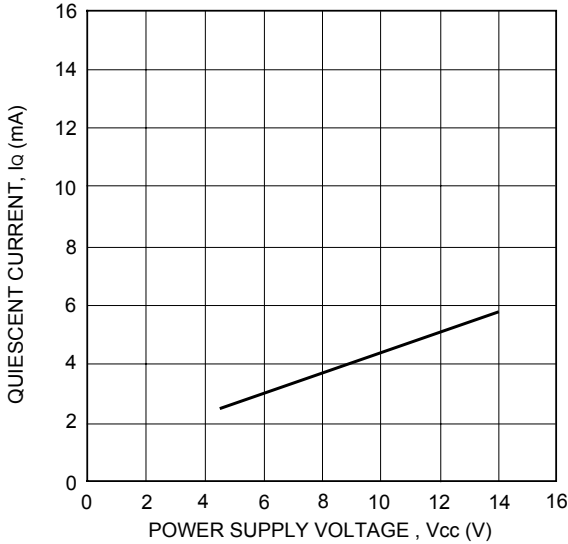


Fig.5 Quiescent current vs.ambient temperature

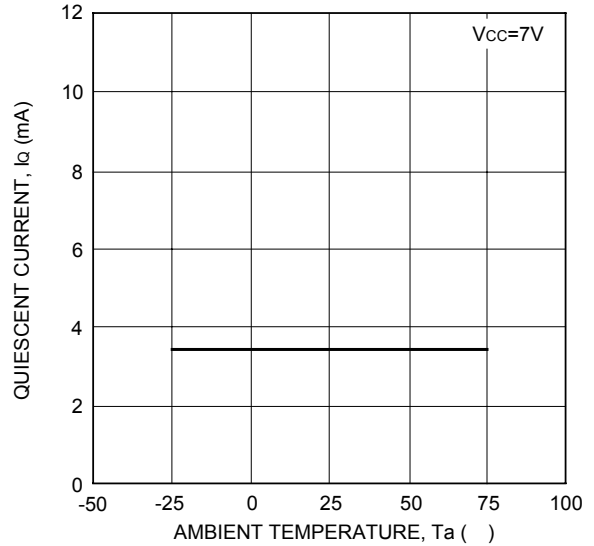


Fig.6 Voltage gain vs. power supply voltage

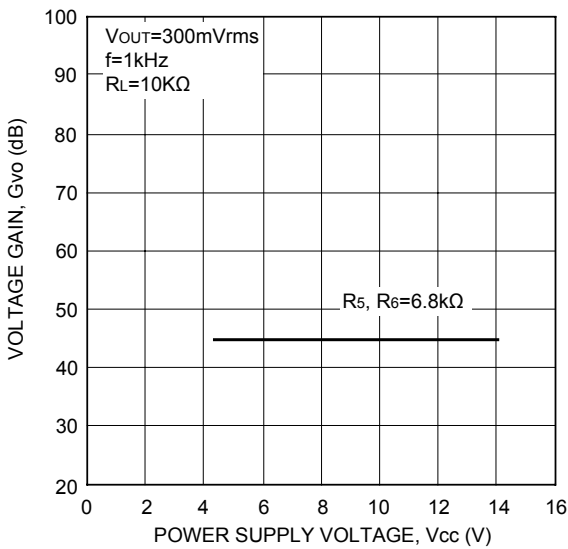


Fig.7 Closed loop voltage gain vs. ambient temperature

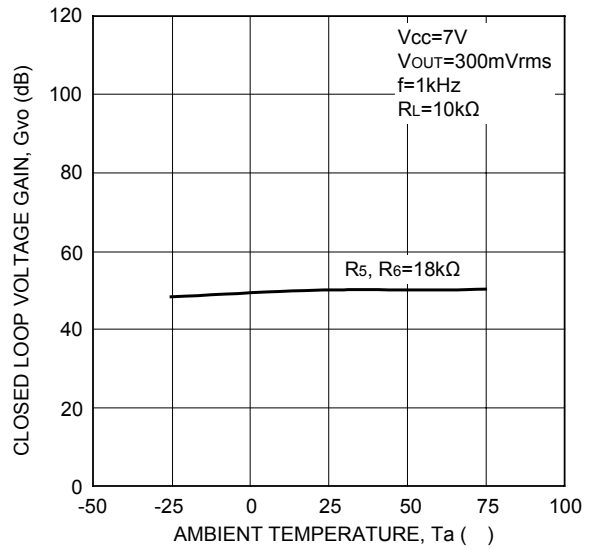


Fig.8 ALC characteristics

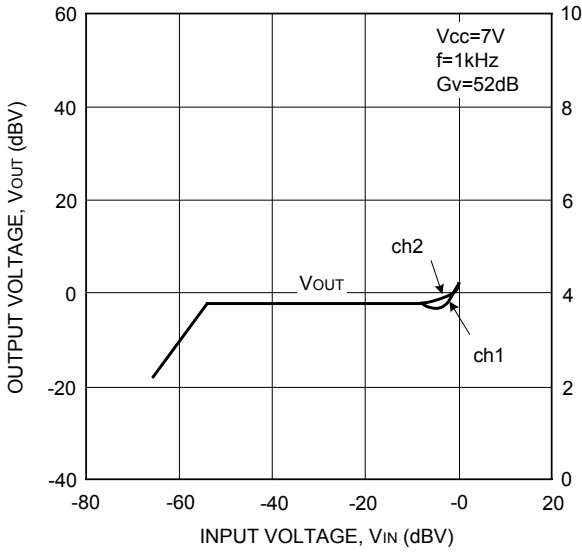


Fig.9 Input/output characteristics

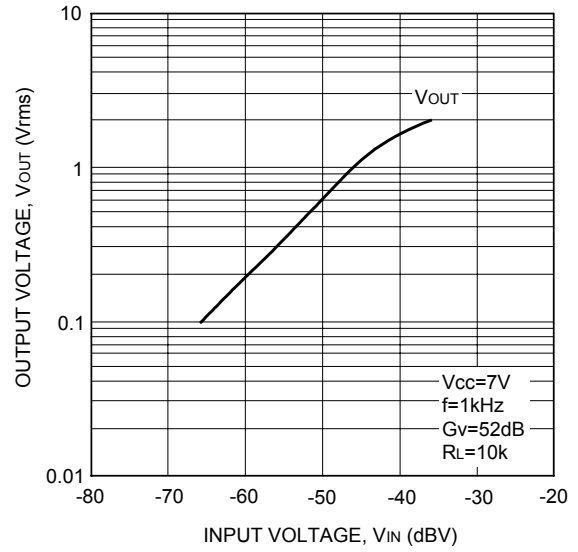


Fig.10 Maximum output voltage vs. power supply voltage

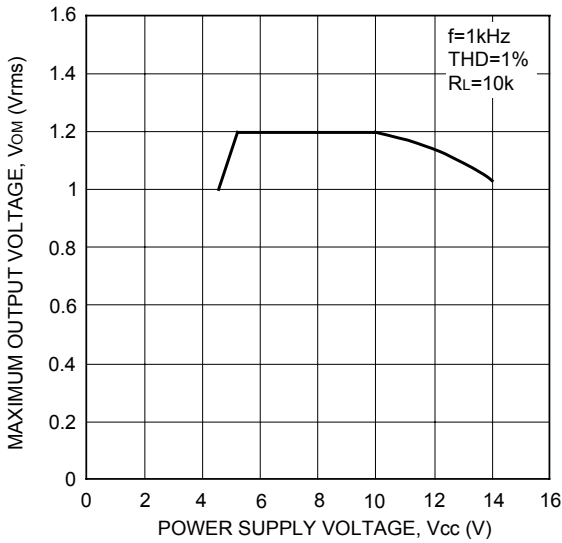
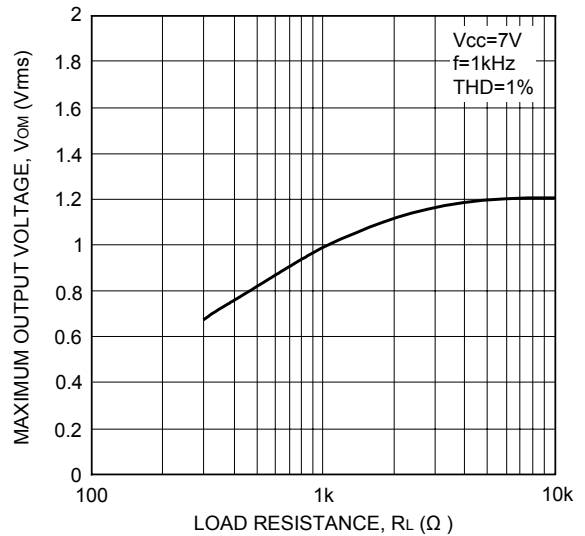


Fig.11 Maximum output voltage vs. load resistance



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