

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

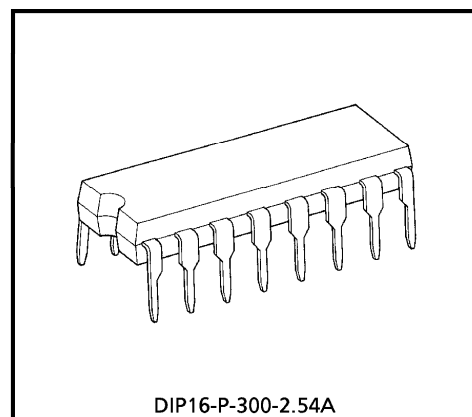
# TA8142AP

## REC / PLAY PRE AMP SYSTEM FOR DOUBLE CASSETTE

The TA8142AP is a Quad Pre Amplifier Designed for Use in Record / Play back Pre amplifier of Tape Recorder. It is Suitable for a Double Radio Cassette Recorder.

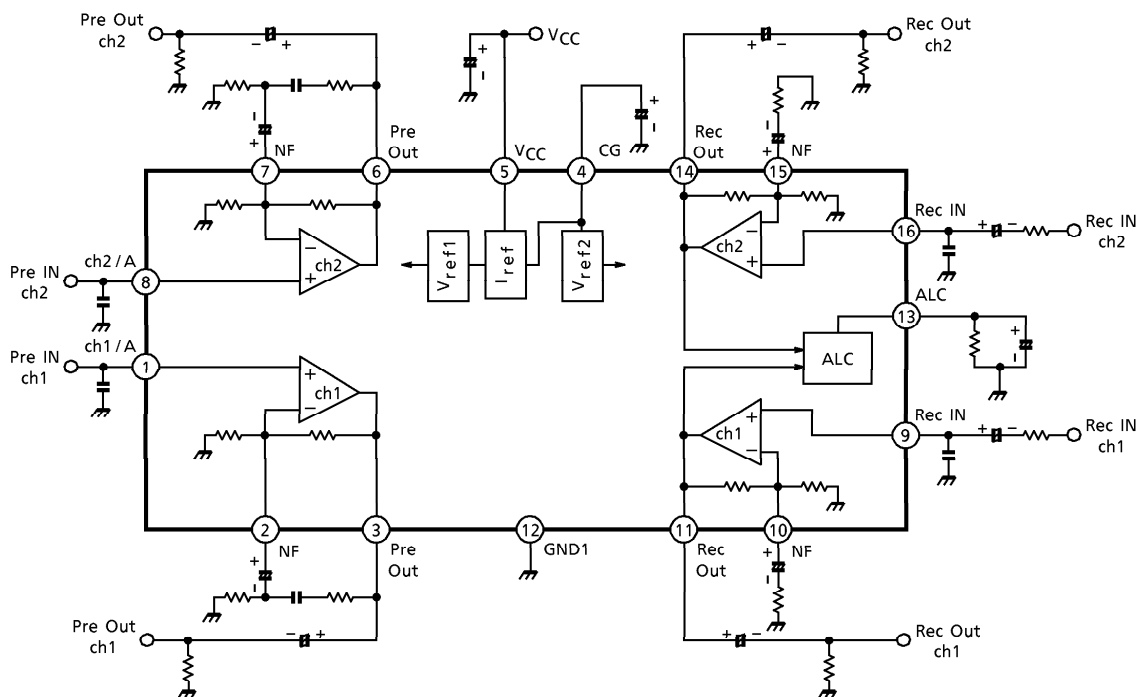
### FEATURES

- Built in play back Amplifier
- Built in Recording Amplifier
- ALC Detector Circuit
- Operating Supply Voltage Range :  $V_{CC(opr)} = 4 \sim 13.5V$  ( $T_a = 25^\circ C$ )



DIP16-P-300-2.54A  
Weight : 1.00g (Typ.)

### BLOCK DIAGRAM



961001EBA2

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**MAXIMUM RATINGS (Ta = 25°C)**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub>	14.5	V
Power Dissipation	P <sub>D</sub> (Note)	750	mW
Operating Temperature	T <sub>opr</sub>	- 20~75	°C
Storage Temperature	T <sub>stg</sub>	- 55~150	°C

(Note) Derated above Ta = 25°C in the proportion of 6mW/°C.

**ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V<sub>CC</sub> = 6V, f = 1kHz, B.P.F = 400Hz~30kHz)**

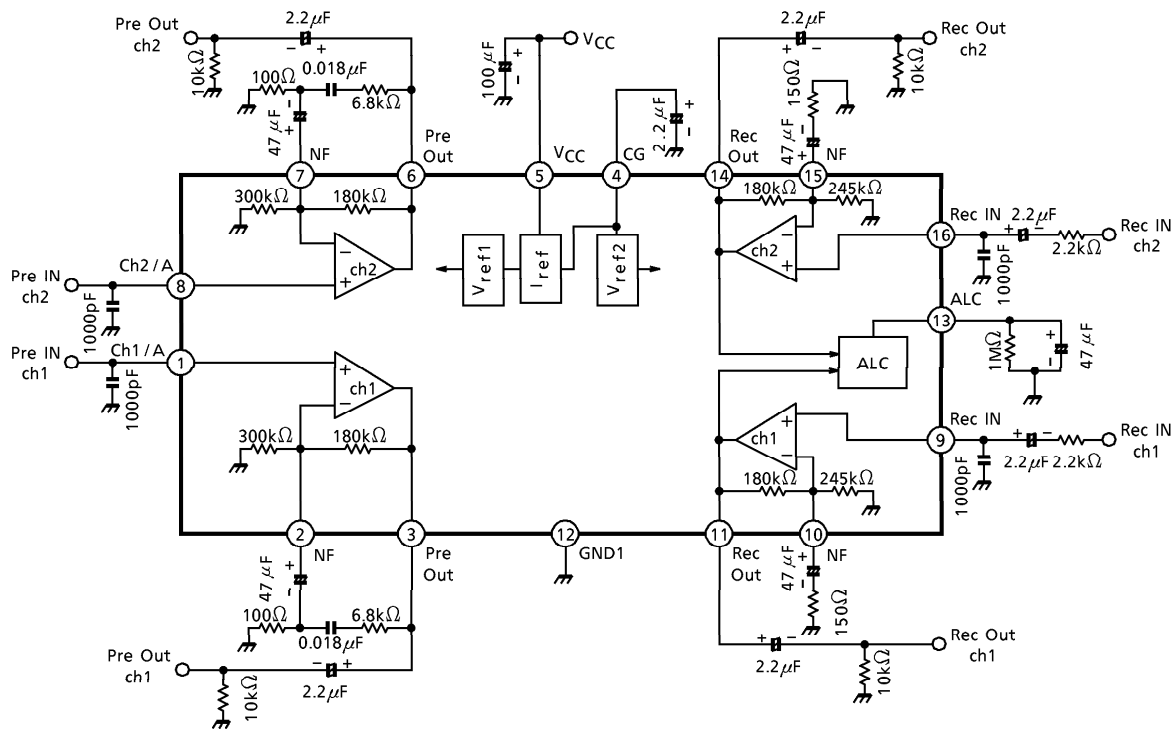
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I <sub>ccq</sub>	—	—	—	9.5	15	mA
Play Back Amp.	Output Noise Voltage	V <sub>no</sub> (Pre)	Normal Mode, R <sub>g</sub> = 2.2kΩ, NAB EQ BW = 20Hz~20kHz, G <sub>v</sub> = 40dB	—	150	350	μV <sub>rms</sub>
	Total Harmonic Distortion	THD (Pre)	V <sub>out</sub> = 0.2V <sub>rms</sub> , f = 1kHz Normal Mode	—	0.05	0.1	%
	Maximum Output Voltage	V <sub>om</sub> (Pre)	THD = 1.0%, R <sub>L</sub> = 10kΩ, f = 1kHz Normal Mode	0.9	1.4	—	V <sub>rms</sub>
	Open Loop Voltage Gain	G <sub>vo</sub> (Pre)	f = 1kHz, R <sub>L</sub> = 10kΩ V <sub>in</sub> = 13.8μV <sub>rms</sub> (- 95dBm)	80	93	—	dB
	Cross Talk	C.T. (ch) (Pre)	V <sub>out</sub> = 0.775V <sub>rms</sub> (0dBm), f = 1kHz R <sub>g</sub> = 2.2kΩ, Normal Mode	- 70	- 77	—	dB
	Ripple Rejection Ratio	R.R. (Pre)	V <sub>ripple</sub> = 0.775V <sub>rms</sub> (0dBm) fripple = 100Hz, Normal Mode R <sub>g</sub> = 2.2kΩ, LPF = ~30kHz	—	- 40	—	dB
	Voltage Gain	G <sub>vn</sub> (Pre)	V <sub>in</sub> = 7.75mV <sub>rms</sub> (- 40dBm) f = 1kHz, Normal NAB, R <sub>L</sub> = 10kΩ	—	40	—	dB
Pre Amp → Rec Amp C.T.	C.T. (P/R)	—	f = 1kHz, V <sub>out</sub> (Pre) = 0.775V <sub>rms</sub> (0dBm), Normal (Pre)	—	- 53.5	—	dB
Rec Amp → Pre Amp C.T.	C.T. (R/P)	—	f = 1kHz, V <sub>out</sub> (Rec) = 0.775V <sub>rms</sub> (0dBm), Normal (Pre)	—	- 77.5	—	dB
Recording Amp.	Output Noise Level	V <sub>no</sub> (Rec)	R <sub>g</sub> = 2.2kΩ, BW = 20Hz~20kHz ALC OFF, G <sub>v</sub> = 60dB	—	1.3	2.7	mV <sub>rms</sub>
	Total Harmonic Distortion	THD (Rec)	V <sub>out</sub> = 0.5V <sub>rms</sub> , f = 1kHz ALC OFF, R <sub>L</sub> = 10kΩ	—	0.35	0.9	%
	Maximum Output Level	V <sub>om</sub> (Rec)	THD = 1%, R <sub>L</sub> = 10kΩ, f = 1kHz ALC OFF	1.2	1.5	—	V <sub>rms</sub>
	Open Loop Voltage Gain	G <sub>vo</sub> (Rec)	f = 1kHz, R <sub>L</sub> = 10kΩ, V <sub>in</sub> = 3.16μV <sub>rms</sub> (- 110dBV)	76	86	—	dB
	ALC Range	R (ALC)	—	3dB up	—	50	—

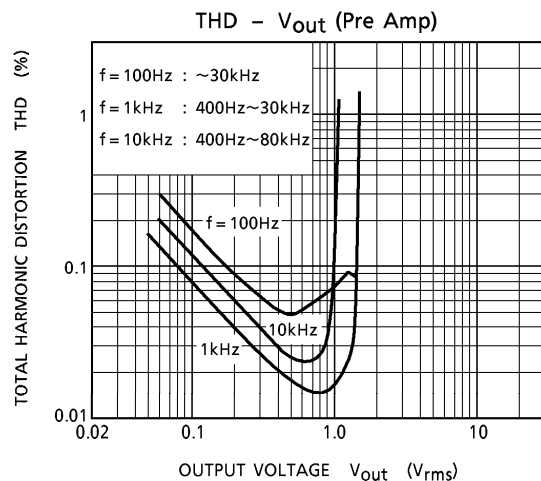
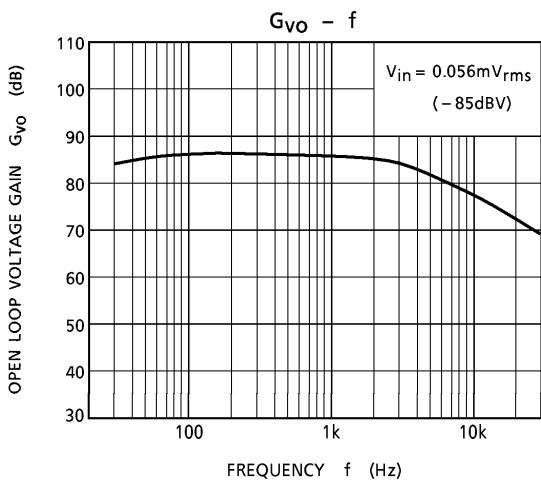
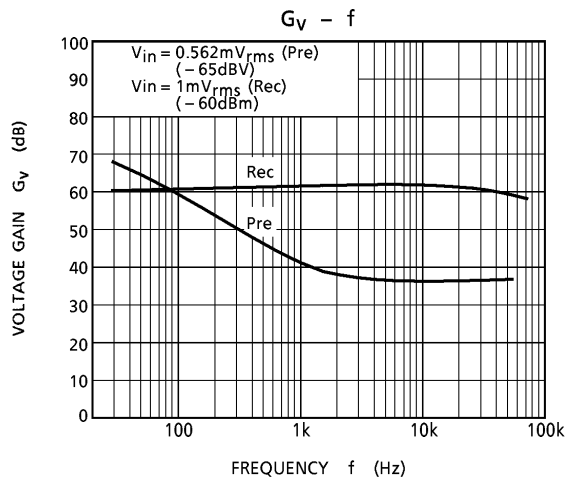
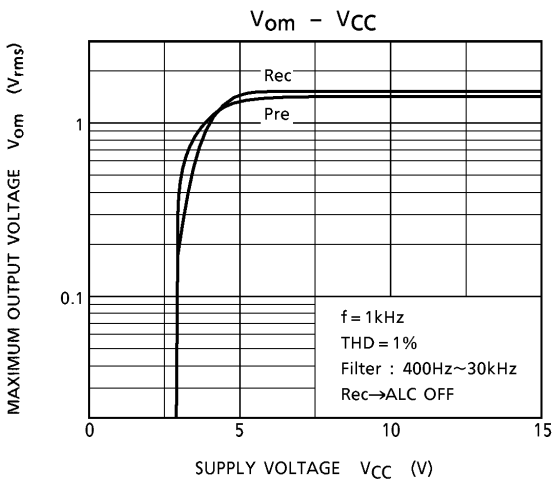
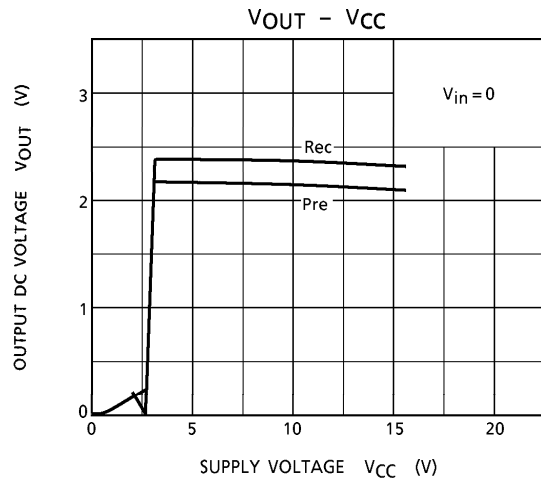
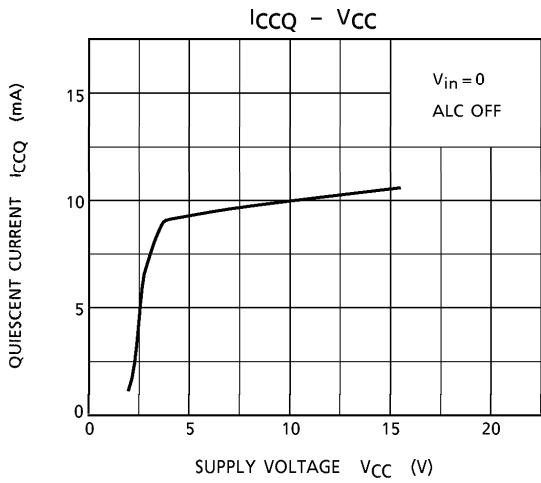
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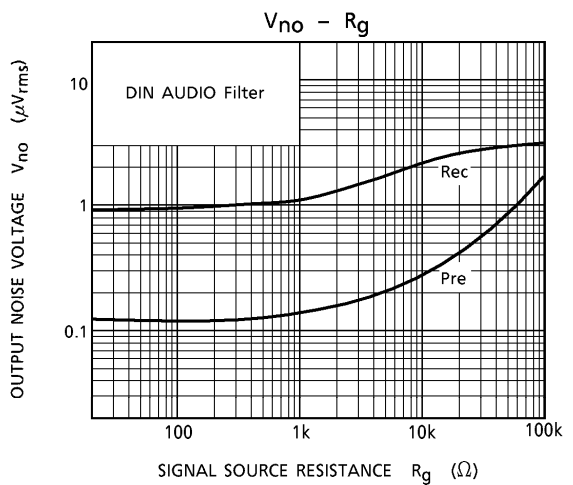
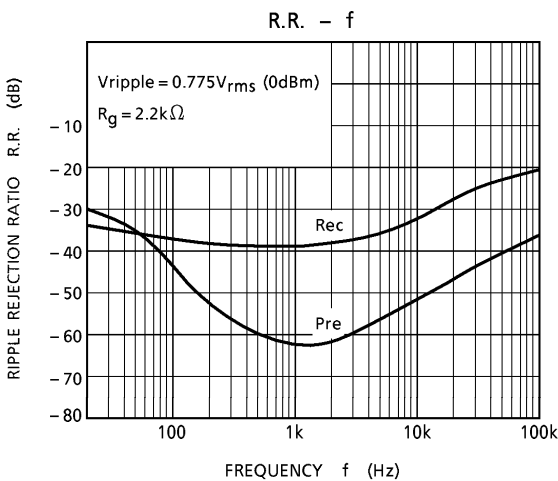
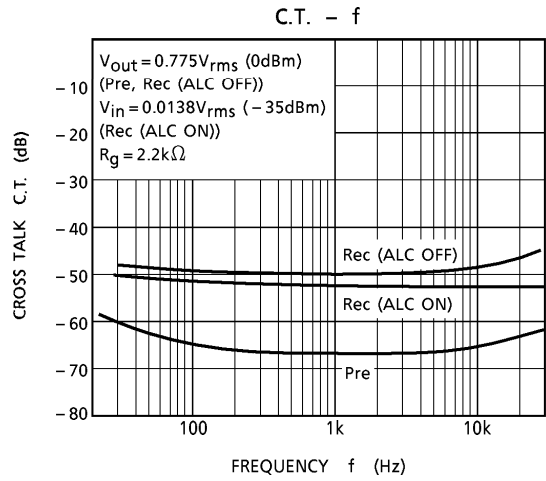
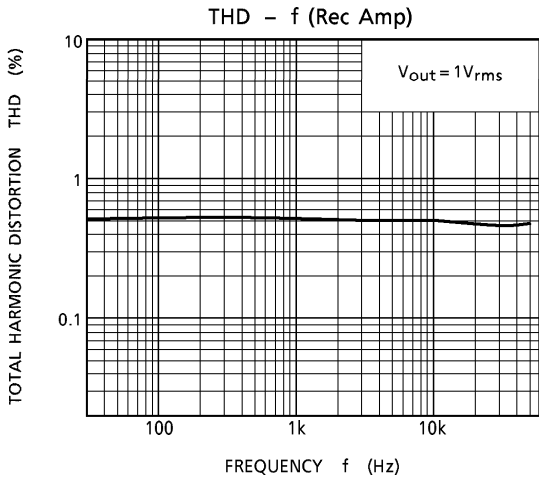
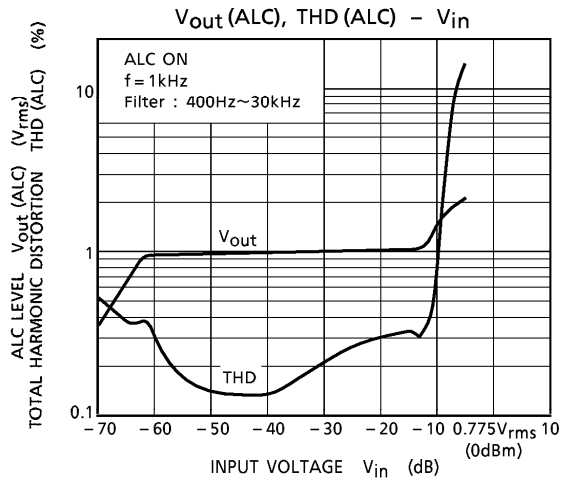
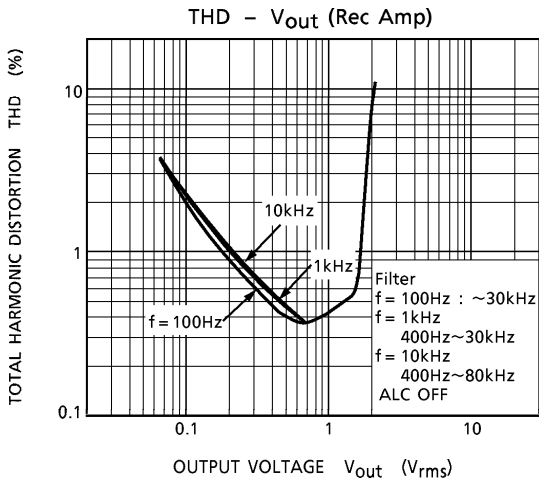
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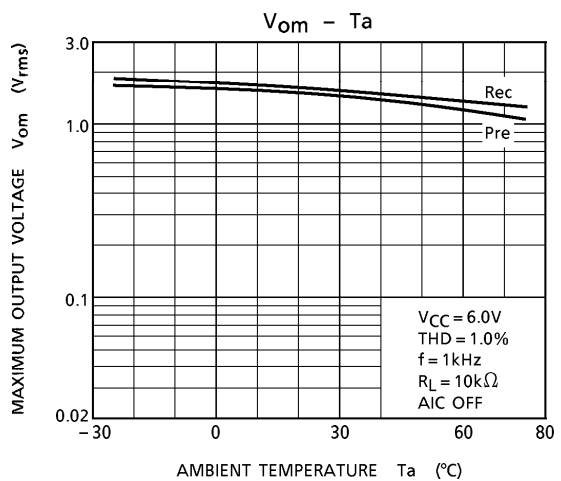
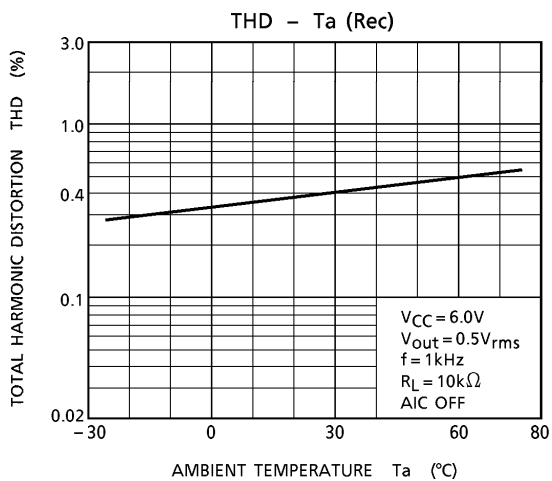
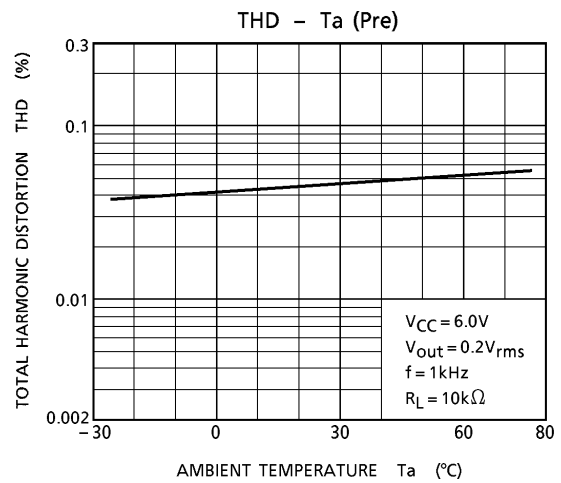
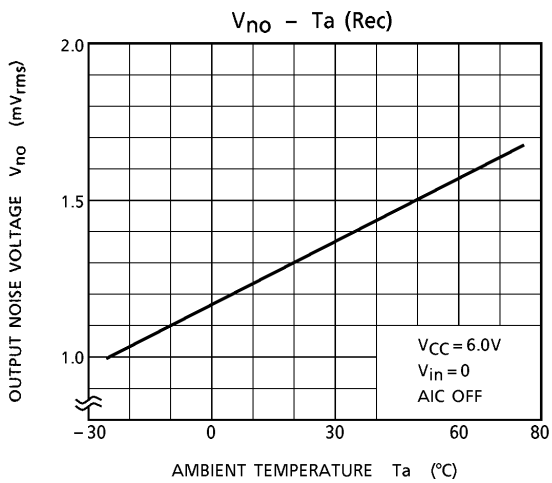
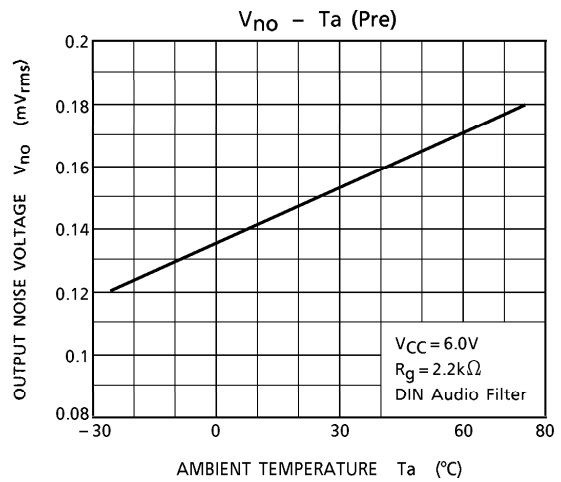
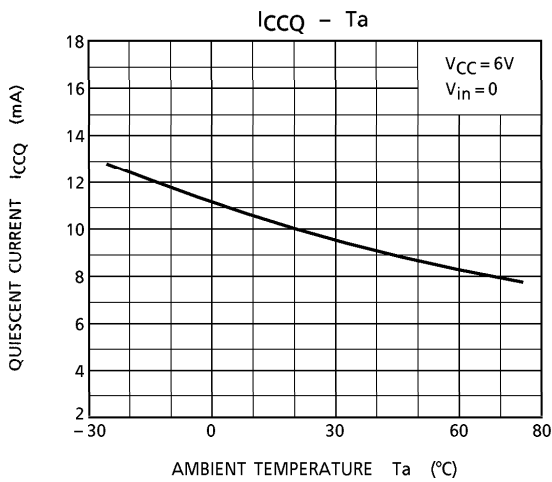
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Recording Amp.	Total Harmonic Distortion (ALC)	THD (ALC)	$V_{in} = 0.0775V_{rms}$ (-20dBm), $f = 1\text{kHz}$ , dual input, $R_L = 10\text{k}\Omega$	—	0.3	0.9	%
	ALC Balance	B (ALC)	$V_{in} = 0.0775V_{rms}$ (-20dBm), dual input, $f = 1\text{kHz}$ , $R_L = 10\text{k}\Omega$	-2	0	+2	dB
	ALC Level	V (ALC)	$V_{in} = 0.0775V_{rms}$ (-20dBm), $f = 1\text{kHz}$ , $R_L = 10\text{k}\Omega$	0.75	1.0	1.2	$V_{rms}$
	Ripple Rejection Ratio	R.R. (Rec)	$V_R = 0.775V_{rms}$ (0dBm), $f = 100\text{Hz}$ , $R_g = 2.2\text{k}\Omega$ , LPF = ~30kHz	—	38	—	dB
	Voltage Gain	$G_{vn}$ (Rec)	$f = 1\text{kHz}$ (FLAT), $R_L = 10\text{k}\Omega$ , $V_{in} = 1\text{mV}_{rms}$ (-60dBV)	—	61	—	dB
	Cross Talk (ALC OFF)	C.T. (ch)	$V_{out} = 0.775V_{rms}$ (0dBm), $f = 1\text{kHz}$ , $R_g = 2.2\text{k}\Omega$ , ALC OFF	40	54	—	dB
	Cross Talk (ALC ON)	C.T. (ch)	$f = 1\text{kHz}$ , $R_g = 2.2\text{k}\Omega$ , ALC ON, $V_{in} = 0.0775V_{rms}$ (-20dBm)	40	52	—	dB

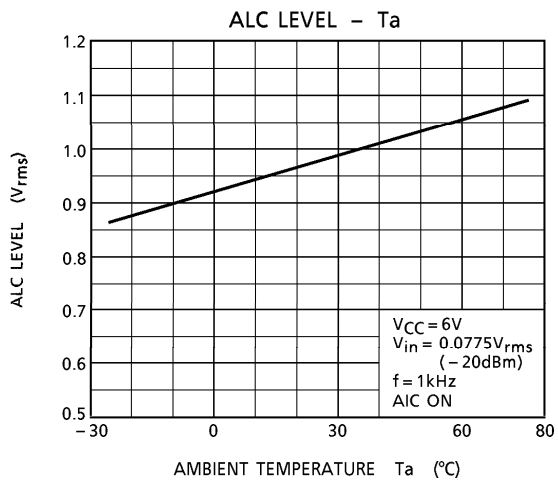
TEST CIRCUIT





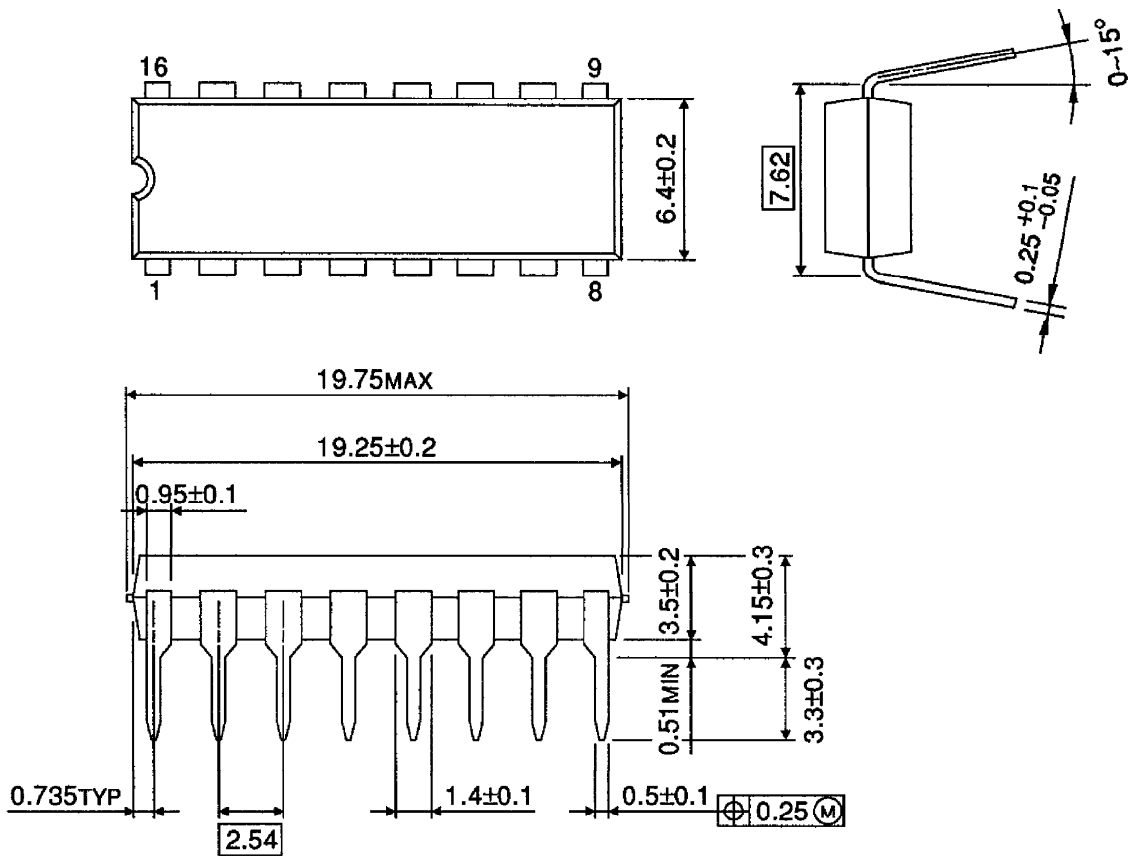






**OUTLINE DRAWING**  
DIP16-P-300-2.54A

Unit : mm



Weight : 1.00g (Typ.)