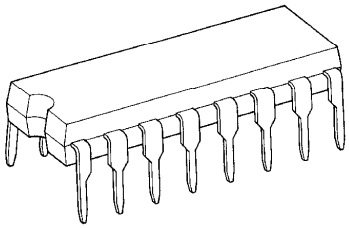
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

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.



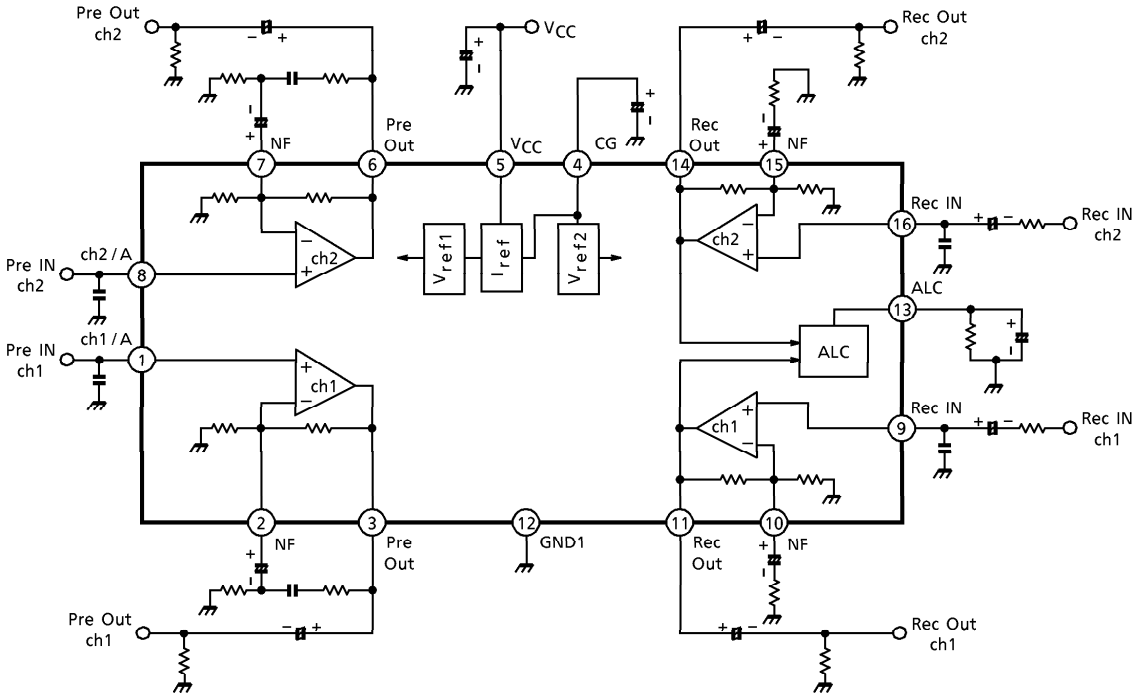
DIP16-P-300-2.54A

Weight : 1.00g (Typ.)

FEATURES

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

BLOCK DIAGRAM



961001EBA2

MAXIMUM RATINGS (Ta = 25C°)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	14.5	V
Power Dissipation	P_D (Note)	750	mW
Operating Temperature	T_{opr}	−20~75	°C
Storage Temperature	T_{stg}	−55~150	°C

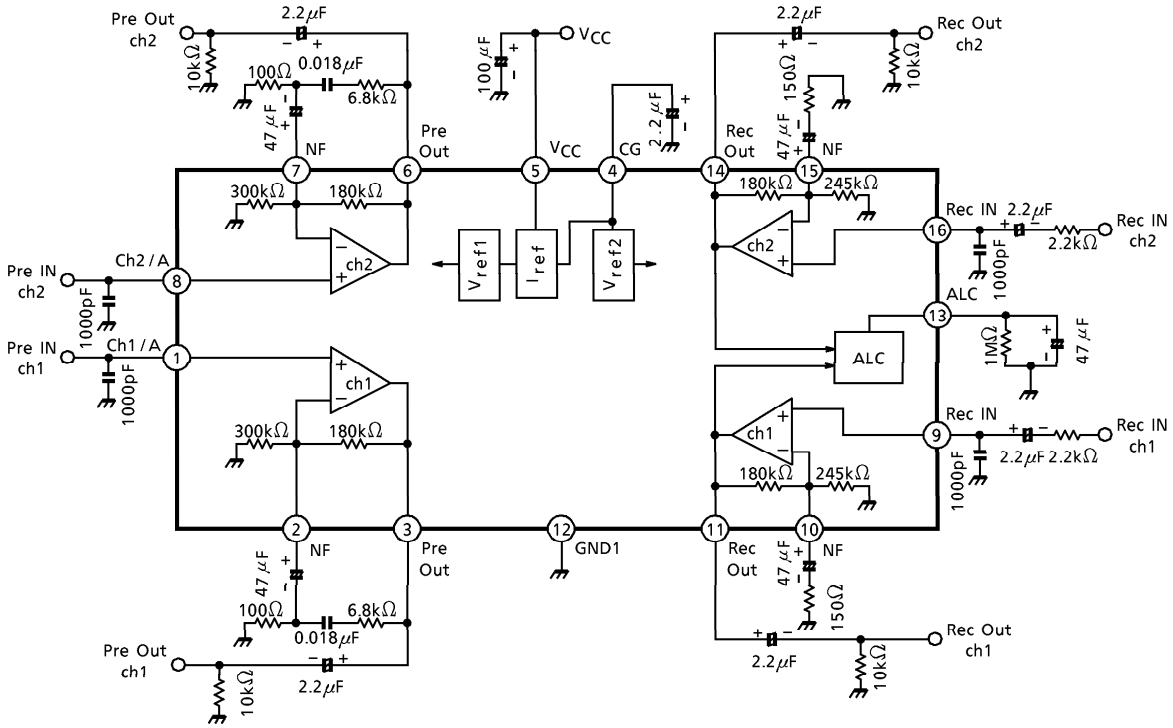
(Note) Derated above Ta = 25°C in the proportion of 6mW / °C.

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V_{CC} = 6V, f = 1kHz, B.P.F = 400Hz~30kHz)

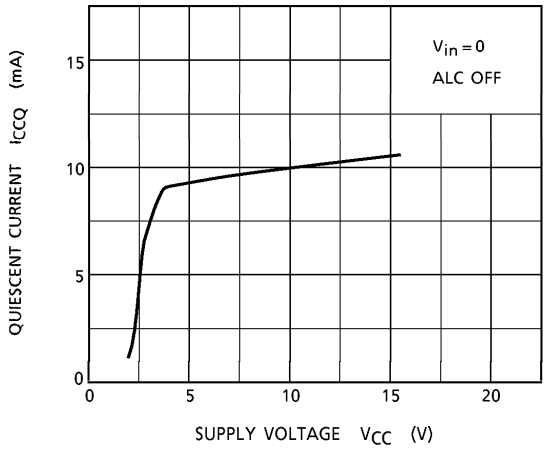
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current		I_{ccq}	—	—	—	9.5	15	mA
Play Back Amp.	Output Noise Voltage	V_{no} (Pre)	—	Normal Mode, R_g = 2.2kΩ, NAB EQ BW = 20Hz~20kHz, G_v = 40dB	—	150	350	μV_{rms}
	Total Harmonic Distortion	THD (Pre)	—	V_{out} = 0.2V_{rms},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

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

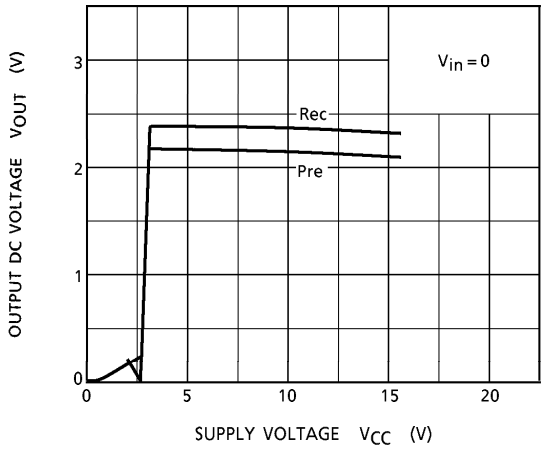
TEST CIRCUIT



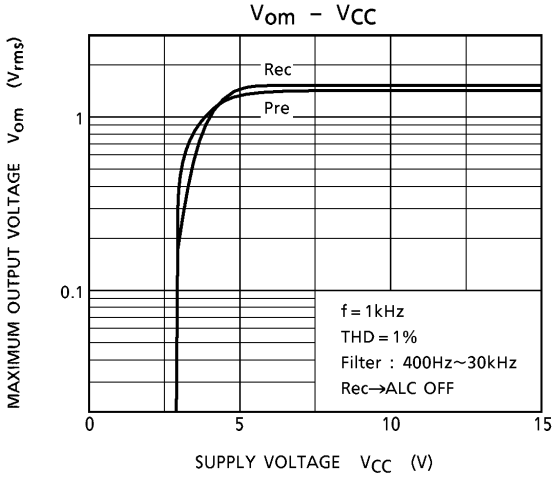
I_{CCQ} – V_{CC}



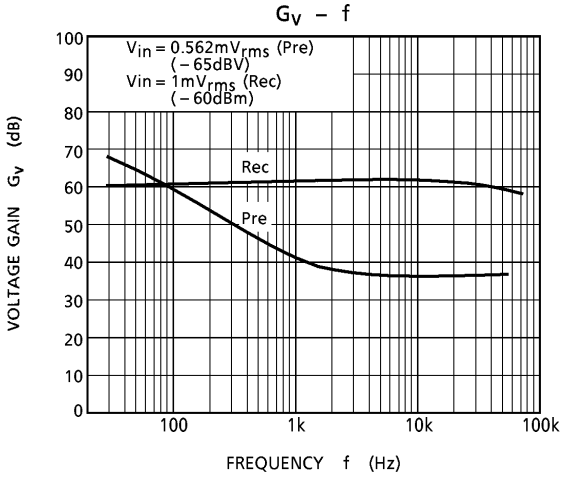
V_{OUT} – V_{CC}



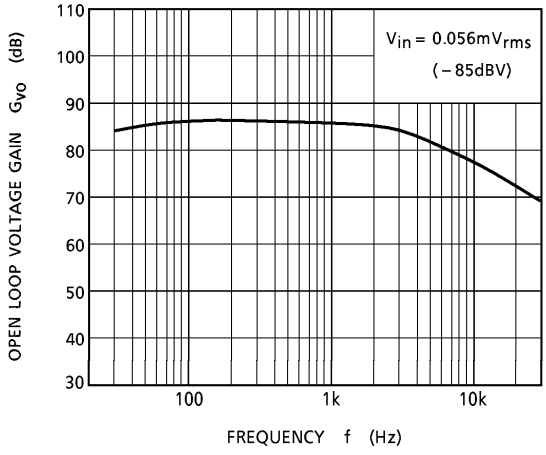
V_{om} – V_{CC}



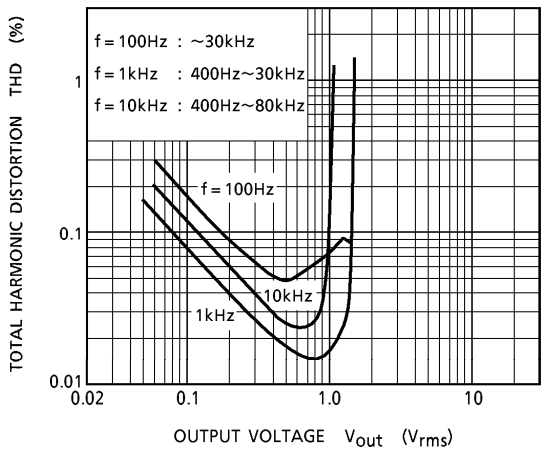
G_V – f



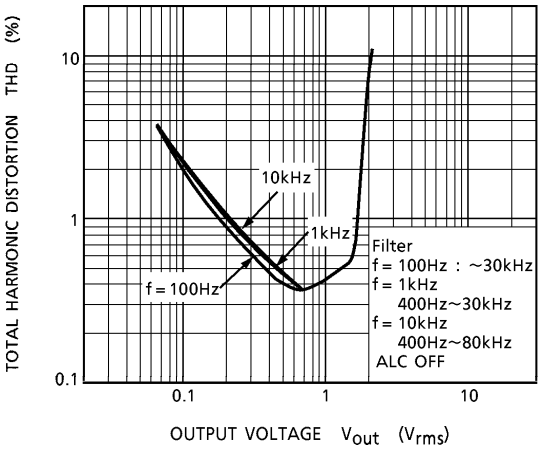
G_{VO} – f



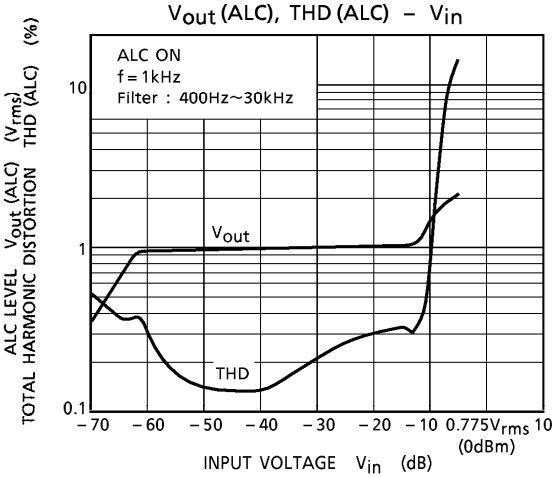
THD – V_{out} (Pre Amp)



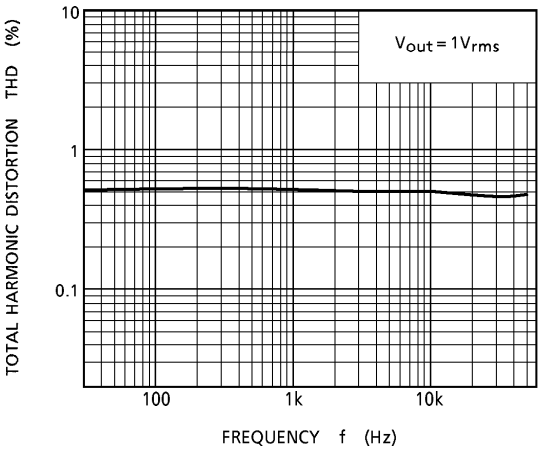
THD – V_{out} (Rec Amp)



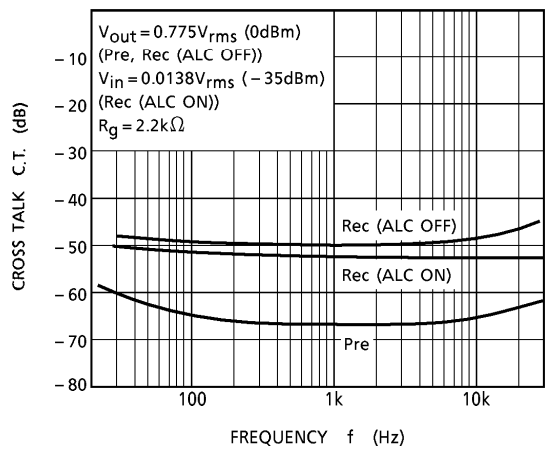
V_{out} (ALC), THD (ALC) – V_{in}



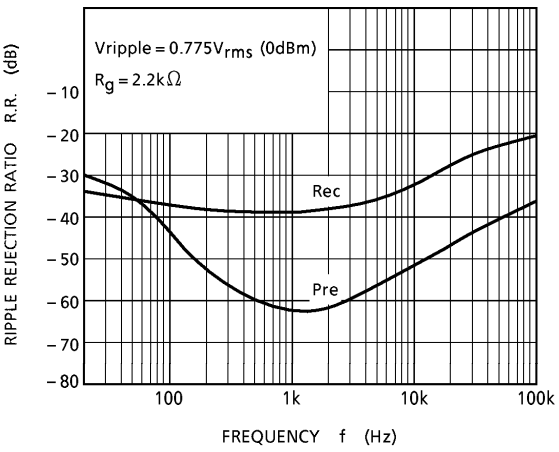
THD – f (Rec Amp)



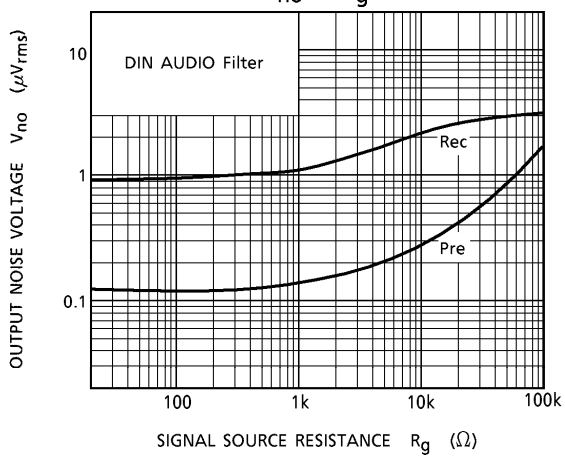
C.T. – f



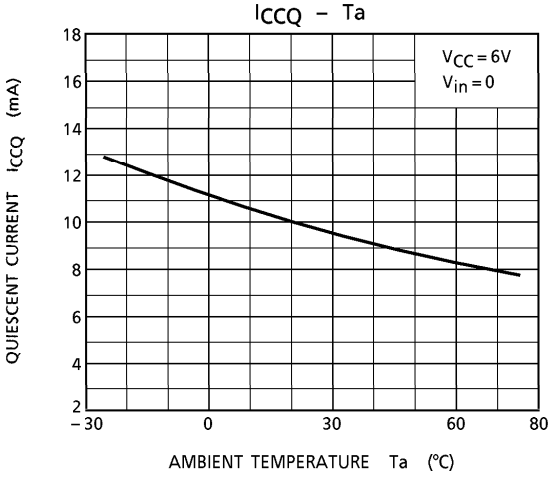
R.R. – f



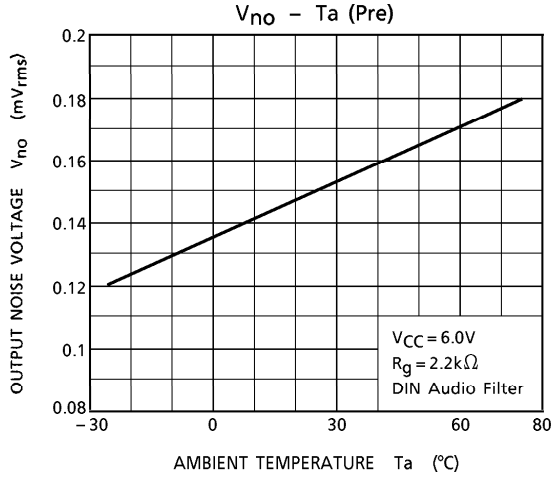
V_{no} – R_g



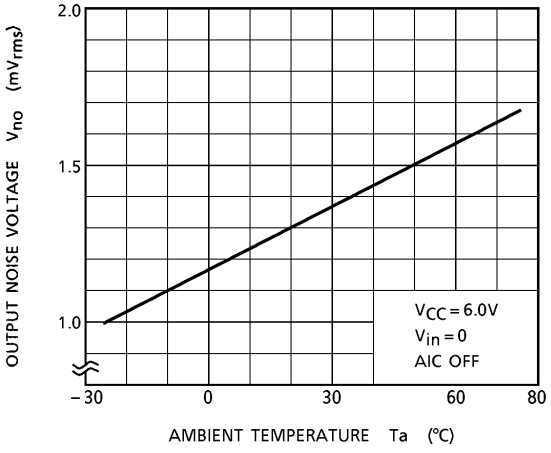
I_{CCQ} – Ta



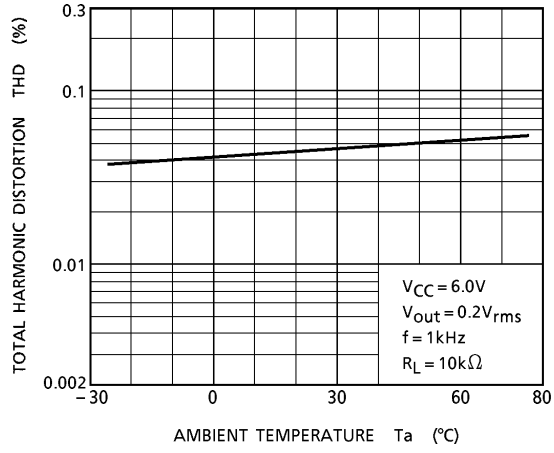
V_{no} – Ta (Pre)



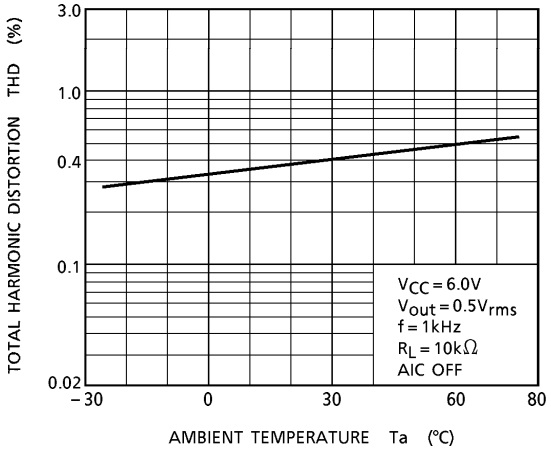
V_{no} – Ta (Rec)



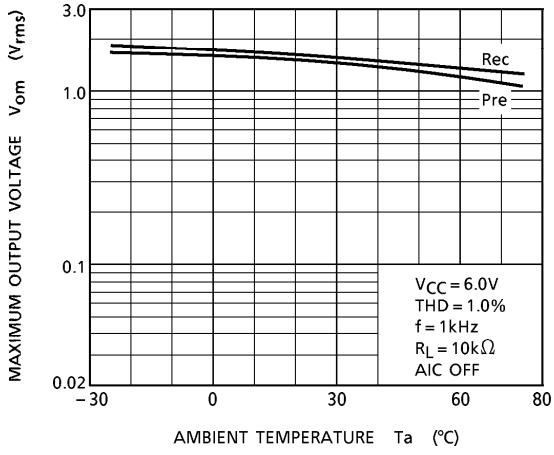
THD – Ta (Pre)

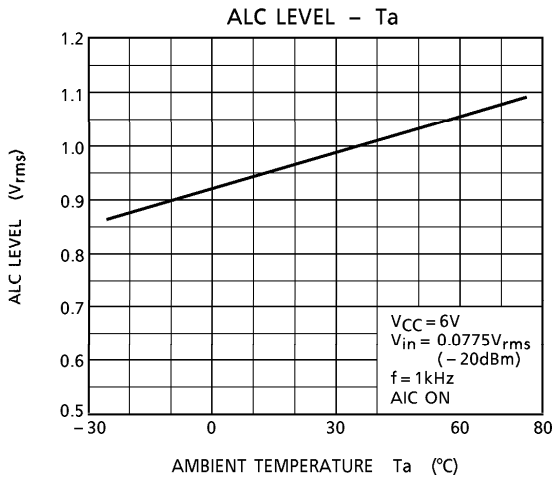


THD – Ta (Rec)



V_{om} – Ta

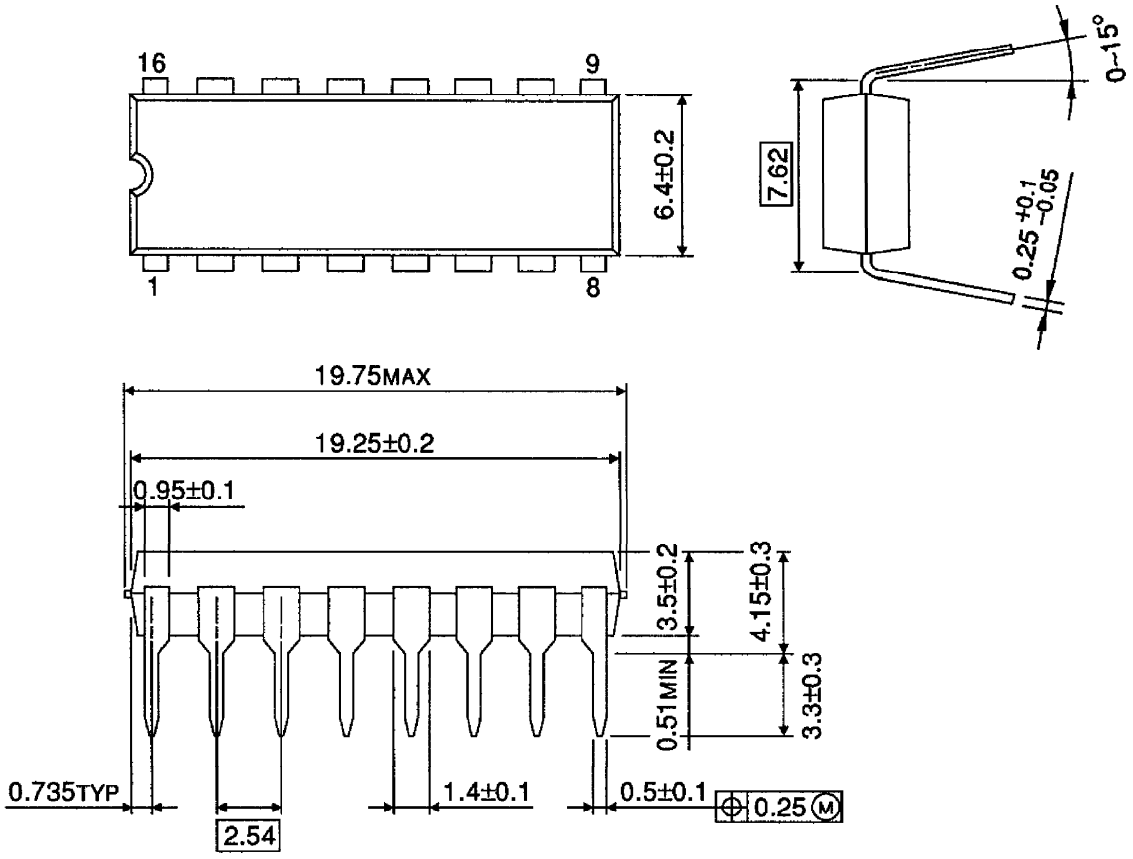



ALC LEVEL – Ta
ALC LEVEL (Vrms)
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
–30
0
30
60
80
AMBIENT TEMPERATURE Ta (°C)
VCC = 6V
Vin = 0.0775Vrms
(–20dBm)
f = 1kHz
AIC ON

OUTLINE DRAWING

DIP16-P-300-2.54A

Unit : mm



Weight : 1.00g (Typ.)