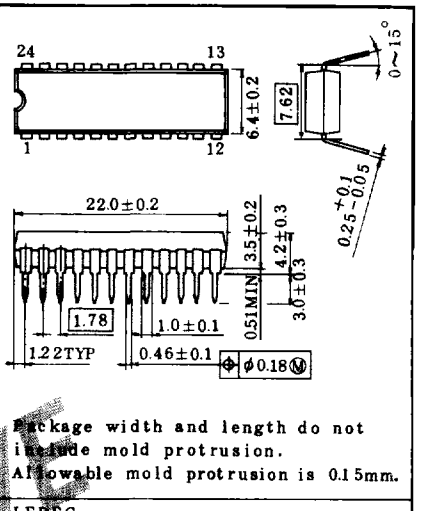
TENTATIVE

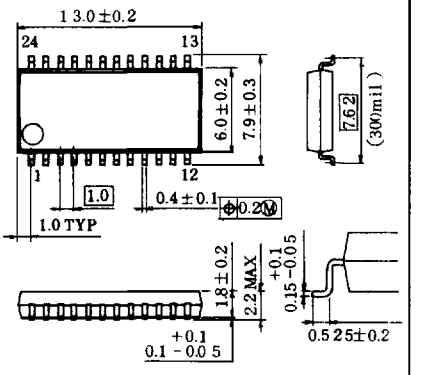
VOICE SIGNAL PROCESSING IC FOR ANSWERING TELEPHONE SET (FOR TWO CASSETTE.)

- Built-in pre-amplifier with ALC. (Short attack time.)
- Built-in changeover switch for microphone input and line input.
- Two built-in recording amplifiers for ICM and OGM. (DC coupling capacitor is not required.)
- The recording system can be applied either to the DC bias method or the AC bias method through the external circuit.
- Built-in equalizer amplifier, monitor amplifier and line output amplifier.
- The device can be used as an automatic answering telephone using either two cassette or one cassette and a LSI for voice recording.
- Built-in detecting circuit for voice signal and DTMF signal.
- Signal detection level can be varied by external resistance.
- Operating power supply voltage range: V_{CC}=4.5~10V
- Recommendable power supply voltage : V_{CC}=6V
- Quiescent current : I_{CCQ}=12mA(Typ.) at V_{CC}=6V



Package width and length do not include mold protrusion.
Allowable mold protrusion is 0.15mm.

JEDEC	—
TOSHIBA	SDIP24-P-300



Package width and length do not include mold protrusion.
Allowable mold protrusion is 0.15mm.

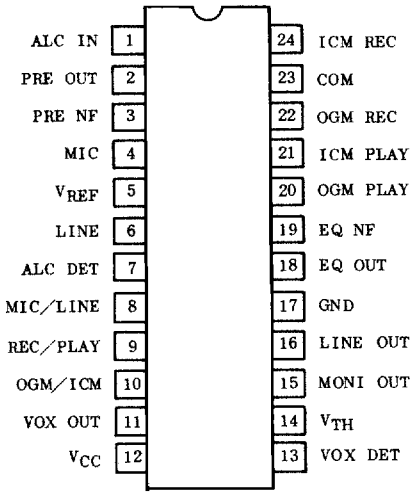
JEDEC	—
TOSHIBA	SSOP24-P-300

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Power Supply Voltage		V_{CC}	15	V
Power Dissipation	N Type	P_D	1300	mW
	F Type		450	
Operating Temperature		T_{opr}	-25~75	°C
Storage Temperature		T_{stg}	-55~150	°C

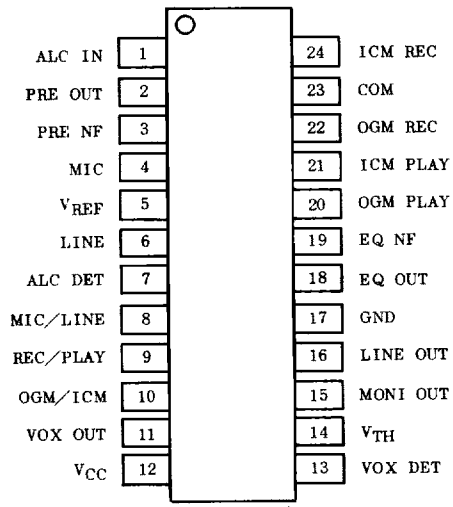
PIN CONNECTION

TA31080N



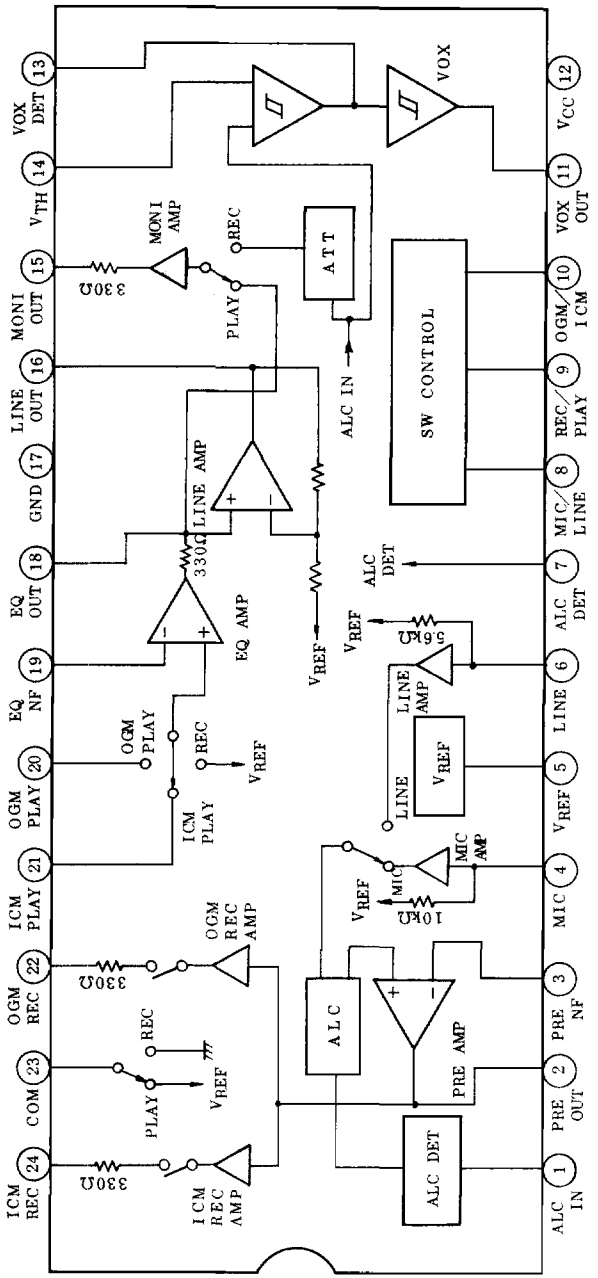
(TOP VIEW)

TA31080F



(TOP VIEW)

BLOCK DIAGRAM



The state of the switch inside the IC is of the ICM PLAY mode.

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, V_{CC}=6V, f=1kHz, Ta=25°C)

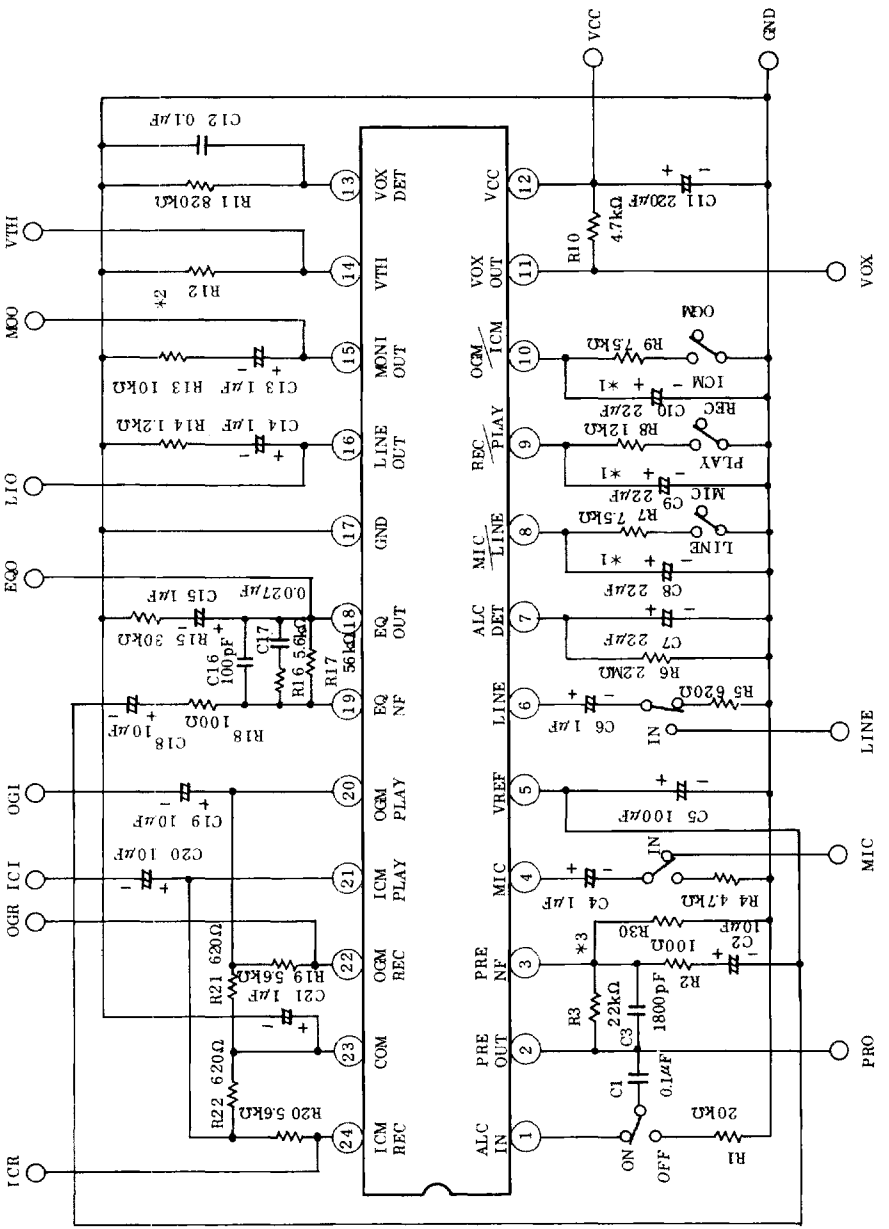
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current		I_{CCQ}				12.5		mA
Internal Reference Voltage		V_{REF}				2.4		V
PRE AMP								
Closed Loop Voltage Gain	(MIC)	GV_M		ALC OFF, Vin=-65dBm		63.5		dB
	(LINE)	GV_L				60		
Output Noise Voltage	(MIC)	V_{NM}		Rg=4.7kΩ		2.8		mV_{rms}
	(LINE)	V_{NL}		Rg=600Ω		2.0		
Total Harmonic Distortion	(MIC)	THD_M		Vin=-40dBm		0.2		%
	(LINE)	THD_L				0.2		
Maximum Input Level	(MIC)	$V_{IN\ M}$		THD=1%		-11		dBm
	(LINE)	$V_{IN\ L}$				-7		
Input Impedance	(MIC)	$R_{IN\ M}$				10		kΩ
	(LINE)	$R_{IN\ L}$				5.6		
ALC ON Output Voltage	(MIC)	$V_{ALC\ M}$		Vin=-40dBm		680		mV_{rms}
	(LINE)	$V_{ALC\ L}$				650		
ALC Effect	(MIC)	ALC 1M		Vin=-60~-20dBm		3.6		dB
	(LINE)	ALC 1L				4.2		
ALC Range	(MIC)	ALC 2M		THD≦1%		62		dB
	(LINE)	ALC 2L				63		
REC AMP								
Output Impedance	(ICM)	R_{OI}				330		Ω
	(OGM)	R_{OO}				330		
MONI AMP								
Output Impedance		R_{OM}				330		Ω

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, V_{CC}=6V, f=1kHz, Ta=25°C)

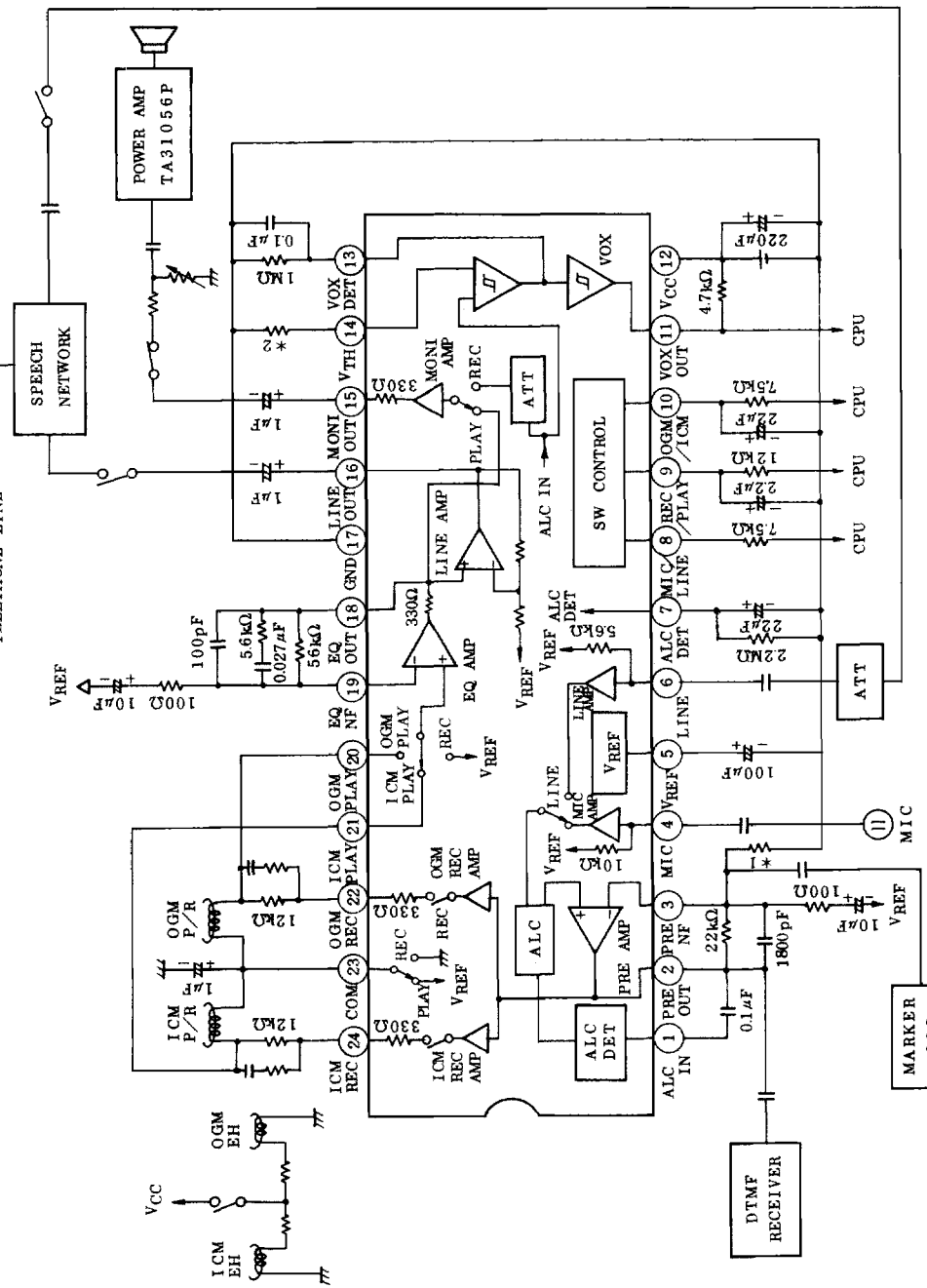
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
EQ AMP, LINE AMP								
EQ Open Loop Voltage Gain	(ICM)	GVO_I		V_{in}=-85dBm		62		dB
	(OGM)	GVO_O				62		
Line Closed Loop Voltage Gain		GV_{LI}		Input : ICM PLAY -56dBm		20		dB
E + L Total Harmonic Distortion		THD_{EL}		Input : ICM PLAY		0.12		%
E + L Output Noise Voltage	(ICM)	V_{NI}				2.4		mV_{rms}
	(OGM)	V_{NO}				2.4		
	(REC)	V_{NR}				2.0		
VOX								
Minimum Detection Level		V_{XL}		f=400Hz		-15		dBm
Maximum Sink Current		I_S		$V_{VOX(min)}$=0.3V		7		mA

TEST CIRCUIT



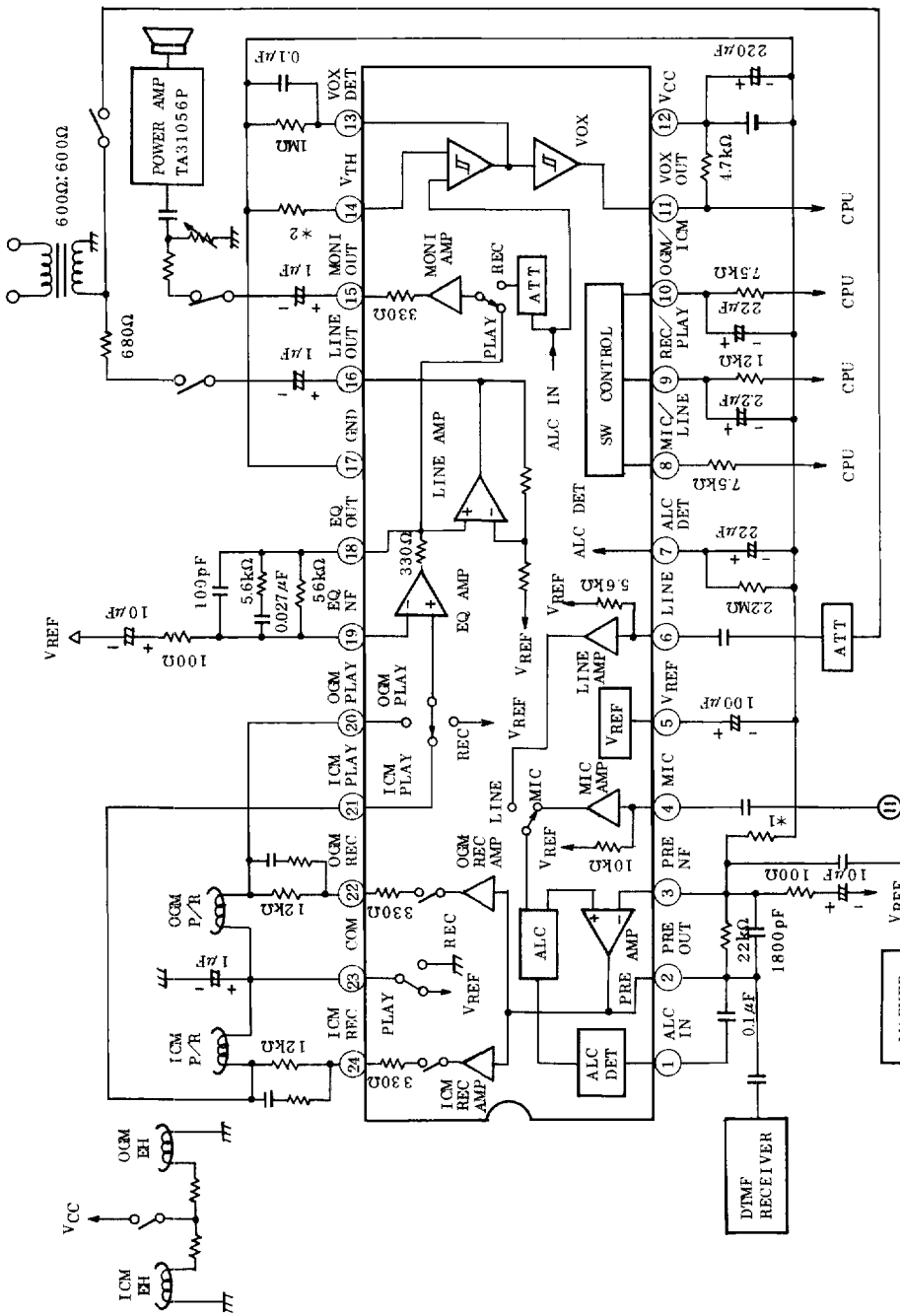
*1: C8, C9 and C10 are the capacitors for preventing the click sound at switching.
*2: The detection sensitivity can be varied through R12.
(The detection sensitivity is the maximum at open.)
*3: The R30 is the resistance for adjusting the DC bias current.
Since not included in the evaluation board, the R30 should especially be supplemented at adjustment.

EXAMPLE OF APPLICATION CIRCUIT (IN CASE THE SPEECH NETWORK IS USED.)



*1: The resistance for adjusting the DC bias current.
*2: The resistance for adjusting the detection sensitivity.
(The detection sensitivity is the maximum at open.)
The state of the switch inside the IC is of the ICM PLAY mode.

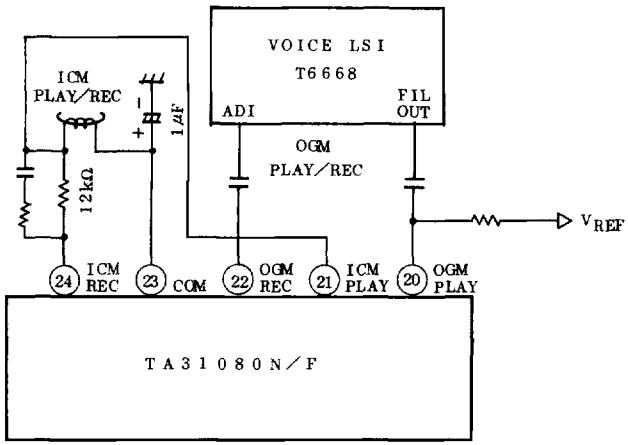
EXAMPLE OF APPLICATION CIRCUIT (IN CASE THE LINE TRANSFORMER IS USED.)



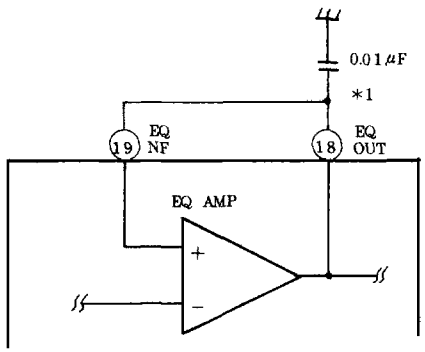
*1: The resistance for adjusting the DC bias current.
*2: The resistance for adjusting the detection sensitivity.
(The detection sensitivity is the maximum at open.)
The state of the switch inside the IC is of the ICM PLAY mode.

EXAMPLE OF APPLICATION CIRCUIT

∘ IN CASE ONE MECHANISM IS USED (VOICE LSI IS APPLIED TO OGM)



∘ IN CASE THE EQUALIZER AMPLIFIER IS USED AS THE BUFFER AMPLIFIER



*1: Capacitor for preventing oscillation.