

# TA7130P

FOR FM IF AMPLIFIER AMPLIFIER AND DETECTOR

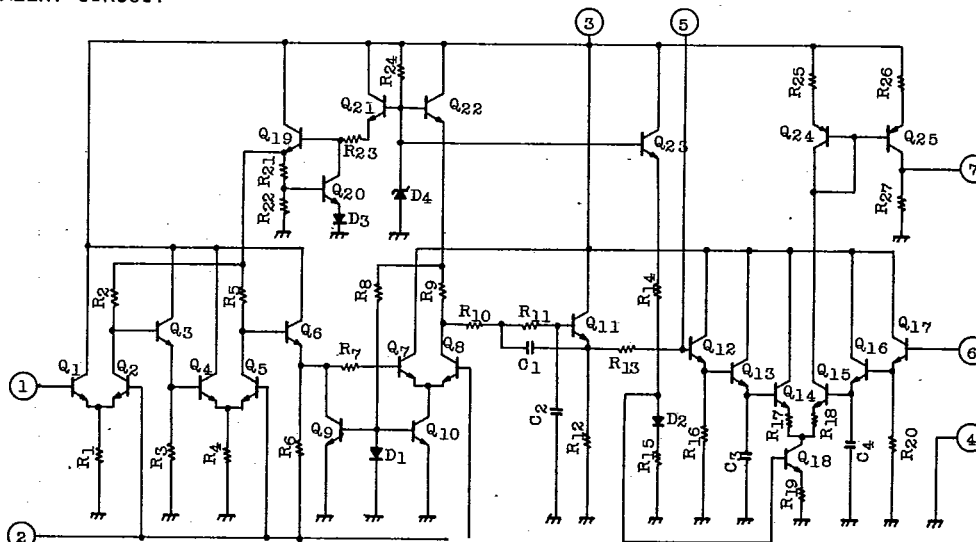
- 3 Stage Differential IF Amplifier.
- Differential Peak Detector.
- Excellent AM Rejection : AMR=50dB(Typ.)
- High Sensitivity :  $V_{IN(1im)}=50dB\mu V(Typ.)$
- Operating Supply Voltage Range :  $V_{CC}=8\sim 15V$ .
- Low Distortion : THD=0.2%(Typ.)
- High Recovered Output Voltage :  $V_{OD}=430mV(Typ.)$   
at  $\Delta F=\pm 75kHz$  dev.
- Simplified Single Coil Tuning.
- Very Few External Parts.

MAXIMUM RATINGS ( $T_a=25^{\circ}C$ )

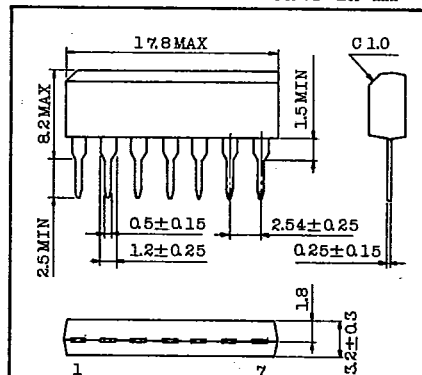
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC}(V_3)$	15	V
Input Voltage	$V_{IN}(V_1)$	0.7	$V_{rms}$
Power Dissipation (Note)	$P_D$	400	mW
Operating Temperature	$T_{opr}$	-25 ~ 75	$^{\circ}C$
Storage Temperature	$T_{stg}$	-55 ~ 125	$^{\circ}C$

Note : Derated above  $T_a=25^{\circ}C$  in the proportion of  $4mW/^{\circ}C$ .

EQUIVALENT CIRCUIT



Unit in mm



Lead pitch is 2.54 and tolerance is  $\pm 0.25$  against theoretical center of each lead that is obtained on the basis of No.1 lead.

JEDEC	-
TOSHIBA	S7A-P

9097247 TOSHIBA. ELECTRONIC

02E 16884 D

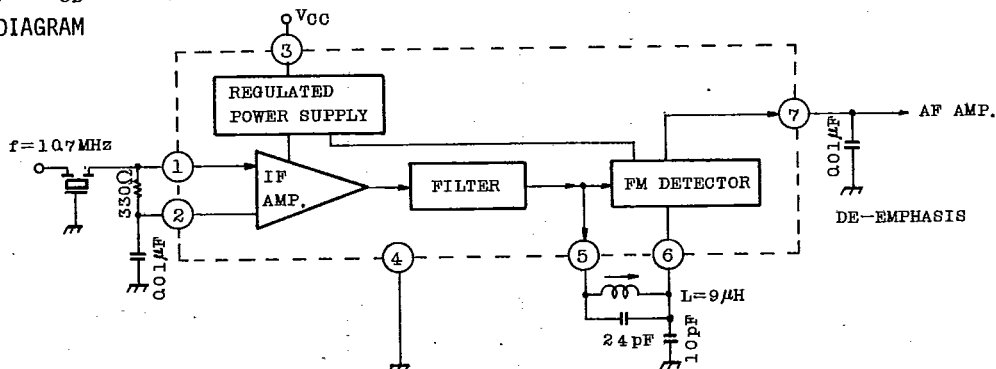
T-77-05-07

**TA7130P**ELECTRICAL CHARACTERISTICS ( $V_{CC}=12V$ ,  $T_a=25^\circ$ )

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	$I_{CC}$	1	$V_{IN}=0$	8	11	15	mA
Output Terminal DC Voltage (Pin 7)	$V_7$	-	$V_{IN}=0, 5, 6$ pin short	4.0	4.8	5.5	V
Recovered Output Voltage (Note)	$V_{OD}$	1	$f=10.7\text{MHz}$ , $f_M=400\text{Hz}$ $\Delta F=\pm 75\text{kHz}$ dev $V_{IN}=80\text{dB}\mu\text{V}$	300	500	700	mV <sub>rms</sub>
Input Limiting Voltage	$V_{IN}(lim)$	1	$f=10.7\text{MHz}$ , $f_M=400\text{Hz}$ $\Delta F=\pm 22.5\text{kHz}$ dev. -3dB Limiting	-	50	55	dB $\mu\text{V}$
Total Harmonic Distortion	THD	1	$f=10.7\text{MHz}$ , $f_M=400\text{Hz}$ $\Delta F=\pm 22.5\text{kHz}$ dev. $V_{IN}=80\text{dB}\mu\text{V}$	-	0.2	-	%
Signal to Noise Ratio	S/N	-	$f=10.7\text{MHz}$ , $f_M=400\text{Hz}$ $\Delta F=\pm 22.5\text{kHz} \rightarrow 0\text{kHz}$ , $V_{IN}=80\text{dB}\mu\text{V}$	-	60	-	dB
AM Rejection Ratio	AMR	1	$f=10.7\text{MHz}$ , $f_M=400\text{Hz}$ $V_{IN}=80\text{dB}\mu\text{V}$ FM: 75kHz dev. AM: 30% MOD	-	50	-	dB
Output Resistance	$R_o$	-	$f=400\text{Hz}$ , 7pin-GND	6.2	7.7	9.5	k $\Omega$
Input Impedance	Parallel Input Resistance	$r_{ip}$	$f=10.7\text{MHz}$ , 1 pin-GND	-	5	-	k $\Omega$
	Parallel Input Capacitance	$c_{ip}$		-	4.5	-	pF
Output Impedance	Parallel Output Resistance	$r_{op}$	$f=10.7\text{MHz}$ , 5 pin-GND	-	1.3	-	k $\Omega$
	Parallel Output Capacitance	$c_{op}$		-	4	-	pF

(Note)  $V_{OD}$  RANK ( $\Delta f=\pm 22.5\text{kHz}$ ): B RANK 90~140mV<sub>rms</sub>, C RANK 130~200mV<sub>rms</sub>

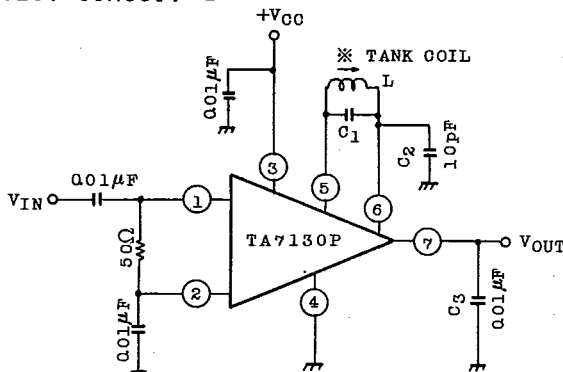
## BLOCK DIAGRAM



AUDIO LINEAR IC

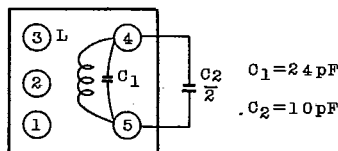
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## TEST CIRCUIT 1



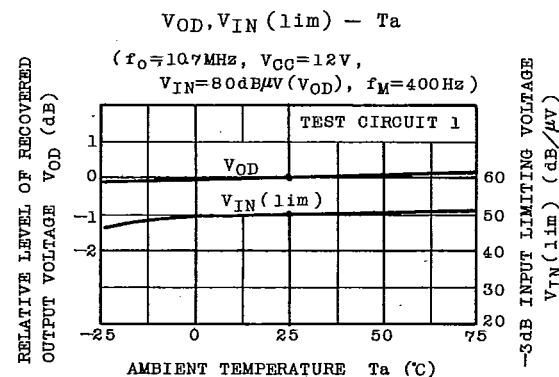
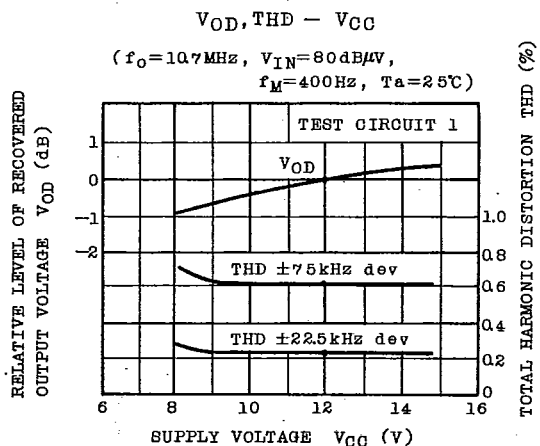
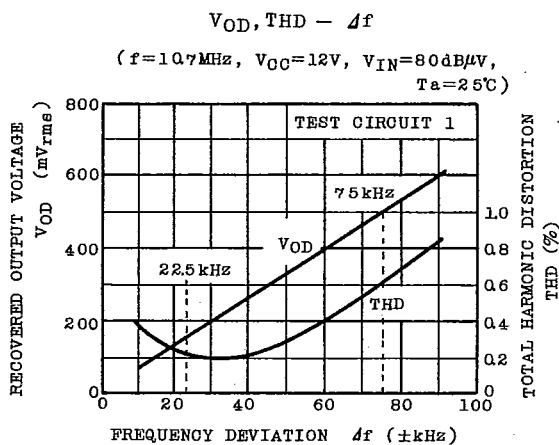
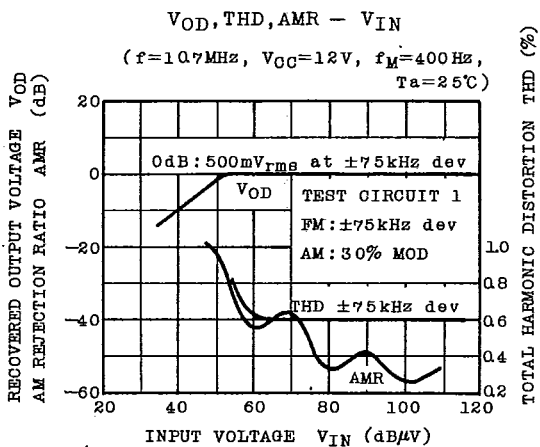
※ TANK COIL

WIRE 2 UEW 0.08mmφ  
 TURNS 21  
 Qu 130±15%



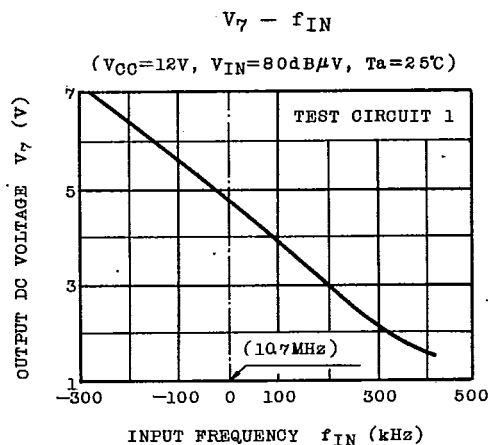
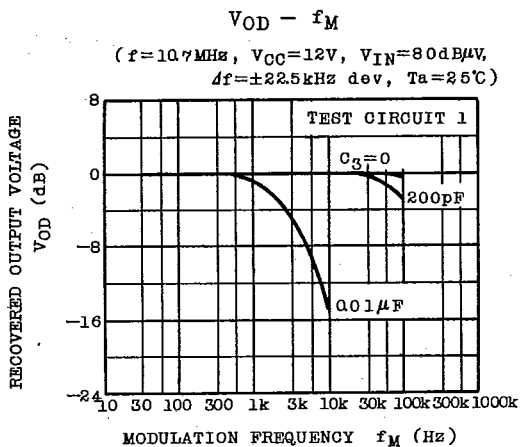
COVERED RESONANT FREQUENCY :  
 10.7MHz±250kHz

※ Tuning coil is adjusted to make recovered output voltage maximum at  $f=10.7\text{MHz}$ .

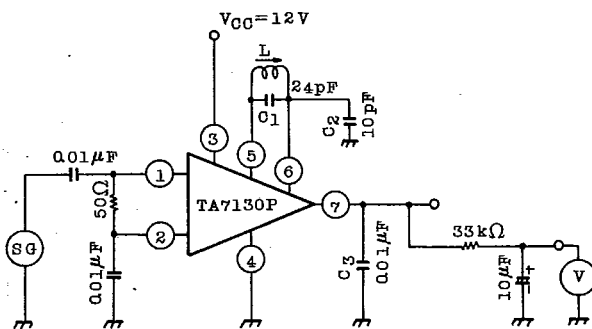


Note: Not includes temperature variation of external components.

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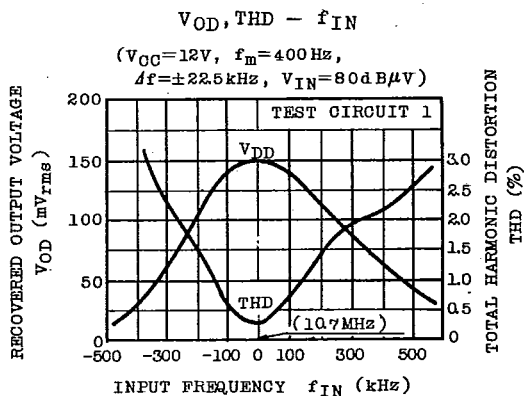
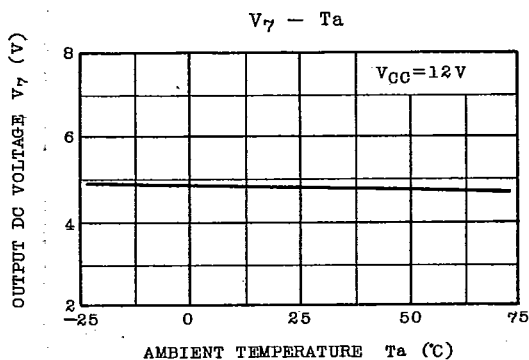
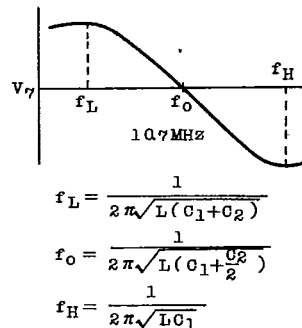


## TEST CIRCUIT 2



Output DC voltage (V<sub>7</sub>) can be utilized as control voltage for AFC.

- f<sub>L</sub> : LOWER PEAK FREQUENCY
- f<sub>0</sub> : CENTER FREQUENCY
- f<sub>H</sub> : UPPER PEAK FREQUENCY



**AUDIO LINEAR IC**

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## APPLICATION CIRCUIT

