

9097247 TOSHIBA, ELECTRONIC

02E 16883 D

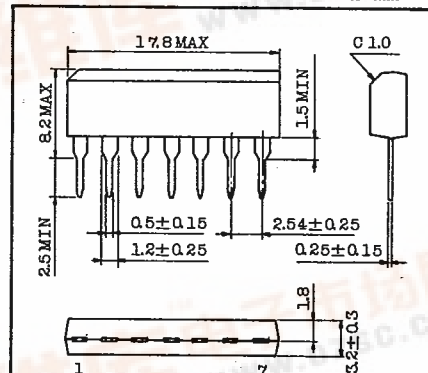
T-77-05-07

TA7130P

FOR FM IF AMPLIFIER AMPLIFIER AND DETECTOR

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

Unit in mm



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

JEDEC

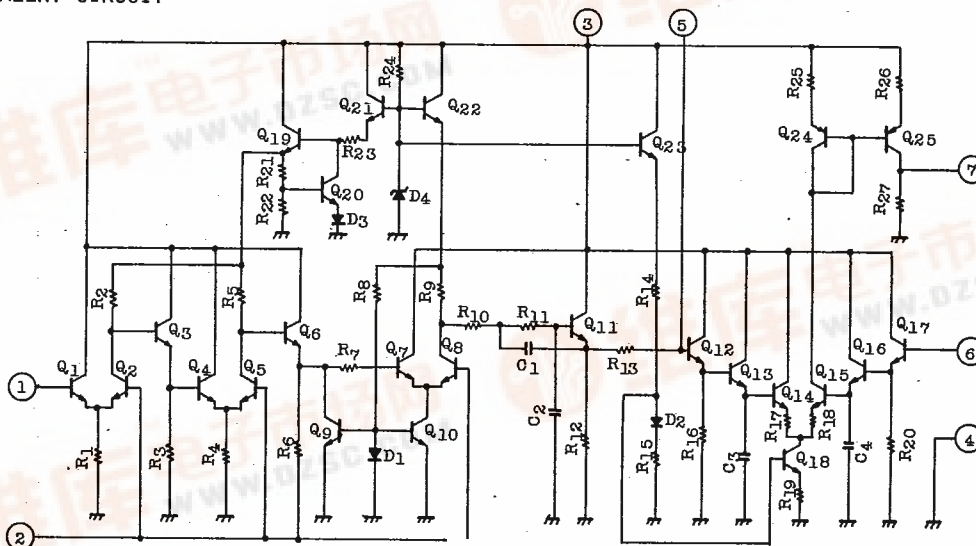
TOSHIBA S7A-P

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

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	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ 125	$^\circ\text{C}$

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

EQUIVALENT CIRCUIT



TOSHIBA

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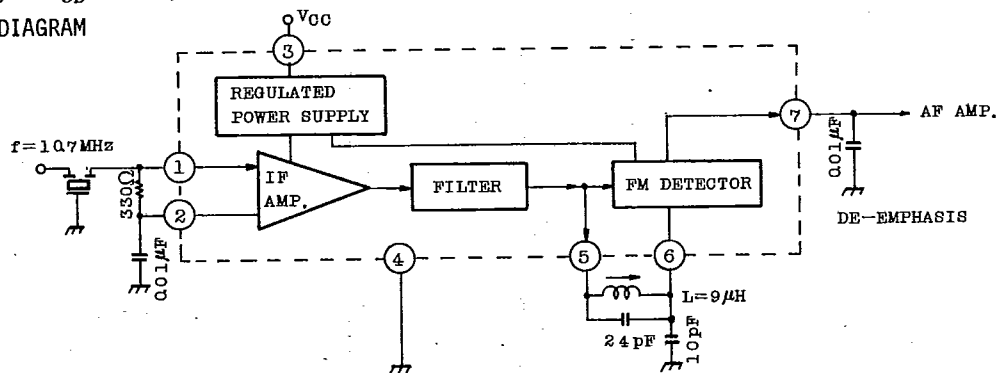
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TA7130PELECTRICAL CHARACTERISTICS ($V_{CC}=12V$, $T_a=25^\circ$)

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	$f=10.7\text{MHz}$, $f_M=400\text{Hz}$ $\Delta F=\pm 7.5\text{kHz}$ dev $V_{IN}=80\text{dB}\mu\text{V}$	300	500	700	mV_{rms}
Input Limiting Voltage	$V_{IN(\text{lim})}$	1	$f=10.7\text{MHz}$, $f_M=400\text{Hz}$ $\Delta F=\pm 22.5\text{kHz}$ dev. -3dB Limiting	-	50	55	$\text{dB}\mu\text{V}$
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	$\text{k}\Omega$
Input Impedance	Parallel Input Resistance	r_{ip}	$f=10.7\text{MHz}$, 1 pin-GND	-	5	-	$\text{k}\Omega$
	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	-	$\text{k}\Omega$
	Parallel Output Capacitance	c_{op}		-	4	-	pF

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

BLOCK DIAGRAM

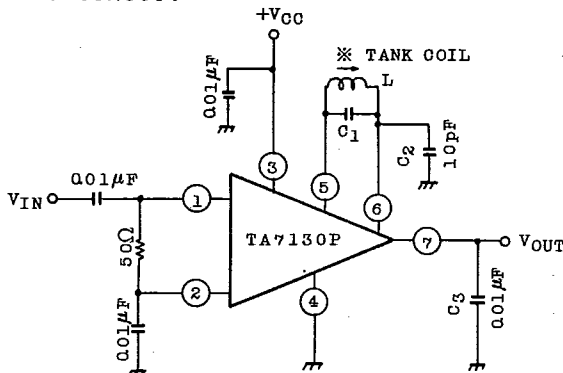


AUDIO LINEAR IC

TA7130P

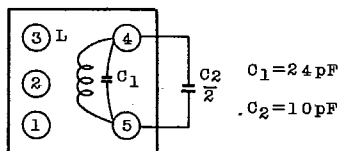
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TEST CIRCUIT 1



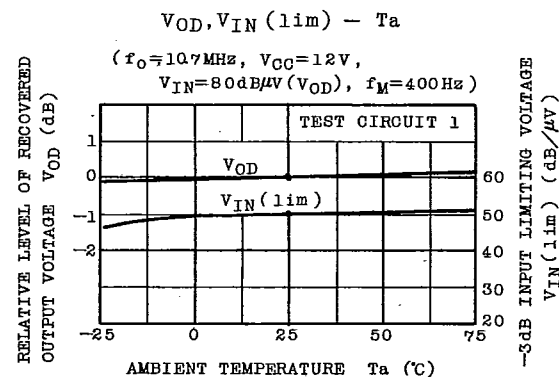
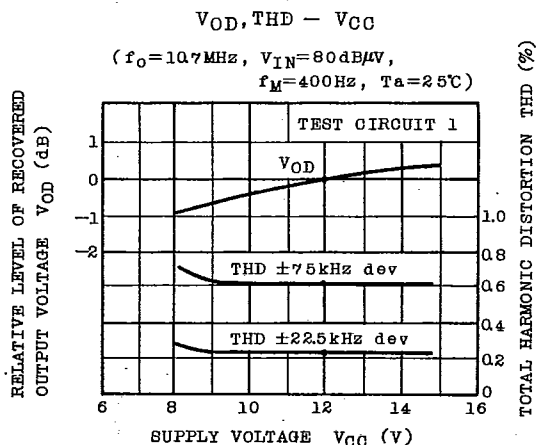
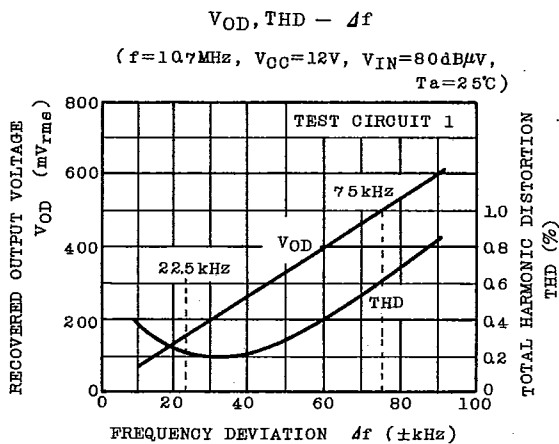
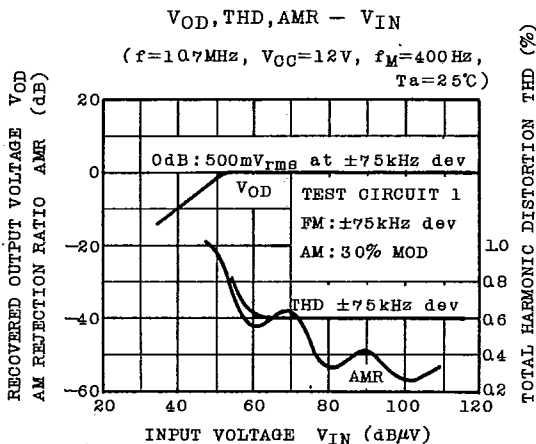
※ TANK COIL

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 $f=10.7\text{MHz}$.



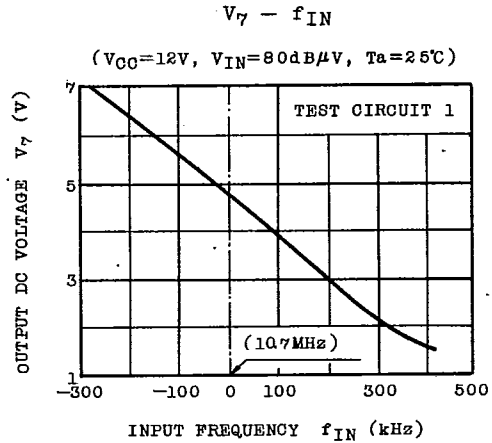
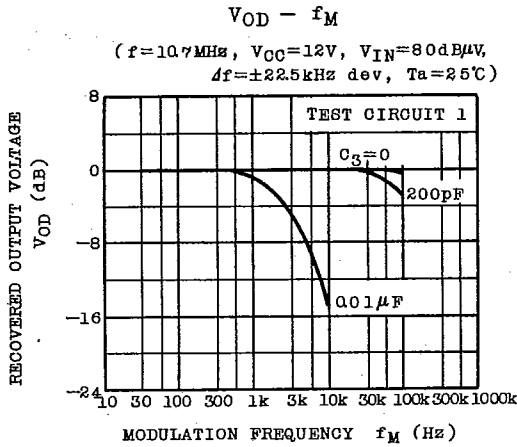
Note: Not includes temperature variation of external components.

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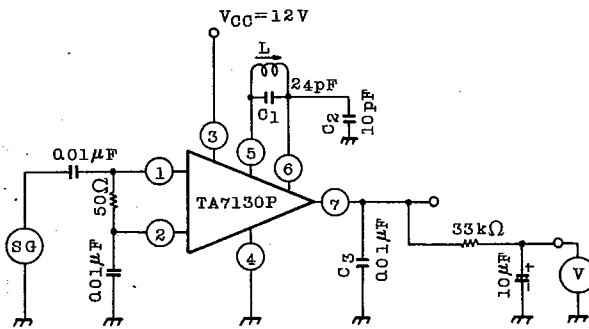
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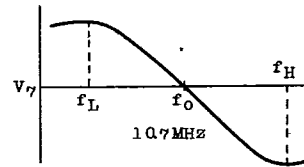


TEST CIRCUIT 2



Output DC voltage (V₇) can be utilized as control voltage for AFC.

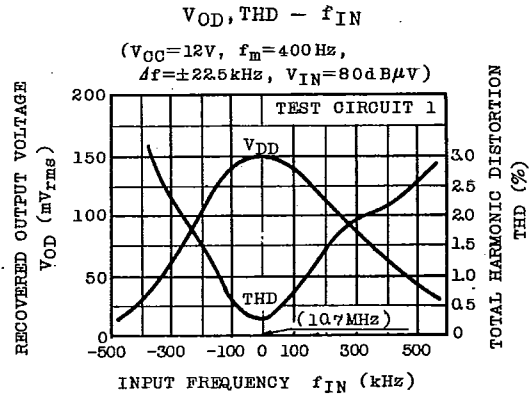
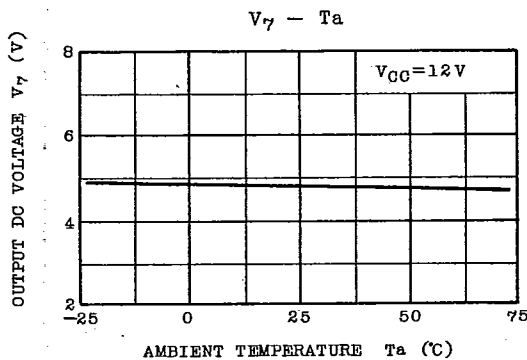
f_L : LOWER PEAK FREQUENCY
 f_o : CENTER FREQUENCY
 f_H : UPPER PEAK FREQUENCY



$$f_L = \frac{1}{2\pi\sqrt{L(C_1 + C_2)}}$$

$$f_o = \frac{1}{2\pi\sqrt{L(C_1 + \frac{C_2}{2})}}$$

$$f_H = \frac{1}{2\pi\sqrt{LC_1}}$$



AUDIO LINEAR IC

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APPLICATION CIRCUIT

