

TA7640AP
TA7640AF

T-77-05-07

FM/AM IF SYSTEM

The TA7640AP and TA7640AF are FM/AM IF system IC designed for portable use. As compared with conventional IC, this IC is greatly improved in external parts counts and electrical characteristics, especially tweet and overload distortion.

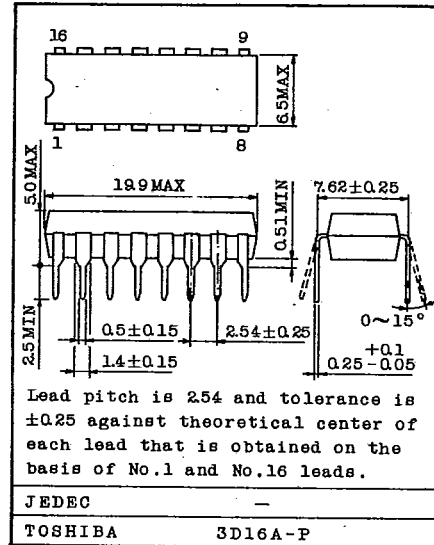
- Low Supply Current, AM:7mA, FM:10mA (Typ.)
- Few External Parts Counts
- Excellent Tweet
- Low Overload Distortion
- Tuning Indicator LED Driving Capability
: $I_{LAMP}=10mA$ (Max.)
- FM/AM Mode Switch Built-in
- Common Output for AM/FM
- Operating Supply Voltage Range : $V_{CC(opr)}=3 \sim 8V$

MAXIMUM RATINGS (Ta=25°C)

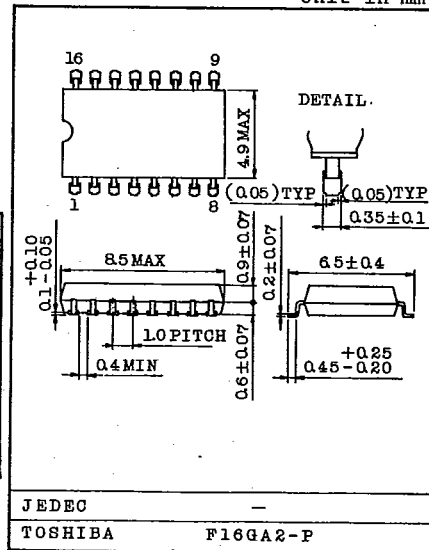
CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V_{CC}	8	V
Lamp Current		I_{LAMP}	10	mA
Power Dissipation (Note)	TA7640AP	P_D	750	mW
	TA7640AF		350	
Operating Temperature		T_{opr}	-25 ~ 75	°C
Storage Temperature		T_{stg}	-55 ~ 150	°C

Note : Derated above Ta=25°C in the proportion of 6mW/°C for TA7640AP and 2.8mW/°C for TA7640AF.

Unit in mm



Unit in mm



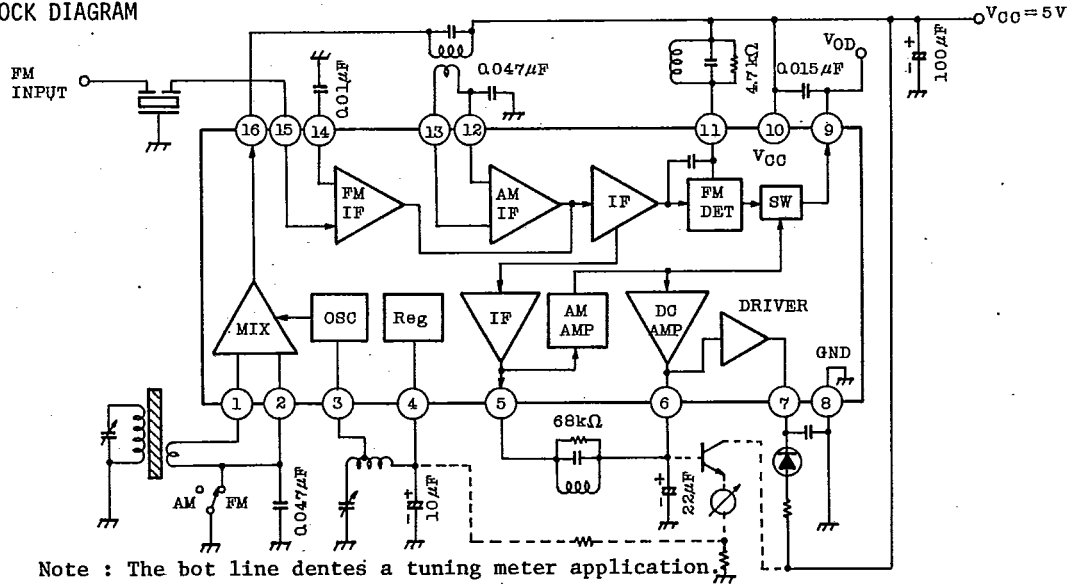
9097247 TOSHIBA. ELECTRONIC

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TA7640AP
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BLOCK DIAGRAM



Note : The bot line dentes a tuning meter application.

ELECTRICAL CHARACTERISTICS

1. DC CHARACTERISTICS ($V_{CC}=5V$, Terminal voltage at no signal)

ITEM	SYMBOL	TYP.		UNIT
		AM	FM	
Terminal 1 Voltage (AM MIX IN)	V ₁	1.5	0	V
" 2 " (AM MIX BYPASS)	V ₂	1.5	0	V
" 3 " (AM OSC)	V ₃	2.3	2.3	V
" 4 " (Reg)	V ₄	2.3	2.3	V
" 5 " (AM IF OUT)	V ₅	1.0	0.9	V
" 6 " (Meter OUT)	V ₆	1.0	0.9	V
" 7 " (LED)	V ₇	-	-	V
" 8 " (GND)	V ₈	0	0	V
" 9 " (DET OUT)	V ₉	1.4	1.5	V
" 10 " (VCC)	V ₁₀	5.0	5.0	V
" 11 " (FM DET)	V ₁₁	5.0	5.0	V
" 12 " (AM IF BYPASS)	V ₁₂	1.5	1.5	V
" 13 " (AM IF IN)	V ₁₃	1.5	1.5	V
" 14 " (FM IF BYPASS)	V ₁₄	1.5	1.5	V
" 15 " (FM IF IN)	V ₁₅	1.5	1.5	V
" 16 " (AM MIX OUT)	V ₁₆	5.0	5.0	V

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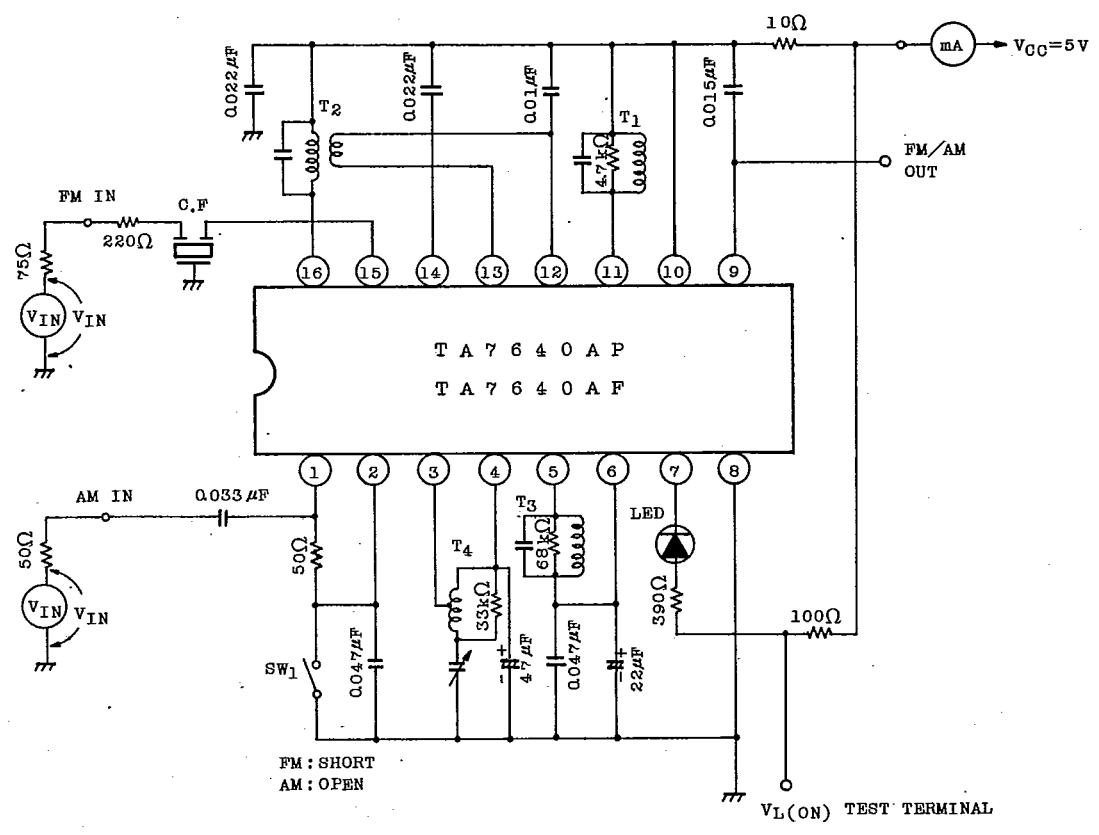
2. AC CHARACTERISTICS ($T_a=25^{\circ}\text{C}$, $V_{CC}=5\text{V}$, FM : $f=10.7\text{MHz}$, $\Delta f=\pm 22.5\text{kHz}$, $f_m=400\text{Hz}$)
 AM : $f=1\text{MHz}$, Mod=30%, $f_m=400\text{Hz}$)

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		$I_{CC(1)}$	1	FM $V_{IN}=0$	-	10	15	mA
		$I_{CC(2)}$		AM $V_{IN}=0$	-	7	10	
F M	Input Limiting Voltage	$V_{IN(1im)}$	1	-3dB Limiting	-	40	46	dB μ
	Recovered Output Voltage	V_{OD}	1	$V_{IN}=66\text{dB}\mu\text{V}$	57	85	114	mV _{rms}
	Signal to Noise Ratio	S/N	1	$V_{IN}=80\text{dB}\mu\text{V}$	-	65	-	dB
	Total Harmonic Distortion	THD	1	$V_{IN}=80\text{dB}\mu\text{V}$	-	0.05	-	%
	AM Rejection Ratio	AMR	1	$V_{IN}=80\text{dB}\mu\text{V}$	-	38	-	dB μ
	Meter Drive Voltage	V_M	1	$V_{IN}=100\text{dB}\mu\text{V}$	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V_L	1	$I_L=1\text{mA}$	-	46	52	dB μ
A M	Gain	G_v	1	$V_{IN}=26\text{dB}\mu\text{V}$	20	30	60	mV _{rms}
	Recovered Output Voltage	V_{OD}	1	$V_{IN}=60\text{dB}\mu\text{V}$	65	95	125	mV _{rms}
	Signal to Noise Ratio	S/N	1	$V_{IN}=60\text{dB}\mu\text{V}$	-	47	-	dB
	Total Harmonic Distortion	THD	1	$V_{IN}=60\text{dB}\mu\text{V}$	-	1.0	-	%
	Meter Drive Voltage	V_M	1	$V_{IN}=100\text{dB}\mu\text{V}$	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V_L	1	$I_L=1\text{mA}$	-	32	-	dB μ
	Local OSC Stop Voltage	V_{stop}	1	$R_{DUMP}=\infty$	-	1.5	-	V
Pin 5 Output Resistance		R_{O9}	-	$f=1\text{kHz}$	-	3.0	-	k Ω

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TEST CIRCUIT



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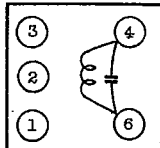
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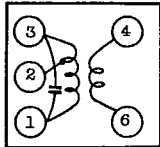
COIL DATA (TEST CIRCUIT)

T₁ FM DETECTOR COIL

(BOTTOM VIEW)

C ₀ (pF)	f	Q ₀	TURNS
4-6	(MHz)	4-6	4-6
47	10.7	150	14

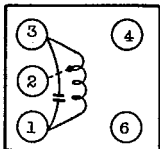
SUMIDA ELECTRIC CO., LTD.
: 44M-933A or SIMILAR
WIRE : 0.12mm ϕ UEW

T₂ AM IFT (MIX OUT)

(BOTTOM VIEW)

C ₀ (pF)	f	Q ₀	TURNS		
1-3	(kHz)	1-3	1-2	2-3	4-6
180	455	110	90	62	8

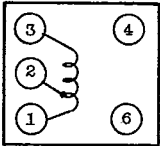
SUMIDA ELECTRIC CO., LTD.
: 48T-423 or SIMILAR
WIRE : 0.07mm ϕ UEW

T₃ AM IFT (DET)

(BOTTOM VIEW)

C ₀ (pF)	f	Q ₀	TURNS
1-3	(kHz)	1-3	1-
180	455	110	152

SUMIDA ELECTRIC CO., LTD.
: 44M-935C or SIMILAR
WIRE : 0.07mm ϕ UEW

T₄ MW OSC

(BOTTOM VIEW)

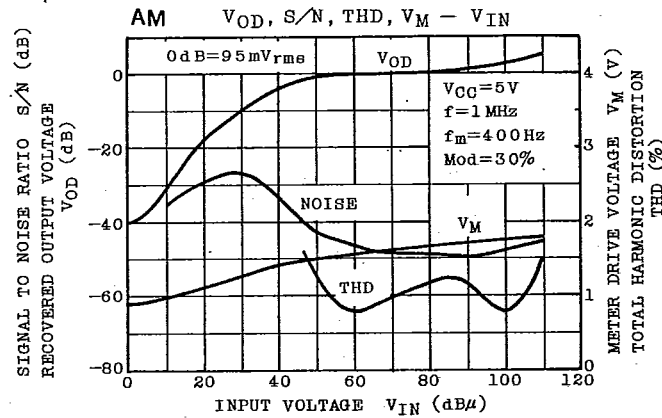
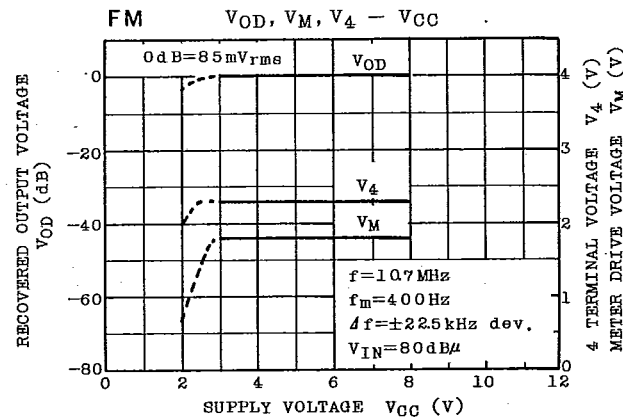
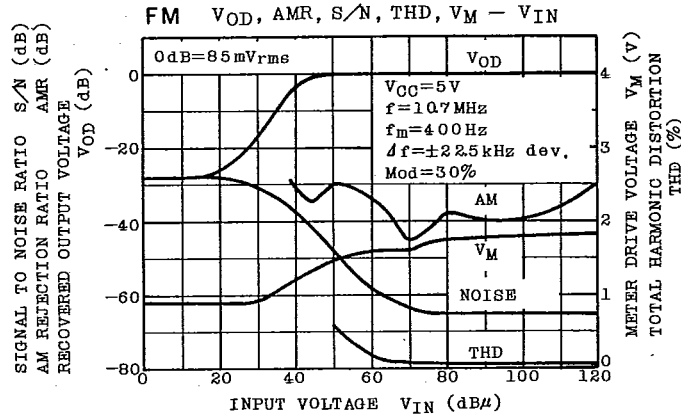
f	L(μ H)	Q ₀	TURNS	
(kHz)	1-3	1-3	1-2	2-3
796	288	120	13	75

SUMIDA ELECTRIC CO., LTD.
: 0137-262 or SIMILAR
WIRE : 0.08mm ϕ UEW

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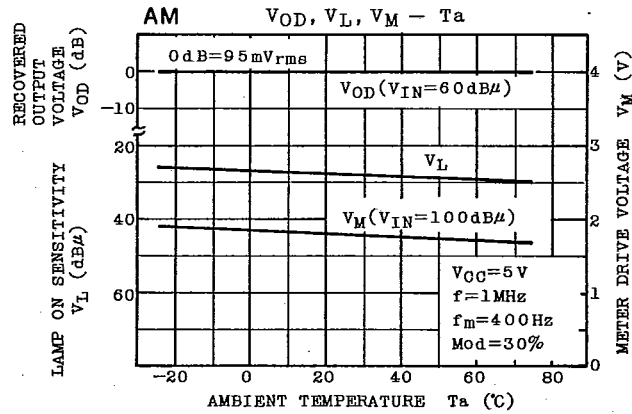
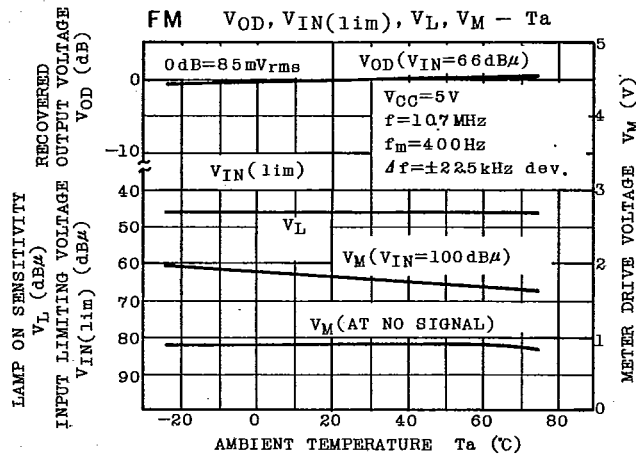
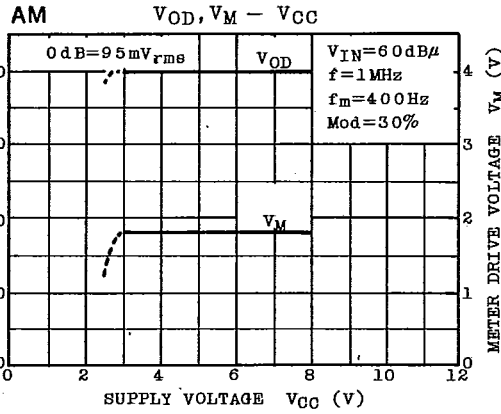
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APPLICATION CIRCUIT

