Toshiba **INTEGRATED CIRCUIT**

TECHNICAL DATA

TA7614AP

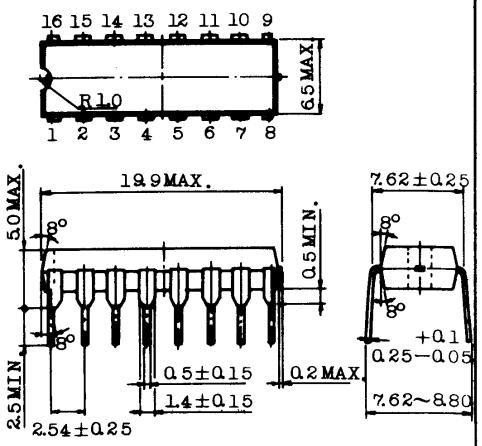
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

SILICON MONOLITHIC

FOR FM/AM IF SYSTEM.

- . FM IF Amplifier
- . FM Quadrature Detector
- . AM Mixer
- . AM Local Oscillator
- . AM IF Amplifier
- . AM Detector
- . Signal Meter Driver
- . Low Supply Voltage Use : V_{CC}=3～8V
- . 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 of the basis of No.1 and No.16 leads.

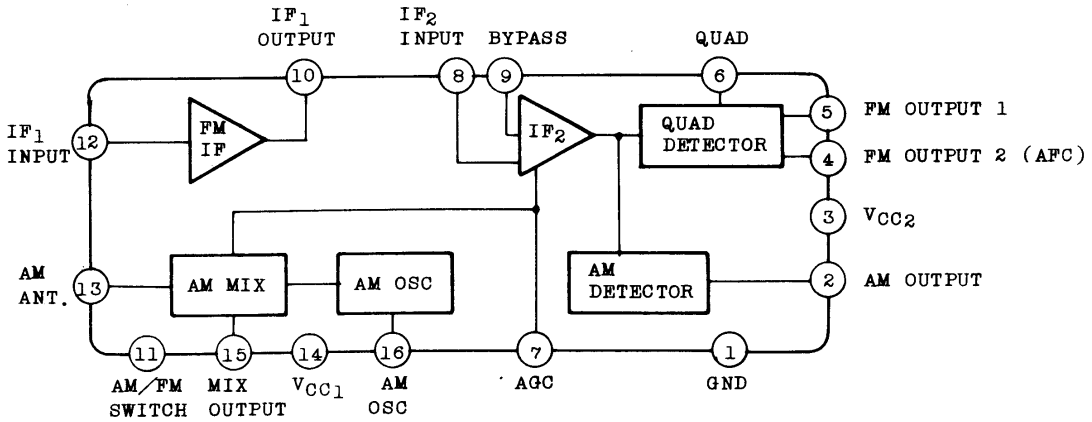
JEDEC	—
TOSHIBA	5-22E

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	8	V
Power Dissipation (Note)	P_D	750	mW
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.

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS

($Ta=25^{o}C$, $V_{CC}=5V$, FM : f=10.7MHz, $\Delta f=\pm 75kHz$ Dev., $f_m=400Hz$
AM : f=1MHz, $f_m=400Hz$, Mod=30%)

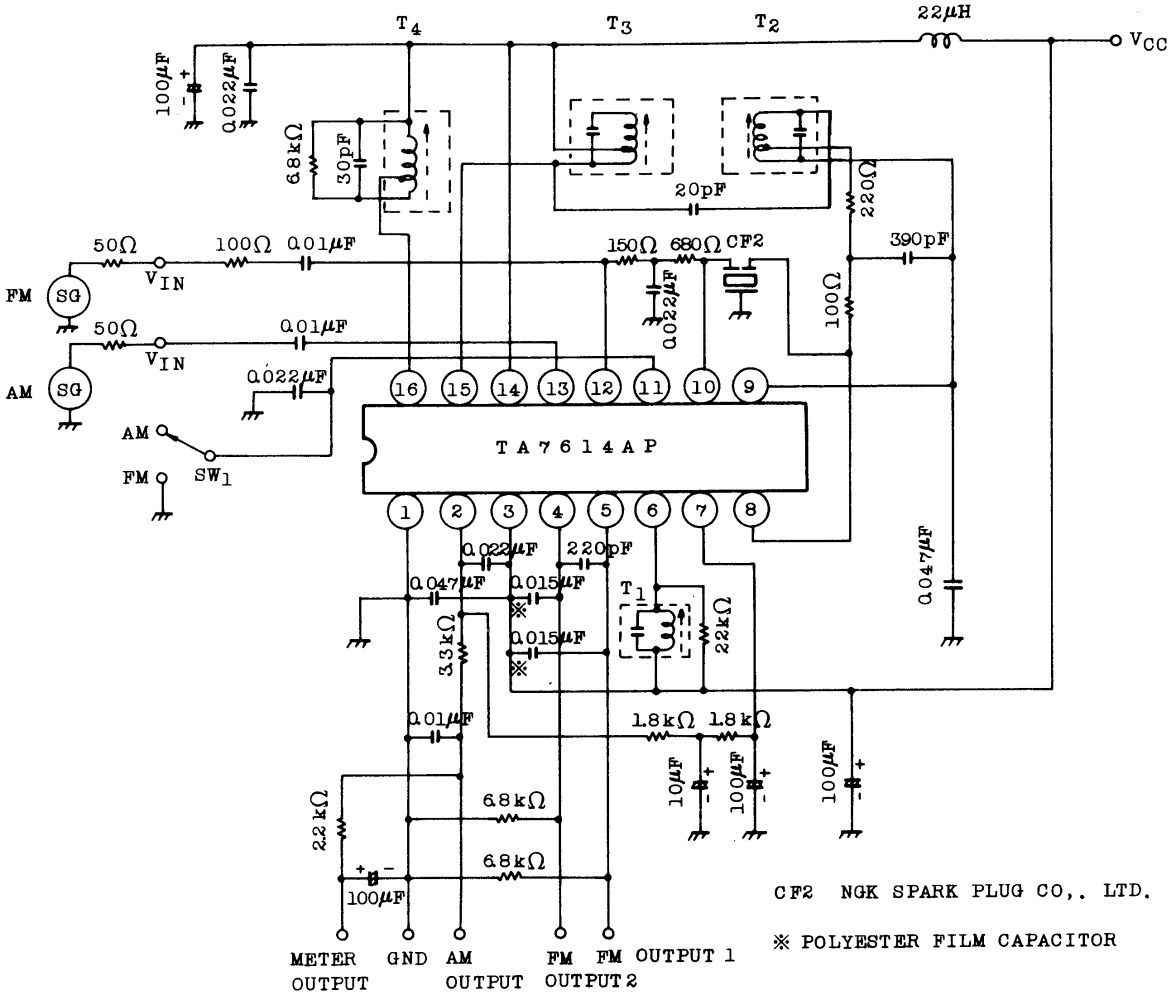
	CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		$I_{CC}(1)$	1	V_{IN}=0 at FM	-	17	31	mA
		$I_{CC}(2)$		V_{IN}=0 at AM	-	15	31	mA
FM	Input Limiting Voltage	$V_{IN(lim)}$	1	-3dB Limiting	-	34	40	dBμV
	Recovered Output Voltage	$V_{OD}(1)$	1	$\Delta f=\pm 22.5kHz$, V_{IN}=60dBμV	40	60	80	mV_{rms}
	Signal to Noise Ratio	S/N(1)	1	V_{IN}=80dBμV	-	70	-	dB
	Total Harmonic Distortion	THD(1)	1	V_{IN}=80dBμV	-	0.3	-	%
	AM Rejection Ratio	AMR	1	AM : 1kHz , 30%, FM : $\Delta f=\pm 22.5kHz$ V_{IN}=80dBμV	-	50	-	dB
	Meter Driver Voltage	V_2(FM)	1	V_{IN}=80dBμV	0.8	1.0	1.2	V(DC)
AM	Recovered Output Voltage	V_{OD}(AM)	1	V_{IN}=60dBμV	90	130	180	mV_{rms}
	Gain (Note)	GAIN	2	f_{IN}=455kHz, V_{IN}=20dBμV	10	24	52	mV_{rms}
	Meter Driver Voltage	V_2(AM)	2	V_{IN}=60dBμV	-	1.0	-	V(DC)
	Total Harmonic Distortion	THD(AM)	2	V_{IN}=60dBμV	-	1.0	-	%
	Signal to Noise Ratio	S/N(AM)	2	V_{IN}=60dBμV	-	40	-	dB
	Local OSC. Stop Voltage	V_{stop}	2	-	-	1.5	-	V(DC)

Note : The TA7614AP is classified to the white and the yellow by the AM Gain.

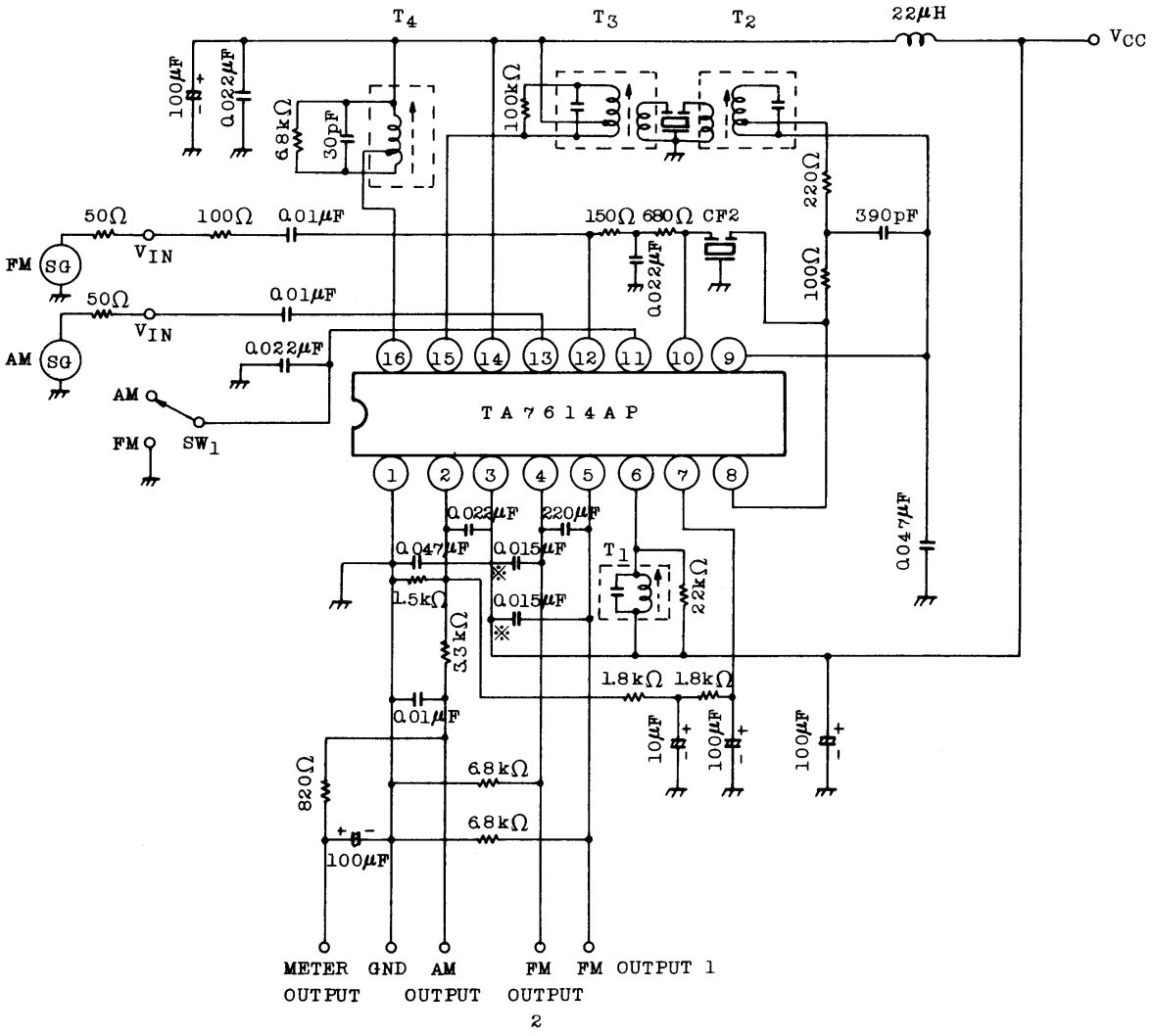
AM Gain Rank White Rank TA7614AP-W ; $10 \sim 28mV_{rms}$
Yellow Rank TA7614AP-Y ; $20 \sim 52mV_{rms}$

TEST CIRCUIT

1. $I_{CC(1)}$, $I_{CC(2)}$, $V_{IN(lim)}$, $V_{OD(1)}$, $V_{2(FM)}$, $V_{OD(AM)}$



2. $V_{2(AM)}$

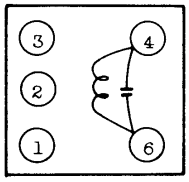


CF2 NGK SPARK PLUG CO., LTD. 107B6

※ Polyestel film capacitor.

COIL DATA

T_1 FM DETECTOR COIL

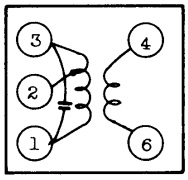


(BOTTOM VIEW)

C_O(pF)	f	Q_O	TURNS
4-6	(MHz)	4-6	4-6
47	10.7	150	14

WIRE : 0.12mmϕ UEW
SUMIDA ELECTRIC CO., LTD.:44M-933A

T_2 AM IFT (IF INPUT)

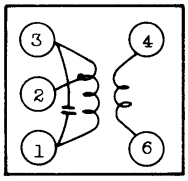


(BOTTOM VIEW)

C_O(pF)	f	Q_O	TURNS		
1-3	(kHz)	1-3	1-2	2-3	4-6
180	455	110	146	6	13

SUMIDA ELECTRIC CO., LTD
: 44M-935C
WIRE : 0.07mmϕ UEW

T_3 AM IFT (MIX OUTPUT)

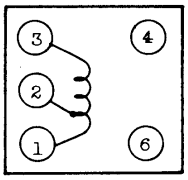


(BOTTOM VIEW)

C_O(pF)	f	Q_O	TURNS		
1-3	(kHz)	1-3	1-2	2-3	4-6
180	455	110	90	62	8

SUMIDA ELECTRIC CO., LTD
: 44M-962A
WIRE : 0.07mmϕ UEW

T_4 MW OSC

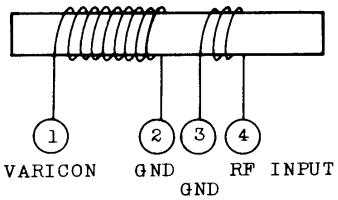


(BOTTOM VIEW)

f	L(μH)	Q_O	TURNS	
(kHz)	1-3	1-3	1-2	2-3
796	288	120	29 1/2	59

SUMIDA ELECTRIC CO., LTD.
: 44M-934A
WIRE : 0.08mmϕ UEW

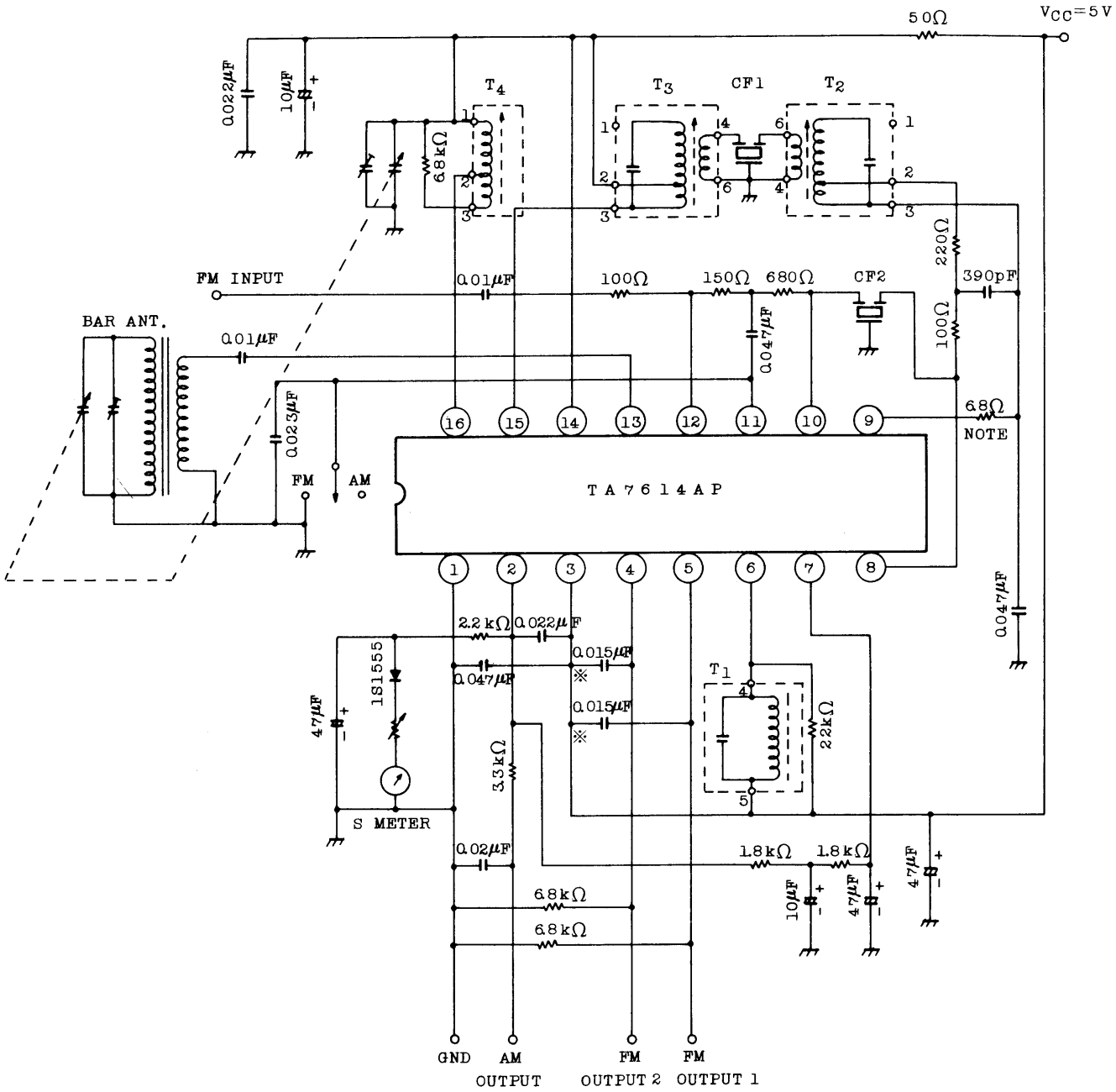
L_1 ANTENNA COIL



f	L(μH)	Q_O	TURNS	
(kHz)	1-2	1-2	1-2	3-4
796	600	200MIN.	91	7

CORE : 10mmϕ × 120mmϕ
WIRE : USTC 7-0.07mmϕ

APPLICATION CIRCUIT



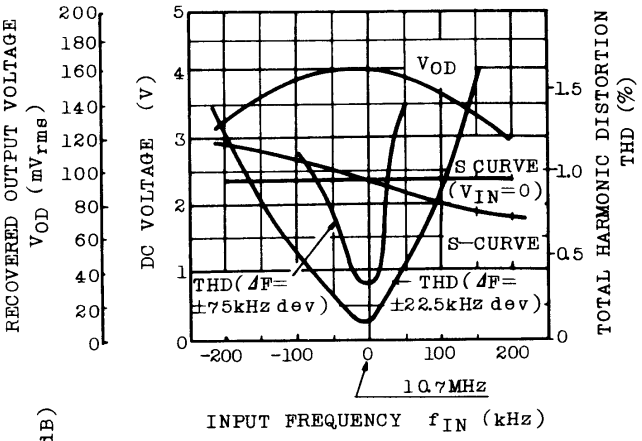
NOTE : The optimum resistance is 6.8Ω for the yellow and 3.3Ω for the white.

CF_1 : MURATA SFU 455B

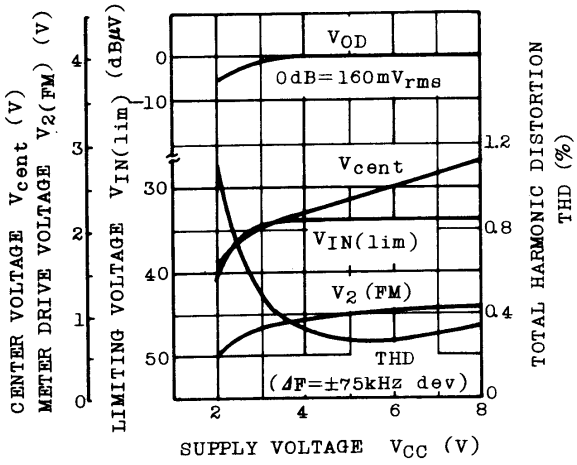
CF_2 : MURATA SFE 10.7MA

※ Polystel film capacitor.

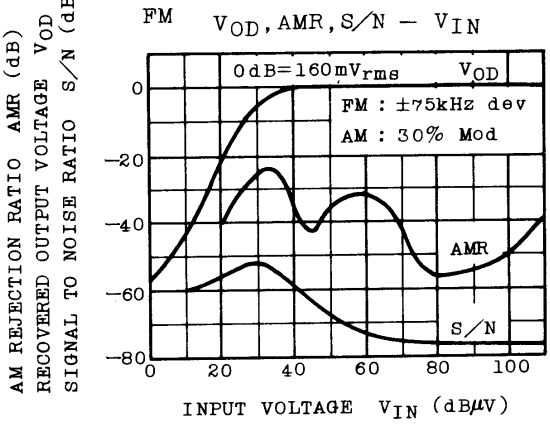
FM V_{OD}, THD – f_{IN}



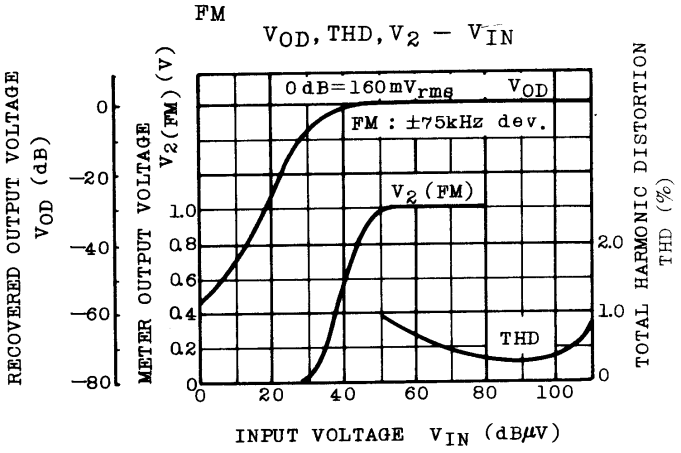
FM V_{OD}, $V_{IN(lim)}$, THD, $V_{2(FM)}$, V_{cent} – V_{CC}



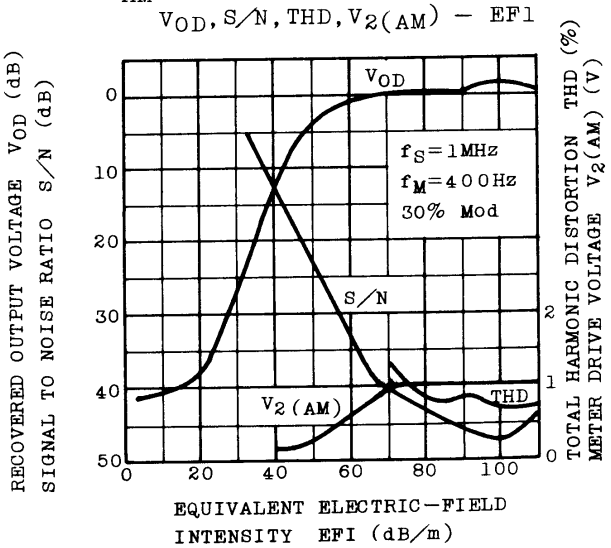
FM V_{OD}, AMR, S/N – V_{IN}



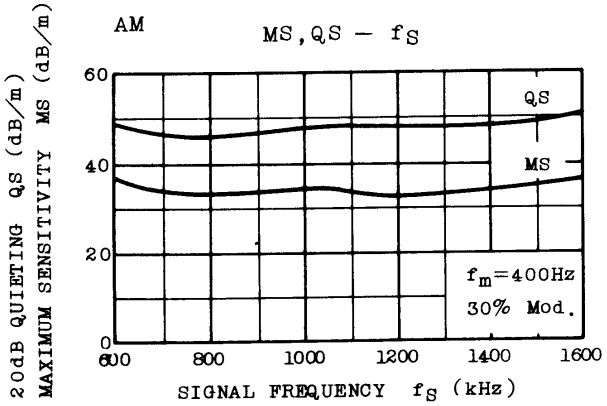
FM V_{OD}, THD, V_2 – V_{IN}



AM V_{OD}, S/N, THD, $V_{2(AM)}$ – EFI

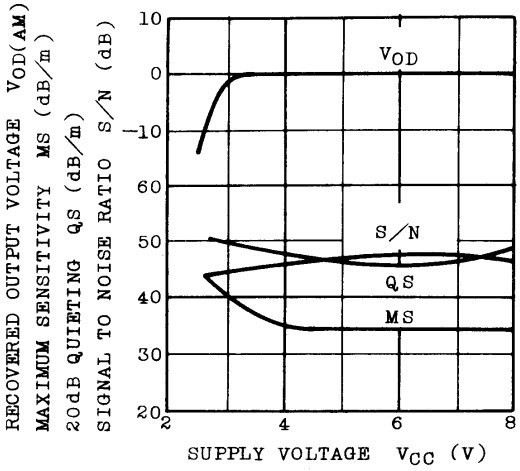


AM MS, QS – f_S



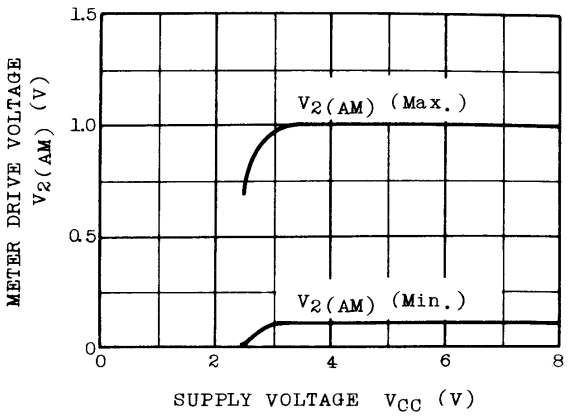
AM

V_{OD}, MS, QS, S/N – V_{CC}



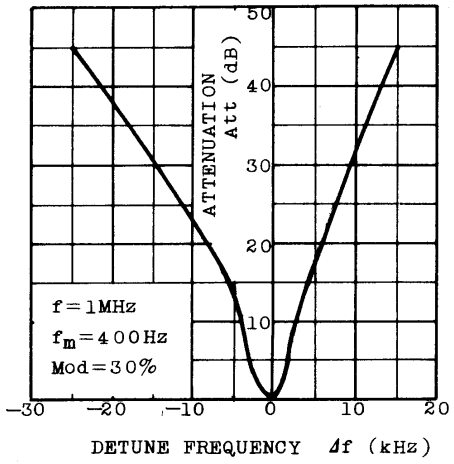
AM

$V_{2(AM)}$ – V_{CC}



AM

Att – Δf



AM

RESP – f_m