TA7757P
TA7757F

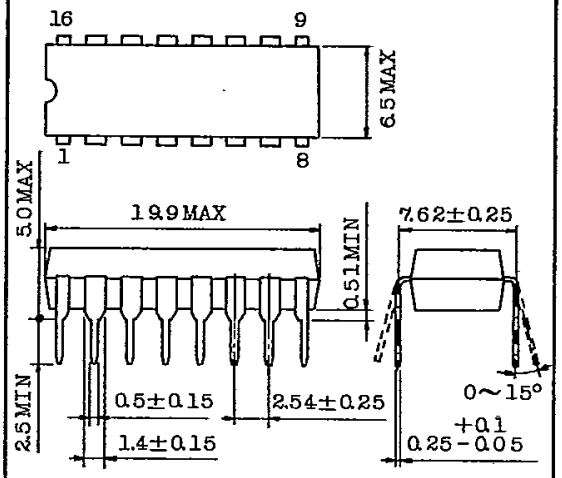
FM/AM IF SYSTEM (3V USE)

The TA7757P/F are FM/AM IF system ICs designed for portable radio applications.
It is especially suitable for small-sized low-voltage sets because of flat package and low current.

- Small Installed Area and Few External Parts
- Excellent Tweet
- Low Overload Distortion
- Low Supply Current AM : I_{CC}=4.5mA (Typ.)
  FM : I_{CC}=8mA (Typ.)
- Tuning Indicator LED Driving Capability
  I_{LAMP}=10mA (Max.)
- FM/AM Mode Switch Built-in
- Common Output for AM/FM
- Operating Supply Voltage Range : $V_{CC(opr)}$=1.7～6V
- Recommended Supply Voltage : V_{CC}=3V
- The Item is Different Each Outlines
  TA7757P : Dual in Line Package....Outline 3D16A-P
  TA7757F : Flat Package.....Outline F16GA2-P

Unit in mm

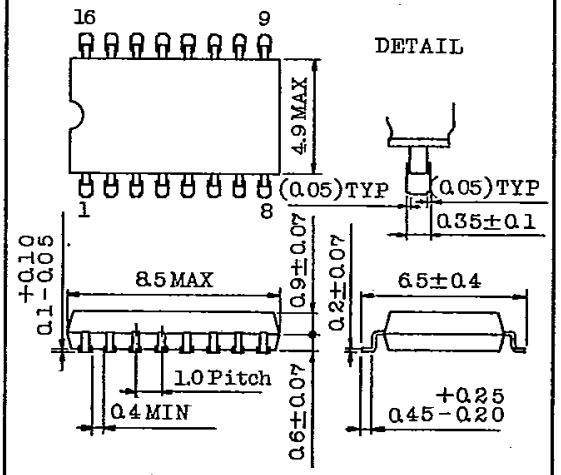
TA7757P



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 and No.16 leads.

JEDEC	—
TOSHIBA	3D16A-P

TA7757F



JEDEC	—
TOSHIBA	F16GA2-P

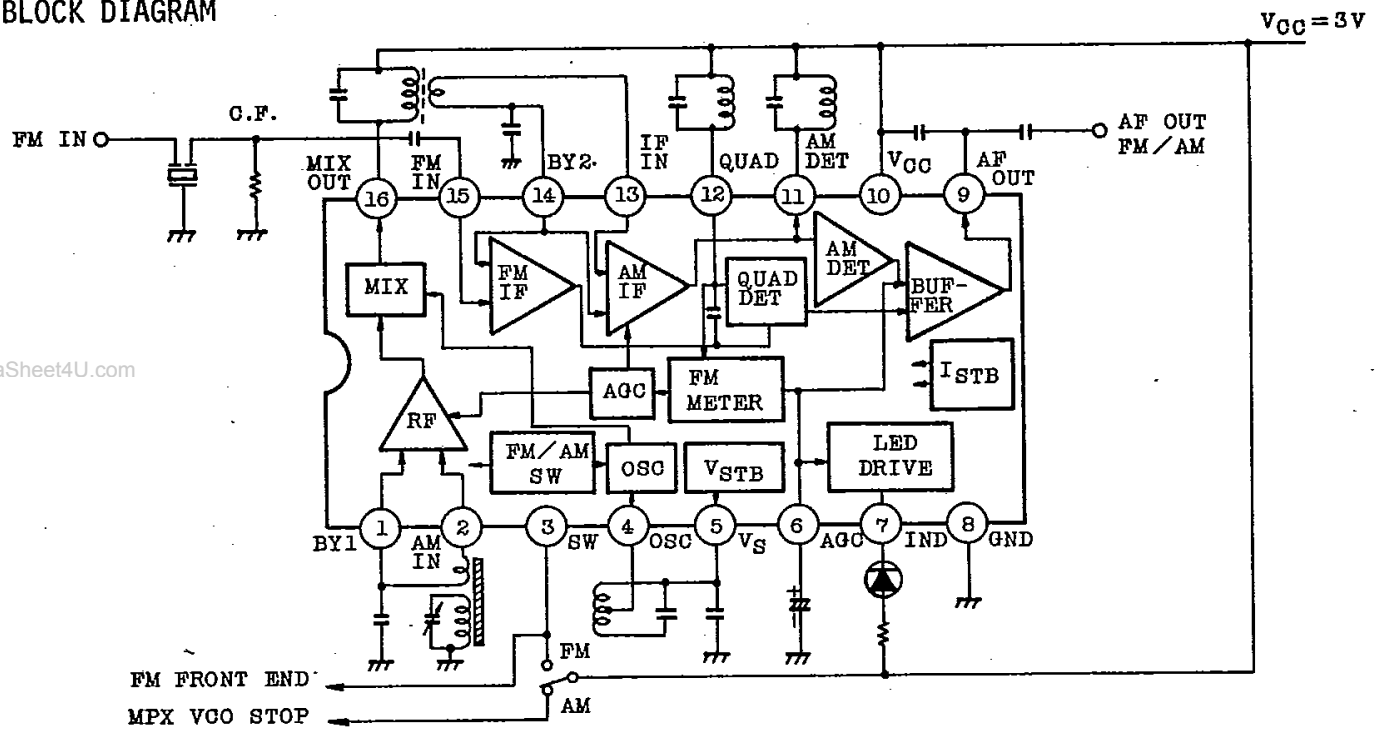
Weight : TA7757P 1.00g
TA7757F 0.14g

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V_{CC}	6	V
Lamp Current		I_{LAMP}	10	mA
Power Dissipation (Note)	TA7757P	P_D	750	mW
	TA7757F		350	
Operating Temperature		T_{opr}	-25～75	°C
Storage Temperature		T_{stg}	-55～150	°C
Lamp Voltage		V_{LAMP}	8	V

Note : Derated above Ta=25°C in the proportion of 6mW/°C for TA7757P and of 2.8mW/°C for TA7757F.

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS

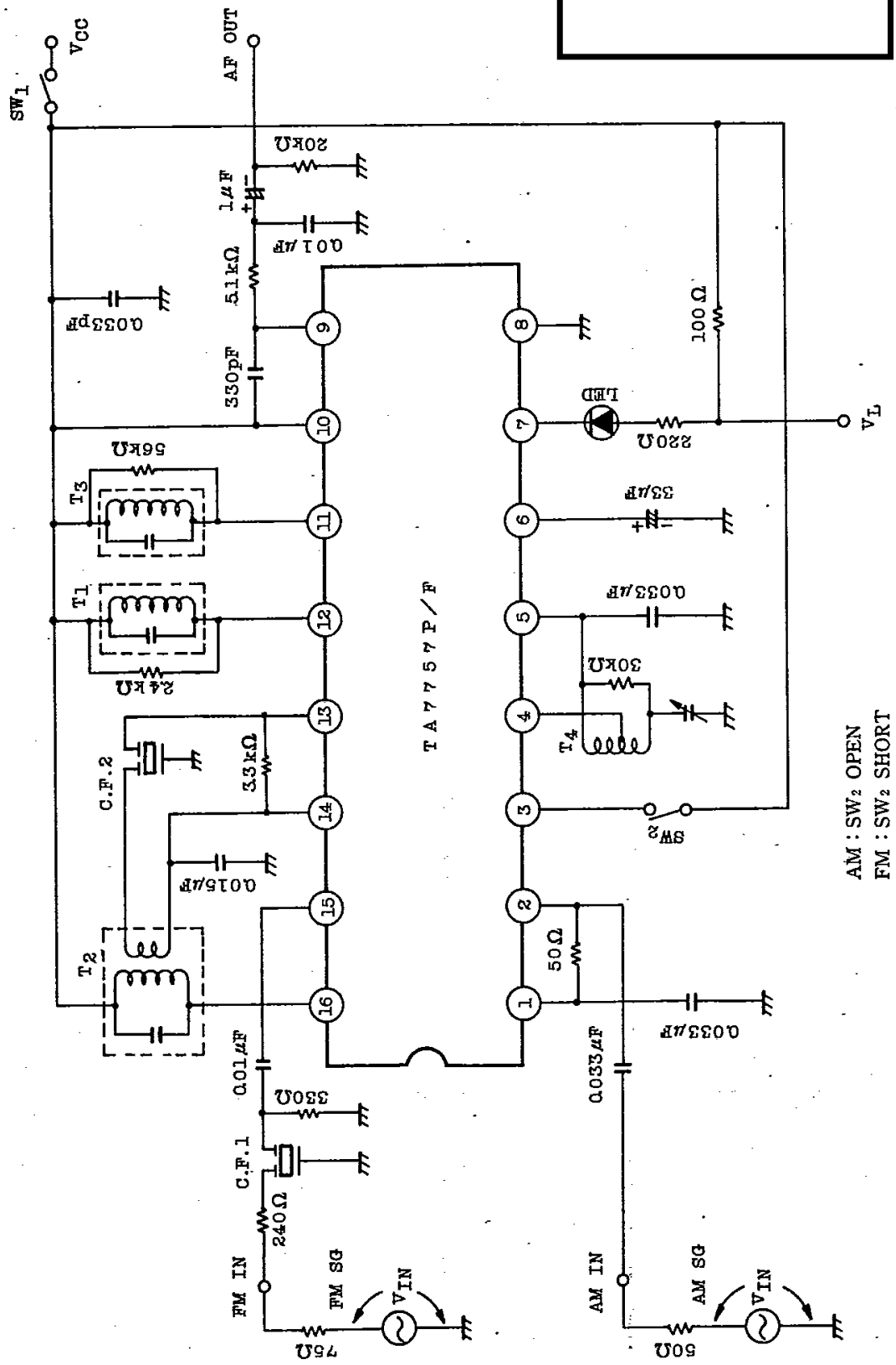
1. DC CHARACTERISTICS (V_{CC}=3V, Ta=25°C, Terminal Voltage at No Signal)

ITEM		SYMBOL	TYPICAL VALUE		UNIT
			AM	FM	
Terminal 1	AM RF BYPASS	V_1	0.96	0	V
2	AM RF INPUT	V_2	0.96	0	V
3	FM/AM SWITCH	V_3	0	3.0	V
4	AM OSC	V_4	1.4	1.4	V
5	REGULATOR	V_5	1.4	1.4	V
6	AGC	V_6	0.4	0.4	V
7	LED	V_7	-	-	V
8	GND	V_8	0	0	V
9	DET. OUTPUT	V_9	1.3	0.9	V
10	V_{CC}	V_{10}	3.0	3.0	V
11	AM IF OUTPUT	V_{11}	3.0	3.0	V
12	FM DET. COIL	V_{12}	3.0	3.0	V
13	AM IF INPUT	V_{13}	1.3	1.3	V
14	FM IF BYPASS	V_{14}	1.3	1.3	V
15	FM IF INPUT	V_{15}	1.5	1.3	V
16	AM MIX OUTPUT	V_{16}	3.0	3.0	V

2. AC CHARACTERISTICS (Ta=25°C, V_{CC}=3V, FM : f=10.7MHz, Δf=±22.5kHz, f_m=1kHz
AM : f=1MHz, Mod=30%, f_m=1kHz)

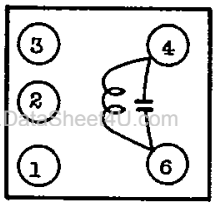
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		$I_{CC}(1)$	1	FM V_{IN}=0	-	8	11	mA
		$I_{CC}(2)$		AM V_{IN}=0	-	4.5	7	
FM	Input Limiting Voltage	$V_{IN(lim)}$	1	-3dB Limiting	-	49	54	dBμ
	Recovered Output Voltage	V_{OD}	1	V_{IN}=86dBμ	45	65	90	mV_{rms}
	Signal to Noise Ratio	S/N	1	V_{IN}=86dBμ	-	65	-	dB
	Total Harmonic Distortion	THD	1	V_{IN}=86dBμ	-	0.1	-	%
	AM Rejection Ratio	AMR	1	V_{IN}=86dBμ	-	40	-	dB
	Lamp ON Sensitivity	V_L	1	I_L=1mA	-	49	54	dBμ
AM	Gain	G_V	1	V_{IN}=26dBμ	20	48	80	mV_{rms}
	Recovered Output Voltage	V_{OD}	1	V_{IN}=60dBμ	50	71	110	mV_{rms}
	Signal to Noise Ratio	S/N	1	V_{IN}=60dBμ	-	42	-	dB
	Total Harmonic Distortion	THD	1	V_{IN}=60dBμ	-	1.0	-	%
	Lamp ON Sensitivity	V_L	1	I_L=1mA	-	27	-	dBμ
	Local OSC Stop Voltage	V_{stop}	1	-	-	1.2	-	V
Output Resistance		$R_{O9(FM)}$		f=1kHz	-	0.7	-	kΩ
		$R_{O9(AM)}$			-	4.4	-	

TEST CIRCUIT



COIL DATA (TEST CIRCUIT)

T1 FM DETECTOR COIL

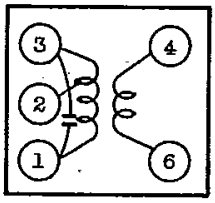


(BOTTOM VIEW)

C_0(pF)	f	Q_0	TURNS
4-6	(MHz)	4-6	4-6
100	10.7	110	10

SUMIDA ELECTRIC Co., Ltd.
: 0133-3099-182 or SIMILAR
WIRE : 0.12mmϕ UEW

T2 AM IFT (MIX OUT)

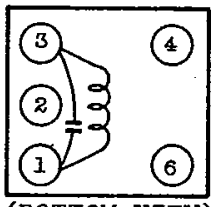


(BOTTOM VIEW)

C_0(pF)	f	Q_0	TURNS		
1-3	(kHz)	1-3	1-2	2-3	4-6
180	455	110	88	60	8

SUMIDA ELECTRIC Co., Ltd.
: 0130-1289-217 or SIMILAR
WIRE : 0.07mmϕ UEW

T3 AM IFT (DET)

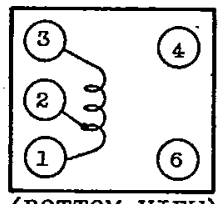


(BOTTOM VIEW)

C_0(pF)	f	Q_0	TURNS		
1-3	(kHz)	1-3	1-2	2-3	4-6
180	455	110	146	6	13

SUMIDA ELECTRIC Cp., Ltd.
: 0130-1289-218 or SIMILAR
WIRE : 0.07mmϕ UEW

T4 MW OSC



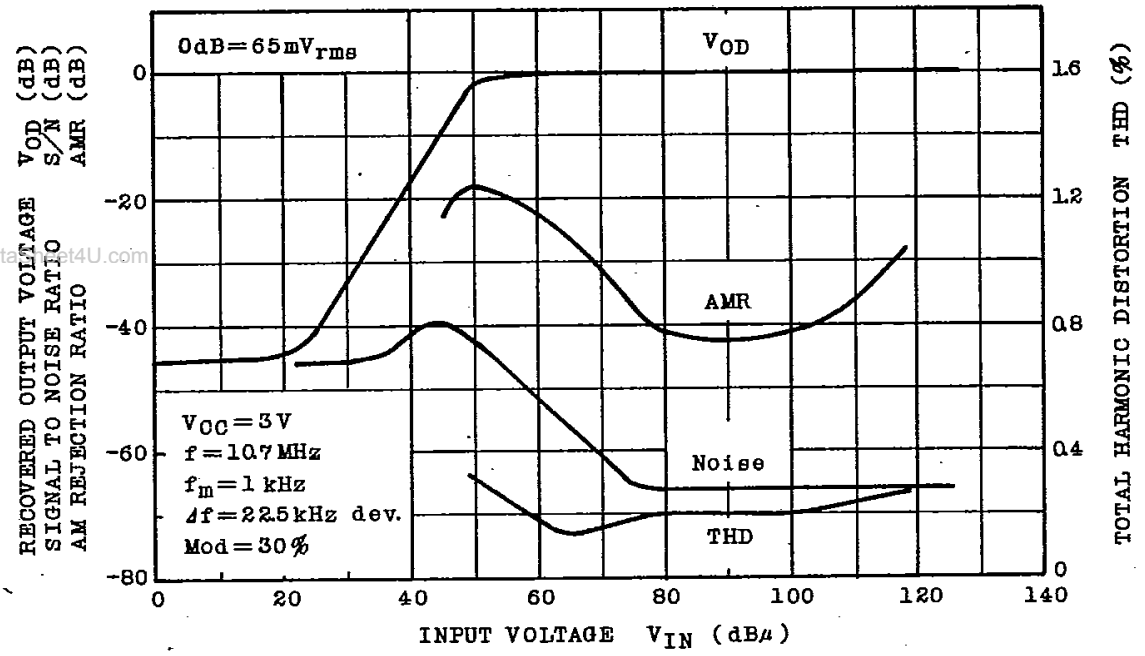
(BOTTOM VIEW)

f	L(μH)	Q_0	TURNS	
(kHz)	1-3	1-3	1-2	2-3
796	288	125	13	75

SUMIDA ELECTRIC Co., Ltd.
: 0137-135-262 or SIMILAR
WIRE : 0.08mmϕ UEW

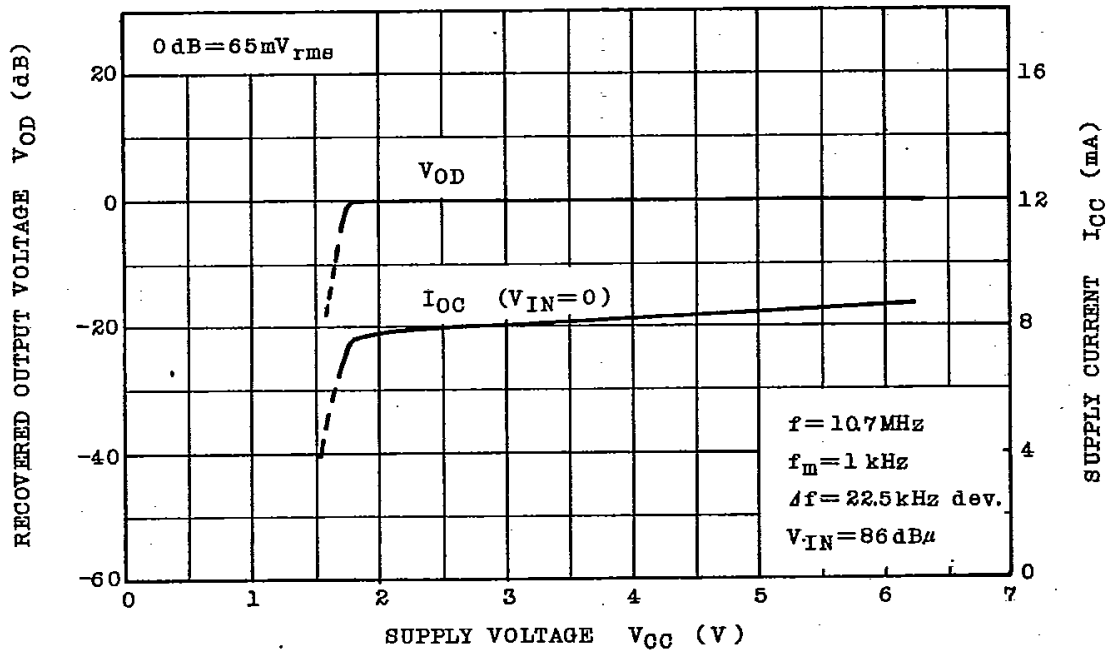
FM

V_{OD}, AMR, S/N, THD – V_{IN}



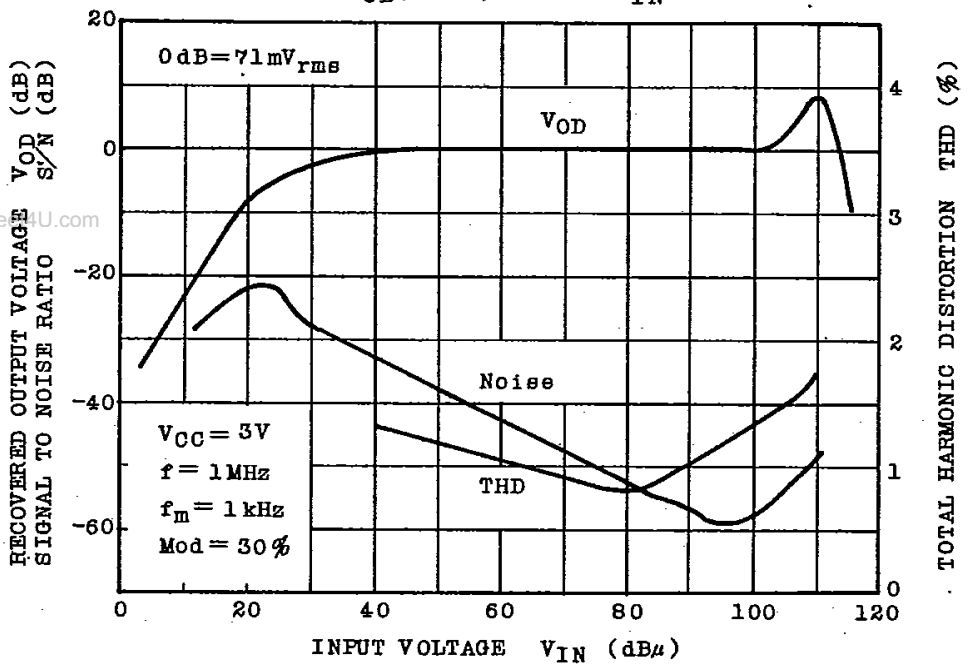
FM

V_{OD}, I_{CC} – V_{CC}



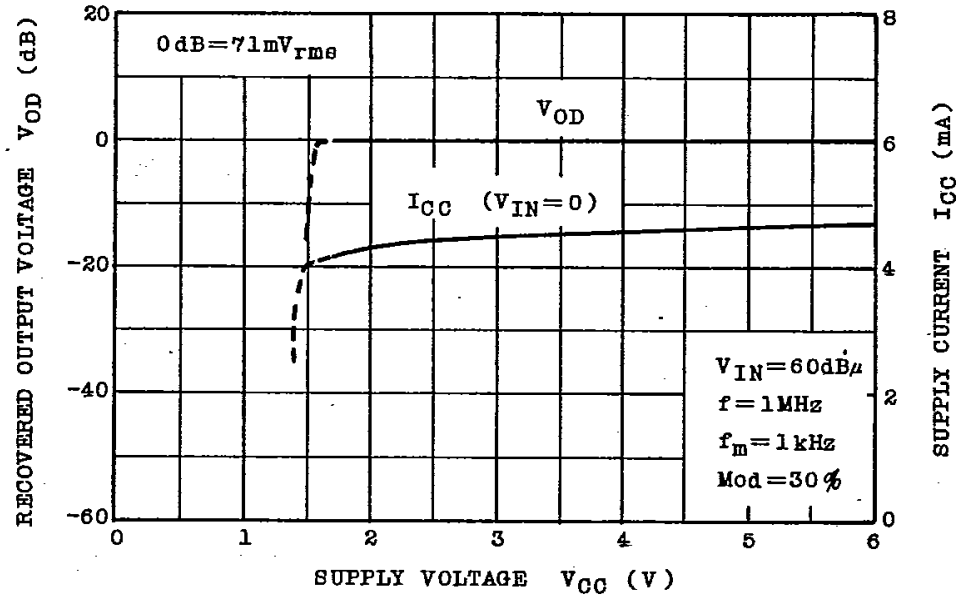
AM

V_{OD}, S/N, THD – V_{IN}



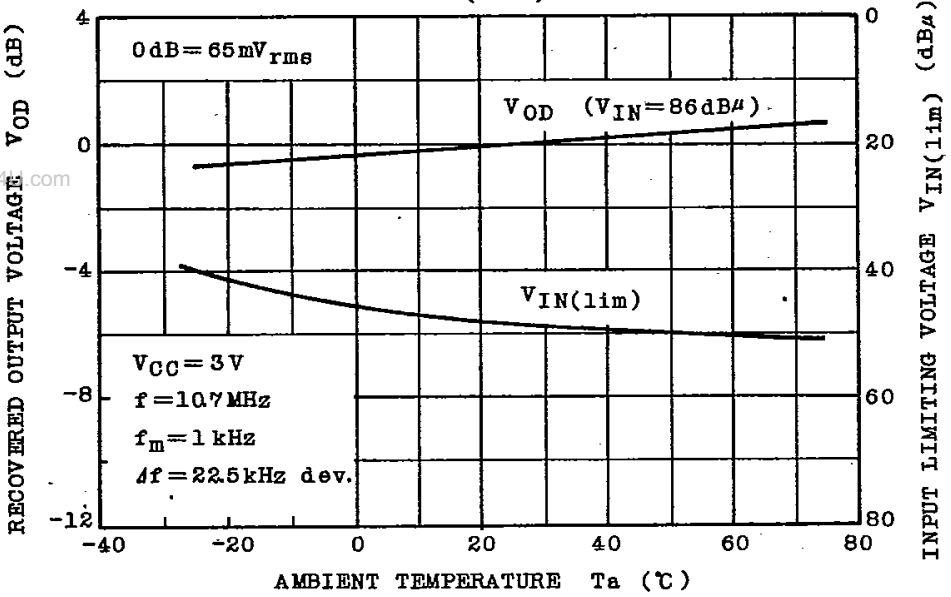
AM

V_{OD}, I_{CC} – V_{CC}



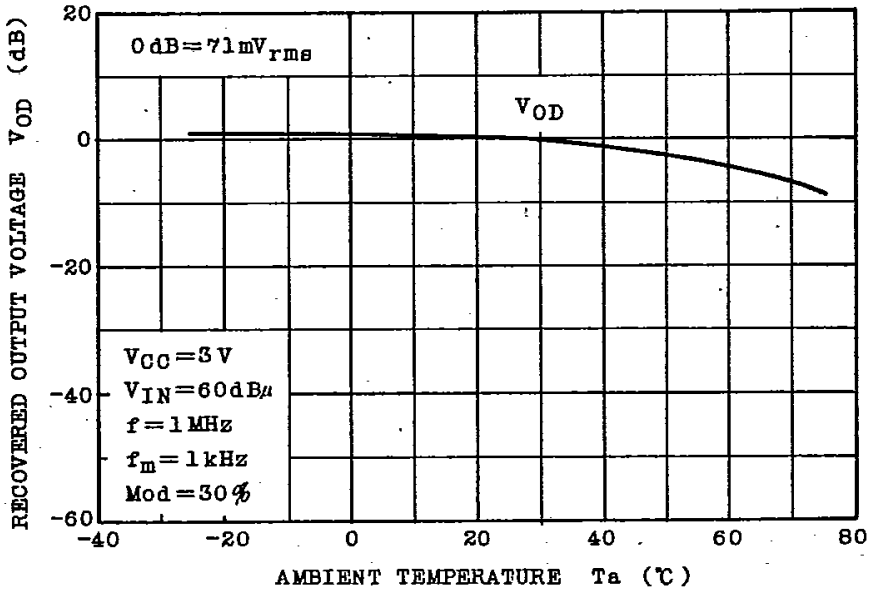
FM

V_{OD}, $V_{IN(lim)}$ – Ta

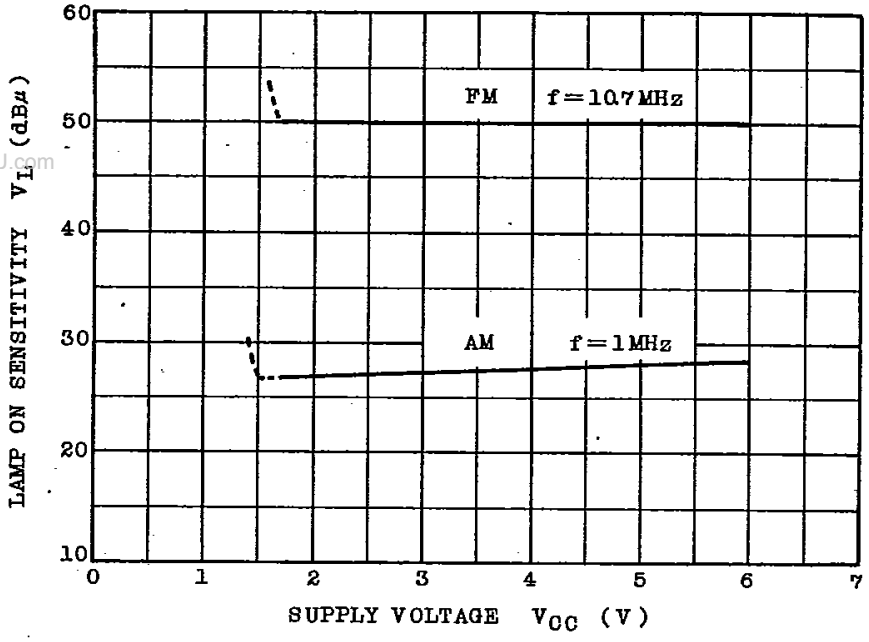


AM

V_{OD} – Ta



V_L – V_{CC}



V_L – Ta