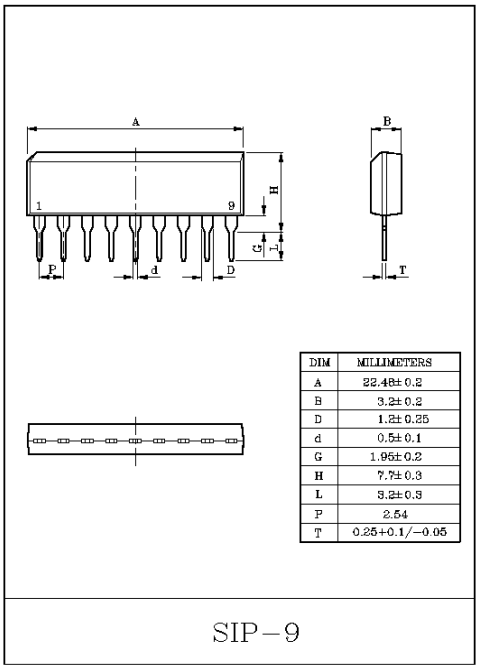
FM IF SYSTEM IC

- 3 Stage Differential IF Amplifier.
- Differential Peak Detector.
- Muting Circuit.
- High Recovered Output Voltage : V_{OD}=500mV_{rms}(Typ.).
- Low Distortion : THD=0.1% (Typ.).
- Wide Operating Supply Voltage Range :V_{CC}=8~15V(Typ.).
- Signal Meter Drive Voltage : V_3=4V(Typ.)
- Variable Muting Point.
- Muting Off at Open Terminal.
- Simplified Single Coil Tuning.
- Very Few External Parts.



DIM	MILLIMETERS
A	22.48± 0.2
B	3.2± 0.2
D	1.2± 0.25
d	0.5± 0.1
G	1.95± 0.2
H	7.7± 0.3
L	3.2± 0.3
P	2.54
T	0.25+0.1/−0.05

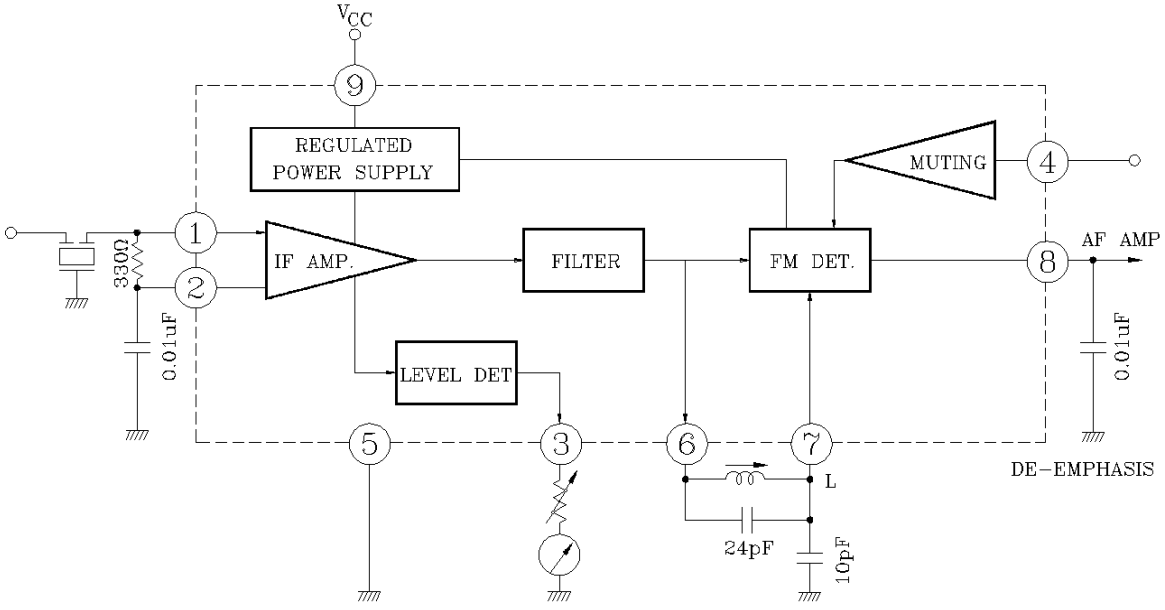
SIP−9

MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	15	V
Input Voltage	V_{IN}	0.7	V
Power Dissipation (Note)	P_D	750	mW
Operating Temperature	T_{opr}	-25~75	℃
Storage Temperature	T_{stg}	-55~150	℃

Note : Derated above Ta=25℃ in the proportion of 4mW/℃ for KIA6003S

BLOCK DIAGRAM



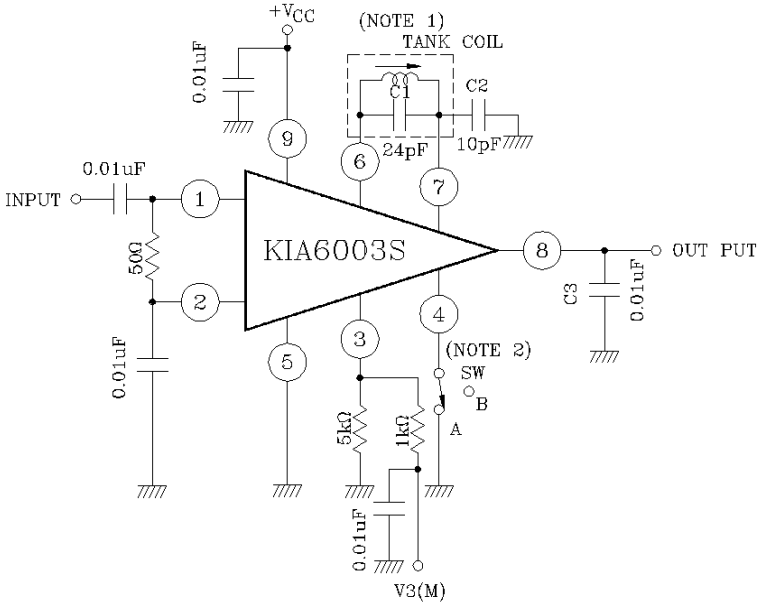
ELECTRICAL CHARACTERISTICS (V_{CC}=12V, f=10.7MHz, fm=400Hz, Ta=25℃)

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		I_{CC}	1	V_{IN}=0	10	14	18	mA
Input Limiting Voltage		$V_{IN(lim)}$	1	Δf=±75kHz dev. -3dB LIMITING	-	50	55	dBμV
AM Rejection Ratio		AMR	1	FM: Δf=±75kHz dev. AM: 30% Mod. V_{IN}=80dBμV	-	50	-	dB
Recovered Output Voltage		V_{OD}	1	Δf=±75kHz dev. V_{IN}=80dBμV	300	500	700	mV_{rms}
Total Harmonic Distortion		THD	1	Δf=±22.5kHz dev. V_{IN}=80dBμV	-	0.1	-	%
Signal to Noise Ratio		S/N	1	Δf=±75kHz V_{IN}=80dBμV	-	75	-	dB
Muting Attenuation		MA	1	Δf=±75kHz dev. V_{IN}=80dBμV, V_4=0	-	70	-	dB
Meter Drive Voltage		$V_{3(Max.)}$	1	V_{IN}=110dBμV	-	4	-	V
Input Impedance	Parallel Input Resistance	r_{ip}	-	f=10.7MHz, ①pin-GND	-	5	-	kΩ
	Parallel Input Capacitance	C_{ip}	-		-	4.5	-	pF
Output Impedance	Parallel Output Resistance	r_{op}	-	f=10.7MHz, ⑥pin-GND	-	1.3	-	kΩ
	Parallel Output Capacitance	C_{op}	-		-	4	-	pF
Output Resistance		R_O	-	f=400Hz, ⑧pin-GND	-	7.7	-	kΩ

Note : V_{OD} Rank (at Δf=±22.5kHz)

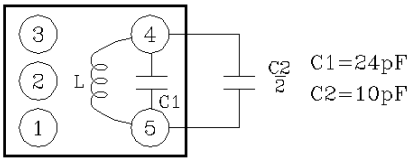
RANK	MIN.	MAX.	UNIT
B	90	150	mV_{rms}
C	130	210	mV_{rms}

TEST CIRCUIT 1



TANK COIL

WIRE	2 UEW 0.08mmø
TURNS	21
QU	130± 15%



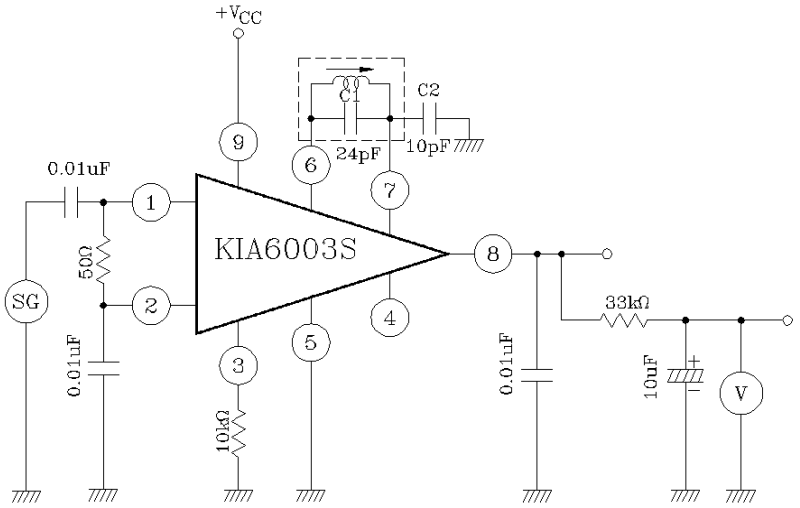
COVERED RESONANT FREQUENCY
10.7MHz± 250kHz

$$f_O = \left(\frac{1}{2\pi \sqrt{L\,(C_1 + \frac{C_2}{2})}} \right)$$

(Note 1) Tuning coil is adjusted to make recovered output voltage maximum at f=10.7MHz.

(Note 2) SW : To A for muting attenuation test only.

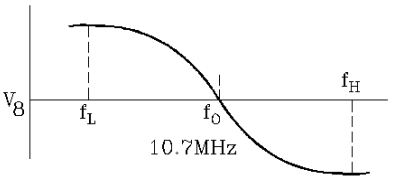
TEST CIRCUIT 2



f_L : LOWER PEAK FREQUENCY

f_O : CENTER FREQUENCY

f_H : UPPER FREQUENCY

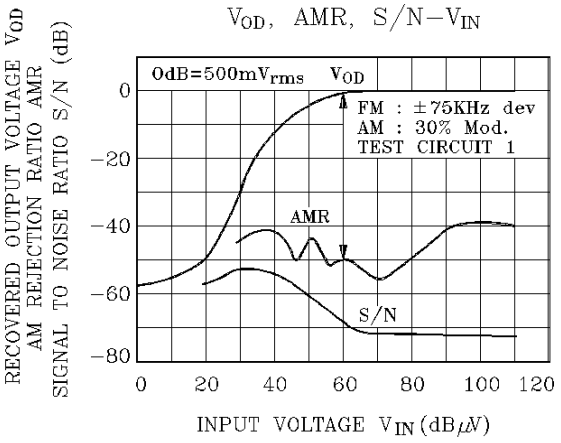


$$f_L = \frac{1}{2\pi \sqrt{L\,(C_1 + C_2)}}$$

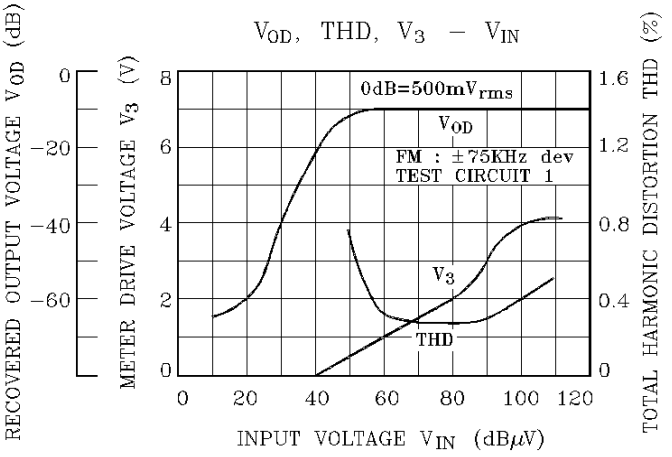
$$f_O = \frac{1}{2\pi \sqrt{L\,(C_1 + \frac{C_2}{2})}}$$

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

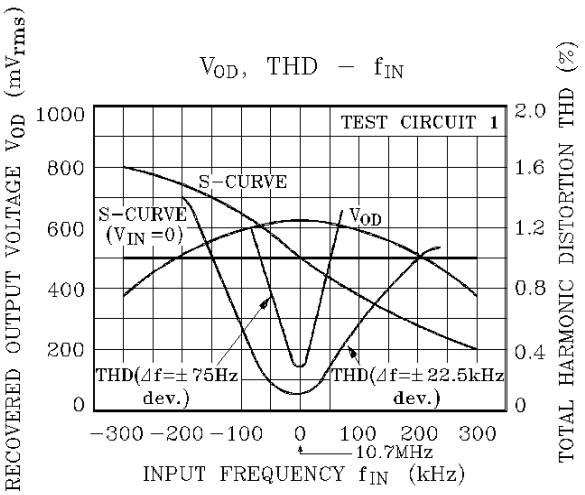
V_{OD}, AMR, S/N−V_{IN}



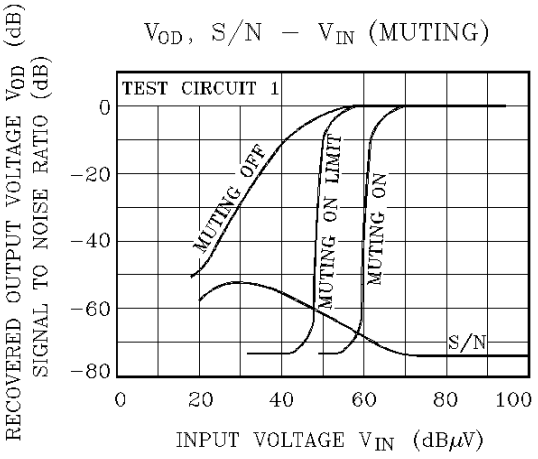
V_{OD}, THD, V_3 − V_{IN}



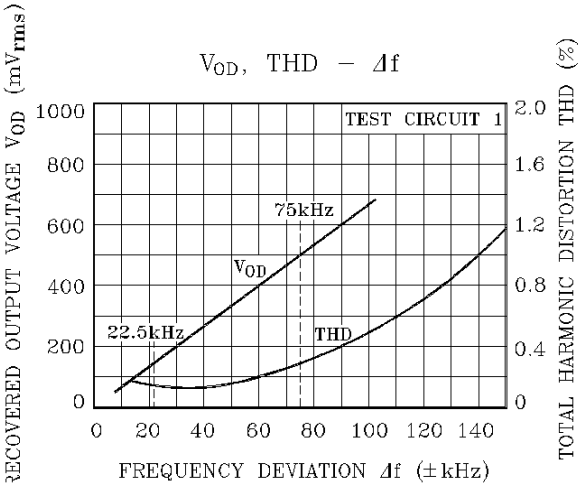
V_{OD}, THD − f_{IN}



V_{OD}, S/N − V_{IN} (MUTING)



V_{OD}, THD − Δf



V_{OD} − Δf