

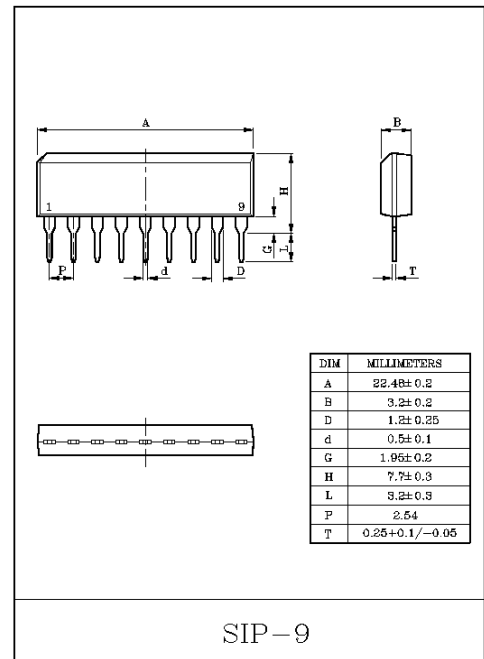
### FM IF SYSTEM IC

- 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 :  $V_{CC}=8\sim 15V(Typ.)$ .
- Signal Meter Drive Voltage :  $V_3=4V(Typ.)$ .
- Variable Muting Point.
- Muting Off at Open Terminal.
- Simplified Single Coil Tuning.
- Very Few External Parts.

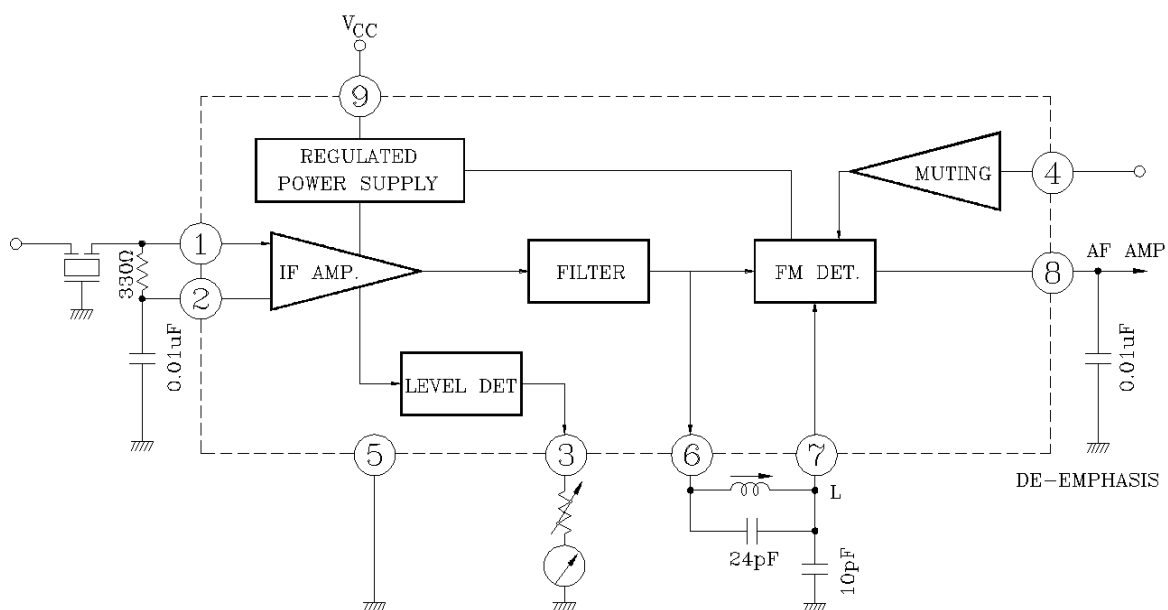
### MAXIMUM RATINGS (Ta=25°C)

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	°C
Storage Temperature	$T_{stg}$	-55~150	°C

Note : Derated above  $T_a=25^\circ C$  in the proportion of  $4mW/^\circ C$  for KIA6003S



### BLOCK DIAGRAM



# KIA6003S

ELECTRICAL CHARACTERISTICS (V<sub>CC</sub>=12V, f=10.7MHz, f<sub>m</sub>=400Hz, T<sub>a</sub>=25°C)

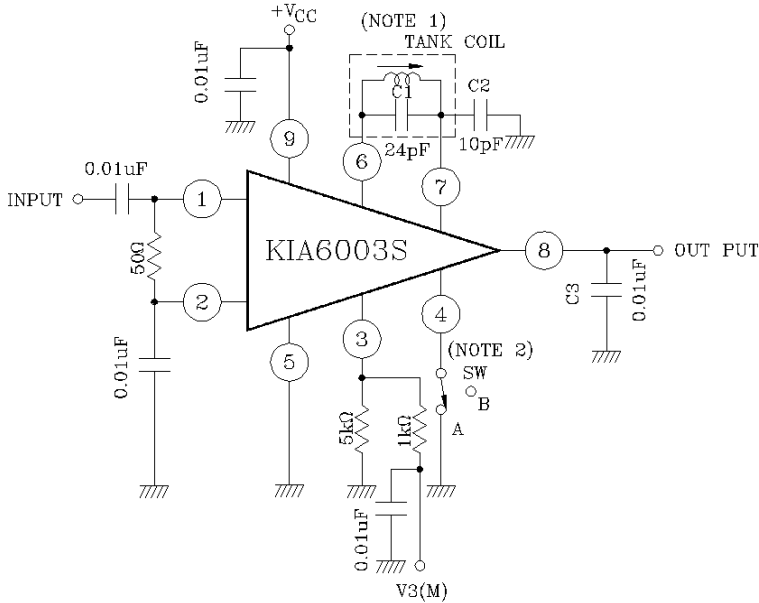
CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		I <sub>CC</sub>	1	V <sub>IN</sub> =0	10	14	18	mA
Input Limiting Voltage		V <sub>IN(lim)</sub>	1	Δf=±75kHz dev. -3dB LIMITING	-	50	55	dBμV
AM Rejection Ratio		AMR	1	FM: Δf=±75kHz dev. AM: 30% Mod. V <sub>IN</sub> =80dBμV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

Note : V<sub>OD</sub> Rank (at Δf=±22.5kHz)

RANK	MIN.	MAX.	UNIT
B	90	150	mV <sub>rms</sub>
C	130	210	mV <sub>rms</sub>

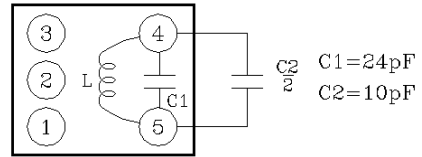
# KIA6003S

## TEST CIRCUIT 1



### TANK COIL

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



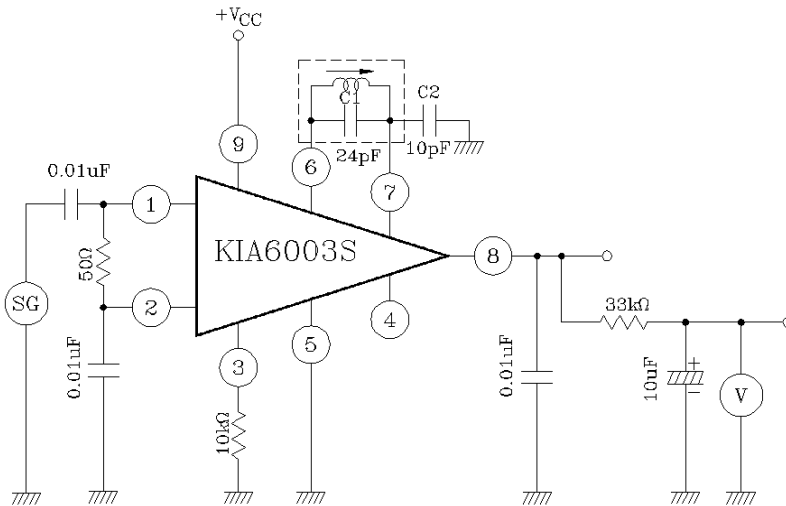
COVERED RESONANT FREQUENCY  
10.7MHz±250kHz

$$f_0 = \left( \frac{1}{2\pi \sqrt{L \left( C_1 + \frac{C_2}{2} \right)}} \right)$$

(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.

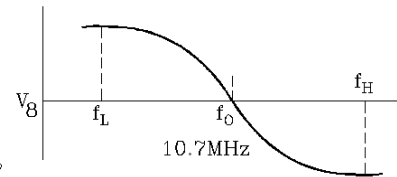
## TEST CIRCUIT 2



$f_L$ : LOWER PEAK FREQUENCY

$f_0$ : CENTER FREQUENCY

$f_H$ : UPPER FREQUENCY



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

$$f_0 = \frac{1}{2\pi \sqrt{L \left( C_1 + \frac{C_2}{2} \right)}}$$

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

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