

### FM FRONT-END

The KIA6058S/AS are designed for a FM front-end application, which are suitable to a portable radio or a radio cassette. Comparing with conventional types, supply voltage dependence, overload characteristics and spurious radiation characteristics are improved.

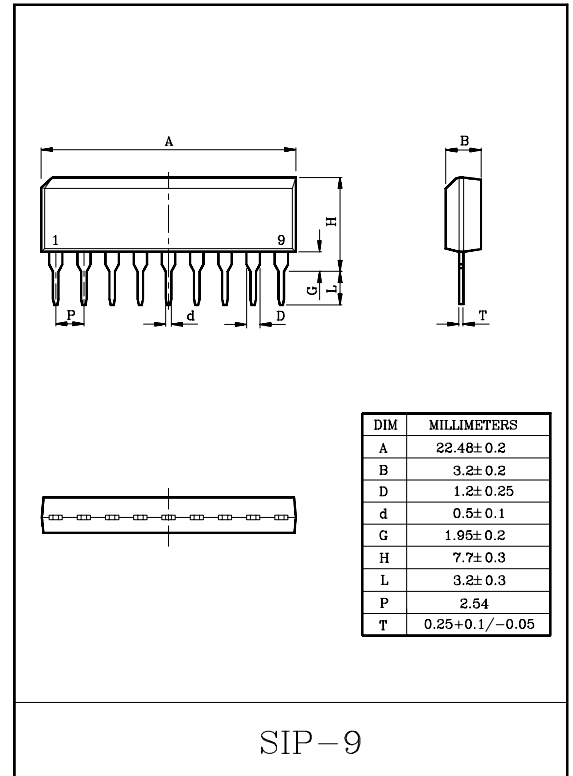
### FEATURES

- Wide supply voltage range :  $V_{CC(opr.)}=1.6\sim 6.0V$ .
- Excellent supply voltage dependence of local oscillator : Oscillation stop  $V_{CC}=0.9V$  (Typ.).
- Improved inter-modulation characteristics by double balanced type mixer circuit.
- Low spurious radiation.
- Built-in clamping diode for the local oscillator output.

### MAXIMUM RATINGS ( $T_a=25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC}$	8	V
Power Dissipation (Note)	$P_D$	500	mW
Operating Temperature	$T_{opr}$	$-25\sim 75$	$^\circ C$
Storage Temperature	$T_{stg}$	$-55\sim 150$	$^\circ C$

Note : Derated above  $T_a=25^\circ C$  in the proportion of  $4mW/^\circ C$  for KIA6058S/AS



# KIA6058S/AS

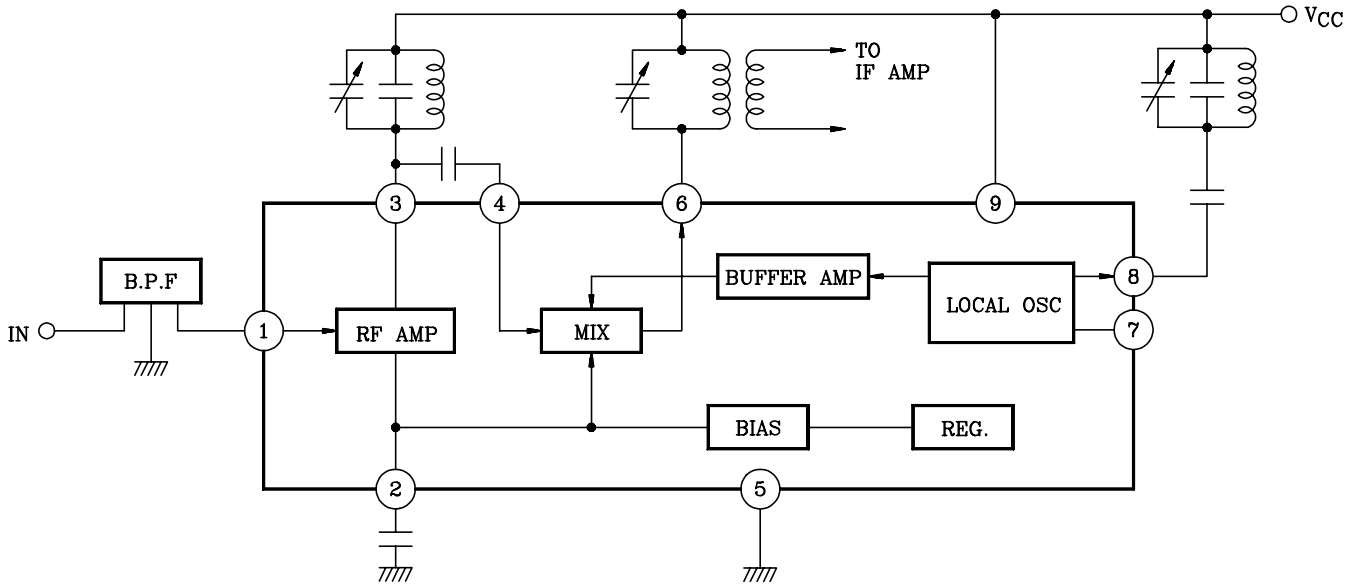
## ELECTRICAL CHARACTERISTICS

( $V_{CC}=5V$ ,  $f=98MHz$ ,  $f_m=1kHz$ ,  $\Delta f=22.5kHz$  dev.,  $T_a=25^\circ C$ )

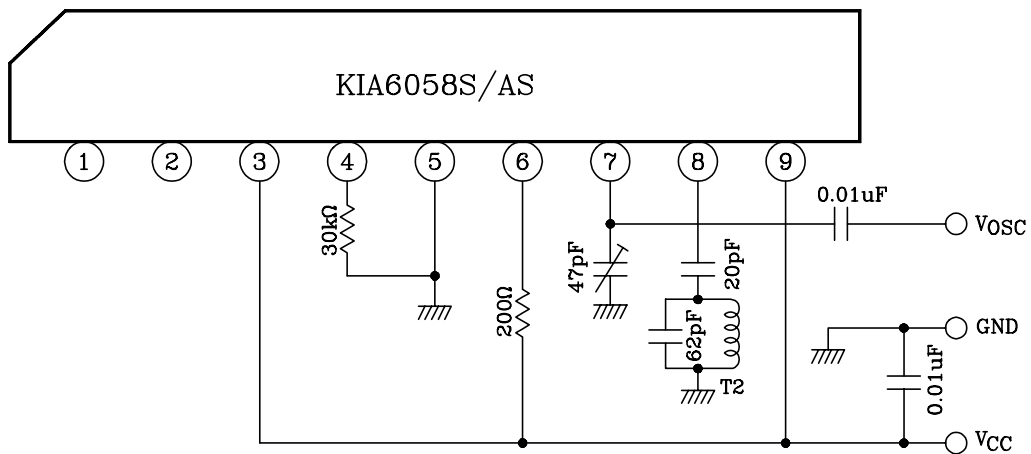
CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		$I_{CC}$	2	$V_{IN}=0$	-	5.2	8.0	mA
-3dB Limiting Sensitivity		$V_{IN(lim)}$	2		-	3.0	7.0	dB $\mu$
Quiescent Sensitivity		$Q_S$	2		-	11.0	-	dB $\mu$
Conversion Gain		$G_C$	-		-	31	-	dB
Local OSC Voltage	KIA6058S	$V_{OSC}$	1	$f_{osc}=60MHz$	150	230	350	mV $_{rms}$
	KIA6058AS				90	165	220	
Pin ① Impedance	Parallel Input Resistance	$r_{ip1}$	3	$f=98MHz$	-	57	-	$\Omega$
Pin ③ Impedance	Parallel Output Resistance	$r_{op3}$	3		-	25	-	k $\Omega$
	Parallel Output Capacitance	$c_{op3}$			-	2.0	-	pF
Pin ④ Impedance	Parallel Input Resistance	$r_{ip4}$	3		-	2.7	-	k $\Omega$
	Parallel Input Capacitance	$c_{ip4}$			-	3.3	-	pF
Pin ⑥ Impedance	Parallel Output Resistance	$r_{op6}$	3		$f=10.7MHz$	-	100	-
	Parallel Output Capacitance	$c_{op6}$		-		4.8	-	pF
Local OSC Stop Voltage		$V_{stop}$	1		-	0.9	1.3	V

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## BLOCK DIAGRAM

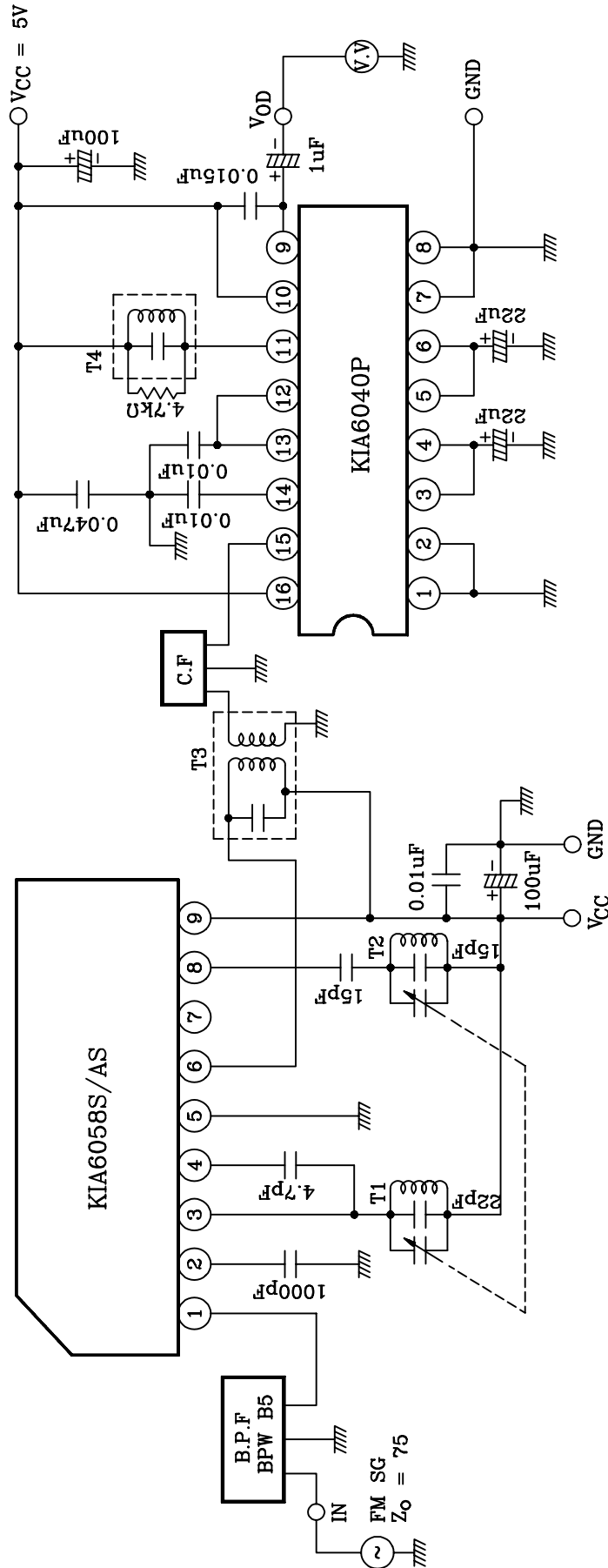


## TEST CIRCUIT 1



# KIA6058S/AS

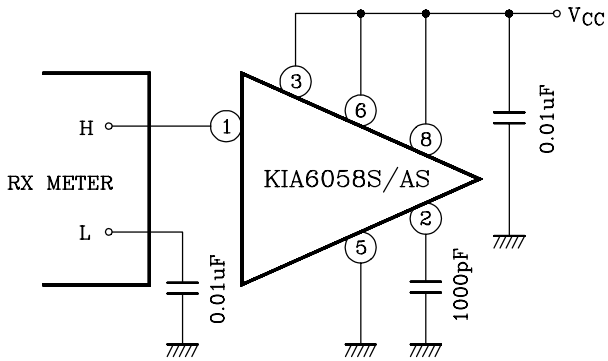
TEST CIRCUIT 2



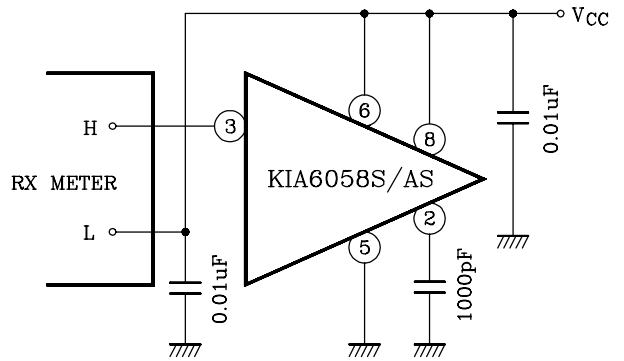
# KIA6058S/AS

## TEST CIRCUIT 3 INPUT, OUTPUT IMPEDANCE

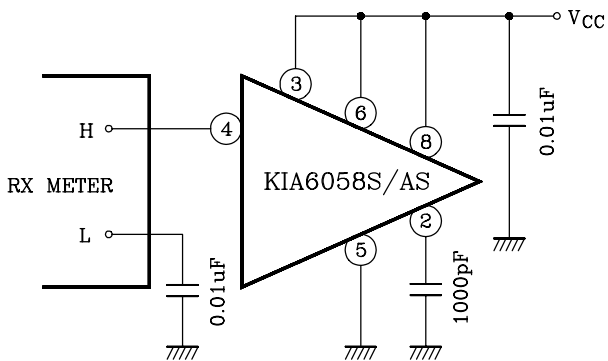
(1)  $r_{ip1}$



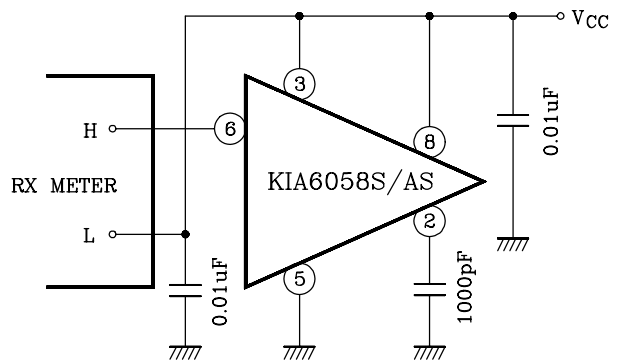
(2)  $r_{op3}$ ,  $C_{op3}$



(3)  $r_{ip4}$ ,  $C_{ip4}$

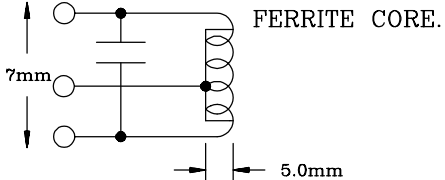
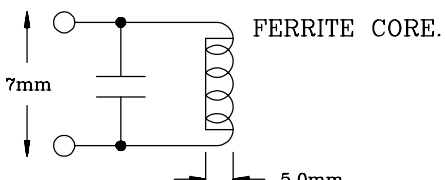
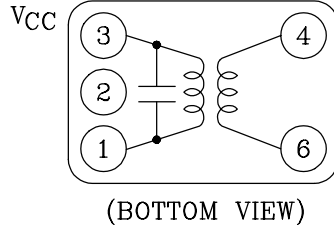
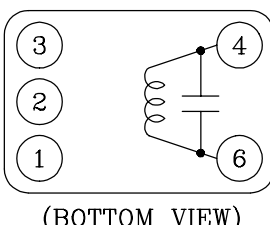


(4)  $r_{op6}$ ,  $C_{op6}$



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TEST CIRCUIT COIL DATA (Japan Band for 76.0MHz to 108.0MHz)

COIL	f <sub>0</sub>	Q <sub>0</sub>	TURNS	CAPACITANCE	
T1 RF Coil	100MHz	100	0.7mmφ $2\frac{1}{4}$ T Center Tap (Japan Band)	15pF (External)	
T2 OSC Coil	100MHz	100	0.7mmφ $2\frac{1}{2}$ T (Japan Band)	15pF (External)	
T3 IFT	10.7MHz	115	① - ③ 12T ④ - ⑥ 1T Wire 0.12mmφ UEW Ⓚ : KSFI604 Ⓢ : 5764 or Equivalent	75pF	
T4 Quad Coil	10.7MHz	150	④ - ⑥ 14T Wire 0.12mmφ UEW Ⓚ : KSC0902 Ⓢ : 44M-933A or Equivalent	47pF	

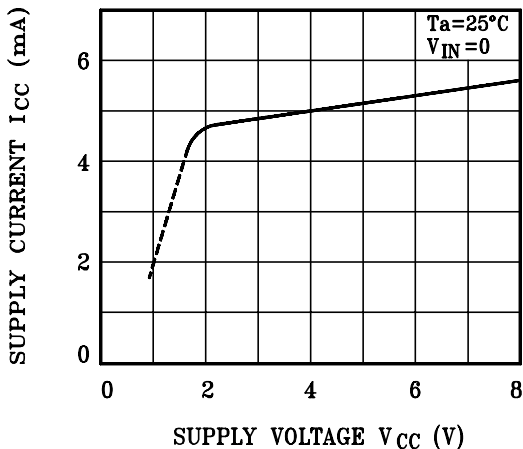
Band Pass Filter (B.P.F)  
SOSHIN ELECTRIC CO., LTD. BPWB5

Tuning Capacitor  
ALPS ELECTRIC CO., LTD. CB41EL933

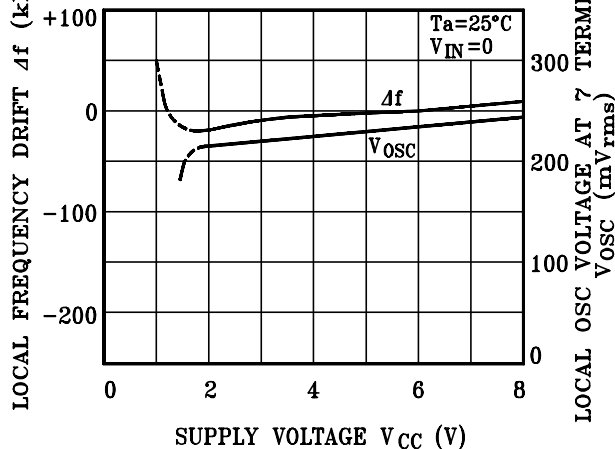
NOTE : Ⓚ : KWANG SUNG ELECTRICS CO., LTD. (Tel:(02)716-0034)  
Ⓢ : SUMIDA ELECTRIC CO., LTD.

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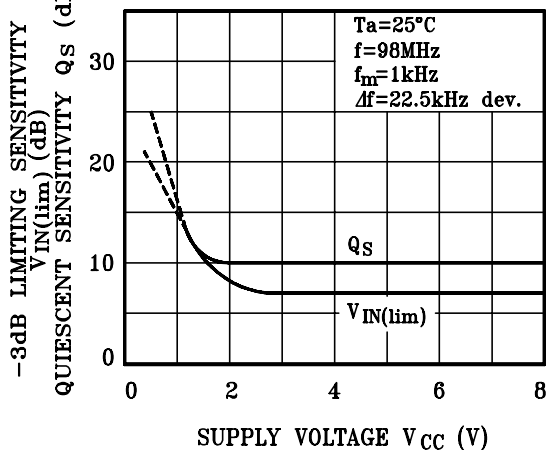
$I_{CC} - V_{CC}$



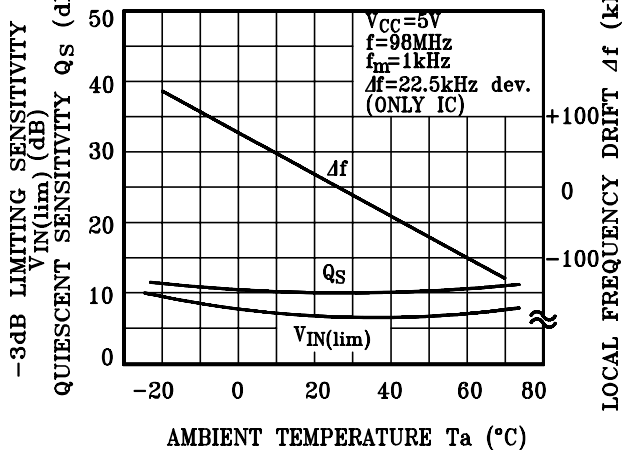
$\Delta f, V_{OSC} - V_{CC}$



$V_{IN(lim)}, Q_s - V_{CC}$



$V_{IN(lim)}, Q_s, \Delta f - T_a$



$V_{TANK}, V_{OSC} - T_a$

