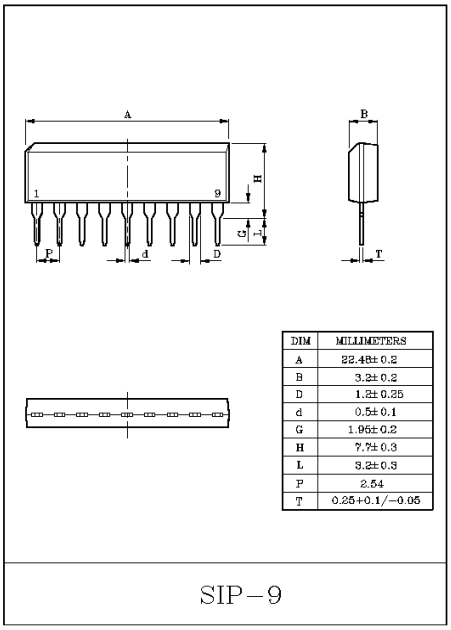
FM FRONT-END

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.



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

FEATURES

- Wide supply voltage range : $V_{CC(opr.)}$=1.6~6.0V.
- 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 (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	8	V
Power Dissipation (Note)	P_D	500	mW
Operating Temperature	T_{opr}	-25~75	℃
Storage Temperature	T_{stg}	-55~150	℃

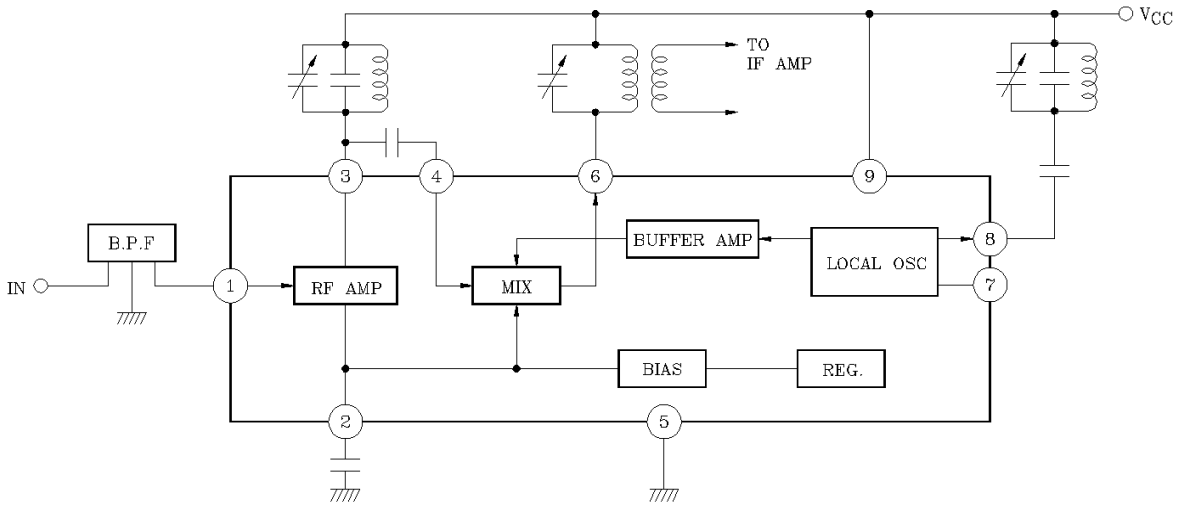
Note : Derated above Ta=25℃ in the proportion of 4mW/℃ for KIA6058S/AS

ELECTRICAL CHARACTERISTICS

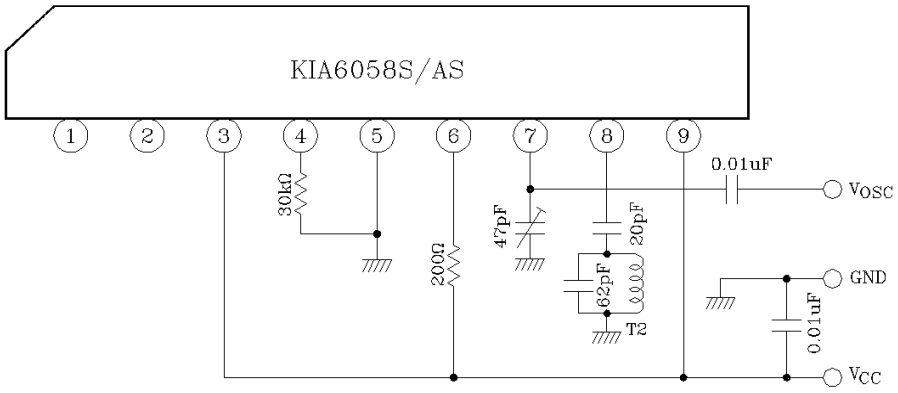
(V_{CC}=5V, f=98MHz, fm=1kHz, Δf=22.5kHz dev., Ta=25℃)

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	dBμ
Quiescent Sensitivity		Q_S	2		-	11.0	-	dBμ
Conversion Gain		G_C	-		-	31	-	dB
Local OSC Voltage	KIA6058S	V_{OSC}	1	fosc=60MHz	150	230	350	mV_{rms}
	KIA6058AS				90	165	220	
Pin ① Impedance	Parallel Input Resistance	$r_{ip}1$	3	f=98MHz	-	57	-	Ω
Pin ③ Impedance	Parallel Output Resistance	$r_{op}3$	3		-	25	-	kΩ
	Parallel Output Capacitance	$c_{op}3$			-	2.0	-	pF
Pin ④ Impedance	Parallel Input Resistance	$r_{ip}4$	3		-	2.7	-	kΩ
	Parallel Input Capacitance	$c_{ip}4$			-	3.3	-	pF
Pin ⑥ Impedance	Parallel Output Resistance	$r_{op}6$	3	f=10.7MHz	-	100	-	kΩ
	Parallel Output Capacitance	$c_{op}6$			-	4.8	-	pF
Local OSC Stop Voltage		V_{stop}	1		-	0.9	1.3	V

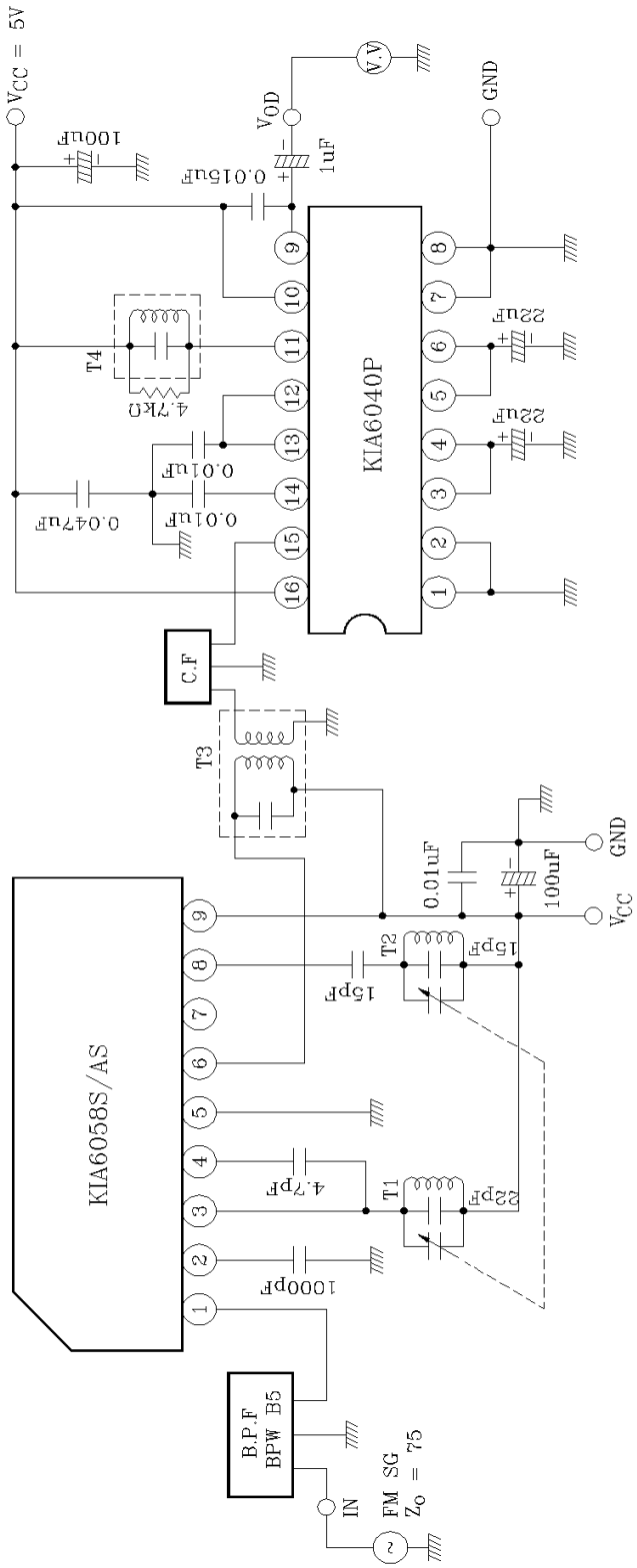
BLOCK DIAGRAM



TEST CIRCUIT 1

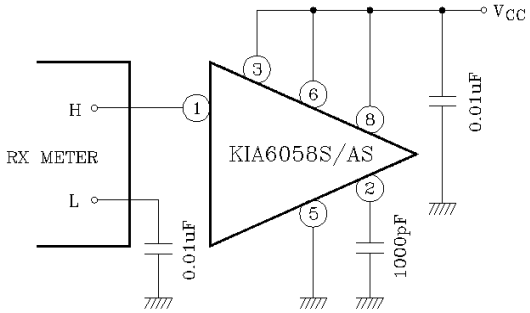


TEST CIRCUIT 2

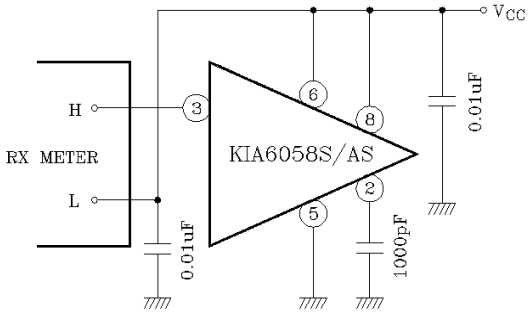


TEST CIRCUIT 3
INPUT, OUTPUT IMPEDANCE

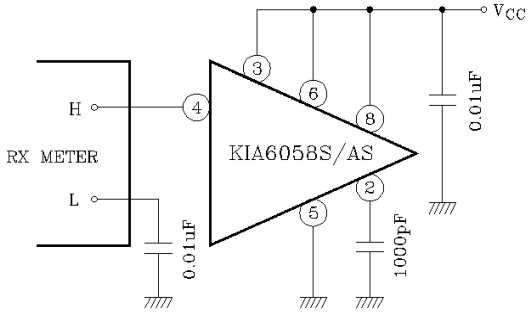
(1) r_{ip1}



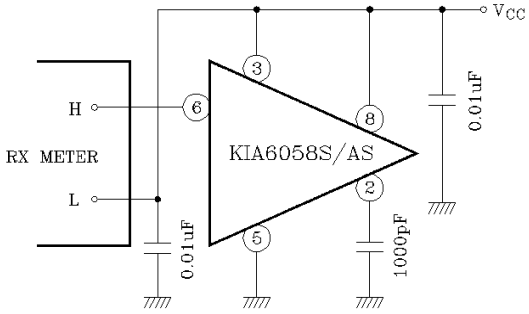
(2) r_{op3} , c_{op3}



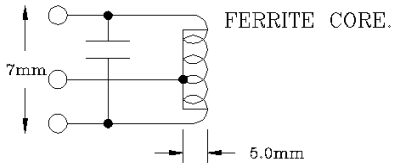
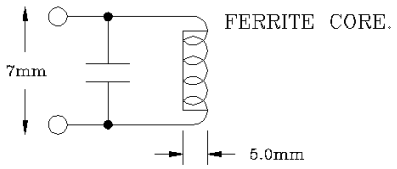
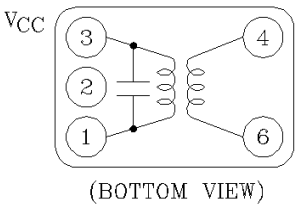
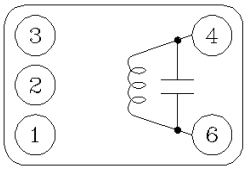
(3) r_{ip4} , c_{ip4}



(4) r_{op6} , c_{op6}



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

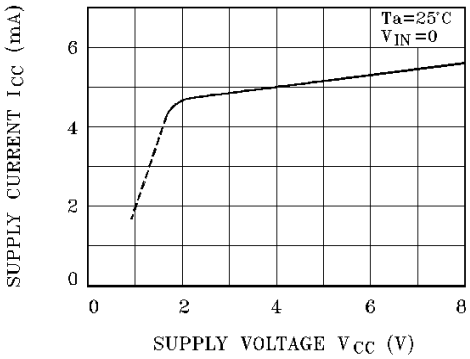
COIL	f_O	Q_O	TURNS	CAPACITANCE	
T1 RF Coil	100MHz	100	0.7mmϕ $2\frac{1}{4}$T Center Tap (Japan Band)	15pF (External)	
T2 OSC Coil	100MHz	100	0.7mmϕ $2\frac{1}{2}$T (Japan Band)	15pF (External)	
T3 IFT	10.7MHz	115	① - ③ 12T ④ - ⑥ 1T Wire 0.12mmϕ UEW ⓚ : KSFI604 ⓢ : 5764 or Equivalent	75pF	 (BOTTOM VIEW)
T4 Quad Coil	10.7MHz	150	④ - ⑥ 14T Wire 0.12mmϕ UEW ⓚ : KSCO902 ⓢ : 44M-933A or Equivalent	47pF	 (BOTTOM VIEW)

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

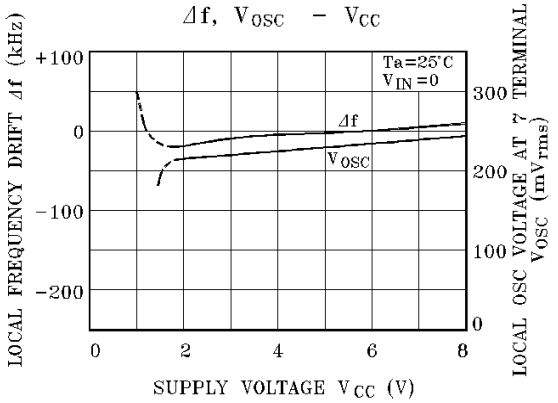
Tuning Capacitor
ALPS ELECTRIC CO., LTD. CB41EL933

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

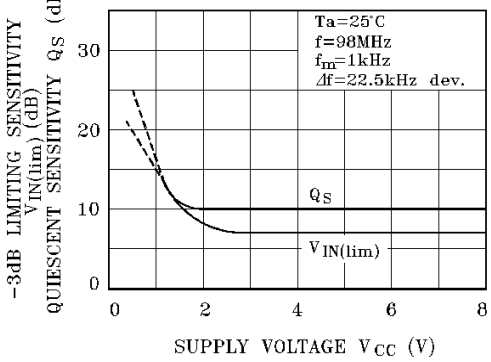
I_{CC} – V_{CC}



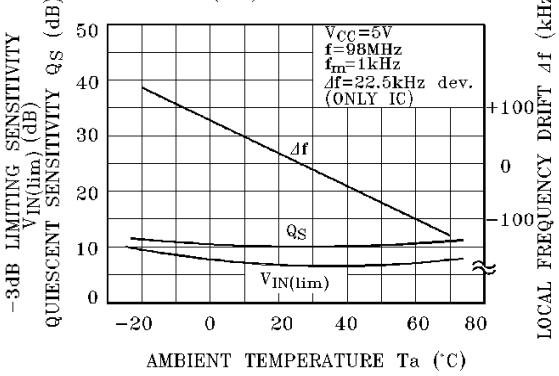
Δf, V_{OSC} – V_{CC}



$V_{IN(lim)}$, Q_S–V_{CC}



$V_{IN(lim)}$, Q_S, Δf–Ta



V_{tank}, V_{OSC} – Ta