

### FM FRONT-END

The KIA6058F is designed for a FM front-end application, which is suitable to a portable radio or a radio cassette.

Comparing with conventional types, supply voltage dependence, overload characteristics and spurious radiation characteristics are improved.

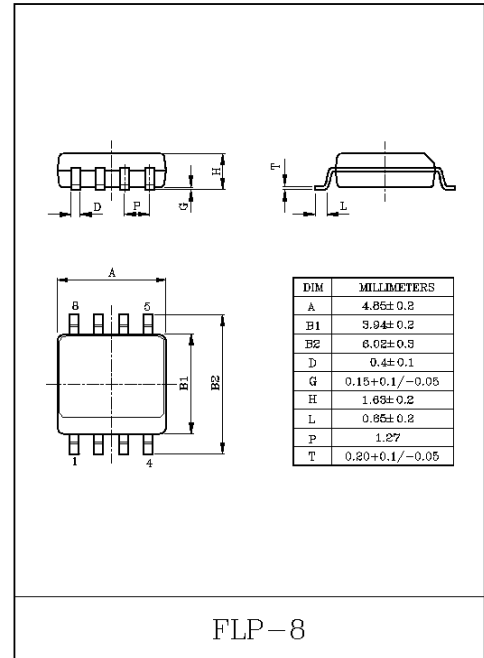
### FEATURES

- Wide supply voltage range :  $V_{CC}=1.6\sim6.0V$ .
- 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           | $V_{CC}$  | 6            | V           |
| Power Dissipation (Note) | $P_D$     | 240          | mW          |
| Operating Temperature    | $T_{opr}$ | $-25\sim75$  | $^{\circ}C$ |
| Storage Temperature      | $T_{stg}$ | $-55\sim150$ | $^{\circ}C$ |

Note : Derated above  $T_a=25^{\circ}C$  in the proportion  $2mW/^{\circ}C$  for KIA6058F



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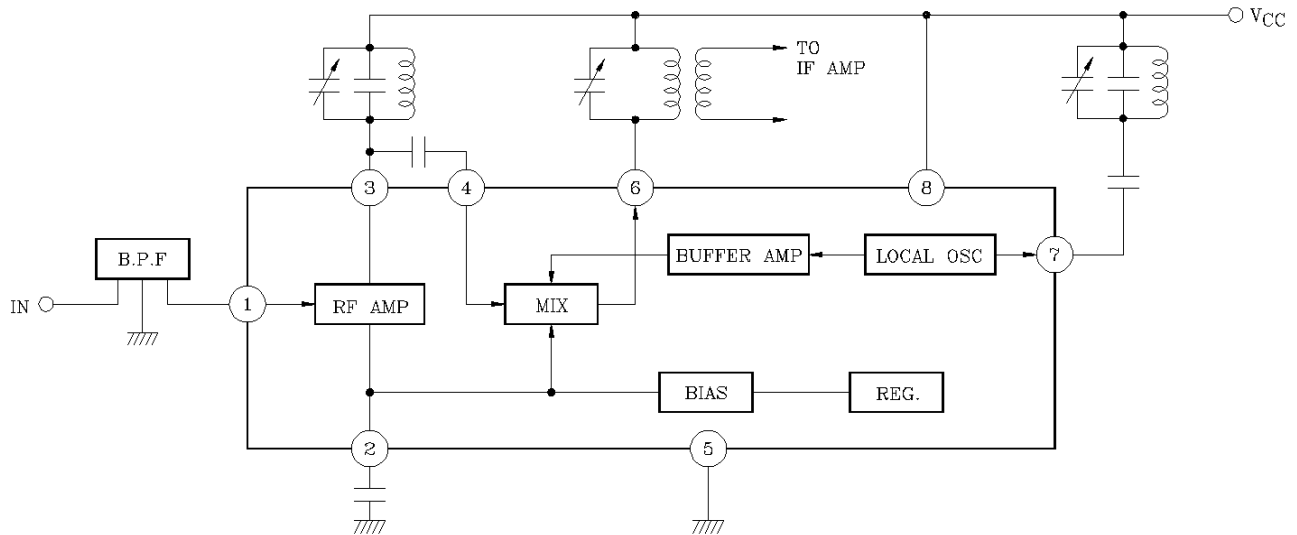
## ELECTRICAL CHARACTERISTICS

(V<sub>CC</sub>=3V, f=98MHz, f<sub>m</sub>=1kHz, Δf=22.5kHz dev, T<sub>a</sub>=25℃)

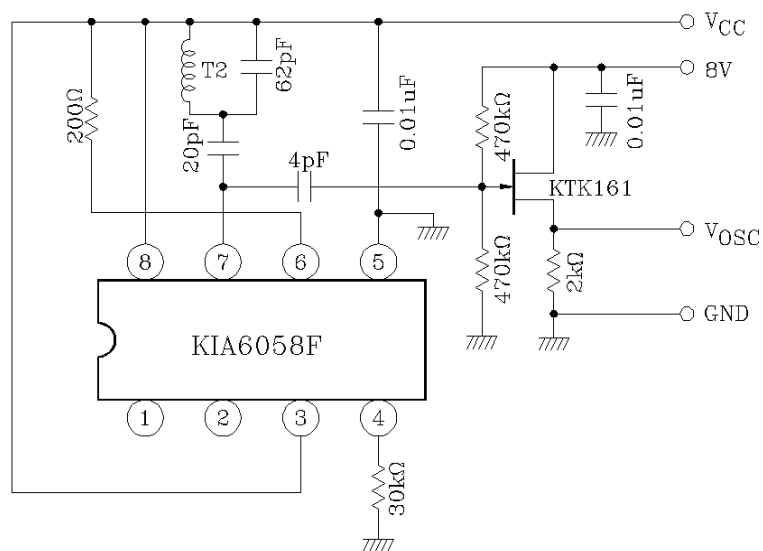
| CHARACTERISTIC            |                             | SYMBOL                | TEST CIRCUIT | TEST CONDITION          | MIN. | TYP. | MAX. | UNIT              |
|---------------------------|-----------------------------|-----------------------|--------------|-------------------------|------|------|------|-------------------|
| Supply Current            |                             | I <sub>CC</sub>       | 2            | V <sub>IN</sub> =0      | -    | 5.2  | 8.0  | mA                |
| -3dB Limiting Sensitivity |                             | V <sub>IN(lim.)</sub> | 2            |                         | -    | 3.0  | 7.0  | dBμ               |
| Quiescent Sensitivity     |                             | Q <sub>S</sub>        | 2            |                         | -    | 11.0 | -    | dBμ               |
| Conversion Gain           |                             | G <sub>C</sub>        | -            |                         | -    | 31   | -    | dB                |
| Local OSC Voltage         |                             | V <sub>OSC</sub>      | 1            | f <sub>OSC</sub> =60MHz | 70   | 110  | 180  | mV <sub>rms</sub> |
| Pin ① Impedance           | Parallel Input Resistance   | r <sub>ip1</sub>      | 3            | f=98MHz                 | -    | 57   | -    | Ω                 |
| Pin ③ Impedance           | Parallel Output Resistance  | r <sub>op3</sub>      | 3            |                         | -    | 25   | -    | kΩ                |
|                           | Parallel Output Capacitance | c <sub>op3</sub>      |              |                         | -    | 2.0  | -    | pF                |
| Pin ④ Impedance           | Parallel Input Resistance   | r <sub>ip4</sub>      | 3            |                         | -    | 2.7  | -    | kΩ                |
|                           | Parallel Input Capacitance  | c <sub>ip4</sub>      |              |                         | -    | 3.3  | -    | pF                |
| Pin ⑥ Impedance           | Parallel Output Resistance  | r <sub>op6</sub>      | 3            | f=10.7MHz               | -    | 100  | -    | kΩ                |
|                           | Parallel Output Capacitance | c <sub>op6</sub>      |              |                         | -    | 4.8  | -    | pF                |
| Local OSC Stop Voltage    |                             | V <sub>stop</sub>     | 1            |                         | -    | 0.9  | 1.3  | V                 |

# KIA6058F

## BLOCK DIAGRAM



## TEST CIRCUIT 1



TE

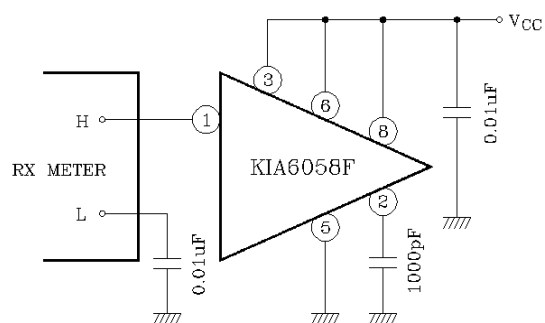


# KIA6058F

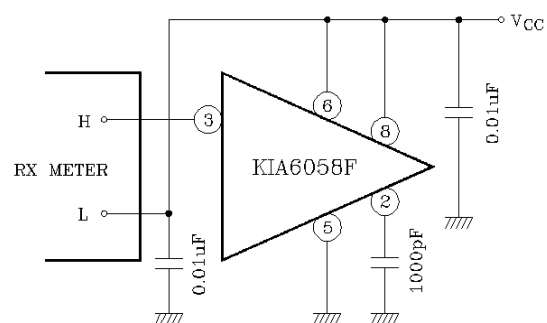
## TEST CIRCUIT 3

### INPUT, OUTPUT IMPEDANCE

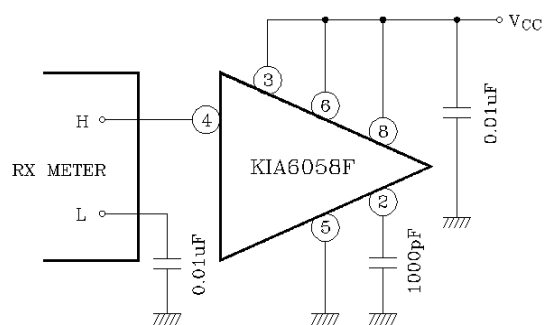
(1)  $r_{ip1}$



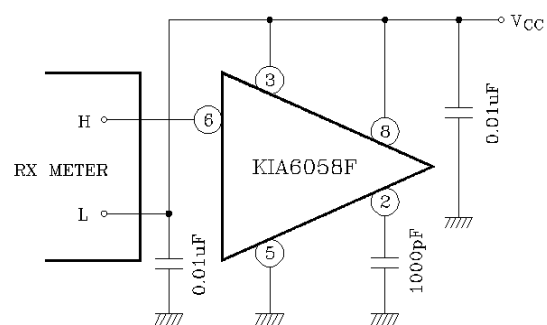
(2)  $r_{op3}$  ,  $c_{op3}$



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

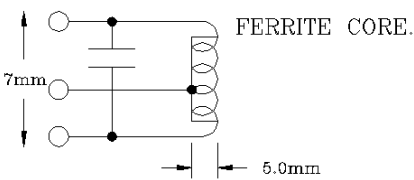
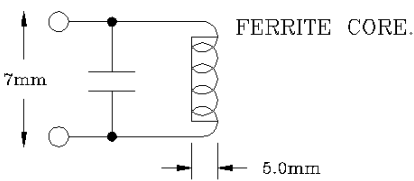
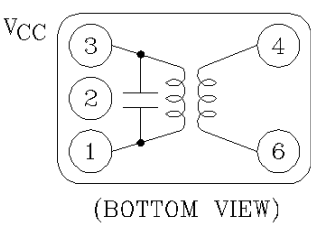
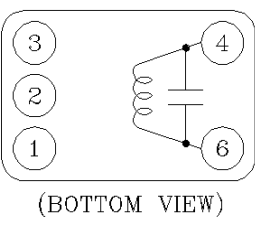


(4)  $r_{op6}$  ,  $c_{op6}$



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

| COIL            | $f_0$   | $Q_0$ | TURNS                                                                                          | CAPACITANCE        |                                                                                      |
|-----------------|---------|-------|------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------|
| T1<br>RF COIL   | 100MHz  | 100   | 0.7mm $\phi$ $2\frac{1}{4}$ T<br>Center Tap<br>(Japan Band)                                    | 15pF<br>(External) |    |
| T2<br>OSC COIL  | 100MHz  | 100   | 0.7mm $\phi$ $2\frac{1}{2}$ T<br>(Japan Band)                                                  | 15pF<br>(External) |    |
| T3<br>IFT       | 10.7MHz | 115   | ① - ③ 14T<br>④ - ⑥ 1T<br>Wire 0.12mm $\phi$<br>UEW<br>Ⓚ : KSFI604<br>Ⓢ : 5764 or<br>Equivalent | 75pF               |   |
| T4<br>QUAD COIL | 10.7MHz | 150   | ④ - ⑥ 14T<br>Wire 0.12mm $\phi$<br>UEW<br>Ⓚ : KSCO902<br>Ⓢ : 44M-933A<br>or Equivalent         | 47pF               |  |

Band Pass Filter (B.P.F)

SOSHIN ELECTRIC CO., LTD. BPWB5

Tuning Capacitor

ALPS ELECTRIC CO., LTD. CB41EL933

NOTE : Ⓚ : KWANG SUNG ELECTRONICS CO., LTD. (Tel : 02)716-0034)

Ⓢ : SUMIDA ELECTRIC CO., LTD.