

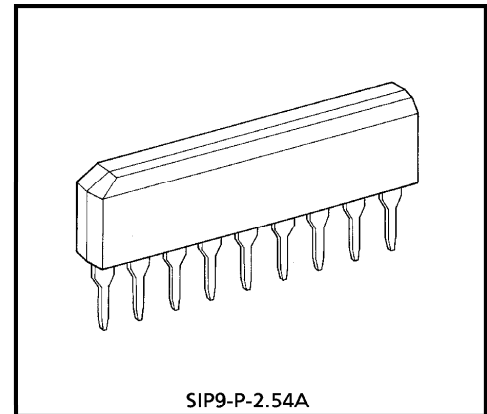
TA7358P

FM FRONT-END

The TA7358P 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.

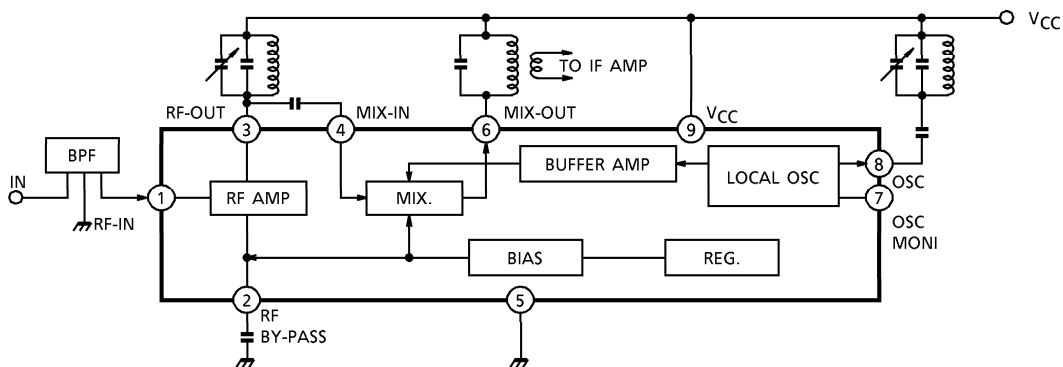
FEATURES

- Wide supply voltage range : $V_{CC} = 1.6 \sim 6.0V$
- 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.
- Build-in clamping diode for the local oscillator output.



SIP9-P-2.54A
Weight : 0.92g (Typ.)

BLOCK DIAGRAM



961001EBA2

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EXPLANATION OF TERMINALS (Terminal voltage is DC voltage at $T_a = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$, and no signal)

| PIN No. | SYMBOL | INTERNAL | TERMINAL VOLTAGE (V) |
|---------|-------------|----------|----------------------|
| 1 | FM-RF IN | | 0.8 |
| 2 | BY PASS | | 1.5 |
| 3 | FM-RF OUT | | 5.0 |
| 4 | MIX IN | | 1.5 |
| 5 | GND | — | 0 |
| 6 | MIX OUT | cf. pin④ | 5.0 |
| 7 | OSC MONITOR | | 4.3 |
| 8 | OSC | | 5.0 |
| 9 | V_{CC} | — | 5.0 |

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------|-----------------------|---------|------|
| Supply Voltage | V _{CC} | 8 | V |
| Power Dissipation | P _D (Note) | 500 | mW |
| Operating Temperature | T _{opr} | -25~75 | °C |
| Storage Temperature | T _{stg} | -55~150 | °C |

(Note) Derated above 25°C in the proportion of 4mW/°C.

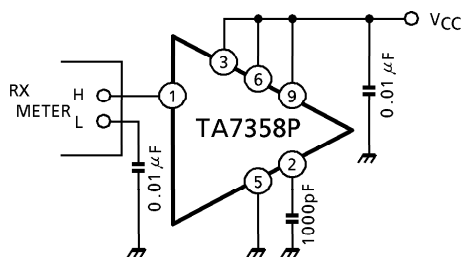
ELECTRICAL CHARACTERISTICS (V_{CC} = 3V, f = 83MHz, f_m = 1kHz, Δf = ±22.5kHz, Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | TEST CIR-CUIT | 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 _{μV} EMF |
| Quiescent Sensitivity | | Q _S | 2 | — | — | 11.0 | — | dB _{μV} EMF |
| Conversion Gain | | G _C | — | — | — | 31 | — | dB |
| Local OSC Voltage | | V _{OSC} | 1 | f _{OSC} = 60MHz | 150 | 230 | 350 | mV _{rms} |
| Pin① Impedance | Parallel Input Resistance | r _{ip1} | 3 | f = 83MHz | — | 57 | — | Ω |
| Pin③ Impedance | Parallel Output Resistance | r _{op3} | 3 | | — | 25 | — | kΩ |
| | Parallel Output Capacitance | c _{op3} | | | — | 2.0 | — | pF |
| Pin④ Impedance | Parallel Input Resistance | r _{ip4} | 3 | | — | 2.7 | — | kΩ |
| | Parallel Input Capacitance | c _{ip4} | | | — | 3.3 | — | pF |
| Pin⑥ 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 |

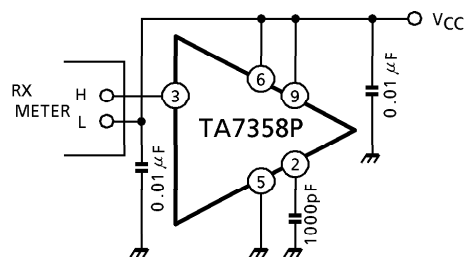
TEST CIRCUIT 3

INPUT, OUTPUT IMPEDANCE

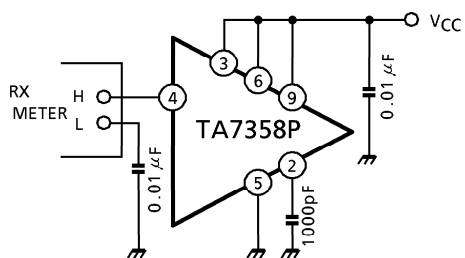
(1) r_{ip1}



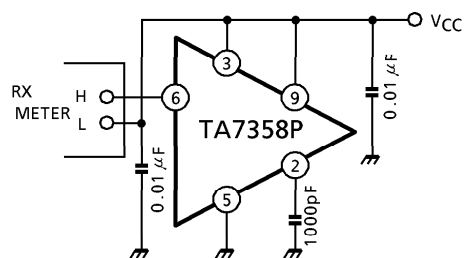
(2) r_{op3}, C_{op3}



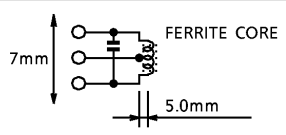
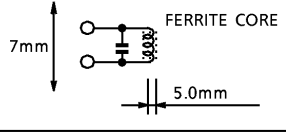
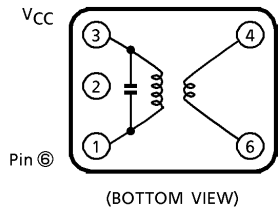
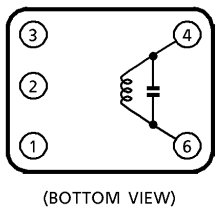
(3) r_{ip4}, C_{ip4}



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



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

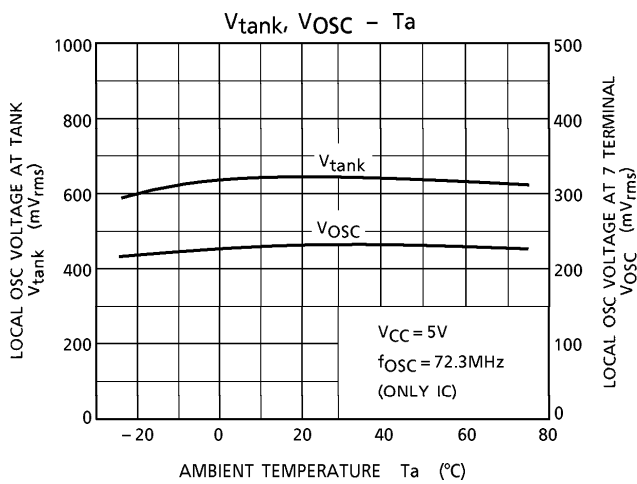
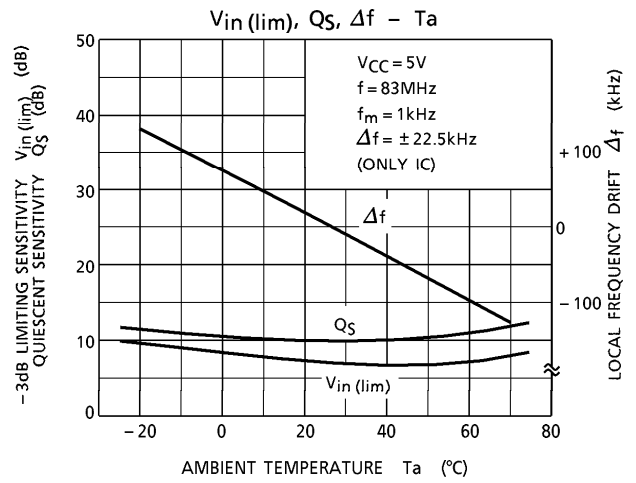
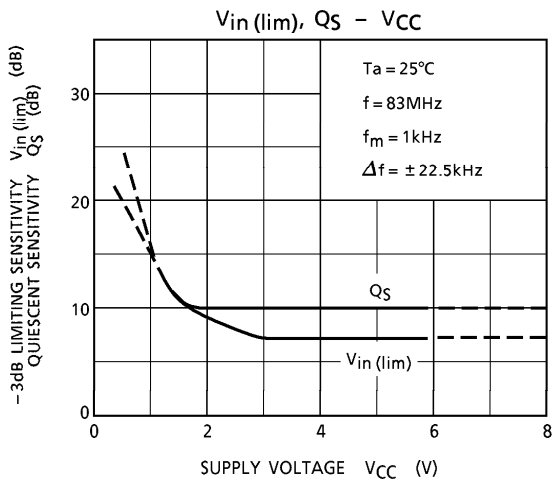
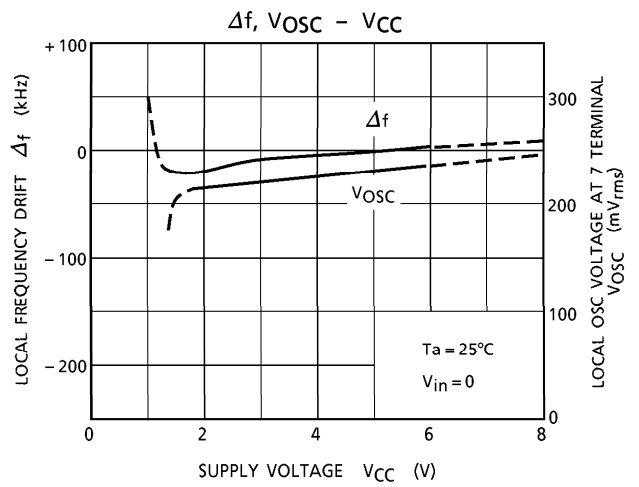
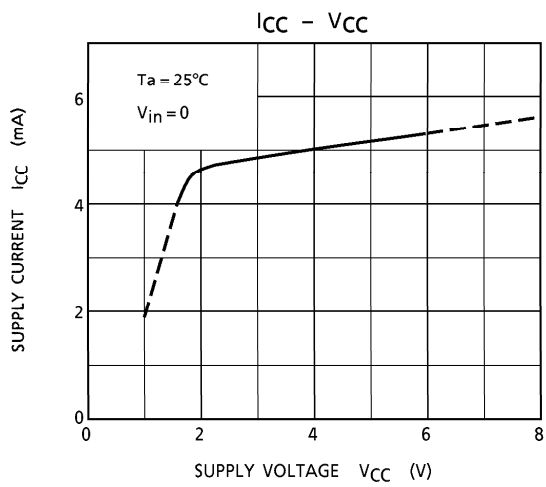
| COIL | f _o | Q _o | TURNS | CAPACITANCE | |
|-----------------------------|----------------|----------------|--|--------------------|--|
| T ₁ RF Coil | 100MHz | 100 | 0.7mmφ 2 $\frac{1}{4}$ T Center Tap (Japan Band) | 15pF (External) |  |
| T ₂ OSC Coil | 100MHz | 100 | 0.7mmφ 2 $\frac{1}{2}$ T (Japan Band) | 15pF (External) |  |
| T ₃ IFT | 10.7MHz | 115 | ①-③ 12T ④-⑥ 1T Wire 0.12mmφ UEW SUMIDA ELECTRIC Co., LTD. 5764 or Equivalent | 75pF |  |
| T ₄ Quad Coil | 10.7MHz | 150 | ④-⑥ 14T Wire 0.12mmφ UEW SUMIDA ELECTRIC Co., LTD. 44M-933A or Equivalent | 47pF |  |

Band Pass Filter (BPF)

SOSHIN ELECTRIC CO., LTD. BPWB5

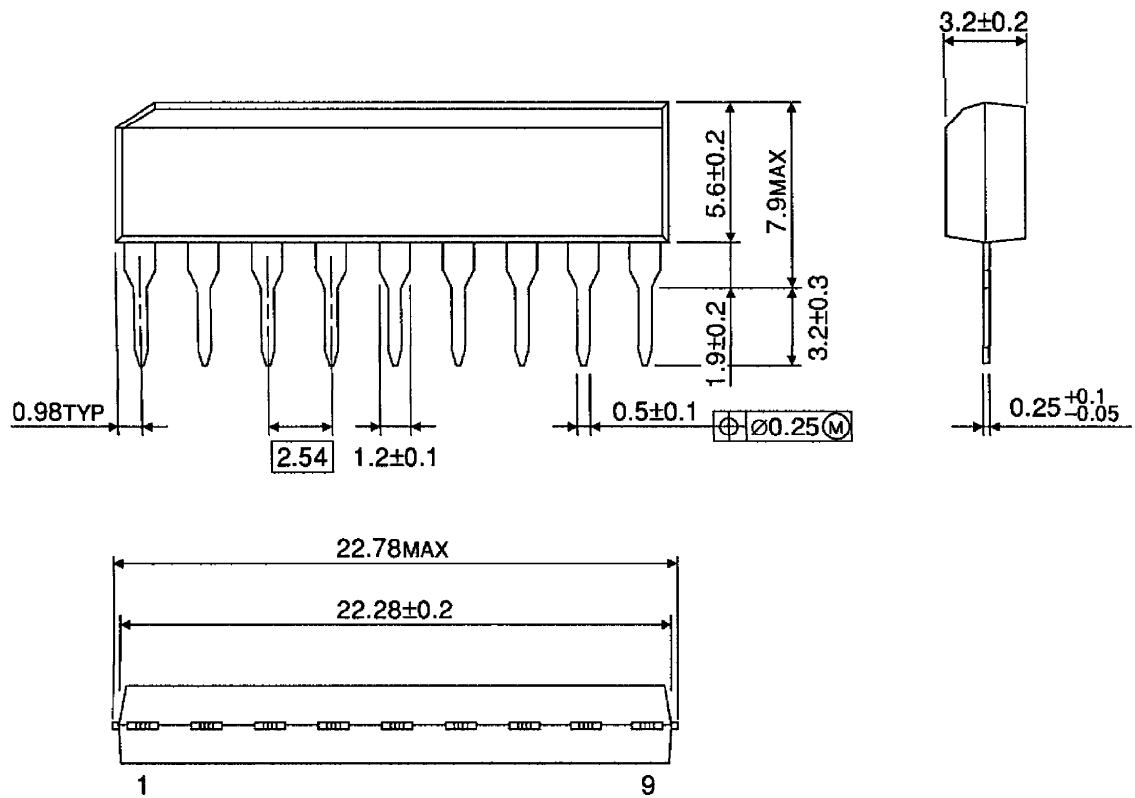
Tuning Capacitor

ALPS ELECTRIC CO., LTD. CB41EL933



OUTLINE DRAWING
SIP9-P-2.54A

Unit : mm



Weight : 0.92g (Typ.)