

FM FRONT-END

The TA7358AP is designed for a FM front-end application, which is suitable to a portable radio or a



INTEGRATED CIRCUIT

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. pin ④ | 5.0 |
| 7 | OSC MONITOR | | 4.3 |
| 8 | OSC | | 5.0 |
| 9 | V_{CC} | — | 5.0 |

INTEGRATED CIRCUIT

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 |

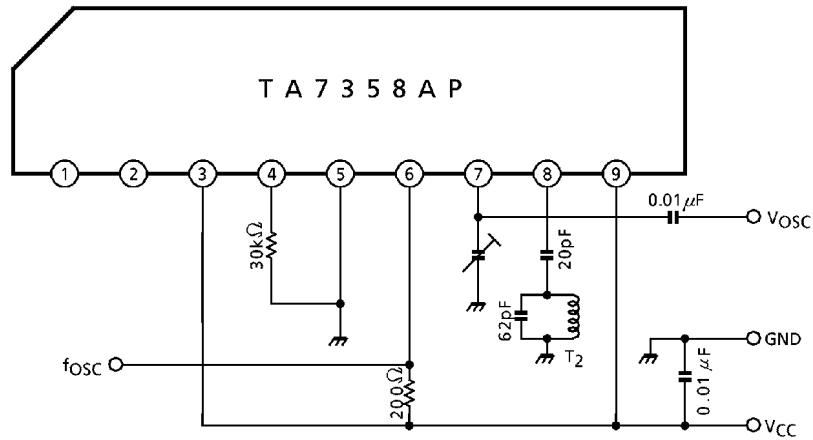
(Note) Derated above 25°C in the proportion of 4mW/°C.

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

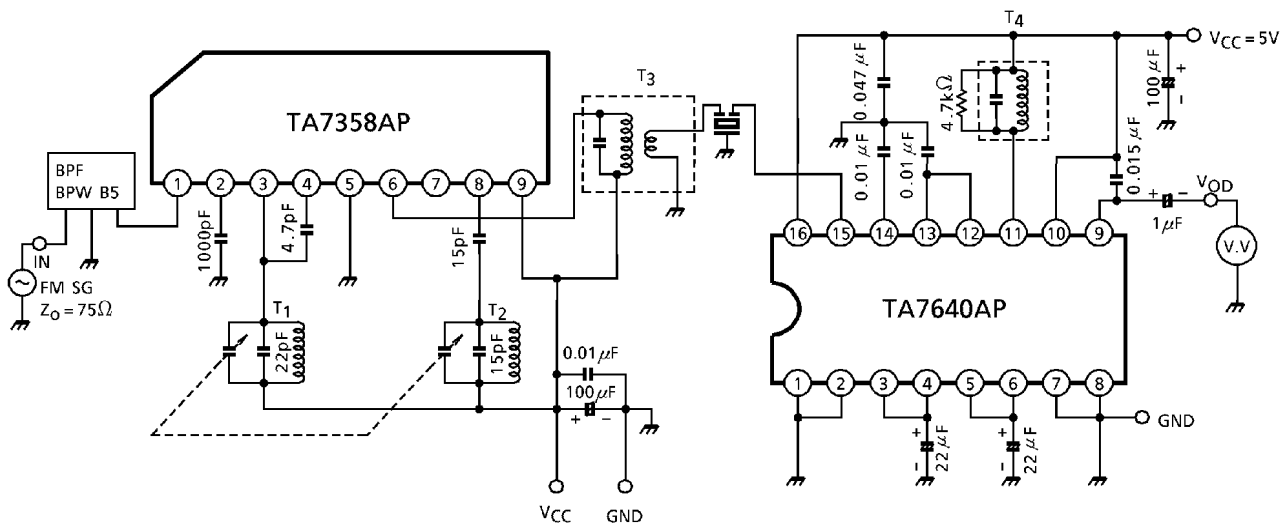
| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------------|-----------------------------|-----------------------|--------------|--------------------------|-------------|------|------|-------------------|
| Supply Current | | I _{CC} | 2 | V _{in} = 0 | — | 5.2 | 8.0 | mA |
| -3dB Limiting Sensitivity | | V _{in} (lim) | 2 | — | — | 3.0 | 7.0 | dBμV EMF |
| Quiescent Sensitivity | | Q _S | 2 | — | — | 11.0 | — | dBμV EMF |
| Conversion Gain | | G _C | — | — | — | 31 | — | dB |
| Local OSC Voltage | | V _{OSC} | 1 | f _{OSC} = 60MHz | 90 | 165 | 220 | mV _{rms} |
| Pin ① Impedance | Parallel Input Resistance | r _{ip1} | 3 | f = 83MHz | — | 57 | — | Ω |
| Pin ③ Impedance | Parallel Output Resistance | r _{op3} | 3 | | — | 25 | — | kΩ |
| | Parallel Output Capacitance | C _{op3} | | | — | 2.0 | — | pF |
| Pin ④ Impedance | Parallel Input Resistance | r _{ip4} | 3 | | — | 2.7 | — | kΩ |
| | 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 |

INTEGRATED CIRCUIT

TEST CIRCUIT 1



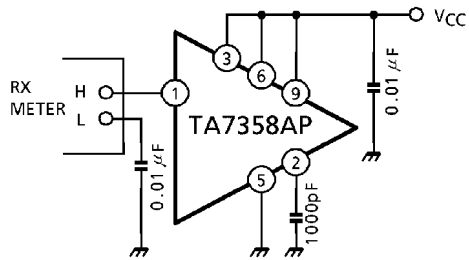
TEST CIRCUIT 2



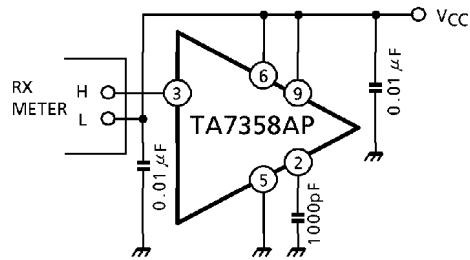
TEST CIRCUIT 3

Input output impedance

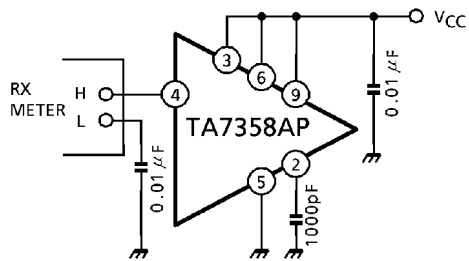
(1) r_{ip1} , C_{ip1}



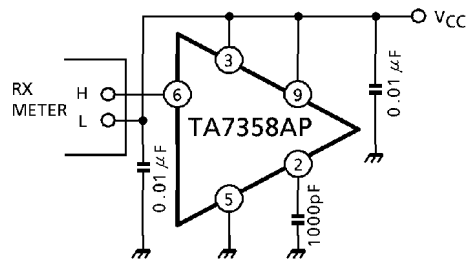
(2) r_{op3} , C_{op3}



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



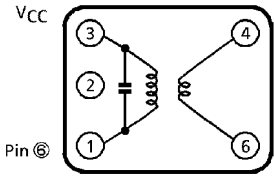
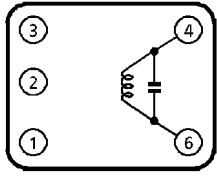


(4) r_{op6} , C_{op6}



INTEGRATED CIRCUIT

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 | 0.5mm ϕ $2\frac{1}{4}$ T Center Tap (Japan Band) | 15pF (External) |  FERRITE CORE |
| T ₂ OSC Coil | 100MHz | 100 | 0.5mm ϕ $2\frac{1}{2}$ T (Japan Band) | 15pF (External) |  FERRITE CORE |
| T ₃ IFT Coil | 10.7MHz | 115 | ①-③ 12T ④-⑥ 1T Wire 0.12mm ϕ UEW SUMIDA ELECTRIC Co., LTD. 5764 or equivalent | 75pF |  (BOTTOM VIEW) |
| T ₄ Quad Coil | 10.7MHz | 150 | ④-⑥ 14T Wire 0.12mm ϕ UEW SUMIDA ELECTRIC Co., LTD. 44M-933A or equivalent | 47pF |  (BOTTOM VIEW) |

Band Pass Filter (BPF)

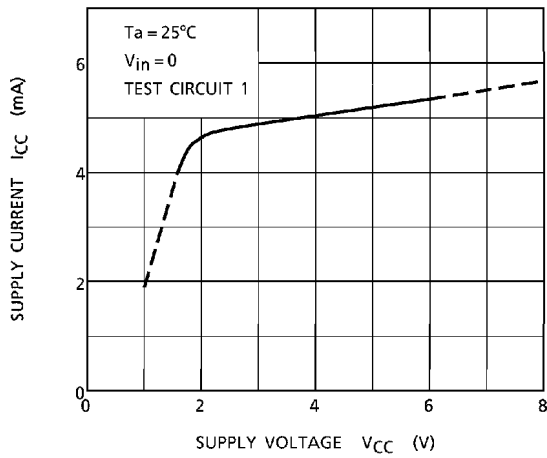
SOSHIN ELECTRIC Co., LTD. BPWB5

Tuning Capacitor

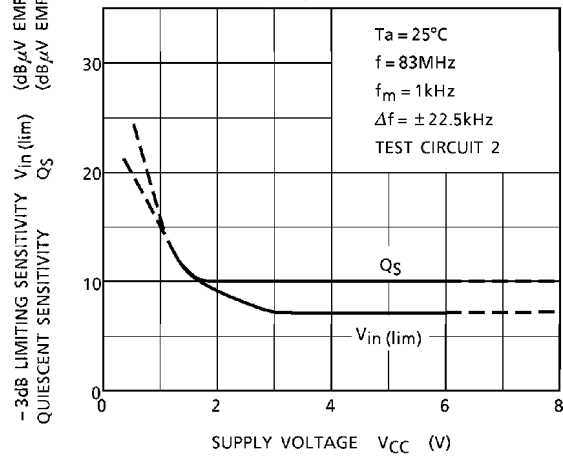
ALPS ELECTRIC Co., LTD. CB41EL933

INTEGRATED CIRCUIT

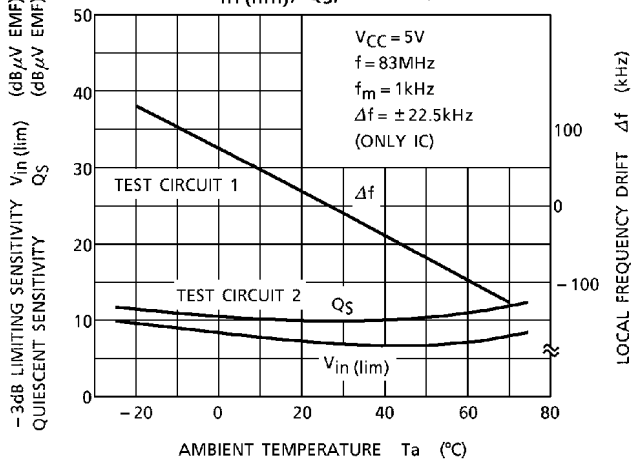
I_{CC} - V_{CC}



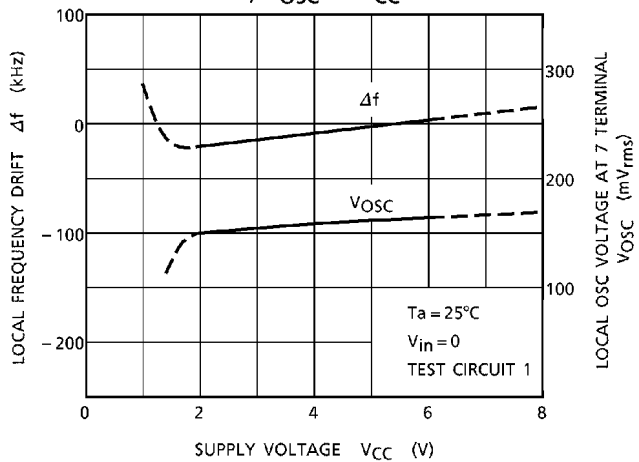
V_{in} (lim), Q_S - V_{CC}



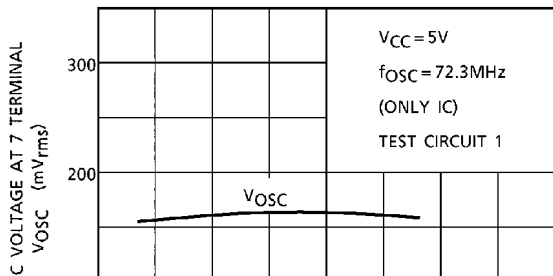
V_{in} (lim), Q_S, Δf - T_a



Δf, V_{osc} - V_{CC}



V_{osc} - T_a

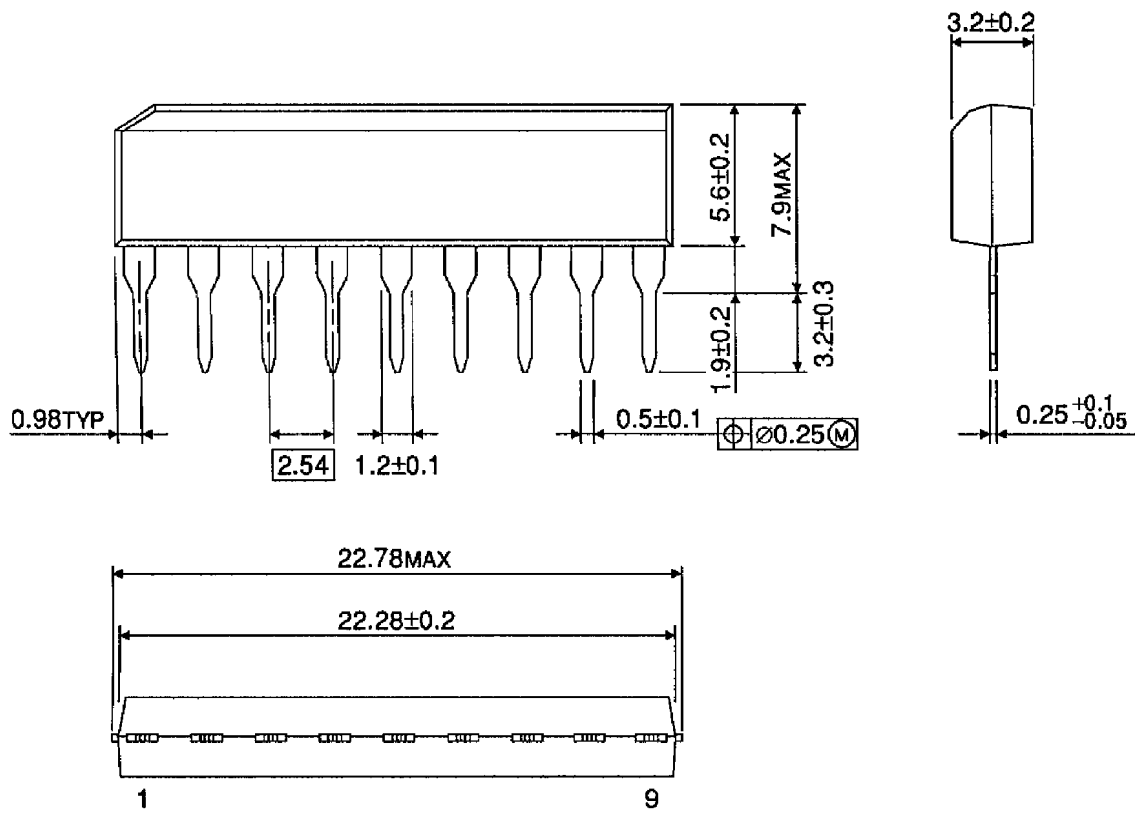


INTEGRATED CIRCUIT

OUTLINE DRAWING

SIP9-P-A

Unit : mm



Weight : 0.92g (Typ.)