

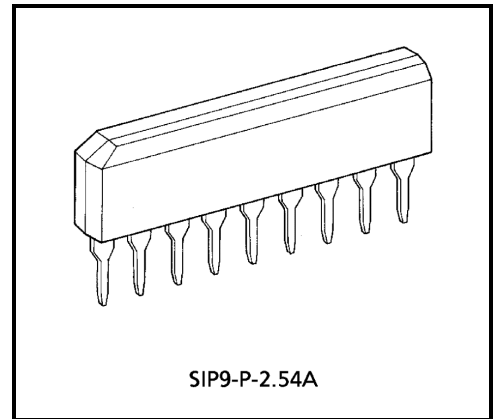
# TA7358P

## 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.

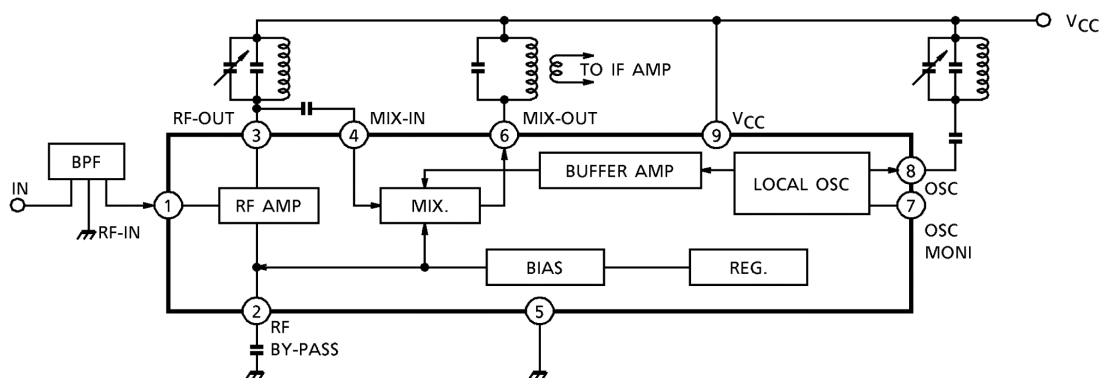
### Features

- 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.



Weight: 0.92g (typ.)

### Block Diagram



## Explanation Of Terminals

(terminal voltage is DC voltage at Ta = 25°C, VCC = 5V, 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	VCC	—	5.0

## Maximum Ratings (Ta = 25°C)

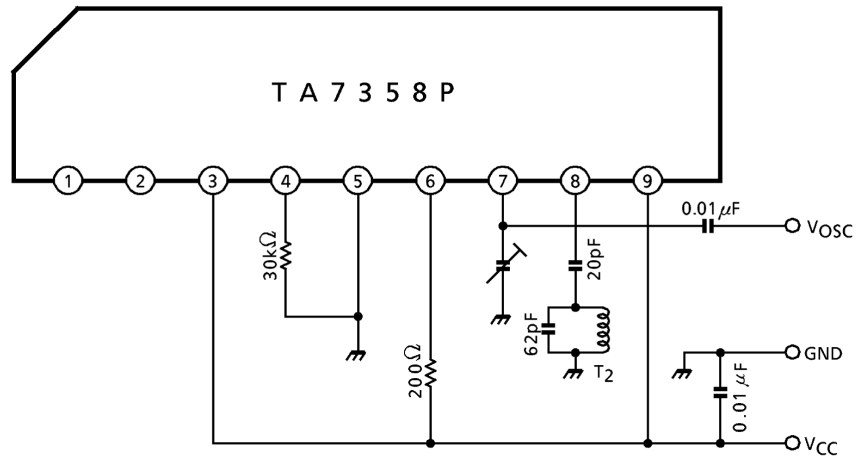
Characteristic	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	8	V
Power dissipation	P <sub>D</sub> (Note)	500	mW
Operating temperature	T <sub>opr</sub>	-25~75	°C
Storage temperature	T <sub>stg</sub>	-55~150	°C

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

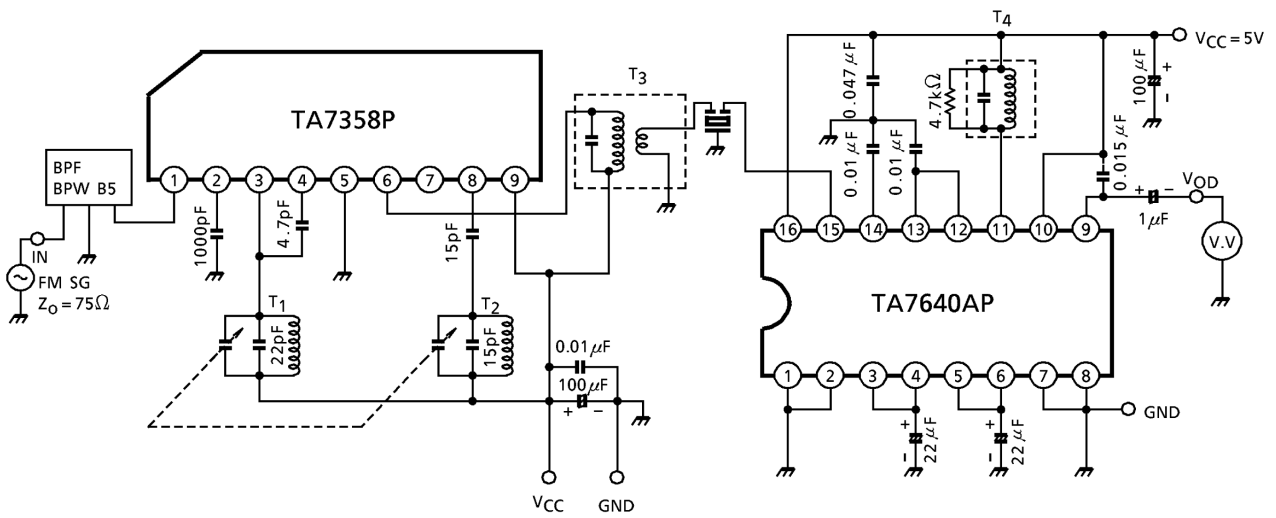
## Electrical Characteristics (V<sub>CC</sub> = 3V, f = 83MHz, f<sub>m</sub> = 1kHz, Δf = ±22.5kHz, Ta = 25°C)

Characteristic		Symbol	Test Cir-cuit	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</sub> (lim)	2	—	—	3.0	7.0	dBμV EMF
Quiescent sensitivity		Q <sub>S</sub>	2	—	—	11.0	—	dBμV EMF
Conversion gain		G <sub>C</sub>	—	—	—	31	—	dB
Local OSC voltage		V <sub>OSC</sub>	1	f <sub>OSC</sub> = 60MHz	150	230	350	mV <sub>rms</sub>
Pin(1) impedance	Parallel input resistance	r <sub>ip1</sub>	3	f = 83MHz	—	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	—
	Parallel output capacitance	c <sub>op6</sub>		—		4.8	—	pF
Local OSC stop voltage		V <sub>stop</sub>	1	—	—	0.9	1.3	V

## Test Circuit 1



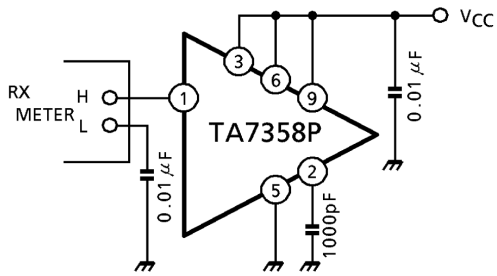
## Test Circuit 2



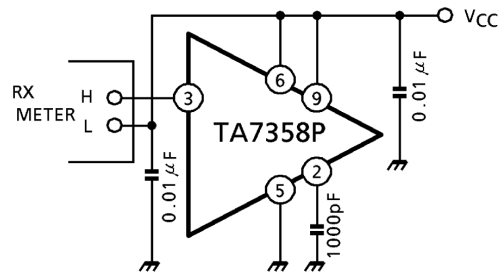
**Test Circuit 3**

Input, output impedance

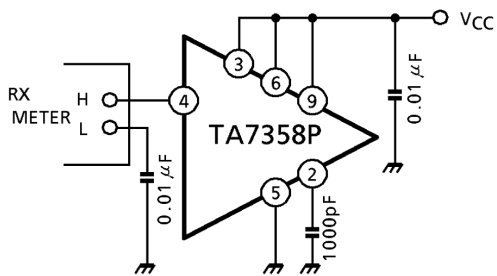
(1)  $r_{ip1}$



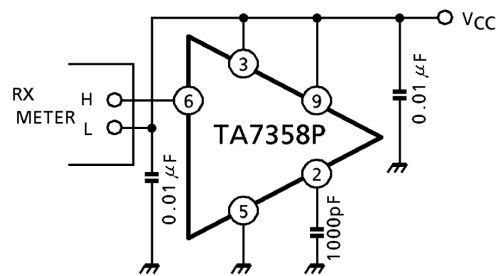
(2)  $r_{op3}, c_{op3}$



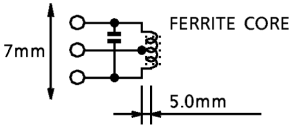
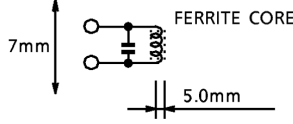
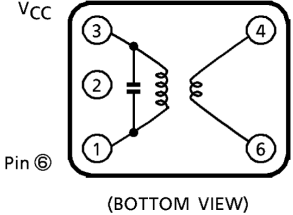
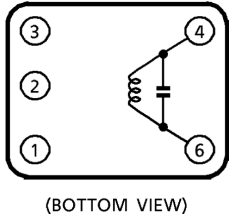
(3)  $r_{ip4}, c_{ip4}$



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



## Test Circuit Coil Data (japan band for 76.0MHz to 108.0MHz)

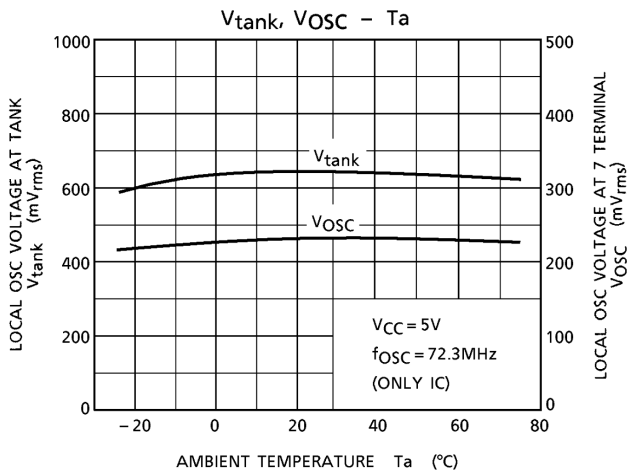
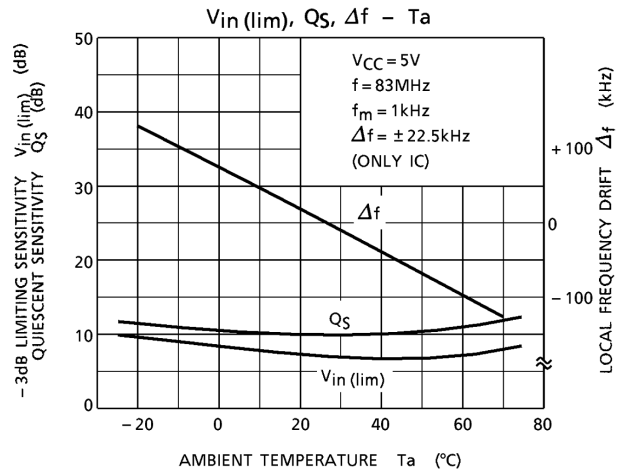
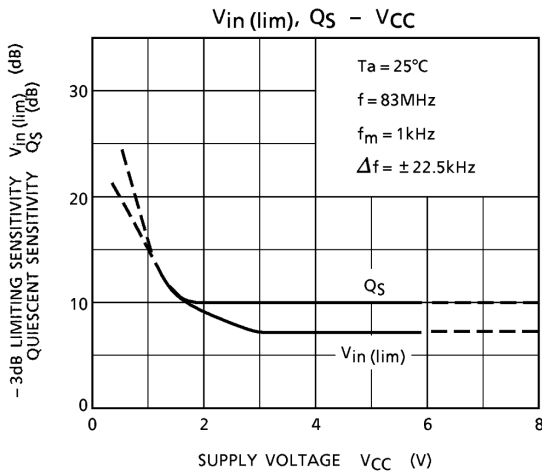
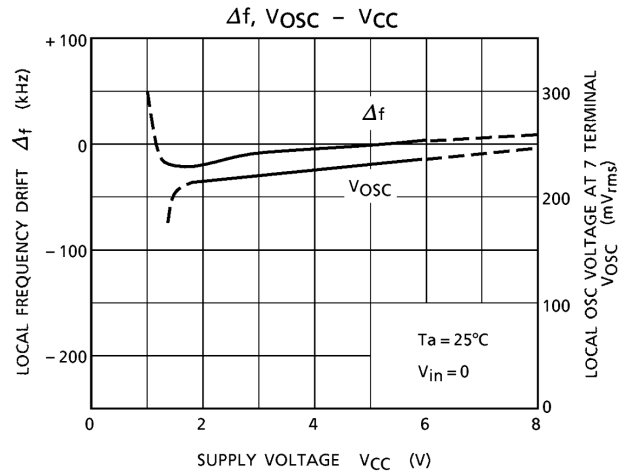
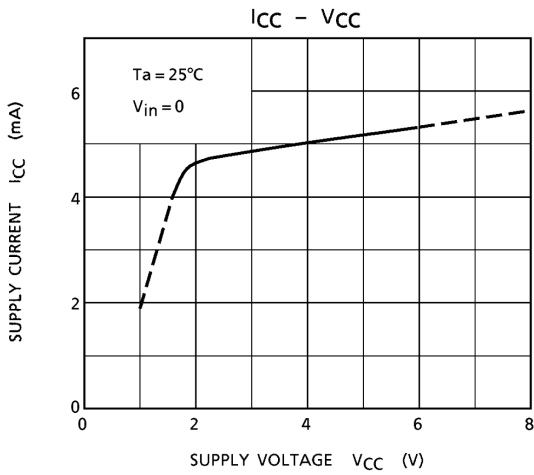
Coil	$f_0$	$Q_0$	Turns	Capacitance	
T <sub>1</sub> RF coil	100MHz	100	0.7mm $\phi$ 2 $\frac{1}{4}$ T Center tap (japan band)	15pF (external)	
T <sub>2</sub> OSC coil	100MHz	100	0.7mm $\phi$ 2 $\frac{1}{2}$ T (japan band)	15pF (external)	
T <sub>3</sub> IFT	10.7MHz	115	(1)-(3) 12T (4)-(6) 1T Wire 0.12mm $\phi$ UEW Sumida electric Co., LTD. 5764 or equivalent	75pF	
T <sub>4</sub> Quad coil	10.7MHz	150	(4)-(6) 14T Wire 0.12mm $\phi$ UEW Sumida electric Co., LTD. 44M-933A or equivalent	47pF	

Band pass filter (BPF)

Soshin electric CO., LTD. BPW85

Tuning capacitor

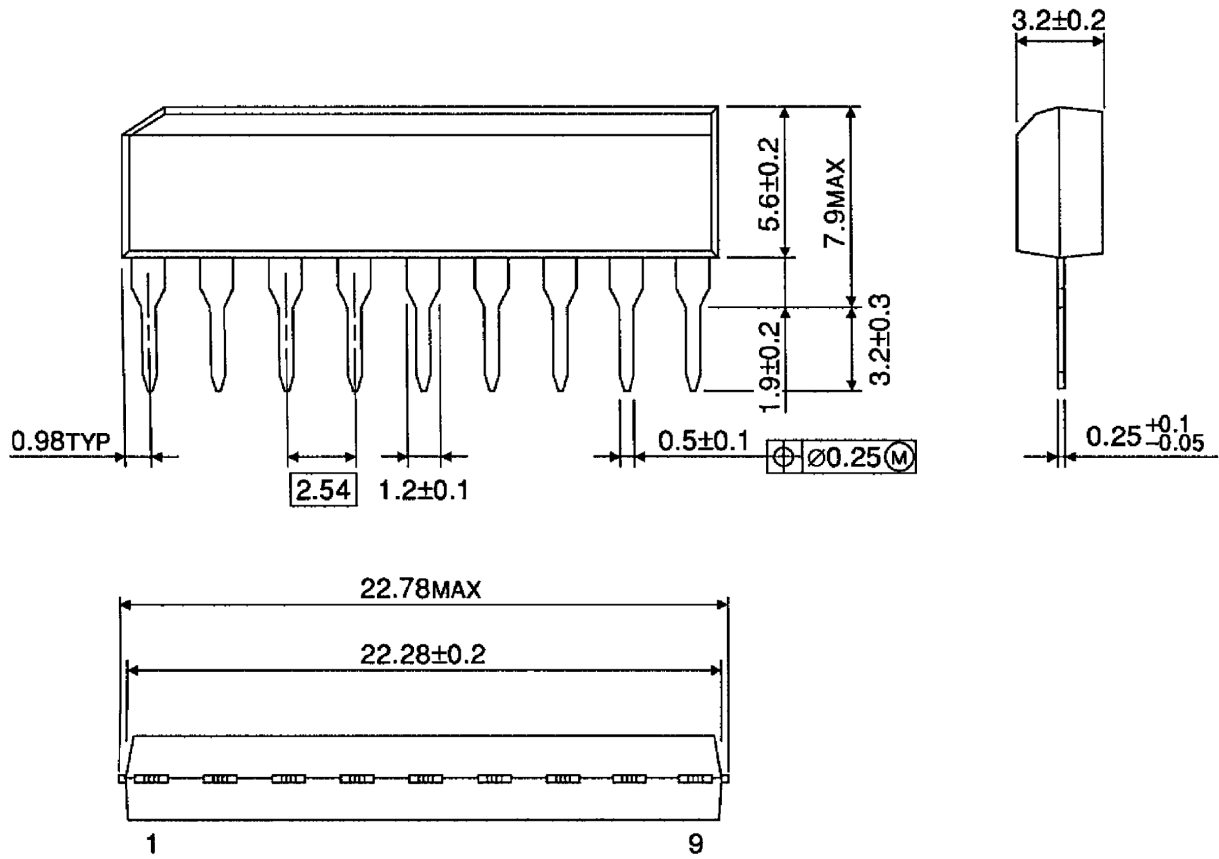
Alps electric CO., LTD. CB41EL933



## Package Dimensions

SIP9-P-2.54A

Unit : mm



Weight : 0.92g (typ.)



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