

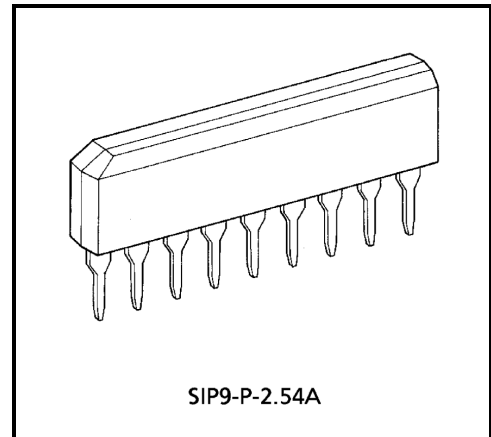
# TA7358AP

## FM Front-End

The TA7358AP 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.

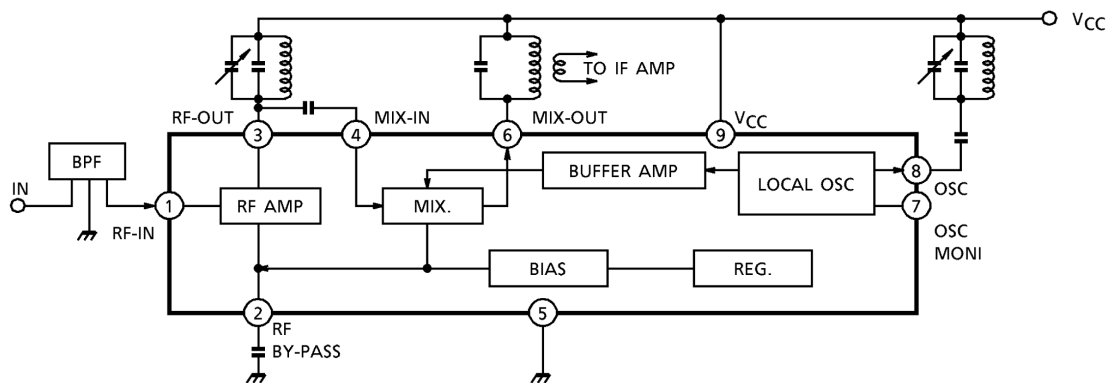
### Features

- 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.
- Built-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)

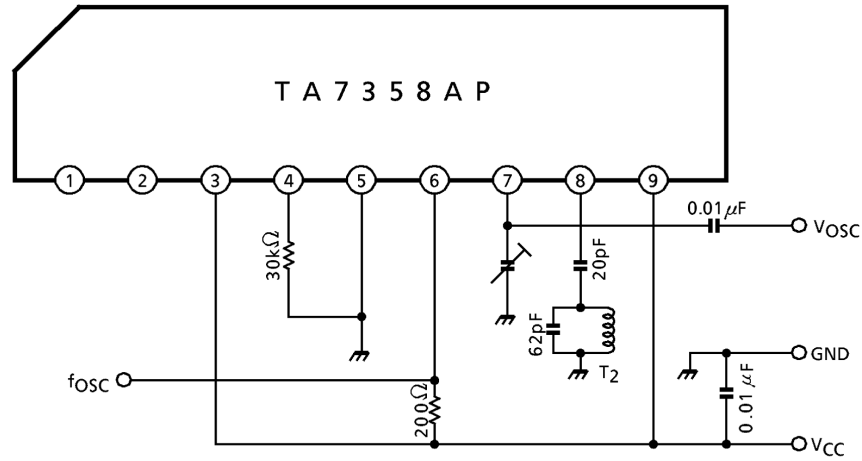
Characteristic	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	8	V
Power dissipation	P <sub>D</sub> (Note)	500	mW
Operating temperature	T <sub>opr</sub>	-25~75	°C
Storage temperature	T <sub>stg</sub>	-55~150	°C

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

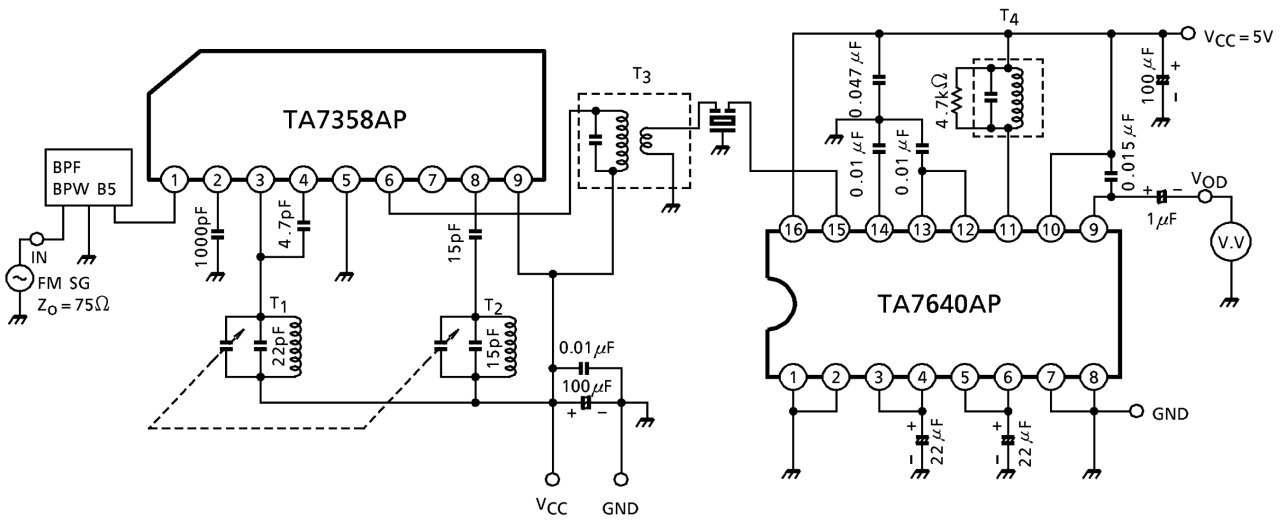
## Electrical Characteristics (V<sub>CC</sub> = 3V, f = 83MHz, f<sub>m</sub> = 1kHz, Δf = ±22.5kHz, Ta = 25°C)

Characteristic		Symbol	Test 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	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	90	165	220	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**



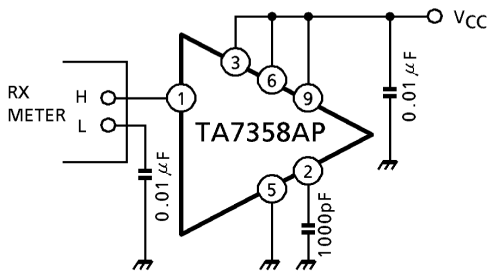
**Test Circuit 2**



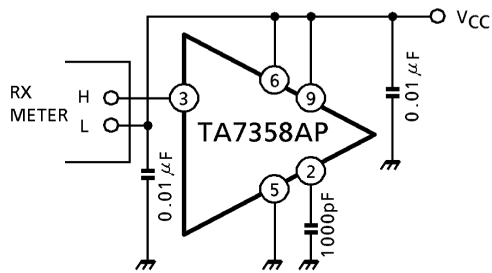
**Test Circuit 3**

Input output impedance

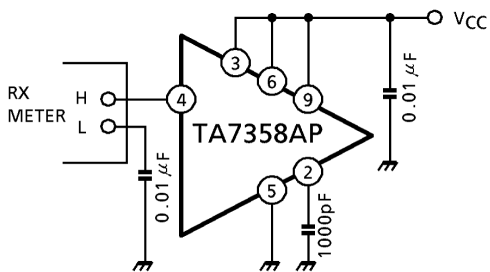
(1)  $r_{ip1}$ ,  $c_{ip1}$



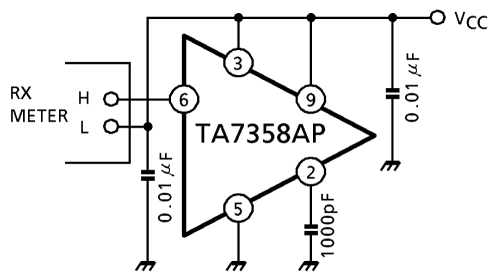
(2)  $r_{op3}$ ,  $c_{op3}$



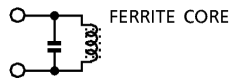
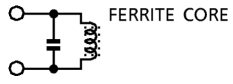
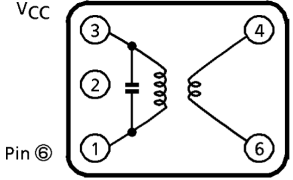
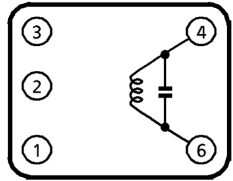
(3)  $r_{ip4}$ ,  $c_{ip4}$



(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 <sub>1</sub> RF coil	100MHz	100	0.5mm $\phi$ 2 $\frac{1}{4}$ T Center tap (Japan band)	15pF (external)	 FERRITE CORE
T <sub>2</sub> OSC coil	100MHz	100	0.5mm $\phi$ 2 $\frac{1}{2}$ T (Japan band)	15pF (external)	 FERRITE CORE
T <sub>3</sub> IFT coil	10.7MHz	115	(1)-(3) 12T (4)-(6) 1T Wire 0.12mm $\phi$ UEW SUMIDA ELECTRIC Co., LTD 5764 or equivalent	75pF	 (BOTTOM VIEW)
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	 (BOTTOM VIEW)

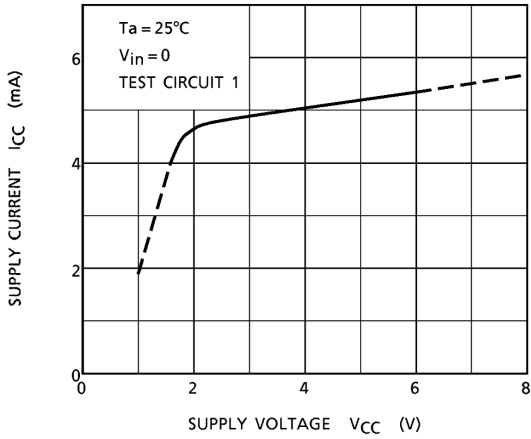
Band pass filter (BPF)

SOSHIN ELECTRIC Co., LTD. BPWB5

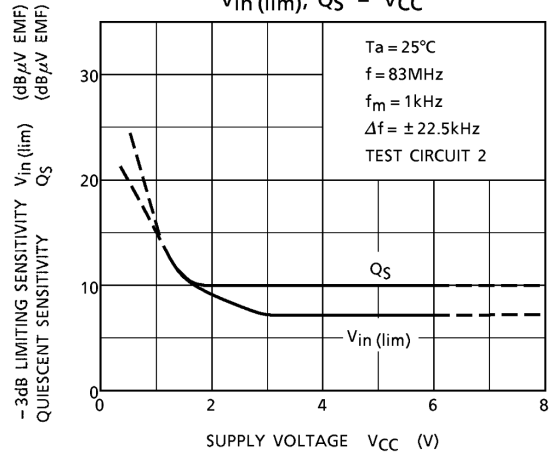
Tuning capacitor

ALPS ELECTRIC Co., LTD. CB41EL933

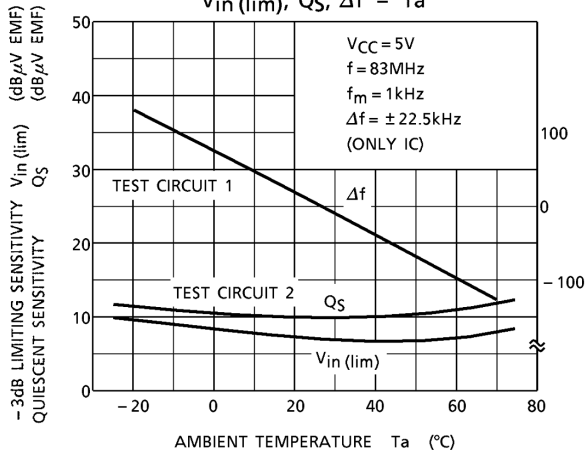
**$I_{CC} - V_{CC}$**



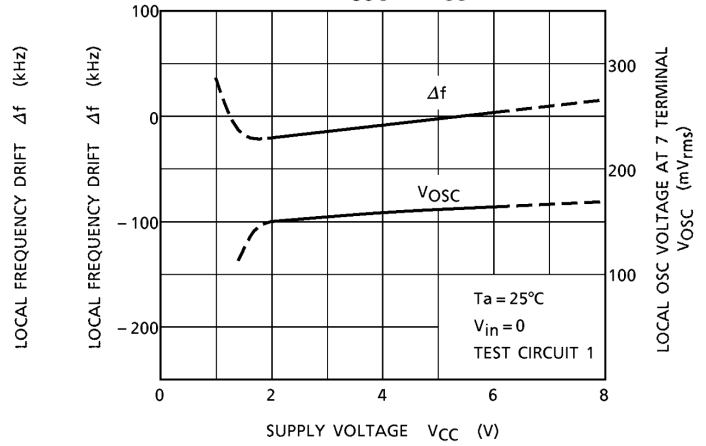
**$V_{in(lim)}, Q_S - V_{CC}$**



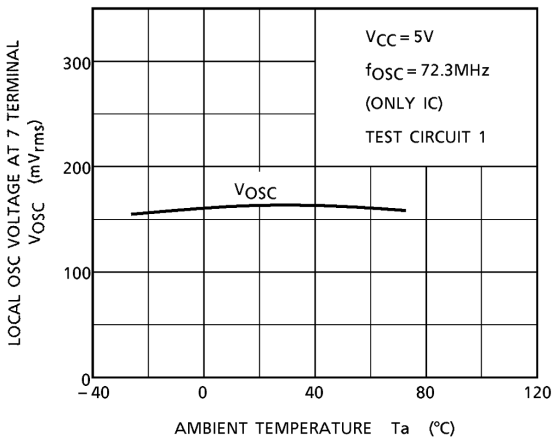
**$V_{in(lim)}, Q_S, \Delta f - T_a$**



**$\Delta f, V_{OSC} - V_{CC}$**



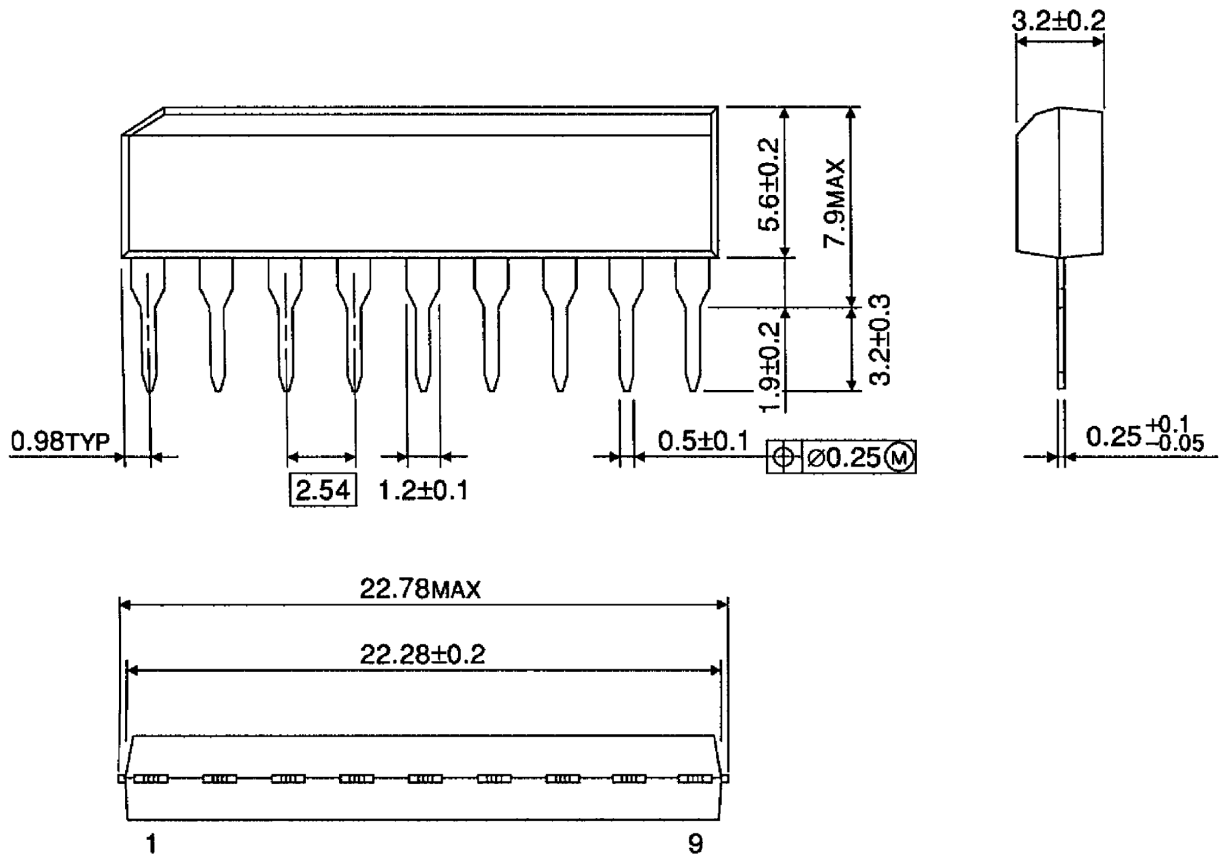
**$V_{OSC} - T_a$**



## Package Dimensions

SIP9-P-2.54A

Unit : mm



Weight : 0.92g (typ.)



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