

BA4411~3 FM收音机调谐器电路

BA4411、BA4412和BA4413是日本东洋电具公司的产品，采用9脚单列直插封装，推荐工作电源电压范围2~8V。该电路是由高放、混频、本振、缓冲级、中放和AFC变容二极管组成。中频放大器输入/输出阻抗为330Ω，便于同陶瓷滤波器匹配，混频器输出也可以采用电阻负载，内部设有本振的反馈电容和高频放大器的旁路电容。该电路适合组装FM收音机、收录机。

BA4411~3的最大电源电压 $V_{CC} = 9V$ ，允许功耗 $P_D = 500mW$ ($T_A = 25^\circ C$)。

电参数 ($V_{CC} = 4V$, $T_A = 25^\circ C$)

参数	单位	测试条件	最小值	典型值	最大值
静态电流	I_o (mA)		5.5	8	10.5
IF输出电压	V_o (mV)	BA4411	7	15	25
		BA4412			
		BA4413			
		$f_{IN} = 100MHz$ 80dBμV			
IF输入输出阻抗	Z_{IF} (Ω)			330	
本振输出电压	V_{osc} (mV)	$f_{osc} = 110.7MHz$	200	300	400
变容二极管容量	C_v (pF)	$V_R = 2V$		9	

方框图、测试及应用电路

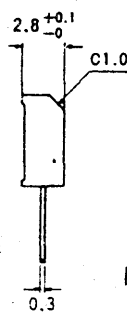
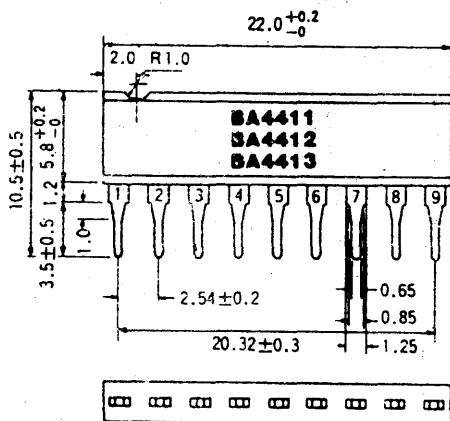
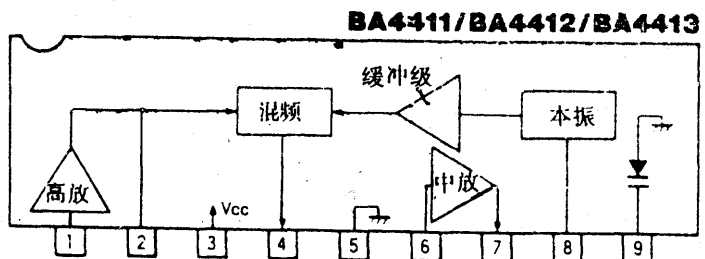


图1 BA4411~3外形图

图2 BA4411~3方框图



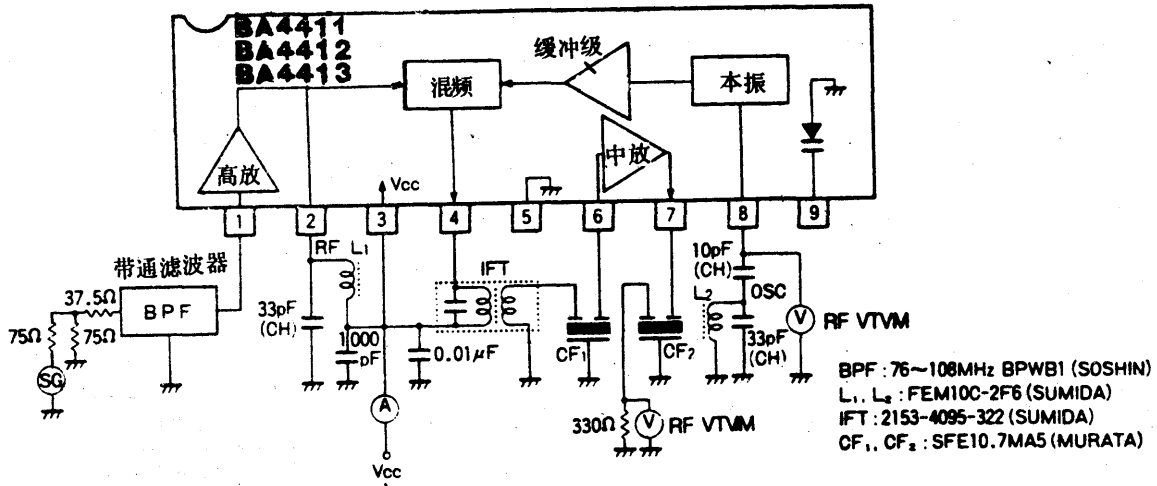


图3 BA4411~3测试电路

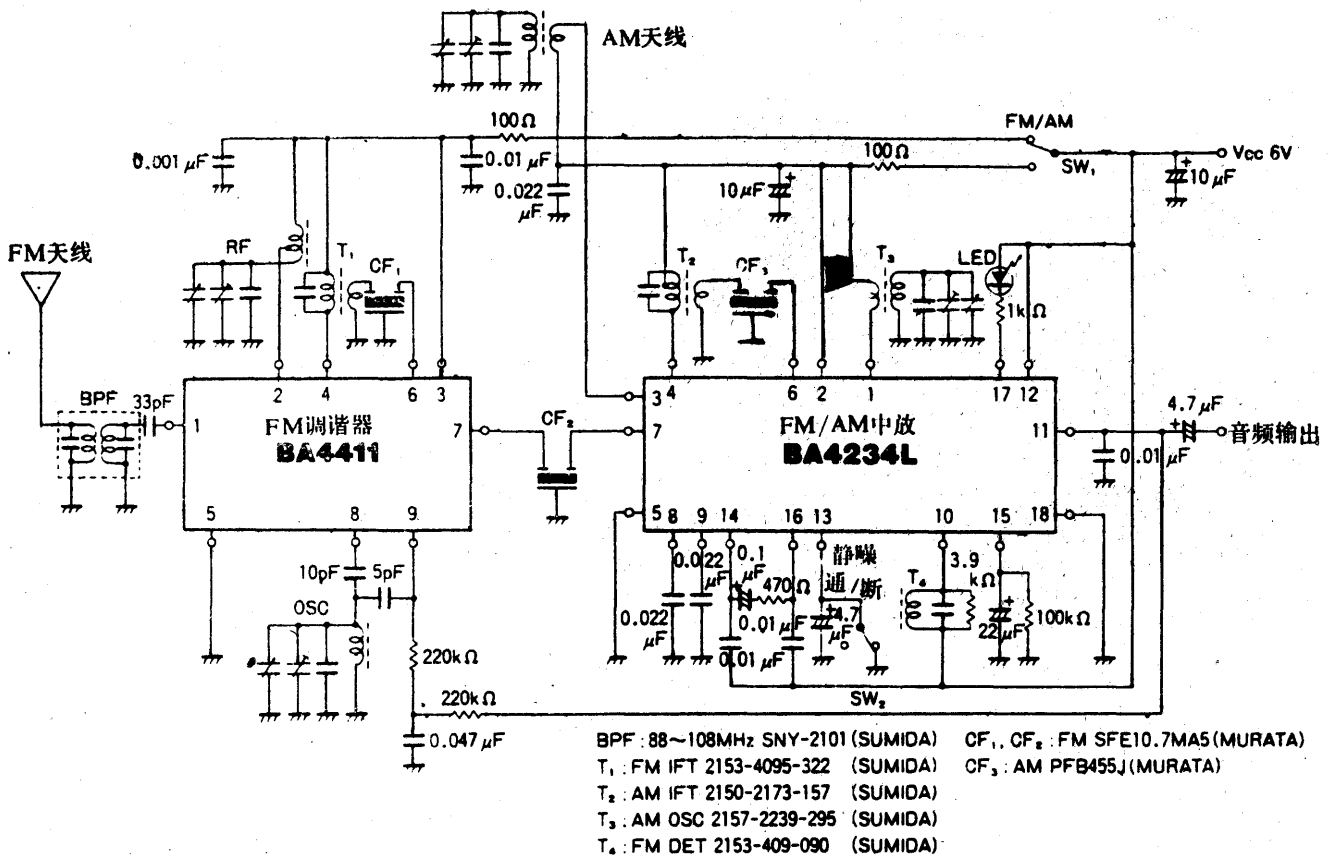


图4 BA4411 + BA4234L 应用电路

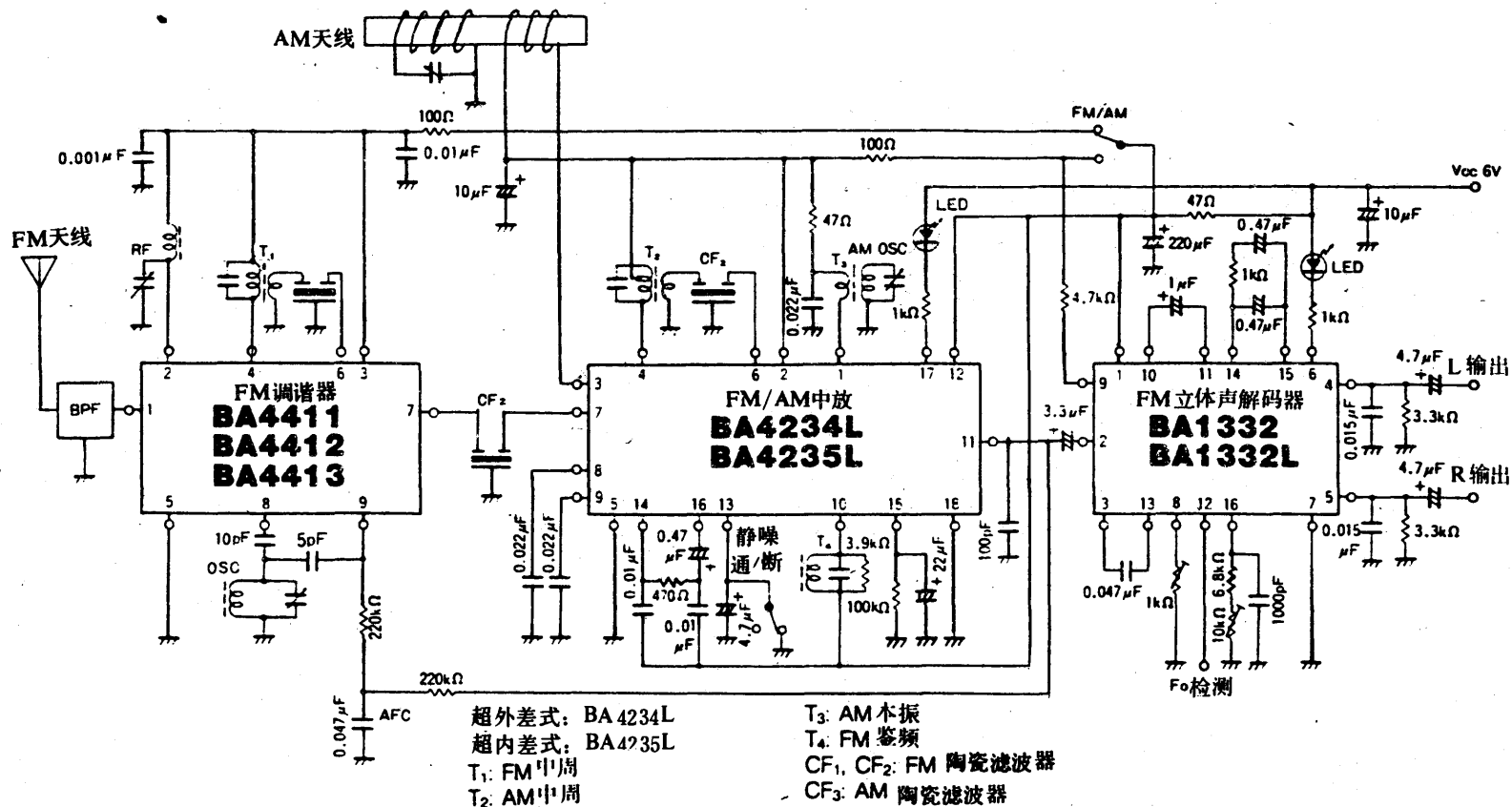
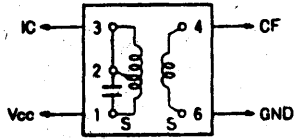


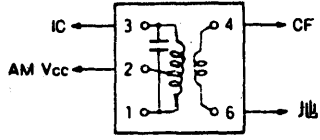
图5 BA4411~3立体声收音机应用电路

1) T_1 : FM中周 (10.7MHz) 2153-4095-322 (SUMIDA)



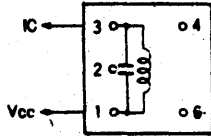
6-4 4t
3-2 10t
2-1 3t
导线型号 0.10UEW
C=82pF
Q≥50

2) T_2 : AM中周 (455kHz) 2150-2173-157 (SUMIDA)



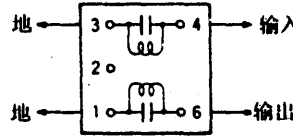
6-4 26t
3-2 97t
2-1 79t
导线型号 0.06UEW
L=250μH
Q≥80

3) T_4 : FM鉴频 (10.7MHz) 2153-409-090 (SUMIDA)



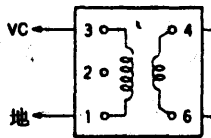
3-1 12t
导线型号 0.12UEW
C=100pF
Q=105

4) BPF: FM BPF (76MHz~108MHz) SNY-2102 (SUMIDA)



6-1 1½t
4-3 1½t
导线型号 0.12UEW
C=82pF
R_{IN}=75Ω
R_{OUT}=75Ω

5) T_3 : AM本振 2157-2239-295 (SUMIDA)



6-4 7t
3-1 100t
导线型号 0.06UEW
C=180pF
Q=100±20%

图6 BA4411~3所用线圈数据

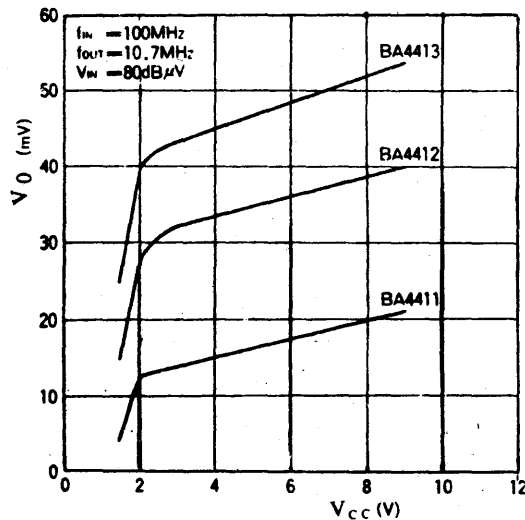


图7 BA4411~3的 V_0 与 V_{CC} 关系曲线