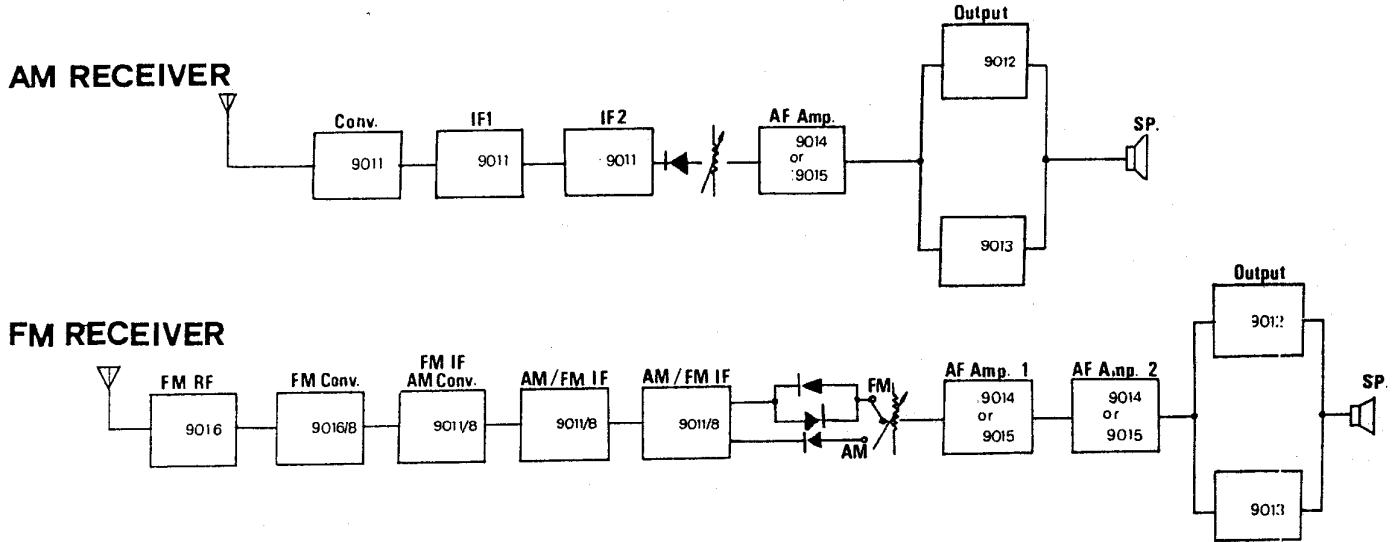
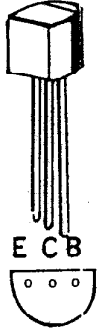


# MICRO

**CL9000**  
**SERIES**  
AM / FM RADIO  
TRANSISTOR KIT

## SELECTION GUIDE FOR AM / FM RADIO TRANSISTOR KIT



TYPE	POLARITY	APPLICATIONS	CASE
CL 9011	NPN	AM / FM IF , AM CONVERTER	<b>T0-92B</b> 
CL 9012	PNP	AUDIO POWER OUTPUT	
CL 9013	NPN	AUDIO POWER OUTPUT	
CL 9014	NPN	AUDIO DRIVER	
CL 9015	PNP	AUDIO DRIVER	
CL 9016	NPN	FM RF	
CL 9018	NPN	AM / FM IF , FM CONVERTER	



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DEVICE SPECIFICATIONS [TA = 25°C unless otherwise specified]

TYPE	MAXIMUM RATINGS				ELECTRICAL CHARACTERISTICS																				
	V <sub>CEO</sub> (V)	V <sub>CE0</sub> (V)	V <sub>BE0</sub> (V)	P <sub>0</sub> (mW)	HFE		I <sub>CEO</sub> (mA)	V <sub>CE8</sub> (V)	V <sub>BE</sub> (V)	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	V <sub>CE(sat)</sub> (V)	I <sub>C</sub> (mA)	I <sub>B</sub> (mA)	f <sub>T</sub> (MHz)	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	C <sub>ob</sub> (pF)	V <sub>CE</sub> (V)	C <sub>cbb</sub> <sup>1/</sup> (pSec)	NF (dB)				
					min	max	max	typ	max	max	max	typ	max	max	min	typ	max	typ	max	typ	typ	typ			
CL 9011	25	20	3	300	28	198	50	18	0.67	0.85	1	5	0.08	0.5	10	1	150	220	1	5	19	25	10	22	3 <sup>2/</sup>
CL 9012	25	20	5	500	64	350	500	18	0.7	0.85	10	1	0.2	0.6	250	25									
CL 9013	25	20	5	500	64	350	500	18	0.7	0.85	10	1	0.2	0.6	250	25									
CL 9014	25	20	5	500	60	1000	50	18	0.63	0.85	1	5	0.07	0.5	10	1	50	140	1	5	27	6	10		2 <sup>3/</sup>
CL 9015	25	20	5	500	60	1000	50	18	0.64	0.85	1	5	0.07	0.5	10	1	50	120	1	5	35	6	10		2 <sup>3/</sup>
CL 9016	25	20	3	300	28	198	50	18	0.72	0.85	1	5	0.14	0.5	10	1	500	800	5	5	11	16	10	12	3 <sup>4/</sup>
CL 9018	20	15	3	300	28	198	50	18	0.72	0.85	1	5	0.14	0.5	10	1	400	800	5	5	13	17	10	18	

- 1/ : C<sub>cbb</sub> @ I<sub>C</sub> = 1 mA V<sub>CE</sub> = 5 V f = 31.8 MHz
- 2/ : NF @ I<sub>C</sub> = 1 mA V<sub>CE</sub> = 5 V R<sub>G</sub> = 500Ω f = 1 MHz
- 3/ : NF @ I<sub>C</sub> = 0.1 mA V<sub>CE</sub> = 5 V R<sub>G</sub> = 10kΩ f = 30 Hz to 15 kHz
- 4/ : NF @ I<sub>C</sub> = 1 mA V<sub>CE</sub> = 5 V R<sub>G</sub> = 50Ω f = 100 MHz

CLASSIFICATION OF HFE GROUPS

TYPE NO.	GROUP										
	A	B	C	D	E	F	G	H	I		@ I <sub>C</sub> / V <sub>CE</sub>
CL 9011 CL 9016 CL 9018				28 - 45	39 - 60	54 - 80	72 - 108	97 - 146	132 - 198		1 mA / 5 V
CL 9014 CL 9015	60 - 150	100 - 300	200 - 600	400 - 1000							1 mA / 5 V
CL 9012 CL 9013				64 - 91	78 - 112	96 - 135	118 - 166	144 - 202	180 - 350		50 mA / 1 V