

# FM FRONT HEAD MODULE

## MODEL 8319

This advanced FM front-end module contains 4 tuned circuits, each controlled by means of a double varactor diode (varicap). Careful internal screening, combined with the high Q signal frequency circuits, give the 8319 excellent selectivity and immunity to spurious responses. The RF stage is built about a dual gate depletion MOSFET, allowing a considerable AGC range – even when in the proximity of powerful transmissions.

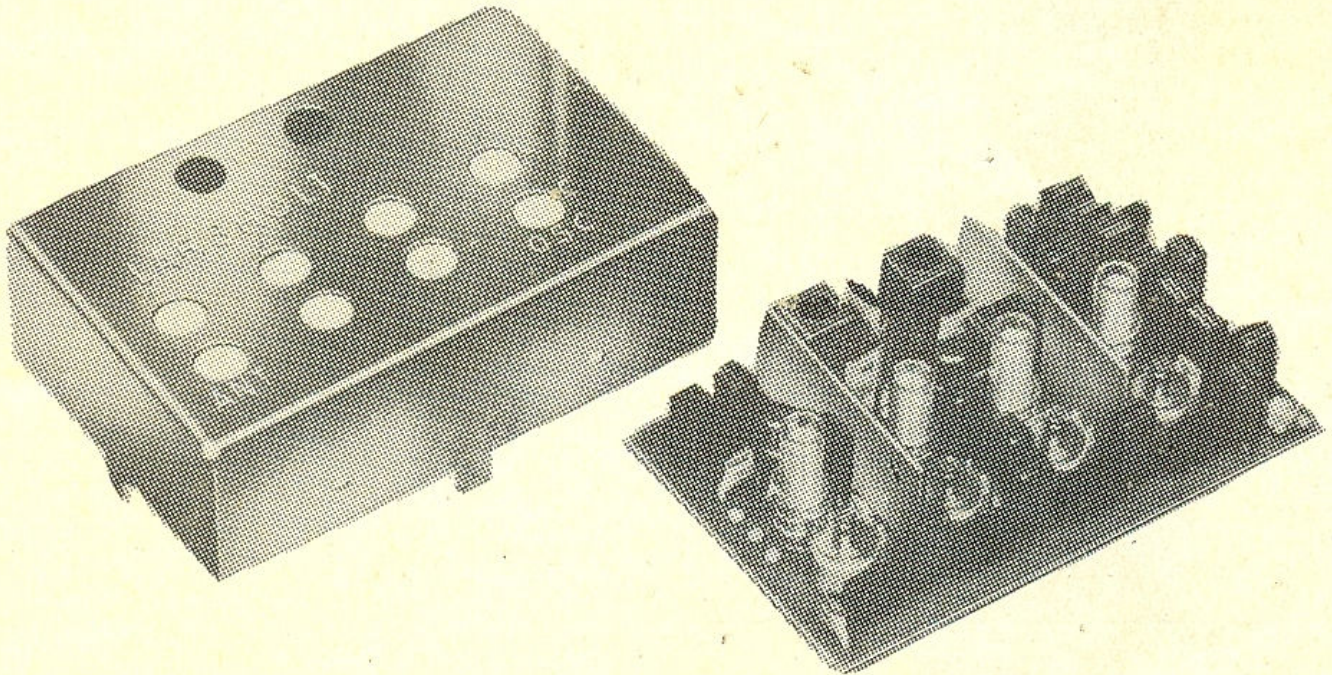
The mixer stage, with a double tuned input circuit, also employs a dual gate depletion MOSFET – effectively isolating the oscillator from the pulling influence of strong signals.

The brass core in the tank circuit of the NPN oscillator stage is used to suppress noise that might otherwise result from stray magnetic fields.

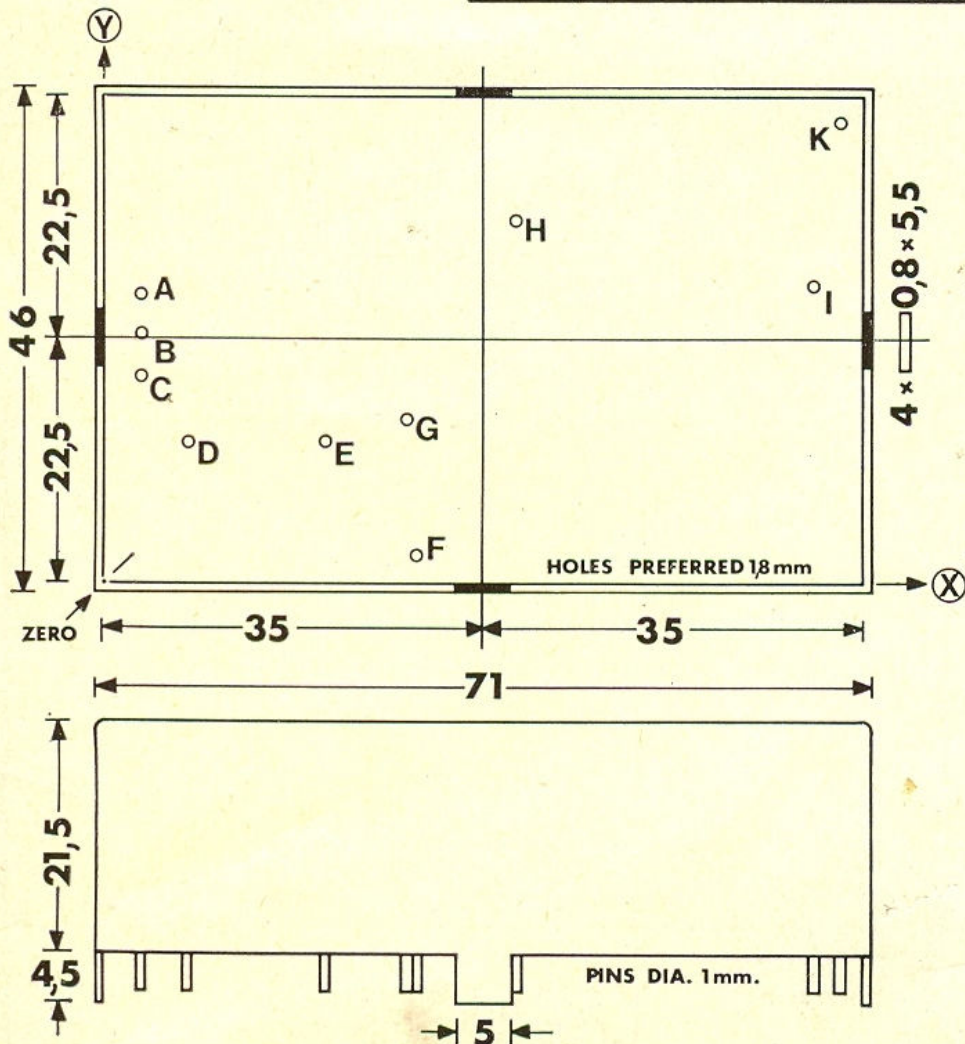
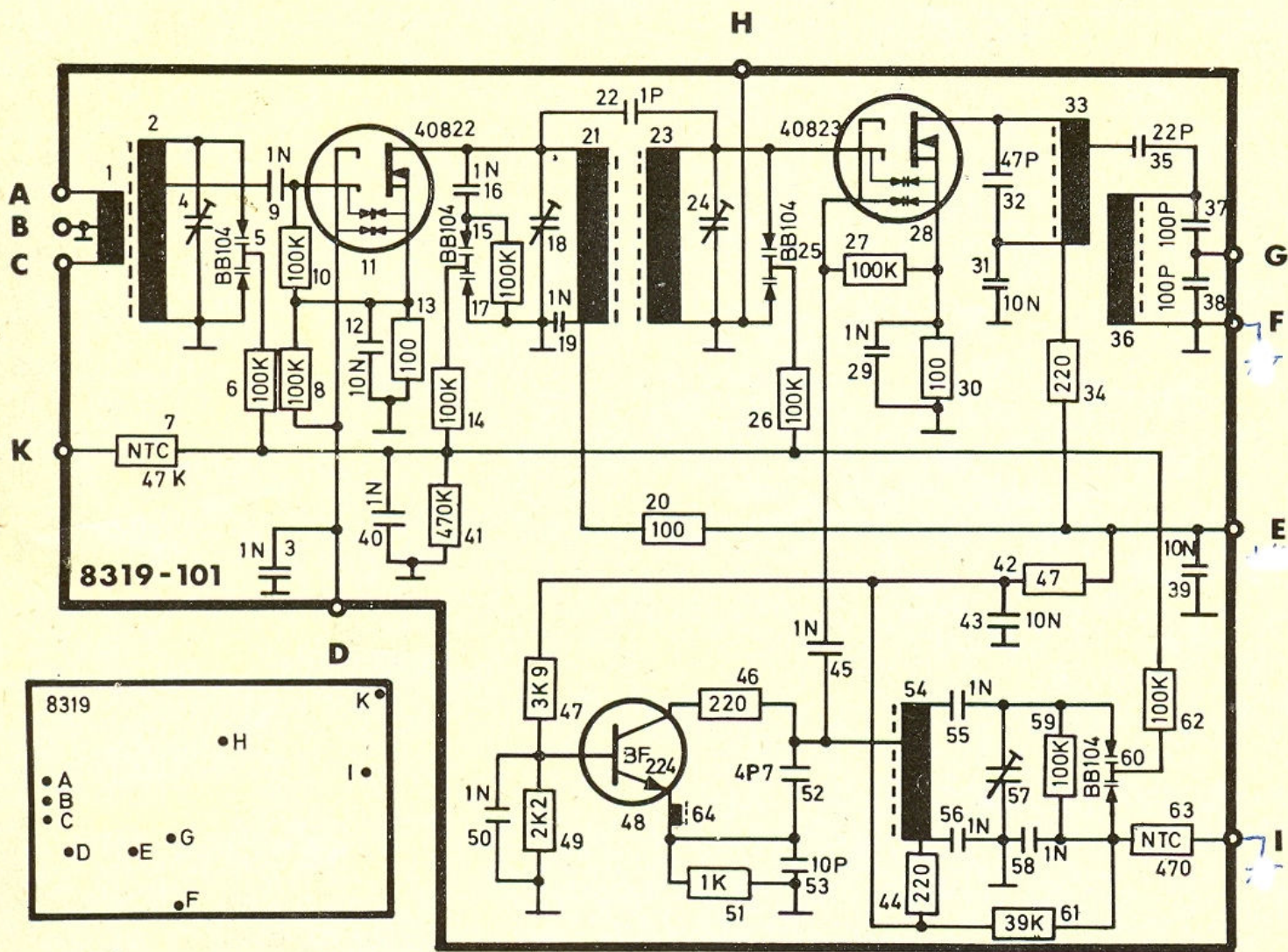
There is provision made for a simple AFC arrangement, controlling the oscillator tuned circuit only – though the preferred method is a superimposition of the AFC on the tuning voltage of all circuits, as employed with 7252 tuner set.

To summarize, the 8319 tuner module combines excellent selectivity, high gain and low noise – the essentials of any HiFi FM system. Two NTC resistors ensure that the oscillator stability is not seriously affected by environmental conditions.

The thorough approach to this design is well illustrated in the symmetrical physical layout. Equipment manufacturers will readily appreciate the importance of this approach – carried through from basic design to alignment and quality control. The small physical size and ease of accessibility to all adjustments allow the module to be easily accommodated in most set design.



<b>Frequency range</b>	87.5–108.5 MHz	<b>IF load impedance</b>	150 ohms
<b>IF frequency</b>	10.7 MHz	<b>Power gain</b>	32dB
<b>Supply voltage (negative earth)</b>	+12v DC	<b>Noise figure</b>	5 dB
<b>Maximum permissible ripple</b>	0.15mV p-p	<b>AFC regulation sensitivity</b>	
<b>Supply current</b>	25mA	$\frac{dF}{dV}$ afc (100 MHz)	1.5MHz / volt
<b>Tuning voltage (negative earth)</b>	+2.3–18v	<b>AFC operating point</b>	0v
<b>Maximum permissible ripple on tuning voltage supply</b>	3uV p-p	<b>Image rejection</b>	56dB
<b>AGC voltage:</b>		<b>IF rejection</b>	80dB
maximum amplification	+4.5v	<b>Frequency change with supply voltage fluctuation</b>	$\frac{dF}{dV_s}$ less than 50 KHz/v
maximum attenuation	0v	<b>Spurious radiation from antenna terminal (75 ohm)</b>	less than 500 uV
<b>Antenna input impedance:</b>			
Pins B:C	75 ohms		
Pins A:C	300 ohms		



FROM ZERO	→ (X)	↑ (Y)
A	3,5	26,5
B	3,5	22,8
C	3,5	19,0
D	8,0	13,0
E	20,5	13,0
F	29,0	2,5
G	28,0	15,0
H	38,0	33,5
I	65,5	27,5
K	68,0	42,5