

TYPE : KS9-40 — MULLARD.

(Preliminary Data)

KLYSTRON

Frequency: 'X' band, mechanical tuning
Power output: 25mW minimum
Construction: Metal with integral waveguide tuning
Application: Local oscillator

CHARACTERISTICS

	Min. 9.3	Max. 9.5	Gc/s
Mechanical tuning range			
Mechanical tuning rate	100	200	Mc/s per turn
Electronic tuning range, between half power points at any frequency in the mechanical tuning range	30	—	Mc/s
Electronic tuning rate at mode centre	2.0	3.0	Mc/s per volt
Power output at any frequency in the mech- anical tuning range with reflector voltage optimised ($V_{\text{resonator}} = 300\text{V}$)	25	50	mW
Reflector voltage for maximum power out- put at $9370 \pm 20\text{Mc/s}$ in principal mode ($V_{\text{resonator}} = 300\text{V}$)	-70	-120	V
Reflector voltage range inclusive of electronic tuning range ($V_{\text{resonator}} = 300\text{V}$)	-55	-135	V
Frequency drift after first 5 minutes of opera- tion	—	3.0	Mc/s
Frequency change with temperature ($T_{\text{ambient}} = -50^{\circ}\text{C}$ to $+70^{\circ}\text{C}$)	—	-0.2	Mc/s per $^{\circ}\text{C}$ rise
Frequency change with atmospheric pressure change equivalent to operation 0 to 30,000 ft. altitude	—	1.0	Mc/s
Frequency modulation under vibration of 10g applied to flange (30 to 1000c/s)	—	2.0	Mc/s

CATHODE

Indirectly heated

V_h	6.3	V
I_h max.	800	mA
t_k	30	s

DIMENSIONS

	Inches	Millimetres	
A	1.280 ± 0.004	32.54 ± 0.1	
B	0.172	4.37	
C	1.220 ± 0.004	30.97 ± 0.1	
D	1.625	41.28	max.
E	2.0	50.8	max.
F	1.45	36.89	max.
G	1.5	38.1	max.
H	1.9	48.2	max.
J	1.625	41.28	max.

TYPICAL OPERATION

	9.37	Gc/s
$V_{\text{resonator}}$	300	V
$I_{\text{resonator}}$	35	mA
$V_{\text{reflector}}$	-90	V
Electronic tuning range between half power points	± 20	Mc/s
P_{out}	40	mW

COOLING

Natural

LIMITING VALUES (absolute ratings)

	Min.	Max.	
$V_{\text{resonator}}$	—	350	V
$I_{\text{resonator}}$	—	45	mA
$V_{\text{reflector}}$	-1.0	-400	V
$V_{\text{h-k}}$	—	± 50	V
T_{shell}	—	150	°C

MOUNTING POSITION

Any

OPERATING NOTES

1. Mechanical tuning range is covered by approximately one and a half turns of the tuning screw.
2. Signal-to-noise ratio >160dB per cycle of i.f. bandwidth. A.M. noise on a typical sample with reflector voltage optimised for maximum power at frequency of measurement and with receiver intermediate frequency >25Mc/s.
3. The resonator and reflector leads should be screened to shield the valve from induced modulation. To avoid damage to the valve the reflector potential must never become positive with respect to the cathode. For this reason it is essential that the reflector connection be made at all times during operation.

