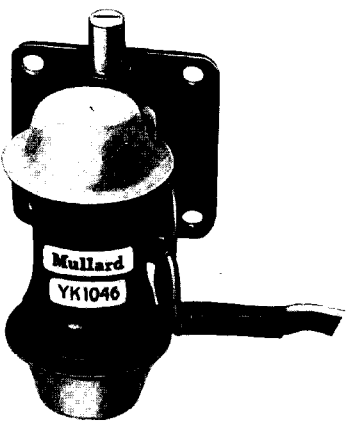
KLYSTRON YK1046

QUICK REFERENCE DATA		
X-band, lightweight reflex klystron, with integral tuning cavity for local oscillator applications.		
Frequency range	9.16 to 9.34	GHz
Power output	35	mW
Construction	Aluminium body with flying leads	
Output connection	Waveguide 16 flange	

Services type: CV6195

To be read in conjunction with
GENERAL OPERATIONAL RECOMMENDATIONS - MICROWAVE DEVICES



TYPICAL OPERATION (at 9.25GHz)

Operating Conditions (see note 1)

Heater voltage	6.3	V
Resonator voltage	275	V
Reflector voltage	-85	V
Load v.s.w.r.	≤1.1:1	

Typical Performance

Resonator current	22	mA
Power output	35	mW
Electronic tuning range to 1/2 power points	30	MHz

CATHODE

Indirectly heated

Heater voltage	6.3	V
Heater current	0.45	A

TEST CONDITIONS AND LIMITS

The klystron is tested to comply with the following electrical specification.

Test Conditions (see note 1)

Heater voltage	6.3	V
Resonator voltage	275	V
Reflector voltage	Adjust	
Load v.s.w.r.	≤1.1:1	

Limits and Characteristics

	Frequency (GHz)	Min.	Max.	
Heater current	-	0.4	0.5	A
Resonator current	-	-	40	mA
Reflector voltage (see note 2)	9.16	-75	-100	V
	9.25	-75	-100	V
	9.34	-75	-100	V
Power output (see note 2)	9.16	25	60	mW
	9.25	25	60	mW
	9.34	25	60	mW
Electronic tuning range to 1/2 power points	9.16	25	-	MHz
	9.25	25	-	MHz
	9.34	25	-	MHz

Limits and Characteristics (cont'd)

	Frequency (GHz)	Min.	Max.	
Reflector modulator sensitivity (see note 3)	-	0.5	1.5	MHz
Frequency pulling (see note 4)	-	-	6.0	MHz
Mechanical tuning rate	9.16 to 9.34	150	250	MHz/turn
Mechanical tuning torque	-	0.07	0.22	Nm
	-	0.7	2.2	(kg cm)
Mechanical tuning range	-	9.16	9.34	GHz
Frequency temperature coefficient (see note 5)	9.25	-50	-200	kHz/degC
Frequency modulation under vibration, peak acceleration = 10g at 30Hz to 1kHz	9.25	-	200	kHz peak
Mode separation (see note 6)	9.16 to 9.34	-50	-125	V

RATINGS (ABSOLUTE MAXIMUM SYSTEM)

These ratings cannot necessarily be used simultaneously and no individual rating should be exceeded.

	Min.	Max.	
Heater voltage	5.7	6.9	V
Resonator voltage	-	350	V
Resonator current	-	45	mA
Reflector voltage (see note 2)	-20	-500	V
Body temperature (see note 7)	-	150	^{o}C
Storage temperature	-55	+75	^{o}C
v.s.w.r.	-	1.5:1	
Impedance of reflector/cathode circuit	-	500	kΩ

END OF LIFE PERFORMANCE

The quality of all production is monitored by the random selection of klystrons which are then life tested under the stated test conditions. If the klystron is to be operated under different conditions from those specified, Mullard Ltd. should be consulted to verify that the life will not be affected. The klystron is considered to have reached the end of life when it fails to meet the following limits when operated as specified on pages 2 and 3.

	Min.	Max.	
Power output (at 9.25GHz)	15	-	mW
Electronic tuning range	20	-	MHz

MOUNTING POSITION	Any
COOLING	Natural

PHYSICAL DATA

	g	
Weight of klystron	92	
Dimensions of storage carton	120 × 120 × 145	mm

NOTES

1. Tests are made with the klystron rigidly connected to and in good thermal contact with a UG-39/U flange on an RG-52/U (WG16) waveguide.

2. Reflector voltage adjusted for the maximum power point of the mode. The reflector voltage must never be allowed to fall below the minimum value specified in the ratings.

3. Measured at mode optimum, 1 volt peak to peak deviation.

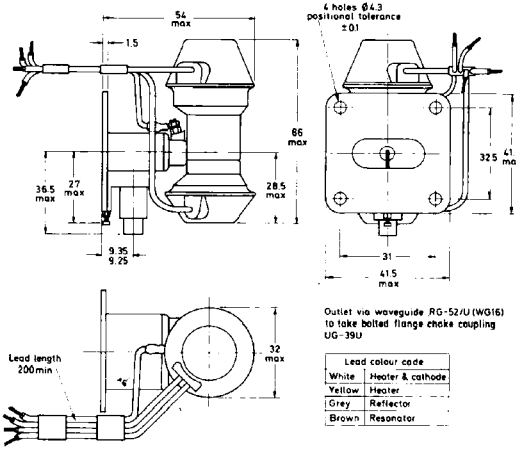
4. Measured with a v.s.w.r. of 1.5:1 varied through all phases. The power output must not be less than 10mW and the frequency versus reflector voltage must be continuous between the half power points.

5. Measured over the ambient temperature range -50 to +70°C.

6. No mode or part of a mode other than the required mode will exist within the specified reflector voltage range as the valve is mechanically tuned over the complete frequency range.

7. Measured at the point indicated on the outline drawing. For maximum valve life the klystron should be operated at temperatures below the specified maximum.

OUTLINE DRAWING



Lead colour code	
White	Heater & cathode
Yellow	Heater
Grey	Reflector
Brown	Resonator

All dimensions in mm