



ELECTRONIC TUBE REFERENCE

4KM50000LF

Specialized - Klystron electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
KLYSTRON

Four-cavity magnetically focused 610–790 MHz power-amplifier klystron intended primarily for UHF television visual service, with about 10 kW output.

GENERAL CHARACTERISTICS

BASE DESIGNATION	–	BASE PINS	–
NOMINAL HEATER	7.5 V / –	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Klystron

No fixed ratings recorded.

Single electrical section; values mapped from printed ratings/characteristics. Klystron represented as SectionType Other because the canonical section vocabulary has no Klystron section type.

The Eimac 4KM50,000LF is a four-cavity, magnetically focused, power-amplifier klystron designed for use at frequencies from 610 to 790 megacycles. Although intended primarily for UHF television visual service this klystron may also be used for FM, for aural TV, or for tropospheric-scatter communications service. When tuned for narrow band CW operation this klystron will deliver a minimum output power of 10 kilowatts with a power gain of 45 db. In television visual service it will provide more than 10 kilowatts of peak synchronizing output power with a power gain of 30 db. The AM random noise is more than 50 db below black level. Minimum bandwidth at the 3 db power level is 8 megacycles with a minimum of 7 megacycles at the 1 db level. The 4KM50,000LF employs the Eimac Modulating Anode which provides an effective means of protecting the tube from internal arcs. All tuning is accomplished outside of the vacuum envelope by means of external resonant cavities which enclose the cylindrical ceramic windows of the klystron. This design permits a wide tuning range and allows external cavity loading for broadband applications. For spares or replacements, only the basic vacuum tube, without cavities, need be purchased. Eimac Klystron Amplifier Circuit Assembly H-139 has been designed for use with the

4KM50,000LF to cover the specified frequency range . This assembly includes a klystron supporting structure, magnetic focusing coils, tuning cavities, adjustable load couplers for the second, third and output cavities and an Eimac SK-110 Air System Socket .

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 Eimac

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1962 EIMAC

Section 1 · Klystron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The Eimac	0 a	The Eimac 4KM50,000LF is a four-cavity, magnetically focused,
a minimum output power of	45 a	a minimum output power of 10 kilowatts with a power gain of 45 db.
In television visual service it will provide more than	10 kilowatts	In television visual service it will provide more than 10 kilowatts of
peak synchronizing output power with a power gain of	30 a	peak synchronizing output power with a power gain of 30 db. The AM
random noise is more than	50 db	random noise is more than 50 db below black level. Minimum band-
width at the	7 db	width at the 3 db power level is 8 megacycles with a minimum of 7
megacycles at the	1 megacycles	megacycles at the 1 db level.
Heater: Voltage	7.5 volts	Heater: Voltage - - - 7.5 volts
Current	40 amperes	Current - - - 40.0 amperes
Maximum Starting Current	80 amperes	Maximum Starting Current - - 80.0 amperes
Voltage	2 volts	Voltage - - - 2.0 volts
Current	36 amperes	Current - - - 36.0 amperes
Output Power: Television Visual Service	10 kilowatts	Output Power: Television Visual Service - 10 kilowatts
Frequency Range (H	790 megacycles	Frequency Range (H-139 Assembly) 610 to 790 megacycles
Output	50 ohm	Output - - - - 3 1/8 inch, 50-ohm line
(Effective	1961 A	(Effective 10-20-61) Copyright 1961 by Eitel-McCullough, Inc. Printed in U.S.A.
Prefocus Coil: Voltage	50 volts	Prefocus Coil: Voltage - - - - 0 to 50 volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current	5 amperes	Current - - - - - 0 to 1.5 amperes
Voltage	500 volts	Voltage - - - - - 0 to 500 volts
Current	5 amperes	Current - - - - - 0 to 2.5 amperes
D-C BEAM CURRENT	2.5 AMPERES	D-C BEAM CURRENT - - - - - 2.5 AMPERES
A-C GETTER CURRENT	50 A	A-C GETTER CURRENT - - - - - 50 AMPERES
FOCUS-ELECTRODE VOLTAGE	500 VOLTS	FOCUS-ELECTRODE VOLTAGE - - - - - 500 VOLTS
COLLECTOR DISSIPATION	60 KILOWATTS	COLLECTOR DISSIPATION - - - - - 60 KILOWATTS
Frequency	735 megacycles	Frequency - 610 735 megacycles
Output Power	15.6 kilowatts	Output Power - 12.6 15.6 kilowatts
Driving Power	0.3 watts	Driving Power - 10 0.30 watts
D-C Beam Current	203 amperes	D-C Beam Current - 2.03 2,03 amperes
Focus-Electrode Voltage	200 volts	Focus-Electrode Voltage - -200 -200 volts
Prefocus Coil	1.15 amperes	Prefocus Coil - 1.15 1.15 amperes
Collector Coil in Series	2.3 amperes	Collector Coil in Series 2.3 2.3 amperes
CATHODE TERMINAL A	65.2 A	CATHODE TERMINAL A 63.700 65.20
SECOND CAVITY— o TYR	775 SECOND	SECOND CAVITY— o TYR 4 AK 670 .775
_bm €A	85 A	_bm €A 75° 85°
Efoc *	200 VOLTS	Efoc * -200 VOLTS
Ip =	203 AMPERES	Ip = 203 AMPERES
Py =	10 WATTS	Py = 10 WATTS
ACROSS COLLECTOR COOLANT INLET TEMPERATURE	25 °C	ACROSS COLLECTOR COOLANT INLET TEMPERATURE 25°C
/s a	60 a	/s a 60 % ETHYLENE-{GLYCOU -
Ip =	203 AMPERES	Ip = 203 AMPERES
Pg =	0.3 WATTS	Pg = 0.3 WATTS
Efoc =	200 VOLTS	Efoc = -200 VOLTS
FREQUENCY =	700 MEGACYCLES	FREQUENCY = 700 MEGACYCLES
FREQUENCY *	700 MEGACYCLES	FREQUENCY * 700 MEGACYCLES