

HIGH POWER KLYSTRON FOR GROUND TERMINALS LD7111 SERIES

17 GHz BAND, 1.7 kW, HIGH EFFICIENCY, HIGH POWER GAIN

GENERAL DESCRIPTION

The series of NEC LD7111 is a five-cavity Klystron Amplifier and ideal for use in the earth-to-satellite communication systems. These are designed for operating at 1.7 kW CW over the frequency range of 17.3 to 18.4 GHz.

The instantaneous bandwidth of minus one-decibel is at least 90 MHz over the entire 1.1 GHz range.

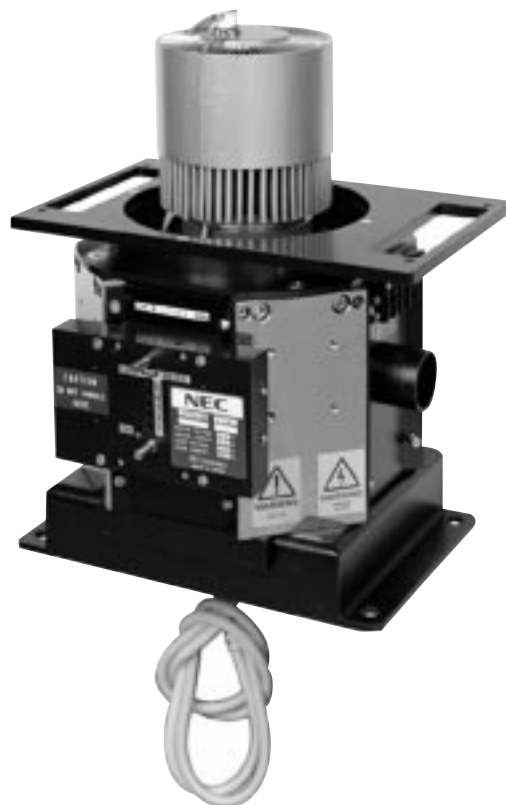
All tubes are forced-air-cooled at any power level. An automatic channel tuner, which changes the operating frequency very quickly and simply, is available in all the series.

Furthermore, they are of rugged and reliable design offering long life service.

NEC LD7111 series is compatible with VKU7791Z6 by using an additional adapter.

FEATURES

- Compact and Light Weight (27 kg approx.)
- High Efficiency
(The DC to RF conversion efficiency is typically 23 % or higher.)
- High Power Gain
- Long Life and High Stability
- Simple Cooling System (forced-air-cooled)
- Automatic Channel Tuner (8-12 Channels)
Hand Tuner model is also available.
- Permanent Magnet Focusing
- Rugged Construction



For safe use of microwave tubes, refer to NEC document "Safety instructions to all personnel handling electron tubes" (ET0048EJ*V*UM00)

The information in this document is subject to change without notice.

GENERAL CHARACTERISTICS

ELECTRICAL

Frequency	17.3 to 18.4 GHz
Output Power	1.7 kW
Heater Voltage	6.5 V
Heater Current	3.2 A
Cathode Type	Indirectly Heated, Impregnated
Cathode Warm-up Time	300 s

MECHANICAL

Dimensions	See Outline
Weight	27 kg approx.
Focusing	Permanent Magnet
Mounting Position	Vertical (Cathode down)
Cooling	Forced Air
Electrical Connections	See Outline
RF Connections	
Input	Mates with UG-419/U Flange
Output	Mates with UG-419/U Flange
Cavity Tuning Method	8-12 Channel Preset Tuning (Hand Tuner is also available)

ABSOLUTE RATINGS (Note 1, 2 and 3)

ELECTRICAL	Min.	Max.	Unit
Heater Voltage	4.5	7.8	V
Heater Surge Current	-	7.0	A
Heater Current	-	4.5	A
Heater Warm-up Time	300	-	s
Body Voltage	-	10.0	kV
Body Current	-	25.0	mA
Collector Voltage	-	10.0	kV
Collector Current	-	1.0	A
Cathode Current	-	1.0	A
DC Input Power	-	9.3	kW
Load VSWR			
Normal Value	-	1.2 : 1	
Instantaneous Value	-	1.5 : 1	
MECHANICAL			
Collector Temperature	-	+250	°C
Cooling Air Temperature	-10	+50	°C
Collector Air Flow	515	-	kg/hr
Body Air Flow	83	-	kg/hr
Gun Air Flow	41	-	kg/hr
ENVIRONMENTAL			
Ambient Temperature			
Operating	+5	+50	°C
Storage	-50	+70	°C

TYPICAL OPERATION (Note 3, 4 and 5)

		Unit
Frequency	17.7	GHz
Heater Voltage (Note 4)	6.5	V
Heater Current	3.2	A
Body Voltage	9.4	kV
Body Current	3.0	mA
Collector Voltage	9.4	kV
Collector Current	0.85	A
Cathode Current	0.85	A
DC Input Power	8.0	kW
Driving Power	100	mW
Output Power	1.8	kW
Power Gain	42	dB
Band Width (-1 dB)	90	MHz
Collector Air Flow	530	kg/hr
Collector Air Pressure Drop	2,000	Pa
Body Air Flow	85	kg/hr
Body Air Pressure Drop	34	Pa
Gun Air Flow	43	kg/hr

Note 1 : Absolute rating should not be exceeded under continuous or transient conditions. A single absolute rating may be the limitation and simultaneous operation at more than one absolute rating may not be possible. Equipment design should limit voltage and environmental variations so that ratings will be exceeded.

Note 2 : The Klystron body should be at ground potential in operation.

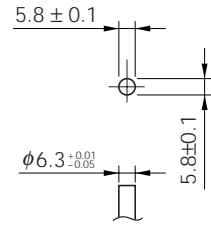
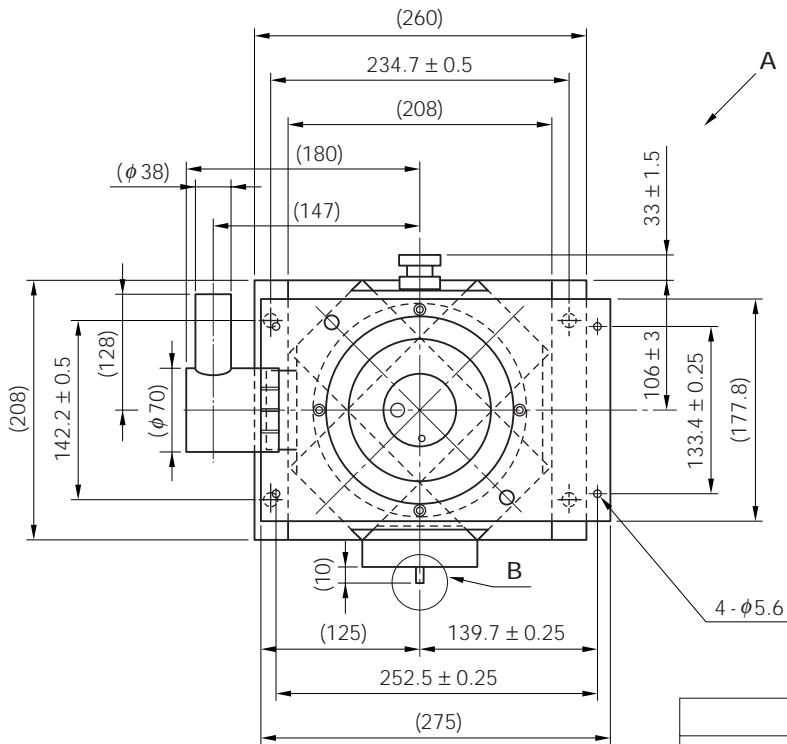
Note 3 : All voltages are referred to the cathode potential except the heater voltage.

Note 4 : The optimum operating value is shown on a test performance sheet for each tube.

Note 5 : Characteristics and operating values on this Data Sheet are based on performance test. These values may be changed as a result of additional information or product improvement. NEC should be consulted before using this information for equipment design. This data sheet should not be referred to a contractual specification.

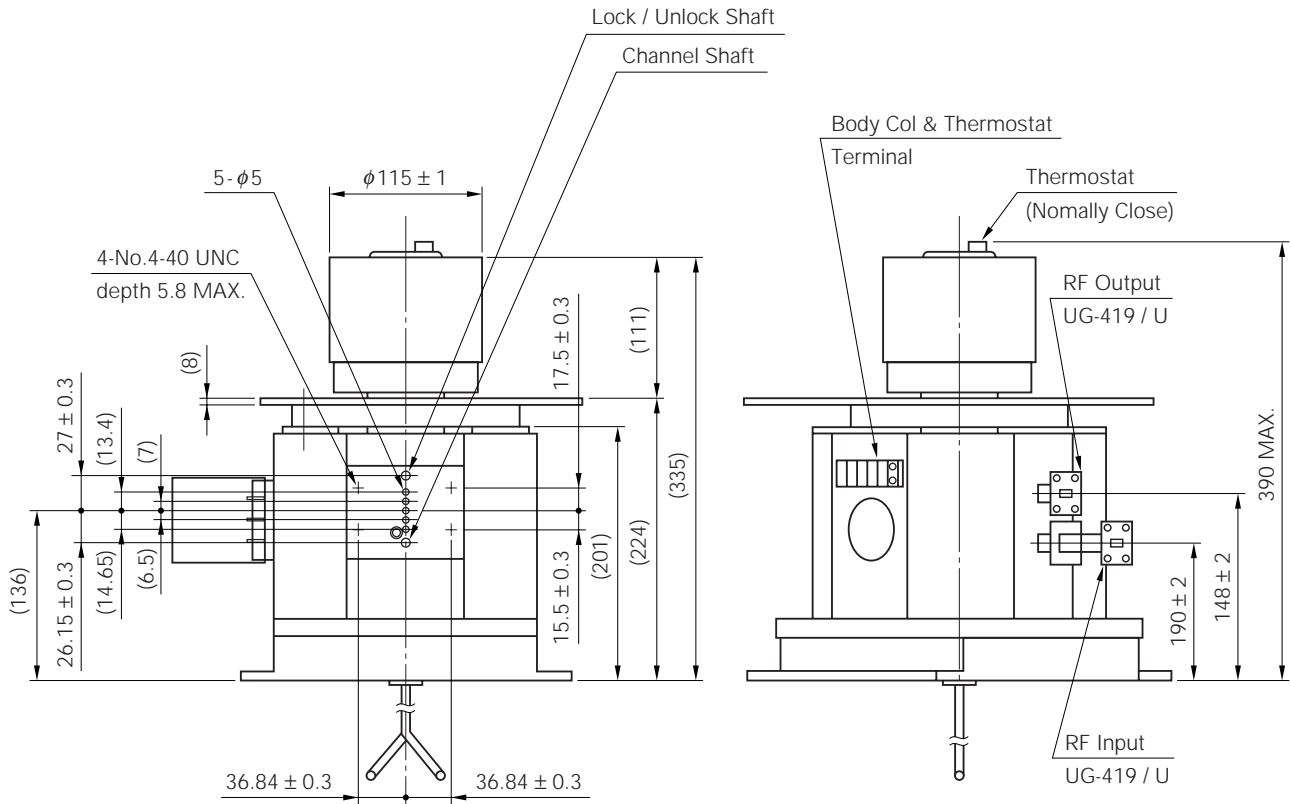
NEC Corporation does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties by or arising from use of a device described herein or any other liability arising from use of such device. No license, either express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC Corporation or others.

LD7111 SERIES OUTLINE (Unit in mm)



Detail B

Electrode	Color of Lead
Heater	Yellow
Heater-Cathode	White



View from A