

## 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.

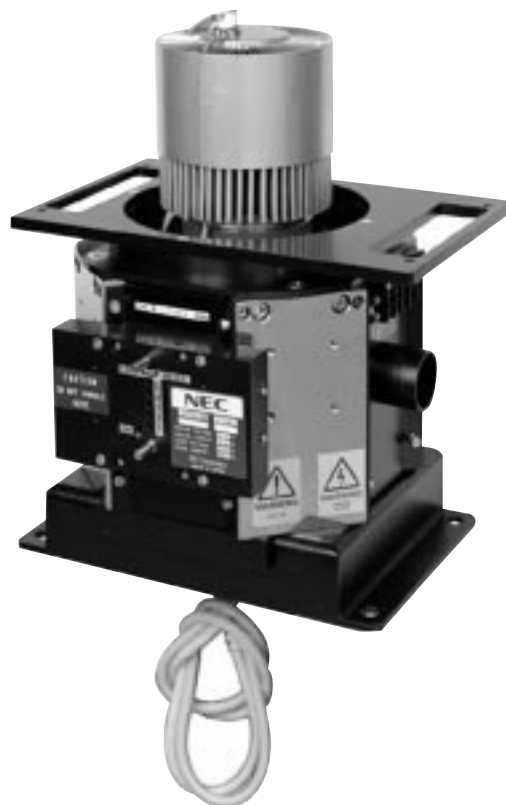
All tubes are forced-air-cooled at any power level. An automatic channel tuner, which changes the operating frequency very quickly and simply, is available in all the series.

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	
<b>MECHANICAL</b>			
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
<b>ENVIRONMENTAL</b>			
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.

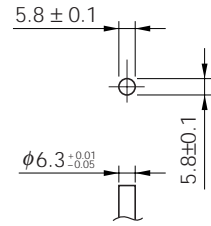
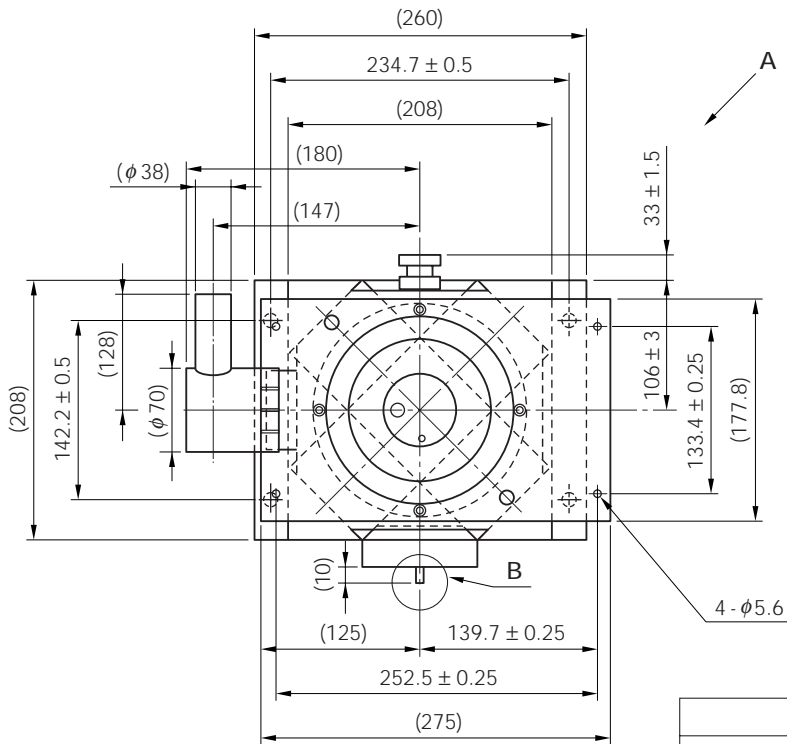
**Note 3 :** All voltages are referred to the cathode potential except the heater voltage.

**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.

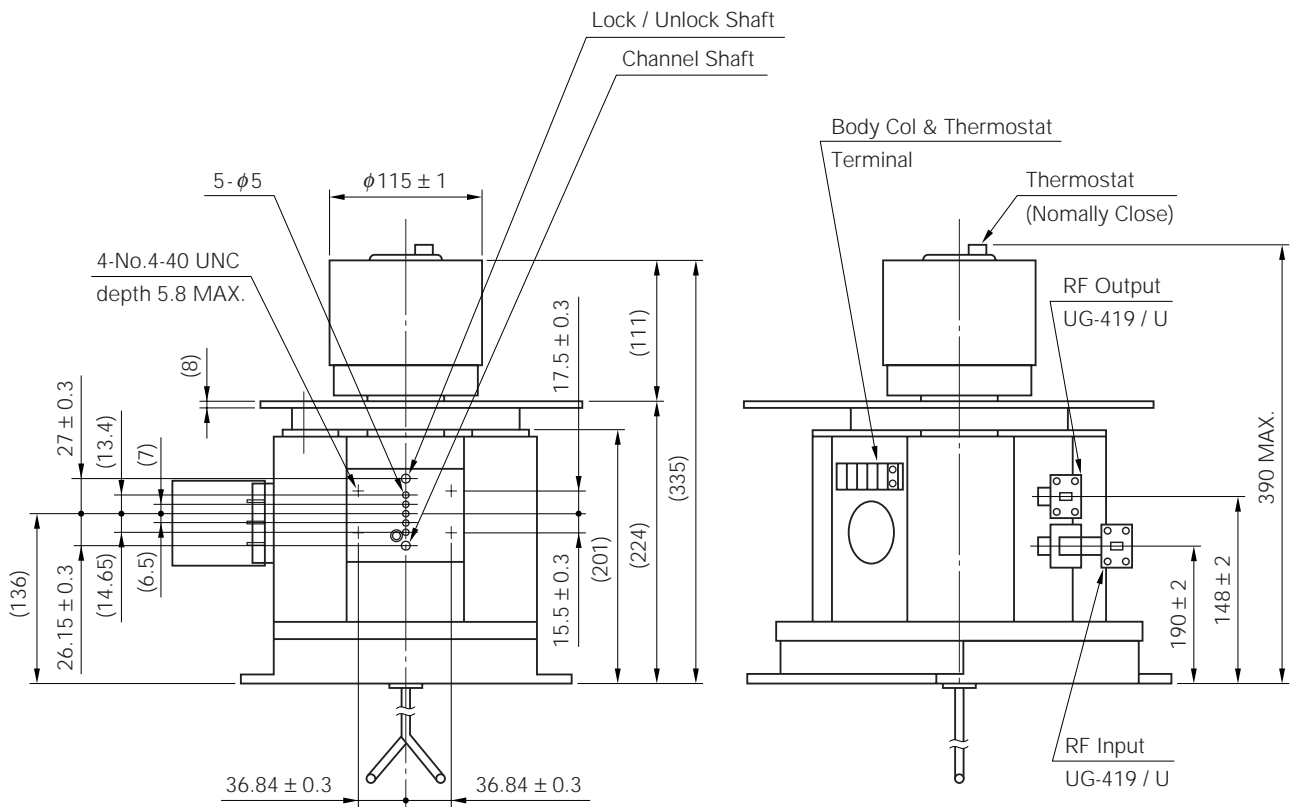
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LD7111 SERIES OUTLINE (Unit in mm)



Detail B

Electrode	Color of Lead
Heater	Yellow
Heater-Cathode	White



View from A