NEC

HIGH POWER TRAVELING WAVE TUBE FOR COMMUNICATIONS

LD7260

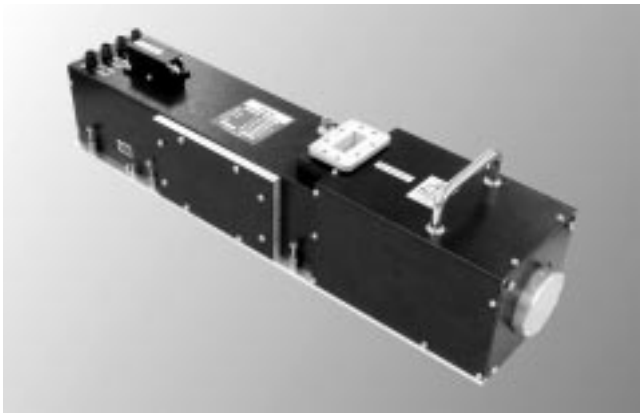
6 GHz, 2.25 kW CW, PPM FOCUSING, HIGH POWER GAIN

GENERAL DESCRIPTION

The NEC LD7260 is a PPM-focused traveling wave tube designed for use as final amplifiers in the earth-to-satellite communications transmitter.

This is capable of delivering an output power of 2.25 kW over the range of 5.85 to 6.425 GHZ and provides a power gain of 44 dB at rated output power. This is equipped with dual-stage depressed collector for enhancing overall efficiency.

Furthermore, this is of rugged and reliable design offering long-life service.



FEATURES

- Lightweight, Compact and Efficient
  The tube has dual-depressed collectors and designed to operate at high efficiency across the power output range. It features state-of-the-art techniques to optimize size and efficiency.
- Low Distortion
  Distortion is a very important factor in multiplex digital signals transmission. NEC has developed techniques for the correction of non-linear distortion and phase generated in a TWT. As a result, the TWT has an optimum performance across a broad power range and is ideally suited for multi-carrier transmission systems.
- Rugged Construction
  The power gain is designed to be rugged, therefore it is suitable for transportable systems.
- Long Life and High Stability
  The tube employs an advanced impregnated cathode with a low operating temperature for long life.
- Micro-discharge Free
  The tube is carefully designed to be free from microdischarge in the electron gun for long term operation, therefore it is suitable for digital communication service.

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

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GENERAL CHARACTERISTICS

ELECTRICAL

Frequency	5.850 to 6.425 GHz
Output Power	2.25 kW
Heater Voltage	6.3 V
Heater Current	1.5 A
Type of Cathode	Indirectly heated, Impregnated
Cathode Warm-up Time	180 s

MECHANICAL

Dimensions	See Outline
Weight	11 kg approx.
Focusing	Periodic Permanent Magnet
Mounting Position	Any
Electrical Connections	AMP LGH 1I Receptacle
RF Connections	
Input	Type SMA Female
Output	Mates with CPR-137F Flange
Cooling	Forced Air

ABSOLUTE RATINGS (Note 1, 2 and 3)

ELECTRICAL

	Min.	Max.	Unit
Heater Voltage	6.0	6.6	V
Heater Surge Current	–	5.0	A
Heater Current	–	5.0	A
Heater Warm-up Time	180	–	s
Helix Voltage	12.0	16.0	kV
Helix Current	–	25.0	mA
Collector-1 Voltage	9.0	11.0	kV
Collector-1 Current	–	600	mA
Collector-2 Voltage	4.0	6.0	kV
Collector-2 Current	–	925	mA
Cathode Current	–	1000	mA
RF Drive Power	–	90	mW
Load VSWR	–	1.5 : 1	–

ENVIRONMENTAL

	Min.	Max.	Unit
Operating Temperature	–20	+52	˚C
Storage Temperature	–62	+80	˚C

TYPICAL OPERATION (Note 2, 3, 4 and 5)

			Unit
Frequency		5.850–6.425	GHz
Output Power		2.25	W
Heater Voltage (Note 4)		6.3	V
Heater Current		1.5	A
Helix Voltage		15.0	kV
Helix Current		12	mA
Collector-1 Voltage		9.75	kV
Collector-1 Current		430	mA
Collector-2 Voltage		5.25	kV
Collector-2 Current		420	mA
Cathode Current		862	mA
Power Gain	at 225 W	54	dB
	at 2.25 kW	48	dB
Gain Variation	at 225 W	0.7	dB
Gain Slope	At 225 W	0.01	dB/MHz
AM-PM Conversion			
	at 225 W	1.5	deg./dB
	at 2.25 kW	5.0	deg./dB
3rd Order Intermodulation (two equal carries, 225 W total)		–29	dBc

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.

Note 2 : The tube body is at ground potential in operation.

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

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

Note 5 : These characteristics and operating 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.

LD7260 OUTLINE (Unit in mm)