

MIDIUM POWER TRAVELING WAVE TUBE FOR COMMUNICATIONS LD7714

30 GHz, 40 W CW, Conduction Cooling, Mimimum Size

GENERAL DESCRIPTION

The NEC LD7714 is a PPM-focused traveling wave tube designed for use as final amplifier in the earth-to-satellite communications transmitter, LMDS (Local Multipoint distribution service) and other advanced communication systems.

This is capable of delivering an output power of 40 W over the range of 27.5 to 30.0 GHz and provides a power gain of more than 40 dB at 40 W level.

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



FEATURES

- Lightweight, Compact and Efficient

The tube has a 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.

- Simple Cooling System

The tube is conduction cooled, so that the cooling system is simplified.

- 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)

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

GENERAL CHARACTERISTICS

ELECTRICAL

Frequency	27.5 to 30.0 GHz
Output Power	40 W
Heater Voltage	6.3 V
Heater Current	0.82 A
Heater Surge Current	2.5 A
Type of Cathode	Indirectly heated, Impregnated
Cathode Warm-up Time	180 s

MECHANICAL

Dimensions	See Outline
Weight	700 g approx.
Focusing	Periodic Permanent Magnet
Mounting Position	Any
Electrical Connections	Flying Leads
RF Connections	
Input	Mates with UG-599/U Flange or K connector Female
Output	Mates with UG-599/U Flange
Cooling	Conduction

ABSOLUTE RATINGS (Note 1, 2 and 3)

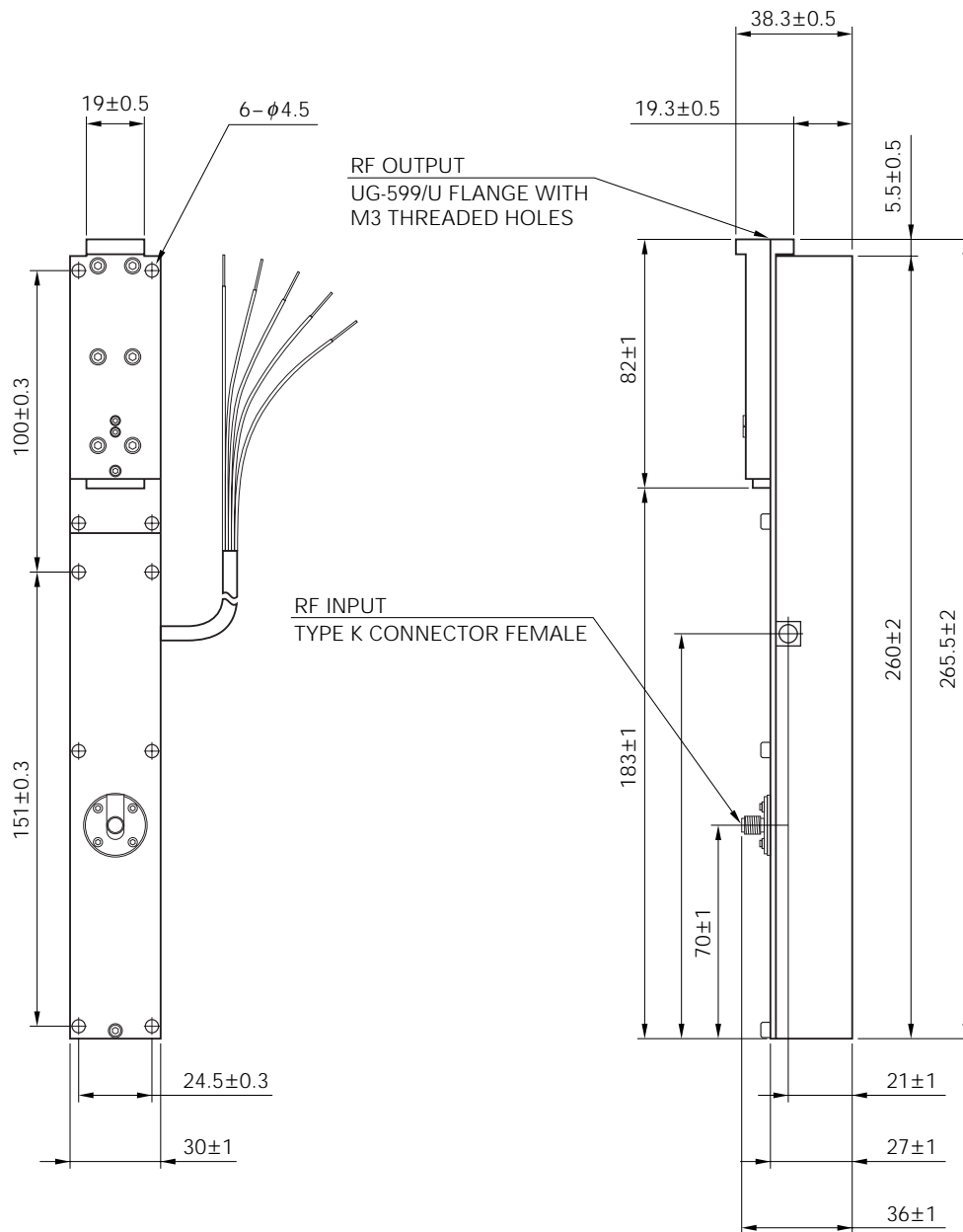
ELECTRICAL

	Min.	Max.	Unit
Heater Voltage	6.0	6.6	V
Heater Surge Current	-	2.5	A
Heater Current	-	1.2	A
Heater Warm-up Time	180	-	s
Helix Voltage	7.8	8.5	kV
Helix Current	-	5.0	mA
Collector-1 Voltage	3.0	3.3	kV
Collector-1 Current	-	40	mA
Collector-2 Voltage	1.5	1.7	kV
Collector-2 Current	-	65	mA
RF Drive Power	-	6	dBm
Load VSWR	-	1.5 : 1	-

ENVIRONMENTAL

Heat Sink Temperature	-30	+90	°C
Storage Temperature	-40	+90	°C

LD7714 OUTLINE (Unit in mm)



LEAD COLOR	LEAD CONNECTIONS	LENGTH
BROWN	HEATER	500 mm MIN.
YELLOW	HEATER-CATHODE	500 mm MIN.
RED	COLLECTOR-1	500 mm MIN.
GREEN	COLLECTOR-2	500 mm MIN.
BLACK	HELIX (GROUND)	500 mm MIN.

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NEC devices are classified into the following three quality grades:

"Standard", "Special", and "Specific". The Specific quality grade applies only to devices developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC devices is "Standard" unless otherwise specified in NEC's Data Sheets or Data Books.

If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact an NEC sales representative in advance.

Anti-radioactive design is not implemented in this product.