



ELECTRONIC TUBE REFERENCE

NL643

Rectifier - Half Wave electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
RECTIFIER

Directly heated mercury-filled industrial rectifier for power applications up to approximately 200 V DC. Rated for approximately 700 V peak inverse voltage and 15 A nominal output.

GENERAL CHARACTERISTICS

BASE DESIGNATION	DOWN	BASE PINS	–
NOMINAL HEATER	2.5 V / 20 A	PARALLEL HEATER	– / –
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Rectifier	
MAXIMUM CATHODE CURRENT	15 A
PEAK INVERSE VOLTAGE	700 V
NOMINAL OUTPUT CURRENT	15 A
PEAK FORWARD CURRENT	45 A
FORWARD VOLTAGE DROP	10 V
WARM-UP TIME	120 s
Published ratings and characteristics promoted where canonical fields apply.	

NATIONAL POWER TUBE NL-643 is a sturdy rectifier tube designed especially for industrial power rectifier applications up to 200 volts dc. It is mercury filled for efficiency and the ability to withstand high inverse voltage. NL-643 is designed to give exceptionally long life when used within its ratings. NL-643 RECTIFIER TUBE TECHNICAL INFORMATION do Amperes output (maximum) 15 Instantaneous Amperes output (maximum) 90 Maximum time of averaging anode current (seconds) 15 Maximum pea

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1956 National Electronics Industrial Tubes

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

1956 NATIONAL ELECTRONICS INDUSTRIAL TUBES

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
rectifier applications up to	200 volts dc. It is mercury filled for efficiency and the ability to withstand	Source technical-information table; wording preserved from datasheet.
do Amperes output (maximum)	15 A	Source technical-information table; wording preserved from datasheet.
Instantaneous Amperes output (maximum)	90 A	Source technical-information table; wording preserved from datasheet.
Maximum time of averaging anode current (seconds)	15 A	Source technical-information table; wording preserved from datasheet.
Maximum peak inverse volts	700 V	Source technical-information table; wording preserved from datasheet.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament volts	2.5 V	Source technical-information table; wording preserved from datasheet.
Filament amperes	23 + 2 A	Source technical-information table; wording preserved from datasheet.
Filament heating time (seconds)	120 s	Source technical-information table; wording preserved from datasheet.
Maximum ac short circuit current (amperes)	750 A	Source technical-information table; wording preserved from datasheet.
Condensed mercury temperature limits (°C) (700 volts peak inverse)	+ 35 to + 90 V	Source technical-information table; wording preserved from datasheet.
Condensed mercury temperature limits (°C) (500 volts peak inverse)	+ 35 to + 100 V	Source technical-information table; wording preserved from datasheet.
Approximate temperature rise, cond. mercury above ambient, no load (°C)	35 C	Source technical-information table; wording preserved from datasheet.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Approximate temperature rise, cond. mercury above ambient, full load (°C)	50 C	Source technical-information table; wording preserved from datasheet.
Net weight (ounces)	9 oz	Source technical-information table; wording preserved from datasheet.
Approx. shipping weight (lbs.)	5 lb	Source technical-information table; wording preserved from datasheet.

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Typical arc drop at 45 amperes peak (volts)	10 V	Source technical-information table; wording preserved from datasheet.
Typical Anode starting voltage (volts)	13 V	Source technical-information table; wording preserved from datasheet.



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1957 NATIONAL ELECTRONICS

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum DC output current	15 A	—
Maximum instantaneous output current	45 A	—
Maximum peak inverse voltage	700 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament heating time	120 s	—
Typical arc drop	10 V	—
Typical anode starting voltage	13 V	—

CONSTRUCTION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filling	Mercury vapor	—

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Service	Industrial power rectifier	—