

HIGH-VACUUM DIODE 6103

Forced-Air Cooled Type  
 Small Size

20 Kv. Peak Inverse Voltage  
 Light Weight

The high-vacuum diode type 6103 is designed for use in rectifier applications involving peak inverse voltages up to 20 kv. The maximum average current is 150 ma. and the peak current is 900 ma. The 6103 has a thoriated tungsten filament and is intended for forced-air cooling installation.

GENERAL DATA

Electrical:

Filament Type (See Note II)	. . . . . Thoriated Tungsten		
	Min.	Center	Max.
Filament Voltage . . . . .	4.75	5.0	5.25
Filament Current at			
center volts . . . . .	6.8	7.2	7.6
Filament Heating Time . . . . .	3	---	---
Tube Voltage Drop (I <sub>b</sub> = 150 ma)	. . . . . 300		Volts

Mechanical:

Mounting (See Note I)	. . . . . Special		
Mounting Position . . . . .	Vertical, plate up or down		
Cooling (See Note III)	. . . . . Forced Air		
Air flow of 50 cu. ft. per min. is required to be directed into the open side of the radiator.			
Static Back Pressure . . . . .	less than 0.1 inches water		
Temperature of Input Air . . . . .	45 max. °C		
Radiator Temperature . . . . .	200 max. °C		
Seal Temperature . . . . .	180 max. °C		
Net Weight . . . . .	8-1/2 ounces		

MAXIMUM RATINGS

Absolute Values

Rectifier Service:

Peak Inverse Voltage . . . . .	20	max.	Kv.
Peak Plate Current . . . . .	900	max.	Ampere
Average Plate Current . . . . .	150	max.	Ampere
Average Plate Dissipation . . . . .	140	max.	Watts

TYPICAL OPERATION

Single-Phase, Full Wave:

Full Transformer Secondary Voltage (Erms)	. . . . . 14100	Volts
D-C Output Voltage to Filter . . . . .	6300	Volts
D-C Output Current . . . . .	.300	Ampere

Single-Phase, Full-Wave Bridge:

Transformer Secondary Voltage (Erms)	. . . . . 14100	Volts
D-C Output Voltage to Filter . . . . .	12700	Volts
D-C Output Current . . . . .	.300	Ampere

Three-Phase, Half-Wave:

Transformer Secondary Voltage (Erms) Line to Neutral . .	8200	Volts
D-C Output Voltage to Filter . . . . .	9500	Volts
D-C Output Current . . . . .	.450	Ampere

Three-Phase, Double-Y Parallel (See Note V):

Transformer Secondary Voltage (Erms) Line to Neutral . .	7000	Volts
D-C Output Voltage to Filter . . . . .	8300	Volts
D-C Output Current . . . . .	.900	Ampere

Three-Phase, Full-Wave Bridge:

Transformer Secondary Voltage (Erms) Line to Neutral . .	8200	Volts
D-C Output Voltage to Filter . . . . .	19000	Volts
D-C Output Current . . . . .	.450	Ampere

NOTES

I. Mounting

The 6103 should be supported by the plate terminal so that the axis of the tube is vertical with the plate terminal either up or down. Flexible leads should be provided for the filament connections to prevent strain on the tube seals.

II. Filament

The filament of the 6103 is designed for a-c operation from a transformer secondary winding. The filament voltage measured at the tube terminals should not vary more than 5% from the rated value, including the effects of power-supply regulation. The filament voltage should be applied at least 3 seconds before plate voltage is applied. Safety precautions should be observed when the filament voltage is measured in cases where the filament is at a high potential.

III. Cooling

Cooling air flow should start with the application of any voltages and should continue until all voltages are removed.

IV. Filter Input

Filter circuits of the condenser-input type may be employed; the capacity of the condenser must be such that the peak plate current rating will not be exceeded. Choke-input filters may be preferred in order to obtain the largest average d-c output current under the most favorable conditions.

V. No Load

Under no-load conditions, the peak inverse voltage across the tube will rise 15%.

VI. General

The allowable load currents shown under "Typical Operation" are for ideal conditions; circuit regulation and other factors will reduce these currents in practical installations.

6103 OUTLINE

