

OBJECTIVE
TECHNICAL INFORMATION

These ratings represent the design objective for this product. Refer to the Preliminary Technical Information sheet for ratings currently achieved in the progression towards design objectives. If PTI sheets do not exist, consult your local Tube Department Regional Sales Office.

DEVELOPMENTAL
TYPE

Z-5278
 OTI-89A
 Page 1
 3-15-64

This technical information is proprietary and is furnished only as a service to customers

Z-5278

INTEGRATED DISTRIBUTED AMPLIFIER

Extreme Electronic Bandwidth
 Frequency Pass Band: 50 to 600 mcs, approximate

Metal and Ceramic
 Forced-Air Cooled

The Z-5278 represents a completely new approach in the development of distributed amplification. In order to extend the performance significantly in power output and gain and especially to increase the upper limit of electronic bandwidth, the distributed amplifier has been developed as an integrated tube-circuitry package inside a single evacuated envelope. This single envelope includes all the necessary RF components and circuitry. Only RF connectors and the application of d-c voltages are necessary to provide a complete distributed-amplifier package. This new approach results in a most significant reduction in size, weight and complexity of these components.

ELECTRICAL

Heater Voltage*	12	Volts
Heater Current.	15	Amperes
Cathode Heating Time, minimum	5	Minutes
RF Line Impedances		
Grid-Line Input Impedance, nominal	30	Ohms
Grid-Line Terminating Impedance, nominal	30	Ohms
Anode-Line Output Impedance, nominal.	200	Ohms
Anode-Line Terminating Impedance, nominal.	200	Ohms

MECHANICAL

Mounting Position - Any		
Net Weight, approximate	7 1/2	Pounds
Envelope Dimensions, exclusive of terminals and vacuum connections, approximate †	4 1/4 x 7 1/4 x 4 3/4	Inches

THERMAL

Cooling - Forced Air		
Temperature at any point on the envelope, seals and connectors, maximum **	175	C

Depending on mounting and environment, it may be necessary to provide some ventilation to maintain proper seal temperatures.

BROAD-BAND CW RF AMPLIFIER

Maximum Ratings		
Frequency Band-Pass for Input Driving Signal ‡	50-500	Megacycles
Heater Voltage Regulation	± 5	Percent
DC Plate Voltage *	350	Volts
DC Plate Current *		
Each half.	1.75	Amperes
Total	3.50	Amperes

BROAD-BAND CW RF AMPLIFIER (Cont'd)

Maximum Ratings (Cont'd)

Frequency Band-Pass for Input Driving Signal ‡ (Cont'd)

DC Screen Voltage *	125	Volts
DC Screen Current *		
Each half.	100	Milliamperes
Total	200	Milliamperes
DC Grid Voltage *	0 to -7.5	Volts
DC Grid Current *		
Each half.	60	Milliamperes
Total	120	Milliamperes
RF Grid Driving Power, peak or average	4	Watts
Anode Dissipation		
Each half	600	Watts
Total	1200	Watts

Typical Operation

CW RF Amplifier, 50-500 Megacycles, Tube Halves Connected in Series §

DC Plate Voltage	330	Volts
DC Plate Current, each half	1.5	Amperes
DC Screen Voltage	120	Volts
DC Screen Current, each half, approximate	90	Milliamperes
DC Grid Voltage, adjustable, approximate	-3.5	Volts
DC Grid Current, each half, approximate	50	Milliamperes
Grid-Line RF Driving Power	3.5	Watts
Grid-Line Terminating Impedance	30	Ohms
Anode-Line RF Output Power	125	Watts
Over the band of 50-500 Megacycles.	75-150	Watts
Anode-Line Terminating Impedance	200	Ohms
Power Gain	15	Decibels
Over the band of 50-500 Megacycles.	13-16	Decibels

* Recommended exact value will be supplied for each unit.

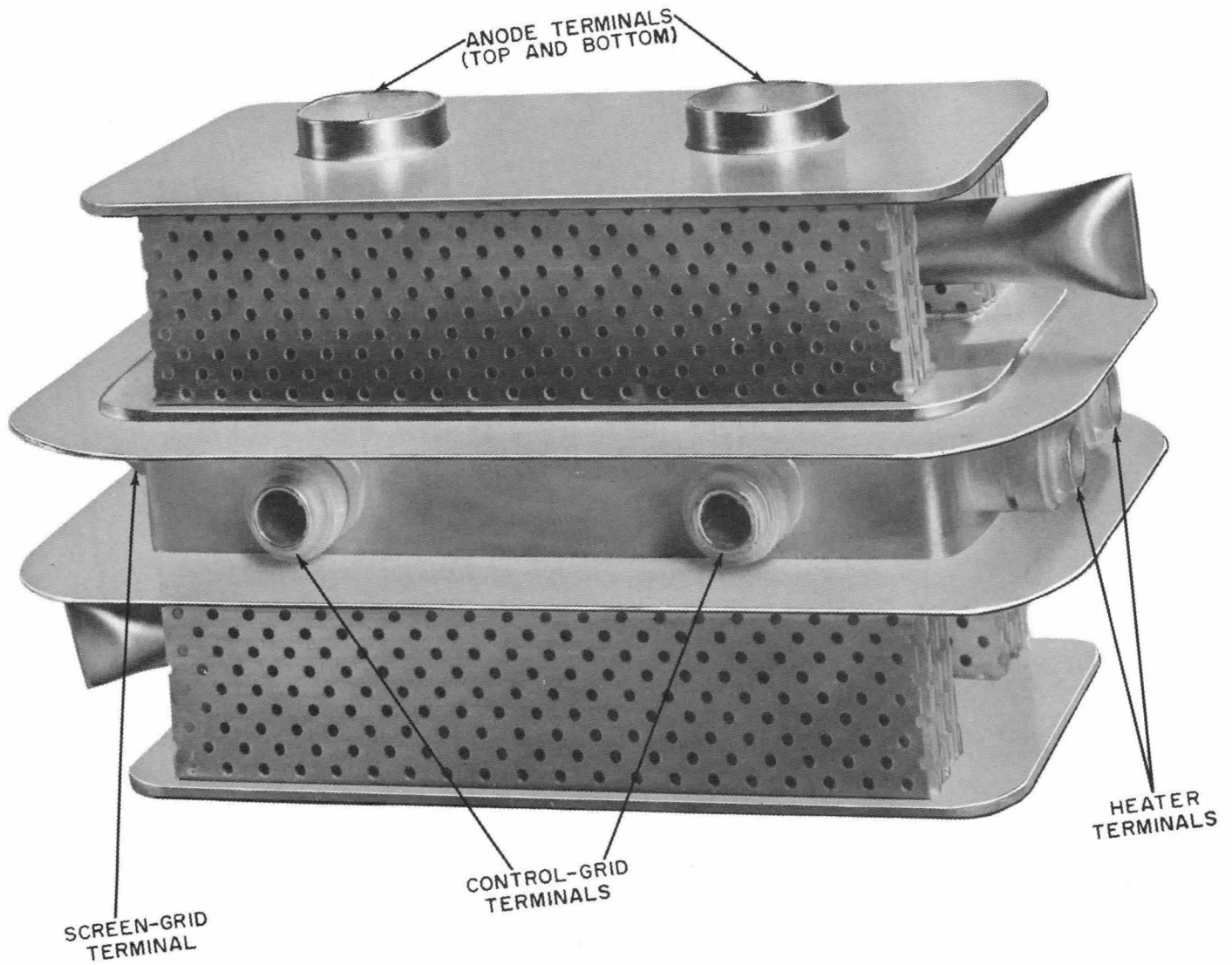
† Developmental units may be furnished with an integral electronic vacuum pump.

‡ For applications at frequencies above or below the range indicated, refer to the manufacturer for recommendations. For operation with input frequencies below 100 megacycles external capacitance by-passing may be required between the screen terminal and the amplifier envelope.

§ The two RF grid lines are connected in series and the two RF anode lines are connected in series.

NOTE

This is a four-terminal space-charge device, and the usual application precautions as practiced with conventional RF tetrode circuitry must be observed. For example, it is necessary to use sensitive overload circuits to protect the grid, screen, and anode elements.



TUBE DEPARTMENT
GENERAL  ELECTRIC
Owensboro, Kentucky