



6173

UHF DIODE

"PENCIL" TYPE

For use in pulse-detection and pulse-power-measuring service at frequencies up to 3300 Mc

6173

GENERAL DATA

Electrical:

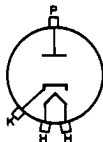
Heater, for Unipotential Cathode:

Voltage	6.3 ± 10%	ac or dc volts
Current	0.135	amp
Resonant Frequency (Approx.)		1600	Mc
Direct Interelectrode Capacitance (Approx.): ^o			
Plate to cathode.	1.1		μμf

Mechanical:

Operating Position. Any
 Dimensions. See Dimensional Outline
 Socket. Cinch No. 54A16325, or equivalent
 Terminal Connections (See Dimensional Outline):

H - Heater Leads
 P - Plate Terminal
 (Adjacent to
 pinch-off)



K - Cathode Terminal
 (Adjacent to
 heater leads)

PULSE-DETECTION and PULSE-POWER-MEASURING SERVICE[▲]

Maximum Ratings, Absolute Values:

PEAK INVERSE PLATE VOLTAGE.	1000 max.	volts
PEAK PULSE PLATE VOLTAGE.	150 max.	volts
PEAK PULSE PLATE CURRENT.	1 max.	amp
DC PLATE CURRENT.	1 max.	ma
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	volts
Heater positive with respect to cathode	90 max.	volts
SEAL TEMPERATURE (Plate or cathode)	175 max.	°C

HALF-WAVE RECTIFIER

Maximum Ratings, Absolute Values:

PEAK INVERSE PLATE VOLTAGE.	375 max.	volts
PEAK PLATE CURRENT.	50 max.	ma
HOT-SWITCHING TRANSIENT PLATE CURRENT: [●]		
For duration of 0.2 second maximum.	250 max.	ma
DC OUTPUT CURRENT	5.5 max.	ma

^o, [▲], [●]: See next page.



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PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode	90 max.	volts
Heater positive with respect to cathode	90 max.	volts
SEAL TEMPERATURE (Plate or cathode)	175 max.	°C

○ Without external shield.

▲ In this class of service, the heater should be allowed to warm up for a minimum of 60 seconds before plate voltage is applied in order to allow the cathode to reach normal operating temperature and to be able to supply the high peak plate currents encountered in this class of service.

● A minimum plate-load impedance (including the source impedance) of 300 ohms is required to limit the hot-switching transient plate current and thereby prevent damage to the tube when the plate voltage is applied.

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	Min.	Max.	
Heater Current	1	0.127	0.143	amp
Direct Interelectrode Capacitance:				
Plate to cathode	2	0.8	1.4	μuf
Tube Voltage Drop	1,3	-	15	volts

Note 1: With 6.3 volts ac or dc on heater.

Note 2: Without external shield.

Note 3: With peak plate current of 50 milliamperes provided by an applied dc voltage. Tube drop is measured by a voltmeter connected between plate and cathode.

OPERATING CONSIDERATIONS

Connections to the cathode terminal and the plate terminal should be made by flexible spring contacts only. The connectors must make firm, large-surface contact, yet must be sufficiently flexible so that no part of the tube is subjected to strain. Unless this recommendation is observed, the glass-to-metal seals may be damaged.

The heater leads should not be soldered to the circuit elements. The heat of the soldering operation may crack the glass seals of the heater leads and damage the tube.

The accompanying *Pulse Rating Chart* represents graphically the relationships between pulse duration, pulse-repetition rate, and peak-pulse plate current. This Chart gives the equipment designer a wide choice of operating parameters within the tube's ratings.

Dotted boundary line "ABC" is the locus of the maximum peak-pulse-plate-current values for various pulse durations. In most applications, two of the three parameters shown in the *Pulse Rating Chart* are known. Knowing any two parameters, the equipment designer can select from the Chart the maximum allowable value of the third parameter. For example, if an application requires a 1-microsecond pulse and a pulse-repetition rate of 1000 pulses per second, the maximum allowable peak-pulse plate current is 1 ampere. Since the pulse-repetition rate of 1000 is a maximum value for a pulse duration

→ Indicates a change.



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"PENCIL TYPE" FOR PULSE-DETECTION SERVICE

GENERAL DATA**Electrical:**

Heater, for Unipotential Cathode:

Voltage 6.3 ± 10% ac or dc volts

Current 0.135 amp

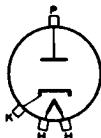
Resonant Freq. (Approx.) 1600 Mc

Direct Interelectrode Capacitance (Approx.):

Plate to Cathode 1.1 μf **Mechanical:**

Terminal Connections:

H-Heater Leads

P-Plate Cylinder
(Adjacent to
Pinch-off)K-Cathode Cylinder
(Adjacent to
Heater Leads)

Mounting Position Any

Dimensions See Outline Drawing

**PULSE-DETECTION AND
PULSE-POWER-MEASURING SERVICE^A****Maximum Ratings, Absolute Values:**

PEAK INVERSE PLATE VOLTAGE 1000 max. volts

PEAK PULSE PLATE VOLTAGE 150 max. volts

PEAK PULSE PLATE CURRENT 1.0 max. amp

AVERAGE PLATE CURRENT 1 max. ma.

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode 90 max. volts

Heater positive with respect to cathode 90 max. volts

SEAL TEMPERATURE (Plate or Cathode) 175 max. °C

HALF-WAVE RECTIFIER**Maximum Ratings, Absolute Values:**

PEAK INVERSE PLATE VOLTAGE 375 max. volts

PEAK PLATE CURRENT 50 max. ma.

HOT-SWITCHING TRANSIENT PLATE CURRENT^B

For duration of 0.2 second maximum 250 max. ma.

DC OUTPUT CURRENT 5.5 max. ma.

(continued on next page)

^A In this class of service, the heater should be allowed to warm up for a minimum of 60 seconds before plate voltage is applied in order to allow the cathode to reach normal operating temperature and to be able to supply the high peak plate currents encountered in this class of service.

^B A minimum plate-load impedance (including the source impedance) of 300 ohms is required to limit the hot-switching transient plate current and thereby prevent damage to the tube when the plate voltage is applied.

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PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode . .	90 max.	volts
Heater positive with respect to cathode . .	90 max.	volts
SEAL TEMPERATURE (Plate or Cathode). . . .	175 max.	°C

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	Min.	Max.	
Heater Current	1	0.123	0.143	amp
Plate-to-Cathode Capacitance	-	0.8	1.4	μμf
Tube Voltage Drop.	1,2	-	15	volts

Note 1: With 6.3 volts ac or dc on heater.

Note 2: With peak plate current of 50 milliamperes provided by an applied dc voltage. Tube drop is measured by a voltmeter connected between plate and cathode.

INSTALLATION CONSIDERATIONS

Connections to the cathode cylinder and plate cylinder should be made by flexible spring contacts only. The connectors must make firm, large-surface contact, yet must be sufficiently flexible so that no part of the tube is subjected to strain. Unless this recommendation is observed, the glass-to-metal seals may be damaged.

The heater leads of the 6173 fit the Cinch Socket No. 54A16325. They should not be soldered to circuit elements. The heat of the soldering operation may crack the glass seals of the heater leads and damage the tube.



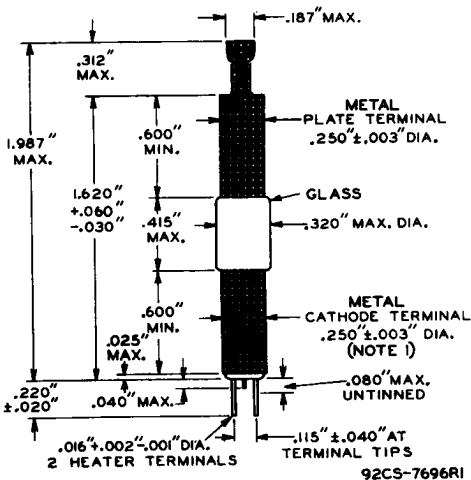
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of 1 microsecond, it follows that any pulse-repetition rate up to 1000 may be used under these conditions. If a longer pulse duration is required, e.g., 1.5 microseconds, and the same pulse-repetition rate of 1000 is required, the maximum allowable peak-pulse plate current is 0.67 ampere.

In applications where groups of pulses are employed, the equipment designer can total the pulse duration of the individual pulses in any one group and then treat the pulse duration of the group as a single wide pulse.

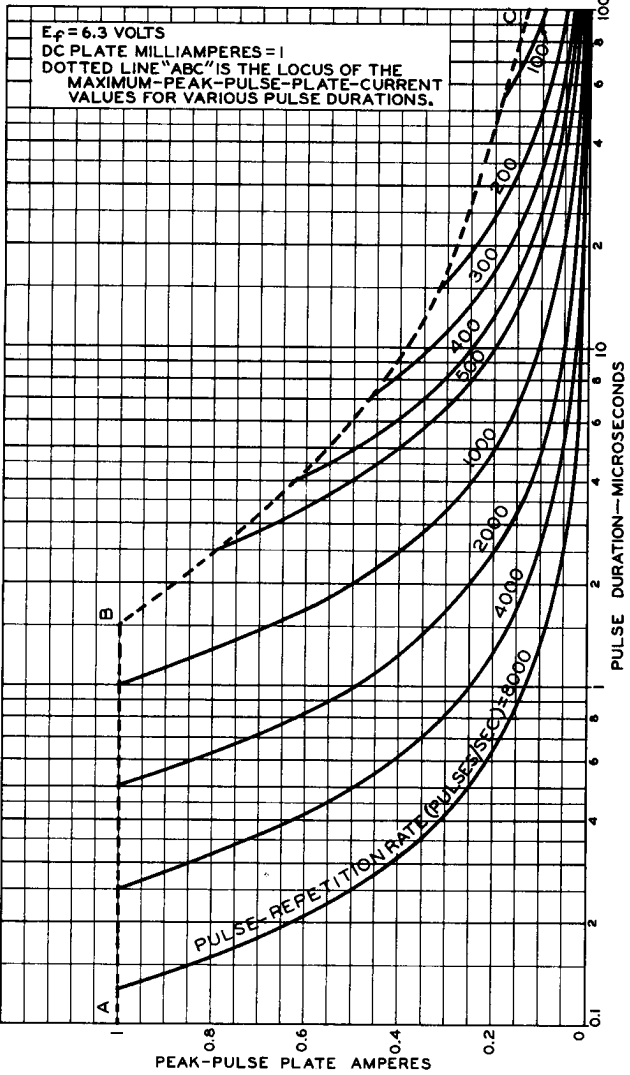


NOTE 1: THE MAXIMUM ECCENTRICITY OF THE CATHODE TERMINAL WITH RESPECT TO THE PLATE TERMINAL IS 0.008". ECCENTRICITY IS MEASURED BY CHUCKING THE PLATE TERMINAL 0.050" TO 0.100" FROM THE GLASS MID-SECTION, ROTATING THE TUBE, AND MEASURING ONE-HALF THE TOTAL TRAVEL DISTANCE OF THE CATHODE TERMINAL AT A POINT 0.080" FROM THE FREE END OF THE CATHODE TERMINAL.

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PULSE RATING CHART

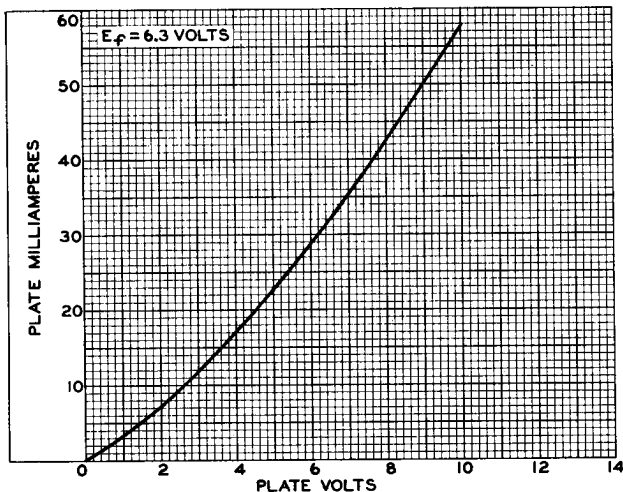




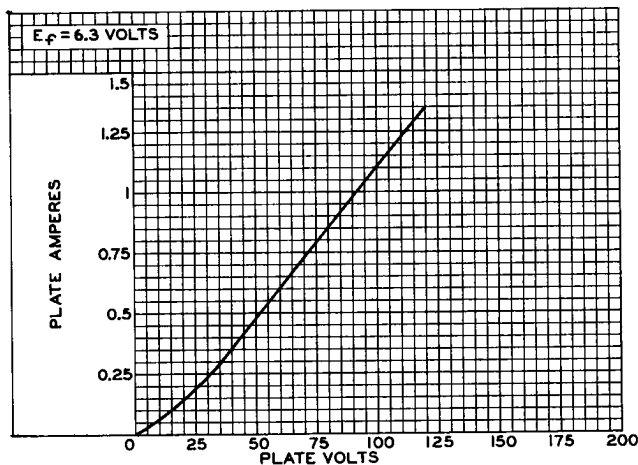
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AVERAGE PLATE CHARACTERISTICS



92CS-9638



92CS-9637