

GE13971

Planar Triode

The GE 13971 is a planar triode of ceramic and metal construction intended for use as a plate-pulsed oscillator or amplifier at frequencies up to 6000 megahertz. This tube was designed primarily for zero bias operation in long life broadbanded amplifier chains.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

	Minimum	Bogey	Maximum	Units	Test Conditions				
					Ef V	Eb V	Ib Ma	Eg V	Rk Ohms
Heater Voltage, AC or DC*	6.0	6.3	6.6	Volts					
Heater Current	510	550	590	Milliamperes	6.3	---	---	---	---
Plate Current	16	23	30	Milliamperes	6.3	200	---	---	100
Amplification Factor	48	58	68		6.3	200	---	---	100
Transconductance	19000	25000	31000	Micromhos	6.3	200	---	---	100
Grid Voltage, Cutoff	---	-5	-9	Volts	6.3	200	0.1	---	---
Direct Interelectrode Capacitances •									
Grid to Plate: (g to p)	1.3	1.5	1.7	pf					
Input: g to (h+k)	3.9	4.8	5.7	pf					
Output: p to (h+k)	---	0.05	0.075	pf					
Cathode Heating Time	60	---	---	Seconds					

PLATE-PULSED OSCILLATOR SERVICE

Frequency	1200	Megahertz
Duty Factor	0.004	
Pulse Duration	4	Microseconds
Pulse Repetition Rate	1000	Pulses Per Second
Peak Positive-Pulse Supply Voltage	1500	Volts
Plate Current: Average During Pulse	1.5	Amperes
Grid Current: Average During Pulse	0.31	Amperes
Power Output: Average During Pulse	900	Watts

NOTES

- * The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance. In some applications, longer tube life may be obtained at reduced heater voltage. For specific recommendations, contact your General Electric sales representative.
- Measured at 450 KHz using a grounded adapter that provides shielding between external terminals of tube.

ABSOLUTE-MAXIMUM RATINGS

PLATE-PULSED OSCILLATOR SERVICE

Peak Positive-Pulse Plate Supply Voltage		
1 Microsecond Pulse Duration	2500	Volts
4 Microsecond Pulse Duration	1500	Volts
Duty Factor of Plate Pulse §	0.004	
Plate Current: Average During Pulse ¶	2.0	Amperes
Negative Grid Voltage: Average During Pulse	100	Volts
Grid Current: Average During Pulse	1.0	Amperes
Plate Dissipation	6.5	Watts
Peak Heater-Cathode Voltage		
Heater Positive with Respect to Cathode	50	Volts
Heater Negative with Respect to Cathode	50	Volts
Envelope Temperature at Hottest Point ▲	250	°C
Temperature Differential Between Two Adjacent Electrodes ◆	75	°C
Mechanical Vibration (20-2000 Hz Sinusoidal)	10	G Peak

Absolute-Maximum ratings are limiting values of operating and environmental conditions applicable to any electron device of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The device manufacturer chooses these values to provide acceptable serviceability of the device, making no allowance for equipment variations, environmental variations, and the effects of changes in operating conditions due to variations in the characteristics of the device under consideration and of all other electron devices in the equipment.

The equipment manufacturer should design so that initially and throughout life no absolute-maximum value for the intended service is exceeded with any device under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of the device under consideration and of all other electron devices in the equipment.

NOTES

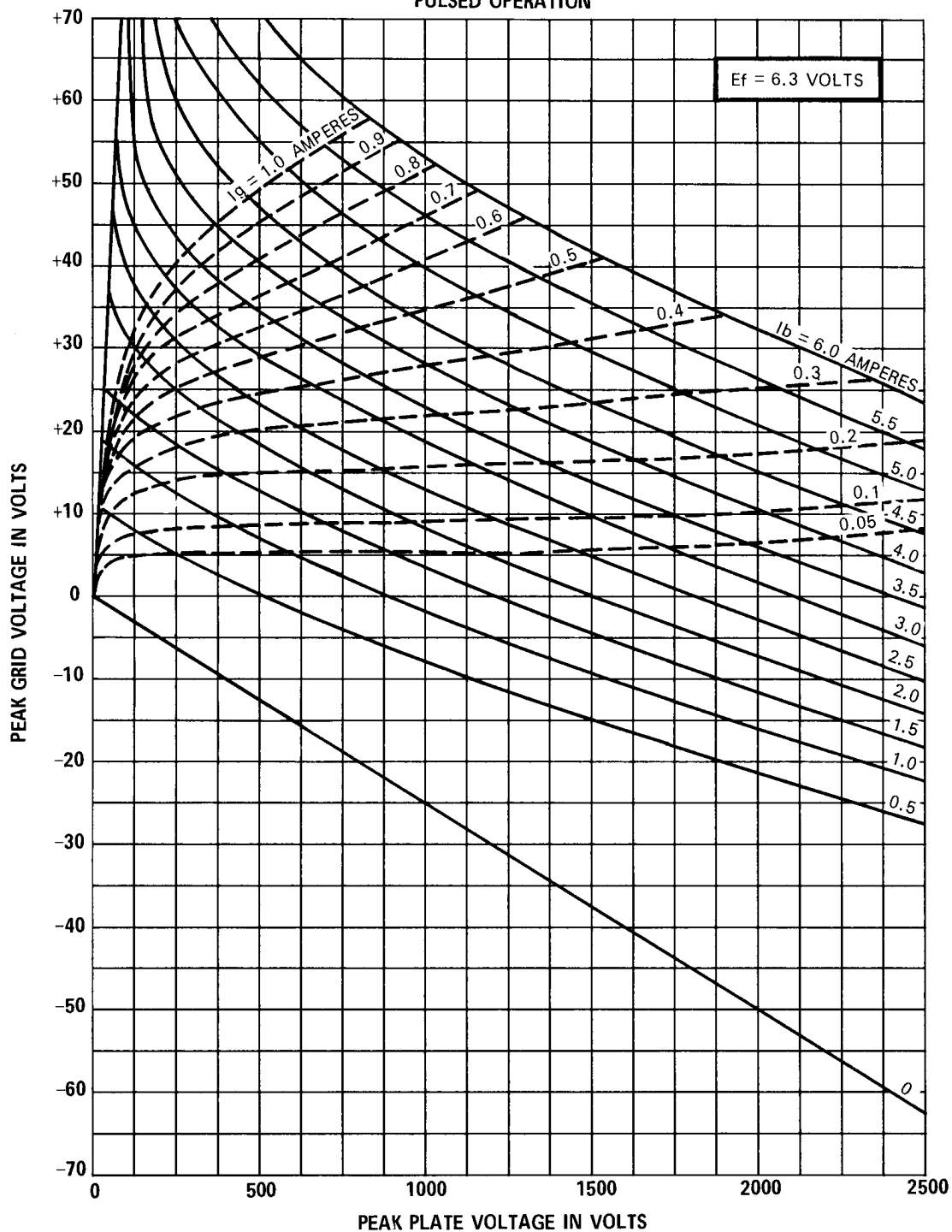
- § In any 5 millisecond interval.
- ¶ The regulation and/or series plate supply impedance must be such as to limit the peak current, with the tube considered a short circuit, to a maximum of 10 times the maximum plate current rating.
- ▲ For specific recommendations concerning higher temperature operation, contact your General Electric sales representative.
- ◆ This assumes no thermal heat sinking to any insulator.

The devices and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of devices by General Electric Company conveys any license under patent claims covering combinations of these devices with other devices or elements. In the

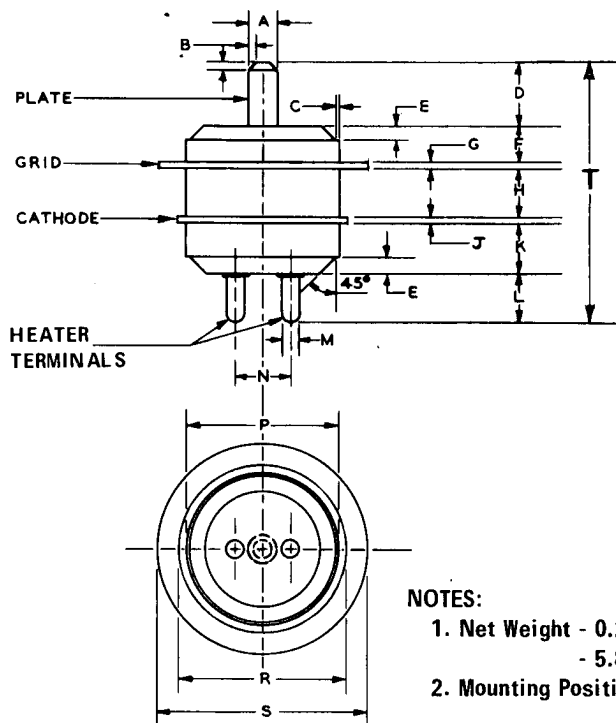
absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of these devices with other devices or elements by any purchaser or others.

AVERAGE CONSTANT-CURRENT CHARACTERISTICS

PULSED OPERATION



PHYSICAL DIMENSIONS



- NOTES:
 1. Net Weight - 0.205 Ounces
 - 5.82 Grams
 2. Mounting Position - Any

Ref.	INCHES			MILLIMETERS		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.122	0.125	0.128	3.099	3.175	3.251
B	---	0.030	---	---	0.762	---
C	---	0.005	---	---	0.127	---
D	0.220	0.225	0.230	5.588	5.715	5.842
E	0.040	0.050	0.060	1.016	1.270	1.524
F	0.120	0.125	0.130	3.048	3.175	3.302
G	0.025	0.028	0.031	0.635	0.711	0.787
H	0.167	0.172	0.177	4.242	4.369	4.496
J	0.025	0.028	0.031	0.635	0.711	0.787
K	0.170	0.175	0.180	4.318	4.445	4.572
L	0.170	0.175	0.180	4.318	4.445	4.572
M	0.047	0.050	0.053	1.194	1.270	1.346
N	0.185	0.200	0.215	4.699	5.080	5.461
P	0.543	0.548	0.553	13.74	13.92	14.05
R	0.598	0.603	0.608	15.19	15.32	15.44
S	0.748	0.753	0.758	19.00	19.13	19.25
T	0.897	0.928	0.959	22.78	23.57	24.36

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