TUNG-SOL

PRODUCT BULLETIN

INDUSTRIAL ELECTRON TUBE TYPE 6012

DECEMBER, 1962

SHIELD GRID THYRATRON

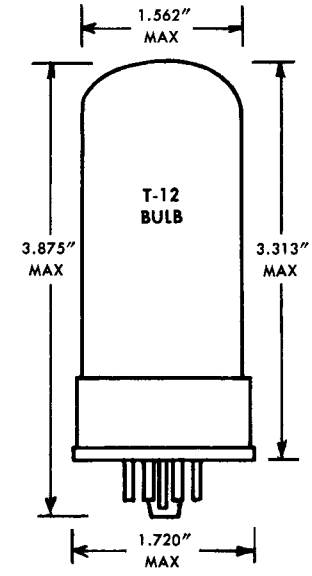
DESCRIPTION — The 6012 is a negative control, xenon filled, four electrode thyratron designed for use in relay and grid-controlled rectifier applications. One type 6012 will carry 0.5 ampere in motor-control and in inverter service.

Use of the shield-grid type of construction permits a very low preconduction control grid current to flow. This permits the use of a high resistance in the control grid circuit. The grid control characteristic is independent of ambient temperature over the range from −75 to +90 degrees Centigrade due to the tube's inert gas filling. The 6012 mounts in a standard octal socket.

ELECTRICAL DATA

Heater Voltage	6.3 ± 10%	Volts
Heater Current (E_f = 6.3 Volts)	2.6	Amperes
Minimum Cathode Heating Time	30	Seconds
Interelectrode Capacitances — Approximate		
Anode to Control Grid	0.65	Micromicrofarads
Control Grid to Cathode (and Shield Grid)	6.5	Micromicrofarads
Anode to Cathode (and Shield Grid)	4.5	Micromicrofarads
Anode Voltage Drop — Approximate	12	Volts
Maximum Critical Grid Current (at Epp = 460 Volts RMS and Ib = 0.5 Ampere)	3	Microamperes
Ionization Time — Approximate		
Anode Volts = 100, Anode Current = 5 Amperes, Shield Grid Volts = 0, Control Grid = + 50 Volt Square Wave Pulse	0.5	Microseconds
Deionization Time — Approximate — Note 1		
Anode Volts = 125, Anode Current = 0.5 Amperes, Shield Grid Resistor = 1000 Ohms, Control Grid Volts = −13, Control Grid Resistor = 1000 Ohms	175	Microseconds
Anode Volts = 125, Anode Current = 0.5 Amperes, Shield Grid Resistor = 1000 Ohms, Control Grid Volts = −100, Control Grid Resistor = 1000 Ohms	100	Microseconds

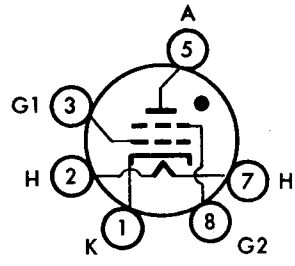
Note 1. Connect shield grid to cathode through 1000 ohm series resistor.



OUTLINE DRAWING

MECHANICAL DATA

Mounting Position	Any
Bulb	T12
Base	Large wafer octal with metal sleeve, 6 pin, JEDEC No. B6-100
Maximum Net Weight	2.5 Ounces



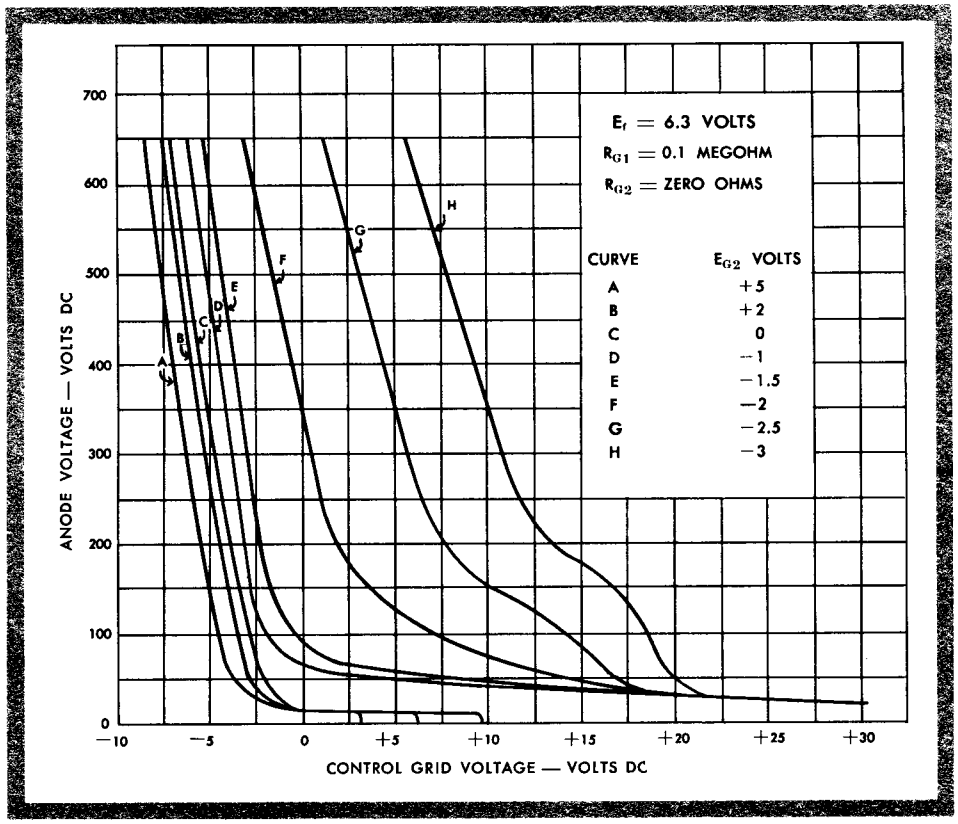
BASING DIAGRAM
BOTTOM VIEW
6CO

RATINGS, ABSOLUTE VALUES
(For Anode-Supply Frequency of 60 CPS)

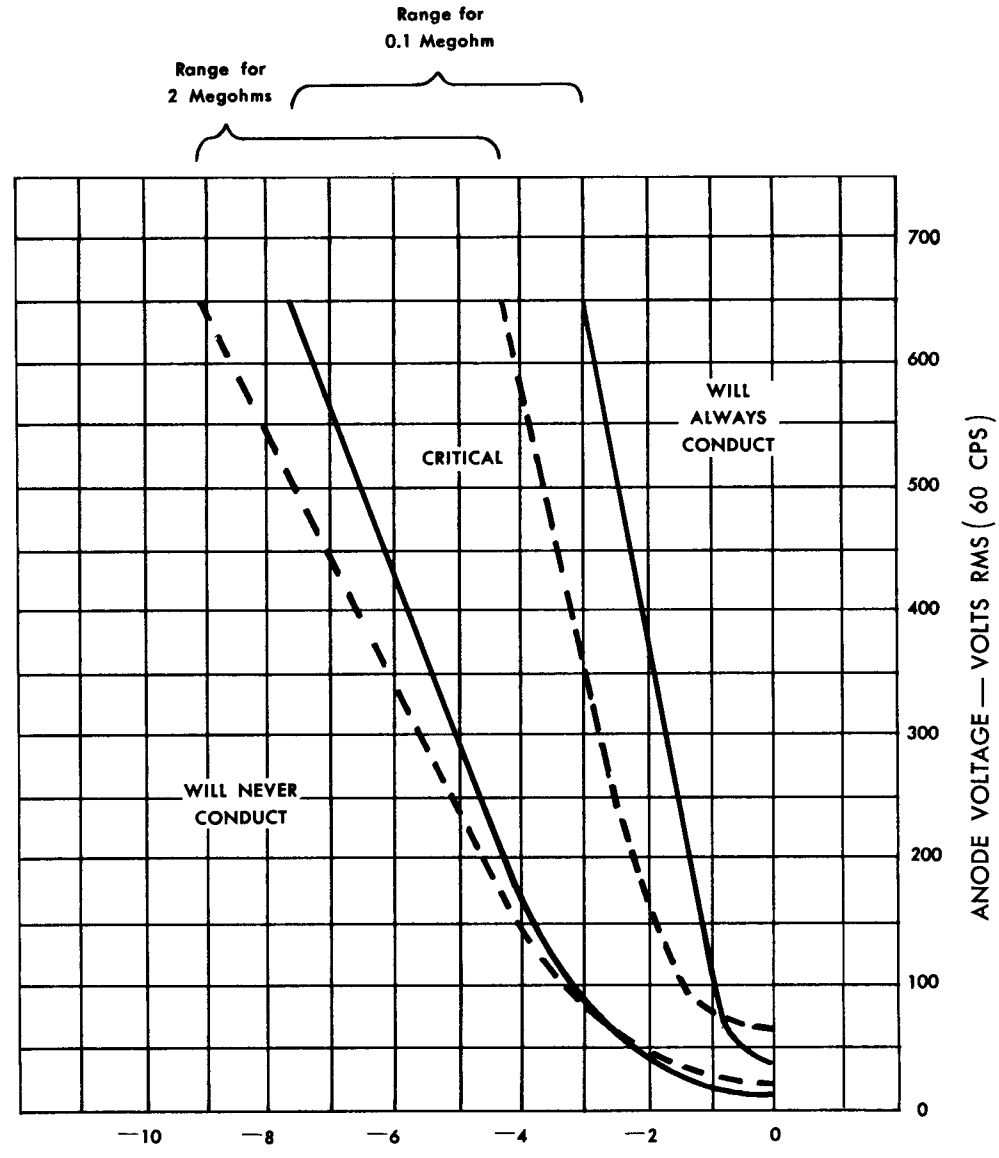
Maximum Peak Anode Voltage		
Forward	650	Volts
Inverse	1300	Volts
Maximum Cathode Current		
Peak	5	Amperes
Average — Note 1	0.5	Ampere
Surge — Maximum Duration 0.1 Second — Note 2	20	Amperes
Maximum Negative Control Grid Voltage		
Before Conduction	200	Volts
During Conduction — Note 1	10	Volts
Maximum Positive Control Grid Current		
Average — Note 1	0.05	Ampere
Maximum Negative Shield Grid Voltage		
Before Conduction	100	Volts
During Conduction — Note 1	10	Volts
Maximum Positive Shield Grid Current — Note 1	0.05	Ampere
Maximum Heater — Cathode Voltage		
Heater Negative	100	Volts
Heater Positive	25	Volts
Maximum Control Grid Circuit Resistance	2	Megohms

Notes 1. Averaged over any interval of 30 seconds maximum.

2. The equipment designer should limit the short circuit current to 20 amperes circuitwise. It should be understood that while the tube may stand several faults at this magnitude of current, each fault will adversely affect tube life.

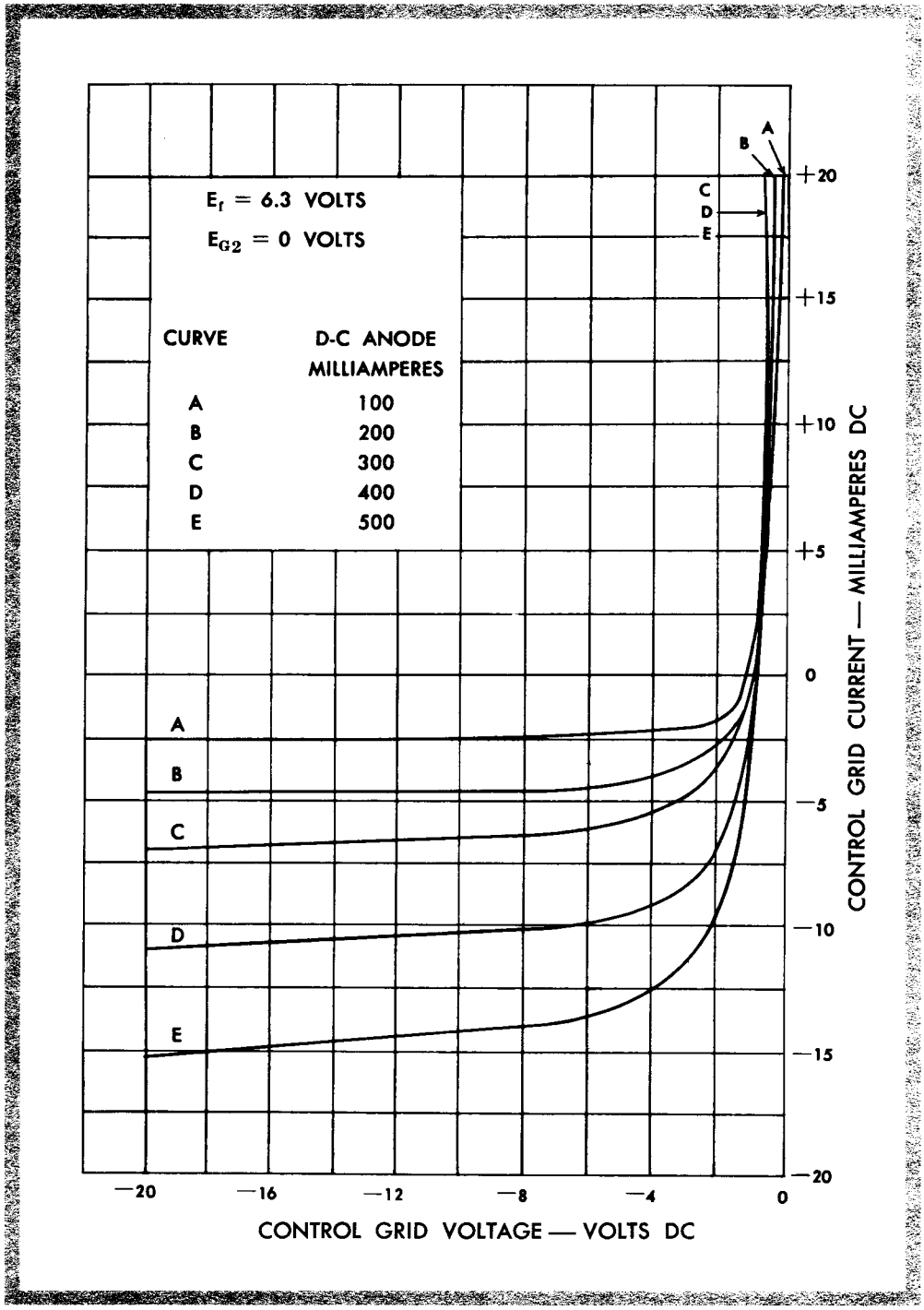


AVERAGE CONTROL CHARACTERISTICS



Critical conduction area is shown for two values of grid resistor, 0.1 megohm and 2 megohms, and zero voltage applied to grid No. 2. Allowance is made for initial differences between individual tubes and variations during tube life for a range of heater voltage from 5.7 to 6.9 volts.

OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE



AVERAGE GRID CHARACTERISTICS DURING ANODE CONDUCTION