

Large forced-air-cooled hard-tube pulse-modulator triode for major radar and pulsed-power systems. Tens-of-kilovolts plate capability and very high pulse current make it a specialized high-energy switching tube.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	13 V / —	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
MAXIMUM PLATE DISSIPATION	10000 W
MAXIMUM CATHODE CURRENT	200 A
Source-derived physical/electrical section.	

Westinghouse 7691 September 15, 1960 HARD TUBE PULSE MODULATOR TYPE 7691 The 7691 is a large three-electrode, forced air cooled tube designed for pulse applications as a hard-tube modulator. The anode is capable of dissipating 10 kilowatts, exclusive of filament heating power. The cathode is a multiple-strand, thoriated-tungsten filament which may be operated either single phase or 3 phase. ELECTRICAL LONG PULSE OPERATION Cathods. Multiple-Strand, Thoriated-Tungsten Filament MAXIMUM RATINGS: Filament: Absolute Maximum Valves Voltage: DC Plate Voltage. 60 max. Kilovolts Single Phase Connection, ... 12 Volts DC Grid Voltags « v v ov v .. _3500 max. Volts 3 Phose Connection {to neutral) 12 Volts Peak Pasifive Grid Voltage . « . . - . . . 2500 max Volts C"":m"") Peak Pulse Plate Current 150 max., Amperes Single Phase Connection., ... 309 Amperes Peak Pulse Grid Current . . o« v SO max. Amperes 3 Phase

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1947 Westinghouse

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1947 WESTINGHOUSE

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
lator. The anode is capable of dissipating	10	lator. The anode is capable of dissipating 10 kilowatts, exclusive of filament heating power. The cathode is a
Voltage: DC Plate Voltage	60	Voltage: DC Plate Voltage. 60 max. Kilovolts
Single Phase Connection,	3500	Single Phase Connection, ... 12 Yolts DC Grid Voltags « v v ov v .. _3500 max. Volts
3 Phose Connection {to neutral) 12 Volts Peak Pa	2500	3 Phose Connection {to neutral) 12 Volts Peak Pasifive Grid Voltage . « . . - . . . 2500 max Volts
C“‘:m““) Peak Pulse Plate Current	150	C“‘:m““) Peak Pulse Plate Current 150 max., Amperes
Single Phase Connection.,	309	Single Phase Connection., ... 309 Amperes Peak Pulse Grid Current . . o« v SO max. Amperes
3 Phase Connection (per phase} - 103 Amperes Plat	10	3 Phase Connection (per phase} - 103 Amperes Plate Dissipation. Ve e 10 mox. Kilowatts
Minimum Filament Heating Time	1	Minimum Filament Heating Time 15 Seconds Grid Dissipation oo, 1.0 mox. Kilowatt
Gridto Plate. ovu i	200	Gridto Plate. ovu i 42 ppt Peak Pulse Cathode Current. 200 mox. Amperes
e e e	8	.. e e e 8 upf SHORT PULSE OPERATION
Ng" W{eighv; D	60	Ng" W{eighv; D 80 Pounds DC Plate Voltage. v o ov 60 max. Kilovolts
SH'p'?' "g eight. ..o «	3500	SH'p'?' "g eight. ..o « - - 125 Pounds DC Grid Voltage 3500 mox. Volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cooling: f I Peck Pasitive Grid Voltage	3500	Cooling: f I Peck Pasitive Grid Voltage 3500 max. Yolts
Mefljod. A AR T " " " " " " " " " " oreed Air O:W Peak Pulse Plate Current {Note	400	Mefljod. A AR T " " " " " " " " " " oreed Air O:W Peak Pulse Plate Current {Note 1}. . . 400 max. Amperes
Mox:mum mbient Air Iemperature	100	Mox:mum mbient Air Iemperature 5 °C Peak Pulse Grid Current (Note 1) . . . 100 max. Amperes
Muxnr:wm B:"Ib and Sea Temper?mre " " " s	500	Muxnr:wm B:"Ib and Sea Temper?mre " " " s 180 °C Peak Pulse Cathode Current (Note 1). . 500 max. Amperes
Roquirad Air Flaw Through Radiator: Plote Dissipation. ,	10	Roquirad Air Flaw Through Radiator: Plote Dissipation. , 0 b iu o .. 10 max. Kilowatts
Plate Dissipation	1	Plate Dissipation 10 8 5 Kilowatts Grid Dissipation 1.0 max Kilowartt
AirFlow i	0.5	AirFlow i 800 700 500 CFM Pulse Langth - . « v vveeone e, 0.5 max. psecons
~ Single Phase - .. vvvrvrvnnenen,	13	~ Single Phase - .. vvvrvrvnnenen,. 13 Volts
Three Phase (toneuvtral). ,	13	Three Phase (toneuvtral). , 13 Volts
SinglePhase	318	SinglePhase 318 Amperes
E.ia'i?oégg'o:oor Three Phase (perphase). . . .o oo v o oW	106	E.ia'i?oégg'o:oor Three Phase (perphase). . . .o oo v o oW 106 Amperes
I%' a MIN. STRAIGHT at voltages in excess of	16	I%' a MIN. STRAIGHT at voltages in excess of 16 KV. Therefore equipmant design
(	0.5	(0.5 Microsecond Pulse Service}
Filament Volts	13	Filament Volts 13.0
Filameni Amperes =	318	Filameni Amperes = 318
Plate Kilovolt	5	Plate Kilovolt 5
(	0.5	(0.5 Microsecond Pulse Service)
Filoment Amperes=	3	Filoment Amperes=318

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification Factor ol	1000	Amplification Factor ol 2 PulseLength 1000 moax. psecons

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