

ELECTRONIC TUBE REFERENCE

STV28080

Voltage Regulator electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
VOLTAGEREGULATOR

High-current four-gap Stabilovolt regulator providing stabilized voltages in 70 V steps up to approximately 280 V.

GENERAL CHARACTERISTICS

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

SECTION RATINGS

SECTION1 Voltage Regulator	
REGULATOR VOLTAGE	280 V
MINIMUM REGULATOR CURRENT	10 mA
MAXIMUM REGULATOR CURRENT	100 mA
STARTING VOLTAGE	420 V
MAINTAINING VOLTAGE	280 V
DYNAMIC IMPEDANCE	160 Ω
Published maximum ratings and characteristics audited; remaining useful numerical data retained in parameter table.	

A higher-current four-gap gas-filled voltage stabilizer capable of providing stabilized voltages in 70 V steps up to 280 V.

SOURCE OPERATING CONDITIONS

1955 Marconi

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

1955 MARCONI
Section 1 · Voltage Regulator

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
@ N STABILOVOLTS STV2 [1]	80	@ N STABILOVOLTS STV280/40
@ N STABILOVOLTS STV2 [2]	40	@ N STABILOVOLTS STV280/40
Published value [1]	0	0-25 M Q be connected between a supply line and each anode of the tube. They may be
Published value [2]	-25	0-25 M Q be connected between a supply line and each anode of the tube. They may be
required= [1]	4 V	required=4V +v and not 4V 4 4v where V is the stabilised voltage per gap, and v is the
required= [2]	4 V	required=4V +v and not 4V 4 4v where V is the stabilised voltage per gap, and v is the
required= [3]	4 V	required=4V +v and not 4V 4 4v where V is the stabilised voltage per gap, and v is the
required= [4]	4 V	required=4V +v and not 4V 4 4v where V is the stabilised voltage per gap, and v is the
extra ignition voltage required per gap. As the ignition currents are of the order of [1]	0 V	extra ignition voltage required per gap. As the ignition currents are of the order of 0-1
extra ignition voltage required per gap. As the ignition currents are of the order of [2]	-1 V	extra ignition voltage required per gap. As the ignition currents are of the order of 0-1
The extra ignition voltage is of the order of	50 V	The extra ignition voltage is of the order of 50 volts per gap, and thus, for the STV
Published value [1]	280 V	280/40 the ignition voltage is theoretically 28050 volts. It should be noted, however,
Published value [2]	40 V	280/40 the ignition voltage is theoretically 28050 volts. It should be noted, however,

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published value [3]	28050 V	280/40 the ignition voltage is theoretically 28050 volts. It should be noted, however,
and a half times the overall stabilised voltage (i.e [1])	420 V	and a half times the overall stabilised voltage (i.e. 420V for the STV280/40). The
and a half times the overall stabilised voltage (i.e [2])	80 V	and a half times the overall stabilised voltage (i.e. 420V for the STV280/40). The
and a half times the overall stabilised voltage (i.e [3])	40 V	and a half times the overall stabilised voltage (i.e. 420V for the STV280/40). The
Where	8 V	Where 8 V _{giab} (b) = Variation of stabilised voltage due to supply fluctuation.
Published value	8 V	8 V _{stab} (L) = Variation of stabilised voltage due to load variation.
Published value	31 A	31, = Variation of load current through tube.
To obtain a stabilised supply of [1]	280	To obtain a stabilised supply of 280 volts, 40 mA with no variation in load.
To obtain a stabilised supply of [2]	40	To obtain a stabilised supply of 280 volts, 40 mA with no variation in load.
Allow [1]	20 mA	Allow 20 mA ionisation current, then supply current = 60 mA.
Allow [2]	60 mA	Allow 20 mA ionisation current, then supply current = 60 mA.
Minimum supply voltage required = [1]	280 V	Minimum supply voltage required = 280 +- 2%: 420 volts.
Minimum supply voltage required = [2]	2 V	Minimum supply voltage required = 280 +- 2%: 420 volts.
Minimum supply voltage required = [3]	420 V	Minimum supply voltage required = 280 +- 2%: 420 volts.
Voltage drop across R = [1]	420 V	Voltage drop across R = 420 —280 = 140 volts.
Voltage drop across R = [2]	-280 V	Voltage drop across R = 420 —280 = 140 volts.
Voltage drop across R = [3]	140 V	Voltage drop across R = 420 —280 = 140 volts.
Example	1 V	Example 1, there is also a voltage change in the tube due to its internal impedance.
A stabilised supply of [1]	140	A stabilised supply of 140 volts, 40 mA is required.
A stabilised supply of [2]	40	A stabilised supply of 140 volts, 40 mA is required.
allow	20 mA	allow 20 mA ionisation current per tube.
Consider also a supply variation of + [1]	109	Consider also a supply variation of +109%, (i.e. +50 volts), then output variation

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Consider also a supply variation of + [2]	50	Consider also a supply variation of +109%, (i.e. +50 volts), then output variation
The starting voltage applied to T2 is	280 V	The starting voltage applied to T2 is 280 volts, and the final output required is
Published value [1]	140 V	140 volts, therefore the voltage to be absorbed by Rz is 140 volts.
Published value [2]	140 V	140 volts, therefore the voltage to be absorbed by Rz is 140 volts.
It will be appreciated that the voltage obtained from T;	1 V	It will be appreciated that the voltage obtained from T;1 must be again one and a
half times the output voltage required, as # x [1]	280 V	half times the output voltage required, as # x 280 = 187 volts.
half times the output voltage required, as # x [2]	187 V	half times the output voltage required, as # x 280 = 187 volts.
The nearest gap voltage below this is	140 V	The nearest gap voltage below this is 140 (the second gap) and this is used.
Output variation from Tg = :}%_ [1]	2	Output variation from Tg = :}%_2 = 0-129 volts.
Output variation from Tg = :}%_ [2]	0	Output variation from Tg = :}%_2 = 0-129 volts.
Output variation from Tg = :}%_ [3]	-129	Output variation from Tg = :}%_2 = 0-129 volts.
In order to obtain stabilised voltages in excess of	280 V	In order to obtain stabilised voltages in excess of 280, the tubes may be operated
stabilised voltage of	560 V	stabilised voltage of 560 volts, with evenly spaced intermediate voltages.
as described above in order to obtain stabilised voltages in excess of	140 V	as described above in order to obtain stabilised voltages in excess of 140.
Fig	3 W	Fig. 3. A typical circuit of a stabilised supply unit for a power amplifier
Stabilized voltage	280 V	Published regulated voltage.
Tube current minimum	10 mA	Minimum maintaining current.
Tube current maximum	100 mA	Maximum operating current.
Ignition voltage	420 V	Published minimum or maximum ignition/start voltage as applicable.

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