



Sylvania
TYPE 19
TWO VOLT
CLASS B AMPLIFIER

CHARACTERISTICS

Filament Voltage	2.0 Volts
Filament Current	0.26 Ampere
Over-all Length	4 1/4"
Maximum Diameter	1 1/8"
Bulb	ST-12
Base—Small 6-Pin.	6-C

Operating Conditions and Characteristics:

Filament Voltage	2.0	2.0	2.0 Volts
Plate Voltage	135	135	135 Volts
Grid Voltage	0	-3.0	-6.0 Volts
Plate Current (no signal)	10.0	4.0	1.0 Ma.
Plate Current*	27.0	25.0	22.0 Ma.
Input Power Required	170	130	95 Mw. Approx.
Power Output	2.1	1.9	1.6 Watts
Load Resistance (plate to plate)	10000	10000	10000 Ohms

*Signal 50 volts grid to grid.

CIRCUIT APPLICATION

Sylvania Type 19 is a complete Class B amplifier tube designed for 2 volt operation. This tube fills the need for a high output Class B combination in the two volt group which heretofore has been met to a limited extent by employing two Type 30 tubes biased to cut-off. Under these conditions approximately 22.5 volts is required for bias, making it necessary to employ a total of 180 volts of B battery which is not desirable from the standpoint of cost. Type 19 requires from zero to six volts bias, depending upon the applied plate voltage and the desired no signal drain of the receiver. With only 135 volts applied to the plates, more power is delivered from this tube than is obtained from a pair of Type 30's operating with 157.5 volts on the plates.

As a Class B tube, Type 19 may be operated with 135 volts on the plate. If additional power is required, as much as 180 volts may be supplied. Reference to the "Rating and Characteristics" sheet will show that about 100 milliwatts of input power will be required to deliver 1.6 watts. A Type 30 tube, operated at 135 volts plate and a bias of 9 volts, will not deliver sufficient power to reach this value, but approximately 1.25 watts can be obtained. Increasing the voltage on the driver tube to 180 volts will not help materially unless the type of detector used is capable of delivering sufficient voltage to operate the Type 30 at maximum power output. Usually another stage of a-f amplification will be required. Use of Type 49 as a driver tube will permit driving the Type 19 to higher power output, but will also require an additional audio stage to obtain more than 1.5 watts.