

EML 320B-XLS Data Sheet

Replaces also 842 tube

Description



This tube is the same as 300B-XLS, apart from the heater current, which is higher. For this reason we point out only the differences, and for all other information we refer to the [300B-XLS data sheet](#).

The intention of 320B-XLS vs 300B-XLS

With tubes, when increasing the heater power, the tube gets more suited for harder conditions. For this reason we recommend the 320B in situations where 300B-XLS would be used near the end of its possibilities. Such as biased close to maximum, and for Push-Pull amplifiers. Though Push Pull can be made with any 300B, it is known to be harder on the tubes than a Single Ended design.

Sound Character of the EML 320B-XLS

Generally the even higher heater power of the 320B-XLS will give the tube a fraction more impulsiveness if used at high output power. So for designers who want to get the upmost in terms of output power, but are reluctant to stress the 300B-XLS very hard, 320B-XLS is the choice.

For use in Push Pull amplifiers, this tube is also a natural choice, because this type of amplifier is hard on the tubes by definition. The 320B-XLS is made to deal with such conditions, and will allow the amplifier to play gently at low sound level, as well as reproduce higher sound level with the detail and precision you expect from a push pull amplifier.

EML 320B-XLS filament Ratings

Heater Voltage (AC or DC)	5 Volt
Electronic heater modules:	Only voltage source
Tolerance on heater voltage	5%
heater Current	~ 1.7 Ampere

EML-320B-XLS Factory Test conditions

Anode Voltage	495V
Anode Current	110mA

EML-320B-XLS Factory Test Result at 495V, 110mA

Grid voltage (DC heated)	-104V
Transconductance	6.7 mA/V

Note: these are average values, variation is appr 5% for random tubes. Any other current will also give another transconductance

EML-320B-XLS incoming inspection. Tested at 495V, 110mA

Multiply -Grid Voltage with transconduction

New tube	minimum 655
----------	-------------

EML 320B-XLS Maximum Conditions

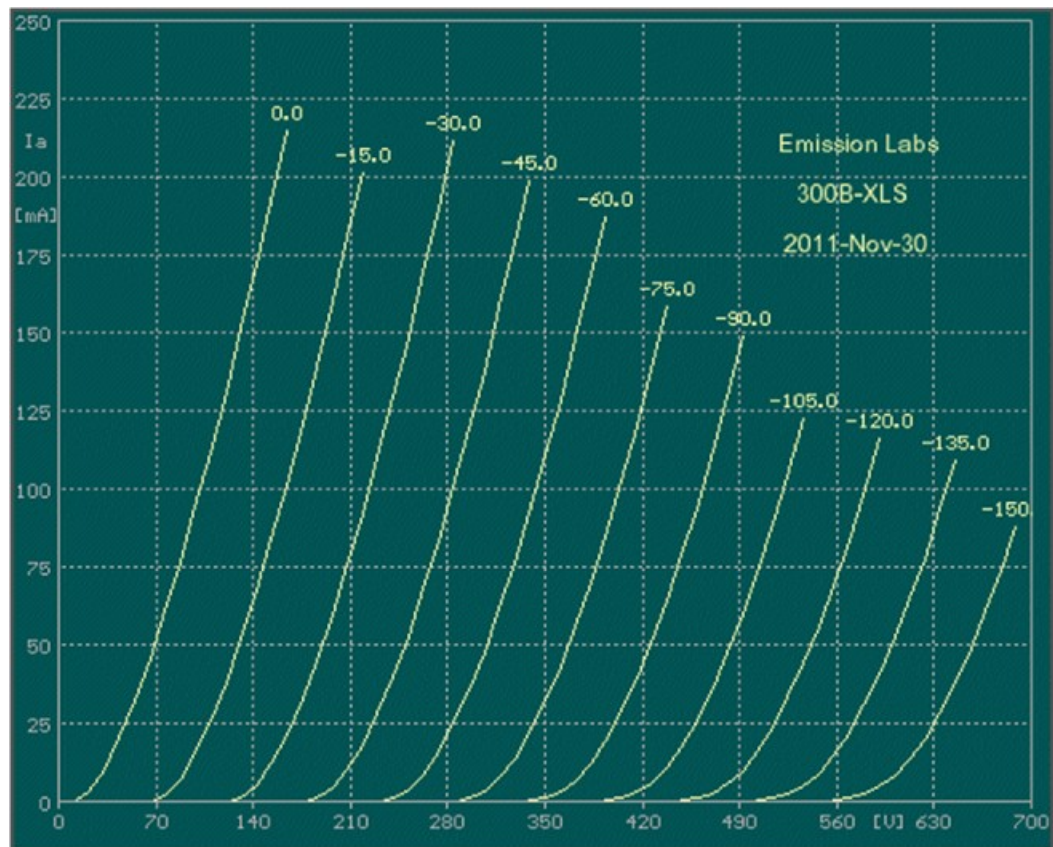
(Voltage and current not possible simultaneously - not a recommended operating point)

Anode Voltage	550Volt
Anode Current	160mA
Power Output in Class A	22Watt
Peak Anode Dissipation	65 Watt, one minute
Highest possible Grid to ground resistor, Single Ended.	150kOhm
Highest possible Grid to ground resistor, Push-Pull.	50kOhm

320B-XLS Recommended Single Ended operating points (This is just a selection, other choices are possible)

Anode Voltage (Against Heater)	Control Grid Voltage (Against Heater)	Anode Current (ma)	Anode Rp (Ohm)	Load (Ohm)	Anode Dissi- pation (Watt)	Power Output (Watt)	2nd harm. (dB)
.							
450	-97	80	700	2000	36	18	22
450	-97	80	700	3000	36	15	26
450	-97	80	700	4500	36	12	31
.							
475	-97	90	670	1900	43	21	23
475	-97	90	670	2800	43	17	27
475	-97	90	670	4200	43	14	32
.							
500	-98	110	630	1800	55	27	23
500	-98	110	630	2700	55	22	27
500	-98	110	630	4000	55	17	32

Choice of output transformer impedance: For each working point, a wide range of primary impedance is possible. When using a transformer of another value, you can estimate the output power and distortion by averaging between two rows of this table. Example: 500V, 110mA. Use of Lundahl LL1623-120mA (3k type). This will give you appr. 20 Watt @ 28dB 2nd harmonics. (28dB distance of signal to 2nd harmonics).



Curves of 320B-XLS apply

Some recommended Lundahl transformers

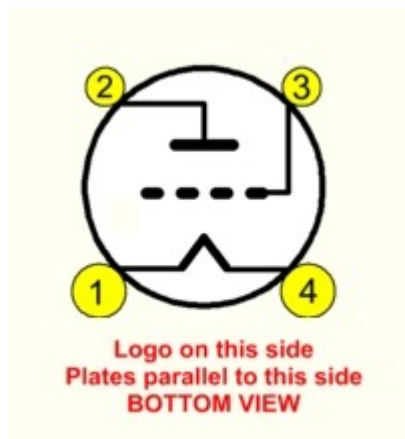
	Primary	Secondary	Anode Current
LL1623-090mA 11Hz @1.5dB	3000 Ω	Alt.B = 4 Ω Alt.C = 8 Ω Alt.D = 16 Ω	90mA
LL1623-120mA 13Hz @1.5dB	3000 Ω	Alt.B = 4 Ω Alt.C = 8 Ω Alt.D = 16 Ω	120mA
LL1664-100mA 15Hz @1.5dB	3000 Ω	8 Ω	80mA

320B-XLS Mechanical Data

Size including Socket (but excluding pins): 175 x 63mm

Weight of one tube: 140 Gram

Shipment weight for pair in gift box: 750 Gram



Pin 1: Heater1

Pin 4: Heater2

Pin2: Anode

Pin3: Grid

Standard UX4 Base