

TechTube™



- Improved lifetime
- CRT cathode proven technology
- Supersedes ECC83 /12AX7 & direct equivalents
- 6.3v heater voltage
- B9A pin base
- Planar valve design
- Low power operation results in less heat generation

Blackburn
MicroTech Solutions

E813CC

Made in Blackburn
England

A.F. Double Triode Base: B9A

$V_f = 6.3V/12.6V$

$I_f = \text{ca. } 224/112\text{mA}$

The valve application note should be read. It is not allowed to mix traditional ECC83 valves with the TechTube™ E813CC valves in 12.6V parallel heater circuitry. Doing so will invalidate warranty conditions and will cause premature valve failure along with potential circuit damage.

Typical Characteristic:

$V_a = 250V$

$V_g = -2V$

$I_a = 1.1\text{mA}$

$S = 1.6\text{mA/V}$

$R_a = 56\text{ kohm}$

$\mu = 90$

Limiting Values

$V_a = 300V \text{ max}$

Power = 0.8W max

$I_k = 8\text{mA max}$

$V_g = -50V \text{ max}$

$R_g = 2.2\text{Mohm max}$

$R_{k/f} = 150\text{kohm max}$

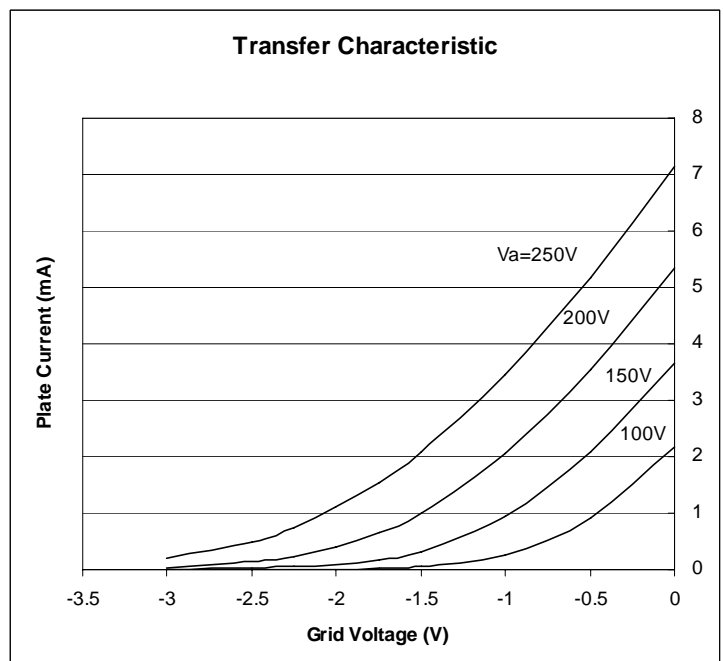
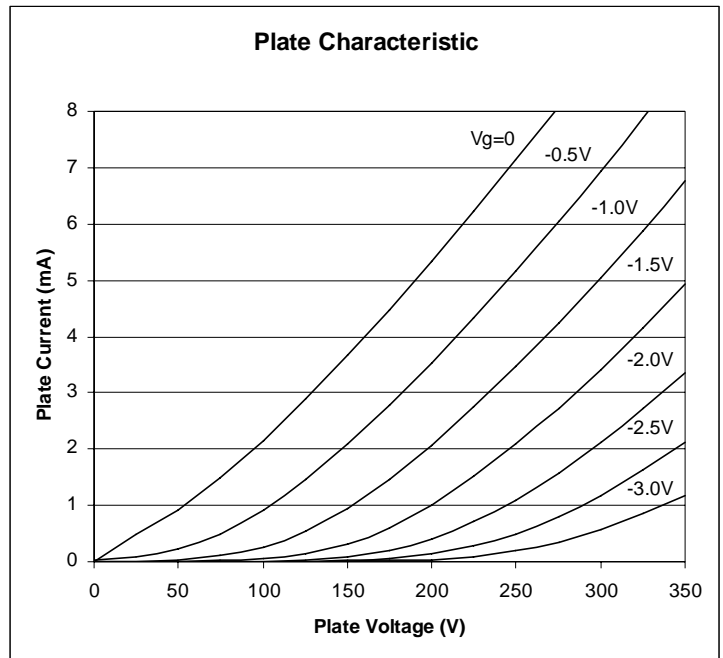
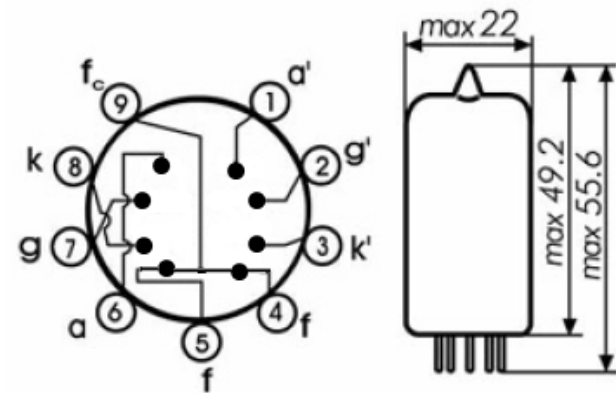
$V_{k/f} = 180V$

The E813CC valve has only been tested to the limits stated above. Exceeding these limits will invalidate warranty conditions and may cause premature valve failure.

Capacitances

$C_{g/k} = 0.4\text{pF}$

$C_{g/a} = 0.9\text{pF}$



"DON'T FLICK YOUR VALVE!"

The TechTube™ valve has minimal structural restraint. The design allows for tiny amounts of movement in the various components which at times allows a small amount of microphony when driven hard at high frequencies. This, in our opinion, is required to give the TechTube™ valve its fantastic performance in both guitar and HiFi applications, its "life and vitality", its "fantastic speed", its "clean chord separation", its "warmth and smoothness"...

"Flicking" the glass envelope of the valve will result in a metallic sound. This is perfectly normal for the TechTube™ valve like so many others and does not impair valve performance indeed it has little relevance to valve performance, so please, don't do it...

**At no time should the valve be hot swapped into an application
Power should be removed before any replacement process**

Specifications are subject to change without prior notice
Trademarks are the property of Blackburn MicroTech Solutions Ltd

Blackburn MicroTech Solutions Limited
Registered in England & Wales No 5679069
Registered office: Philips Road, Blackburn,
Lancashire, BB1 5RZ, UK

Electrical application notes for E813CC valves

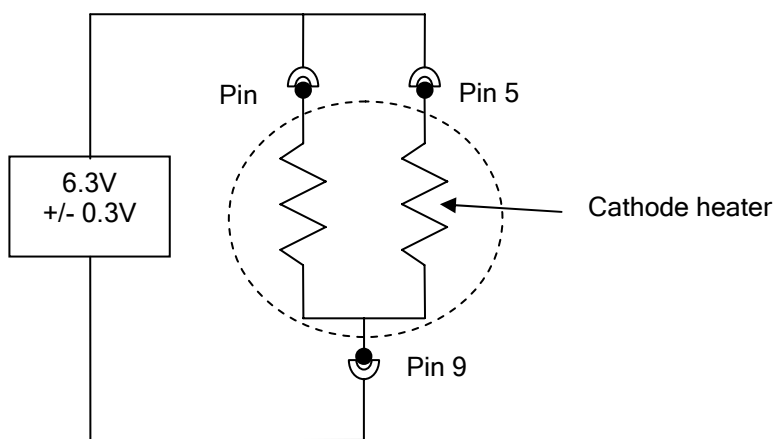
Heater Voltages and Current Tolerances E813CC Valves

The E813CC valve is capable of parallel (6.3V) or series (12.6V) heater connection.

The cathodes used in this valve are based on a low power cathode developed for use in cathode ray tubes. The heater power consumption of these cathodes is a third less than that used in traditional ECC83/12AX7 valves.

Consequently the E813CC has the advantage of running at a much cooler temperature.

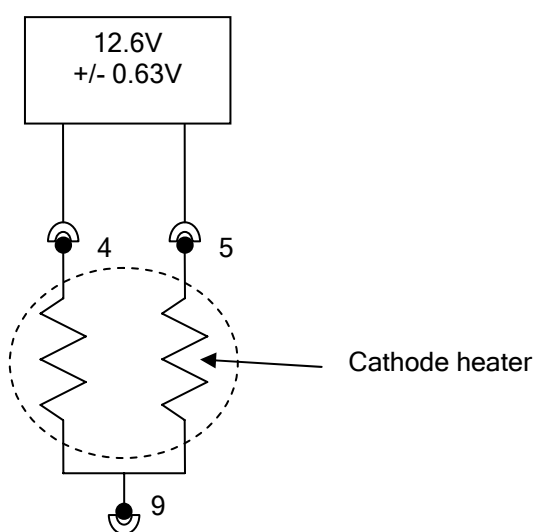
Parallel Heater Operation



The heater voltage for parallel operation is specified as 6.3V.

To achieve the optimum performance and reliability, it is recommended that the applied heater voltage should not lie outside +/- 5% of the specified voltage, 6.3V +/- 0.3V

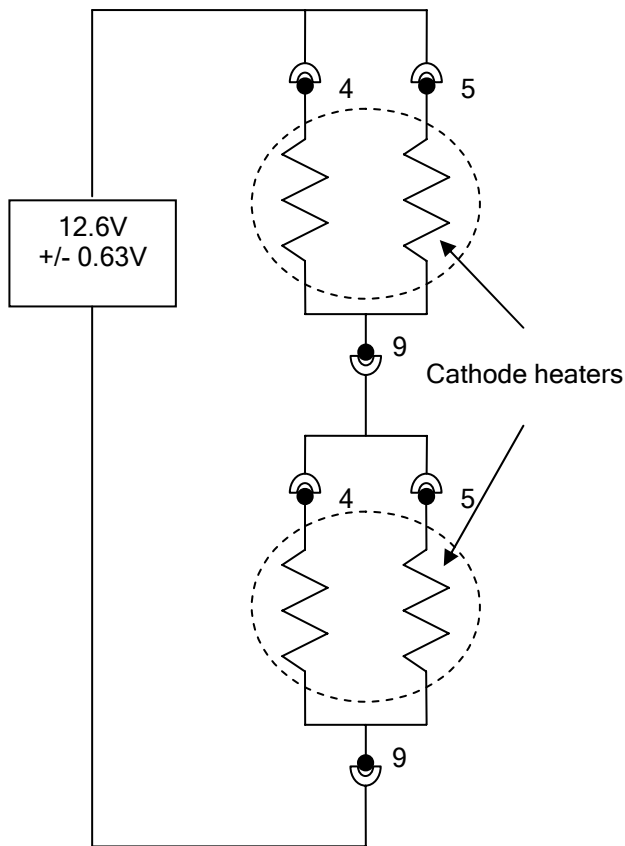
Series Heater Operation



The heater voltage for parallel operation is specified as 12.6V.

To achieve the optimum performance and reliability, it is recommended that the heater voltage should not lie outside +/- 5% of the specified voltage, 12V +/- 0.63V.

Mixed circuitry Heater Operation



In some circuits, two traditional ECC83 valves are wired up having parallel heater connections within each valve but then subsequently the two valves are connected in series across a 12.6V supply. A pair of E813CC valves can also be connected in this configuration.

Due to differing heater resistances a problem arises if an E813CC valve is used to replace one of the two valves in this type of configuration. The hot resistance of an E813CC valve is a third higher than a typical ECC83 valve. Therefore the voltage split across the 12.6V supply will also be uneven. The voltage applied to heaters in the E813CC valve will be in excess of 7V and the less than 5V in the conventional ECC83/12AX7 valve. Neither of these voltages is conducive to correct operation of either valve and should not be used.

NOTE:

In some applications, Audio Research amplifiers for example, the heater voltage is obtained by tapping off a higher voltage rail via a resistor. As the heater current of the TechTube™ valve is lower than other valves this resistor will need to increase in value to ensure the correct voltage is obtained.

The consequence of not adjusting the resistor will be that the heater voltage supplied to the valve will be higher. This in turn will have a detrimental effect on valve life and will invalidate the valve warranty.