

### Isolated DC Filament or Heater Supply

- Adjustable, regulated DC output from 1V – 7V
- 1A maximum output current
- 5-7 V AC or DC input
- Output isolated from input up to 1500V
- Can mount directly to the back of tube sockets
- Applications:
  - Small-signal DHT filament supply
  - Local DC supply for preamp tubes
  - General-purpose isolated supply

### Functional Block Diagram

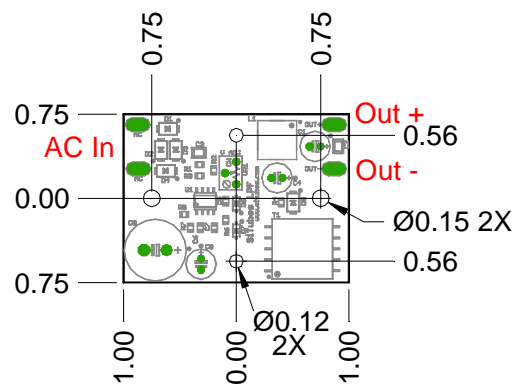


### Absolute Maximum Ratings

SYMBOL	PARAMETER	MIN	MAX	UNIT
V <sub>IN</sub>	Input voltage		7.4	VAC
			10	VDC
I <sub>OUT</sub>	Output current		1.6	A
P <sub>OUT</sub>	Output Power		5	W

### Mechanical Outline (inch)

Height = 1.1"



### Electrical Characteristics

$V_{IN} = 5VAC$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNIT
$V_{OUT}$	Output voltage adjust range		1.0		7.0	V
$I_{OUT(MIN)}$	Minimum load current for regulation			50		mA
$V_{ISO}$	Isolation voltage	Input to output			1500	V
$I_{OUT(LIM)}$	Output current limit		2		3	A
$V_{IN(MIN)}$	Minimum input voltage	$V_{OUT} = 6.3VDC$ , $I_{OUT} = 600mA$		3.5		VAC
$I_{IN}$	Input current	No load			1	$\mu A$
N	Efficiency	$V_{IN} = 6.3VDC$ , $V_{OUT} = 6.3VDC$ , $I_{OUT} = 600mA$				
$f_{SW}$	Switching frequency			185		kHz
$t_{START}$	Startup time			20		mS

### Description and Application

The SiTubes LPF is an isolated DC power supply intended to be used as a filament or heater supply for a low-power tube. It uses an isolated flyback topology which provides galvanic isolation between input and output, and allows up to 1500V between input and output. This allows circuits using floating heater supplies, or cathode-biased directly-heated filament supplies. It is ideal for directly coupled stages that need to elevate the filament or heater to relatively high voltage.

The input power can be an AC or DC voltage. Typical applications use a 5V or 6.3V AC heater or filament circuit as a power source.

The output voltage can be adjusted from 1VDC to 7VDC. The LPF needs a minimum 50mA load for good regulation, and can supply up to 1.6A output current or 5W of output power, whichever is greater. During start-up into a cold heater or filament, the output current is limited to between 2A and 3A until the heater or filament is warmed up.

The LPF is a small PCB module, 1.5" x 2.0" in size. Mounting holes are positioned so that it can be mounted using standoffs directly on the mounting screws of most octal and 9-pin-miniature tube sockets, if desired. This makes it easy to retrofit existing designs that use AC filament or heater supplies - for example, a preamp tube that is generating hum from the AC heater can be converted to DC by mounting an LPF module to the back of the tube socket, converting it from AC to DC operation.

The output voltage comes preset to 6.3V. Adjust the voltage as needed before use! For tube filament application, you can remove the tube from the socket and set the voltage. Then, install the tube and re-adjust the voltage – the voltage will drop a bit from the no-load voltage that was set without the tube installed.