ZinAmp
Beautiful sound, for people who love music

Datasheet Signal Detector

Application & Purpose:
A simple high-gain amplifier module that drives the auto-power off and restart feature of a ZinAmp valve amplifier.

It amplifies phono and line level input signals, and recifies these as a DC voltage used to charge a capacitor in the Start-up timer. The amplifier switches off when this charge has depleted - after approximately 50mins

Specification:

PCB Dimensions	77mm x 36mm x 1.6mm
Supply Voltage	7.1v DC
Inputs	Four: - Line-level left - Line-level right - Phono left - Phono right
Output	Rectified music signal as a fluctuating DC voltage - typically 3-6v

Details:

A simple high-gain stereo amplifier module that amplifies the line-level and phono signals at the amplifiers inputs, then rectifies the amplified signal into a DC voltage. This DC voltage charges a capacitor in the Start-up Timer which slowly dissipates over time. The timer switches the amplifier off when this charge has depleted; normally after 50mins of no signal input.

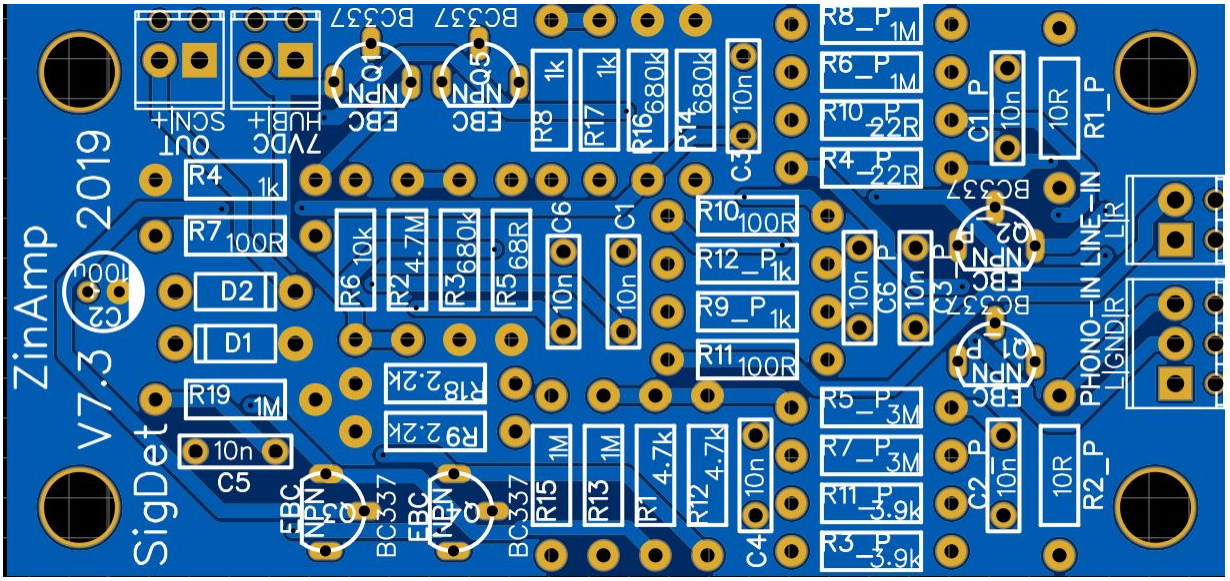
Auto Power-off and Restart
When the amplifier has entered its auto-power-off state, the signal detector continues to listen for any signals at the phono and line inputs. When a signal is detected, the rectified signal is fed to the timer as a DC voltage - a small signal is enough to trigger the timer to restart. The amplifier can be restarted from a signal at one of the line inputs or at the phono input.

Connections:
- Phono Input - audio signal from the phono input
- Line Input - audio signal from line inputs
- Start-up Timer - rectified audio signal, sent as DC voltage to the timer.

Earths:

There are two earth connections to the Signal Detector, one to the Earth Hub and one to the ground of the phono input. These must not be mixed or connected via the same wire otherwise phono hum will occur.

Blank PCB:



Parts List:

ID	Value/Spec	Quantity	Manufacturer	Manufacturer Part	RS Part
R7,R10,R11	100R	3	TE Connectivity	LR1F100R	125-1155
C2	100u	1	Rubycon	16PK100MEFC5X11	763-9396
R6	10k	1	TE Connectivity	LR1F10K	125-1164
C2_P,C4,C3_P,C6_P, C3,C1,C6,C5,C1_P	10n	9	Kemet	R82EC2100DQ50J	312-1431
R2_P,R1_P	10R	2	TE Connectivity	LR1F10R	125-1154
R8,R12_P,R9_P,R4, R17	1k	5	Vishay	MRS25000C1001FCT00	683-3165
R8_P,R13,R15,R19, R6_P	1M	5	Vishay	MRS25000C1004FCT00	683-4159
D1,D2	1N4148	2	Vishay	1N4001-E3/54	628-8931
R9,R18	2.2k	2	Vishay	MRS25000C2201FCT00	683-3449
R10_P,R4_P	22R	2	TE Connectivity	LR1F22R	148-095
R11_P,R3_P	3.9k	2	Vishay	MRS25000C3901FCT00	683-3641
R7_P,R5_P	3M	2	Vishay	MRS25000C3004FCT00	683-3654
R1,R12	4.7k	2	Vishay	MRS25000C4701FCT00	683-3799
R2	4.7M	1	Vishay	MRS25000C4704FCT00	683-4234
R14,R16,R3	680k	3	Vishay	MRS25000C6803FCT00	683-4250
R5	68R	1	TE Connectivity	LR1F68R	148-219
Q5,Q1_P,Q2_P,Q3,Q 4,Q1	BC337	6	On Semi	BC33740BU	761-3943

LINE-IN, 7VDC, OUT	L|R	3	RS-PRO	790-1098	790-1098
PHONO-IN	SCN|L|R	1	RS-PRO	790-1092	790-1092

Parts available from RS Online. Also try Farnell, Mouser and other online suppliers.

Parts from different manufacturers can be substituted where spec is sufficient

Supplier trading names may differ by country.