

AmpC Amplifier Control

Features

- Softstart circuit
- Mute control
- Optional opto-coupler mute

Applications

- Power amplifiers

Description

AmpC is a combination of softstart and mute control circuit. The softstart circuit ramps up the capacitor bank via power resistors, which limit the inrush current to about 7A. At an internal threshold voltage the limit resistors are shorted by a relay and the power amplifiers are unmuted by **pullup** to GND or if optional opto-coupler is used this is activated.

AmpC Module

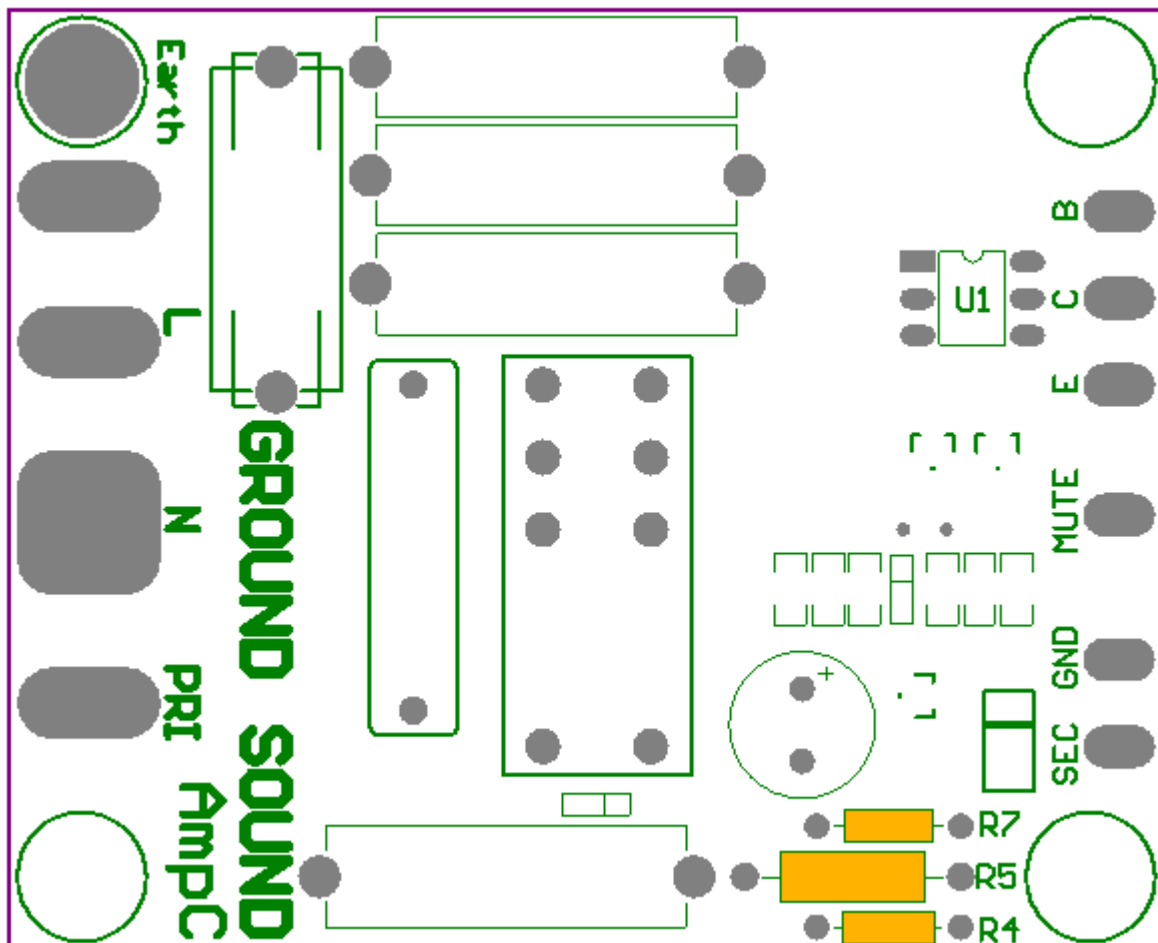


Operating Conditions

	Min	Typ	Max	Units
Mains voltage supply	110	230	240	Vac
Mains frequency	50		60	Hz
Mains fuse, switched power transformer			T10	A

Technical Specifications

	Min	Typ	Max	Units
Transformer secondary voltage RMS	2 x 30		2 x 67	Vac
Softstart inrush current		7		A
Mute control drive GS amp modules			4	#
Optional opto-coupler output current			125	mA
Optional opto-coupler output voltage (Vceo)			30	V
Optional opto-coupler output total power dissipation			150	mW



Connection pads

Label	Type	Description
EARTH	Mains Power	Connects mains earth to chassis through screw/metal distance
L	Mains Power	Live mains input, 230Vac
N	Mains Power	Neutral mains input and neutral power transformer primary
PRI	Output	Live output power transformer primary, switch with softstart
GND	Input	System power ground
SEC	Input	Power transformer secondary - one or the other
MUTE	Output	Mute control for power amp, open collector pullup to GND (20mA)
E	Output	Optional opto-coupler - output transistor emitter
C	Output	Optional opto-coupler - output transistor collector
B	Input	Optional opto-coupler - output transistor basis

Softstart circuit

The softstart circuit is “fast on”. It monitors the voltage of the capacitor bank and switches the relay and mute output when the threshold level is reached. This threshold level is set by two resistors R4 and R7. R5 is only used together with the optional opto-coupler. The setting of the threshold level is chosen from the table below:

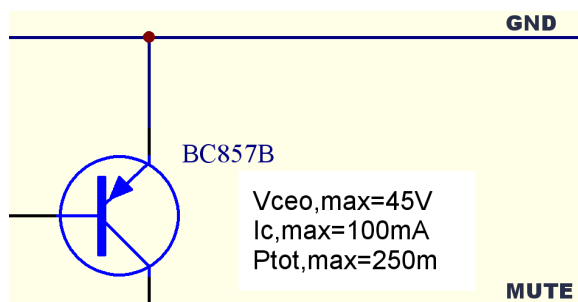
Softstart circuit resistors

Transformer nominal secondary voltage	R7	R5	R4
2 x 35Vac (+/-49Vdc)	10kΩ/0,7W	8k2	0R
2 x 40Vac (+/-56Vdc)	18kΩ/0,7W	10k	0R
2 x 45Vac (+/-63Vdc)	27kΩ/0,7W	12k	0R
2 x 50Vac (+/-70Vdc)	33kΩ/0,7W	12k	100R/2W
2 x 55Vac (+/-77Vdc)	39kΩ/0,7W	15k	100R/2W
2 x 60Vac (+/-84Vdc)	33kΩ/0,7W	15k	150R/2W
2 x 65Vac (+/-91Vdc)	39kΩ/0,7W	18k	150R/2W

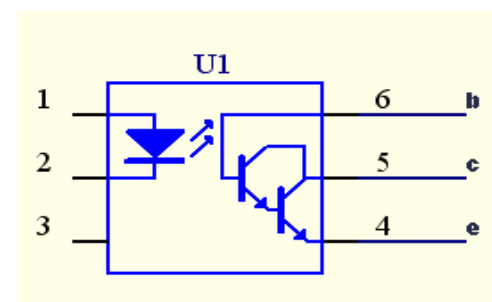
Please refer to the AmpC outline above for location of R4, R5 and R7 marked orange.

Mute circuit

The mute circuit ensures pop free switching of the attached amplifiers. It switches on at the same threshold level as the relay. The output is an open collector PNP transistor which **pullup** to GND.



The above schematic shows the mute output circuit. The output needs no glue components if it has to control our own power amplifier modules PA1CC, PA3CC and PA6CC.



The optional opto-coupler’s output is a Darlington transistor, which gives great flexibility to operation. If needed we might be able to help out with a circuit solution for specific competitor amplifier modules.

Wiring

The **mains** power wiring can be done in two ways, either three separate wires with an additional isolation hose/heat-shrinkable tube or simply a three lead mains cable. Connect blue to N pad, yellow/green to Earth pad and the last to L pad probably black or brown. The mains wires should be between 0,75mm² and 1,5mm². It has to be emphasized that the mains wiring has to be double isolated. Make sure that the pad/screw has good electrical connection to the chassis metal.

The **transformer's** primary wiring has to be double isolated too, which our transformers are and others normally are.

It is possible to solder FASTON tabs at all the high power connections - if preferred. Experience tells us that these "Easy mounting/easy service" connections often are the course for early service, whereas soldering connections lasts. This is the reason we rely mainly on soldering pads.

It can be a bit tricky to solder the secondary side wires if the transformer has solid conductor wires. Care should be taken not to melt the plastic isolation. Our transformers are equipped with multi-core wires on the secondary side, with few exceptions, for easy assembly.

Connect one of the secondary wires of the transformer to the SEC pad (tapped at the bridge rectifier) and power ground (tapped at transformer entry to power ground) wired to GND pad – recommended wire 0.5-0.75mm.

The **MUTE** output is simply wired to the mute pad of PA1CC/PA3CC/PA6CC - recommended wire 0.2mm.

The optional opto-coupler output will have individual solutions and therefore no description can be made.

Mechanical dimensions

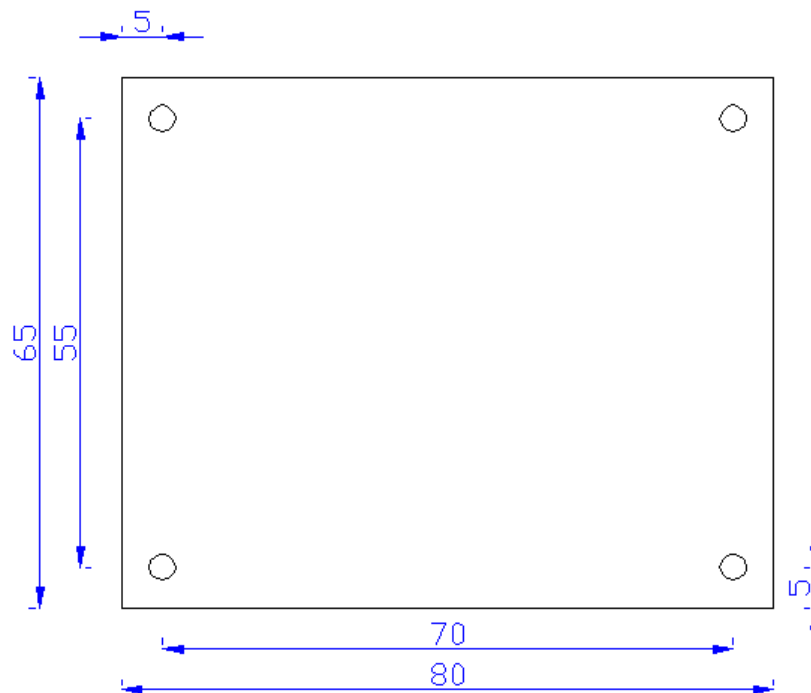
The mounting of AmpC requires:

4 pcs M3 x 16mm screws

4 pcs M3 x 10mm distances

4 pcs 3mm spring washers

1 pc 3mm plain washer



Ground Sound reserves the rights to make alterations without prior notice.

Revision A: 2008-01-22

Revision B: 2008-08-09

Revision C: 2009-04-23

Revision D: 2010-07-30

R7 power value corrected

Table of resistors R4 and R7 switched

Dimension drawing updated