85-0322 **Design Cover Sheet** **1/7/2009**

ACS7xx Demo Board **Page 1 of 1**

Originator: Shawn Upton

			Design Rev ->	OI	A	B	C								
Doc	Size	Format	Name, Description					Sub-Document Revision							
000	-	-	Final Assembly	1	2	OBS									
000-REV	A	pdf	Revision Control			3	4								
000-TOP	A	pdf	Top Level Instructions			3	3								
000-OPT	A	pdf	Build Options			3	3								
000-ASY	A	pdf	Assembly Instructions			3	4								
000-TST	A	pdf	Test and Verification			3	3								
			Bare Board												
000-BOM	-	-	Bill of Materials	1	2	OBS									
000-SCH	A	pdf	Schematic	1	2	2	2								
000-BD1	B	pdf	Board Outline	1	3	3	3								
000-SS1	A	pdf	Top Silkscreen	1	3	3	3								
000-SM1	A	pdf	Top Soldermask	1	3	3	3								
000-SM2	A	pdf	Bottom Soldermask	1	3	3	3								
000-CU1	A	pdf	Top Layer	1	3	3	3								
000-CU2	A	pdf	Bottom Layer	1	3	3	3								
000-GD1	A	pdf	Drill Drawing	1	3	3	3								
000-GG1	A	pdf	Drill Guide	1	3	3	3								
000-ZIP	-	zip	Gerber Files	1	3	3	3								
000-NTS	-	-	Construction Notes	1	2	OBS									
			Assembled board, no sensor												
001-BOM	A	pdf	Bill of Materials			3	3								
			ACS712ELC-05B-T												
010-BOM	A	pdf	Bill of Materials			3	3								
			ACS712ELC-20A-T												
011-BOM	A	pdf	Bill of Materials			3	3								
			ACS712ELC-30A-T												
012-BOM	A	pdf	Bill of Materials			3	3								
			ACS713ELC-20A-T												
013-BOM	A	pdf	Bill of Materials			3	3								
			ACS713ELC-30A-T												
014-BOM	A	pdf	Bill of Materials			3	3								

Rev OI to Rev A Changes:

1. Not documented.

How to convert Rev OI to Rev A:

1. Not possible.

Rev A to Rev B Changes:

1. This update was to change TED paperwork to latest standards.
2. No PCB or schematic changes.
3. REV, ASY, OPT, TOP pages added.
4. The BOM for the board, minus sensor, moved to -001 (from -000).
   This was done to fit into the "no -000 assembly" method of multiple
   build option demo boards.

How to convert Rev A to Rev B:

1. No changes necessary.

Rev B to Rev C Changes:

1. Assembly Instructions fixed:
   Step 5 had RJ installed as 0.125" and 0.25" in error.
   Changed to be 0.125" installation height.
2. No other changes.

How to convert Rev B to Rev C:

1. No changes necessary.

Originator: Shawn Upton

1. RoHS Compliance Required?
   Yes.
   All components and assembly practices must be RoHS Compliant.
   Certificates of RoHS compliance must be sent to Allegro for record keeping.

2. Other TED Packs and/or outside Specifictions required for build:
   none required.

3. Are there optional ways to build this TED pack?
   Yes.
   Please read 85-0322-000-OPT for build options.

4. Pages with the descriptor "-ASY" are expected to be followed by the assembly person / assembly house. These are the Construction Notes / Assembly Notes pages, and are used to convey building instructions.

5. The notes on the -TST pages are expected to be followed by Allegro; product shall not be sold to customers until the steps on the -TST pages are completed. These are test and verification steps, and are used to test assembly(s) prior to usage and/or selling.
   They are not "calibration" procedures as used on production equipment.

6. All photos provided are for reference only; slight variations may result from component second sourcing or later design changes. Photos are intended to convey roughly what completed assembly should look like.

7. As multiple boards exist under this TED pack number (85-0322), there is no -000 assembly.

8. All boards use the -000-ASY Assembly Instructions.

Originator: Shawn Upton

There are several different assemblies listed under this TED pack.
Build according to Request Number / Option Number / Description / TBD,
as explained below:

#	Request:	Build (1) each of these:	Description:
1	ACS712ELC-05B-T	85-0322-010	ACS712ELC-05B-T
	85-0322-010	85-0322-010	ACS712ELC-05B-T
2	ACS712ELC-20A-T	85-0322-011	ACS712ELC-20A-T
	85-0322-011	85-0322-011	ACS712ELC-20A-T
3	ACS712ELC-30A-T	85-0322-012	ACS712ELC-30A-T
	85-0322-012	85-0322-012	ACS712ELC-30A-T
4	ACS713ELC-20A-T	85-0322-013	ACS713ELC-20A-T
	85-0322-013	85-0322-013	ACS713ELC-20A-T
5	ACS713ELC-30A-T	85-0322-014	ACS713ELC-30A-T
	85-0322-014	85-0322-014	ACS713ELC-30A-T

All boards must be labeled after construction (see -000-ASY)

1. These boards do not require testing prior to shipping to customers.

1. All 85-0322 assemblies require a sticker to be applied post-construction.
   This sticker shall be applied by whomever constructs the boards.
   This sticker shall be as such:

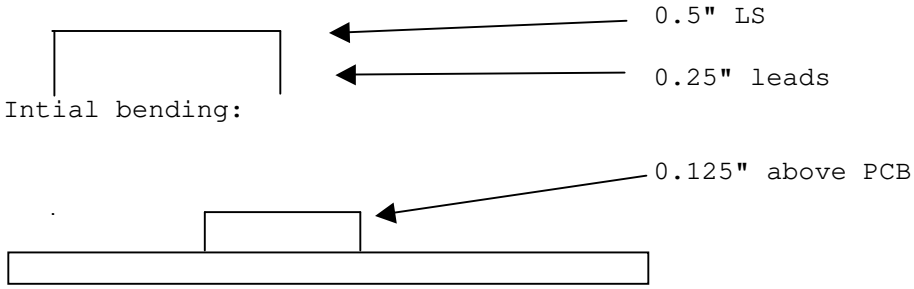
#		Allegro Part:	Label
1	85-0322-010	ACS712ELC-05B-T	ASEK712ELC-05B-T
2	85-0322-011	ACS712ELC-20A-T	ASEK712ELC-20A-T
3	85-0322-012	ACS712ELC-30A-T	ASEK712ELC-30A-T
4	85-0322-013	ACS713ELC-20A-T	ASEK713ELC-20A-T
5	85-0322-014	ACS713ELC-30A-T	ASEK713ELC-30A-T

2. This sticker may be applied onto the top of the board, if it can be.
   If the sticker is topside, it shall be located between U1 and the silkscreen text "Current Sensor". This is if it will fit, without overlaying any silkscreen text or solderpads.
   If the sticker is larger than that area, the sticker shall be located on the backside of the PCB.

3. Any sticker applied by the assembly house (not of the type above) shall be installed on the backside of the pcb.
   [This may be a tracking number, or the assembly house P/N.]
   The label shall not cover any holes used for soldering.

4. The Allegro sensor may be installed at any time.
   That is, all the parts required to build an 85-0322-010 (for example) may be installed at the same time.

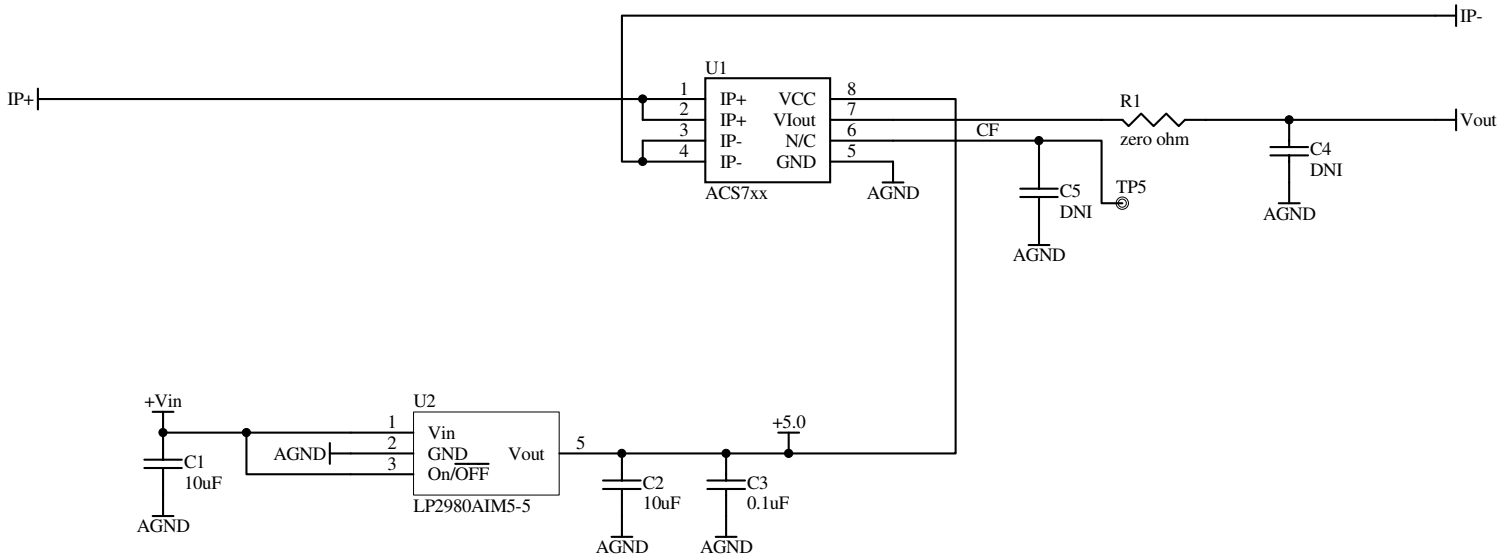
5. RJ: 22g jumper.
   Use 22g buss wire, 0.5 inch body, with 0.25 inch leads bent 90 degree.
   Install 0.125 inch above PCB (not critical).
   Solder and trim.
   This component will be used for scope ground clips.

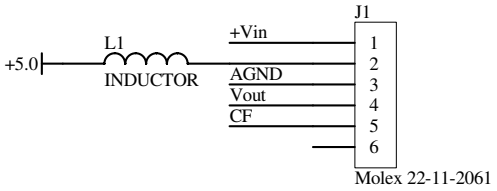


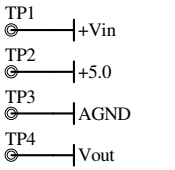
6. It is recommended that the SMT parts be installed first, then thro-hole, then banana jacks and standoffs, lastly the sticker(s).
   Any order of operations may be performed, however.

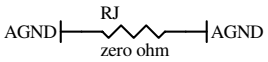
All components and assembly practices must be RoHS Compliant
Certificates of RoHS compliance must be sent to Allegro for record keepinc

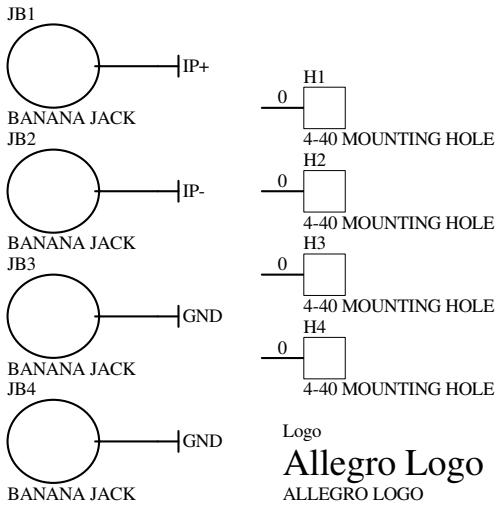
To Install RJ: use buss wire, approx 22-24g. Bend a 1 inch length to 0.5 inch lead spacing, just like as if forming leads for a conventional resistor.
Install approximately 0.25 inch above the PCB.
This jumper is scope ground clips and must have ample space under it!











Logo

Allegro Logo

ALLEGRO LOGO

TP1 - TP4: Testpoints for 0.063 hole: Keystone Electronics 5005 or equivalent
JB1 - JB4: use Johnson Components 111-2223-001 Banana jack
C1, C2: 1206 16V 10uF: Panasonice ECJ-HVB1C106M
C3: 0603 16V 0.1uF: Panasonic ECJ-1VB1C104K
L1: 0603 Murata BLM18BB471SN1D
R1: 0603 zero ohm: Panasonic ERJ-3GEY0R00V
RJ: Use buss wire, 0.5inch long and 0.25inch above PCB

RoHS/Pb-free Label

Title: ***ACS7xx Demo Board***			
Size: A	Number: 85-0322-000-SCH	Revision: 2	*Allegro MicroSystems, Inc* *955 Perimeter Rd* *Manchester NH 03103*
Date: 9/21/2006	Time: 2:29:13 PM	Sheet 1 of 1	
File: C:\Documents and Settings\supton\My Documents\DXP\85-0322\85-0322 Rev 2.SchDoc			

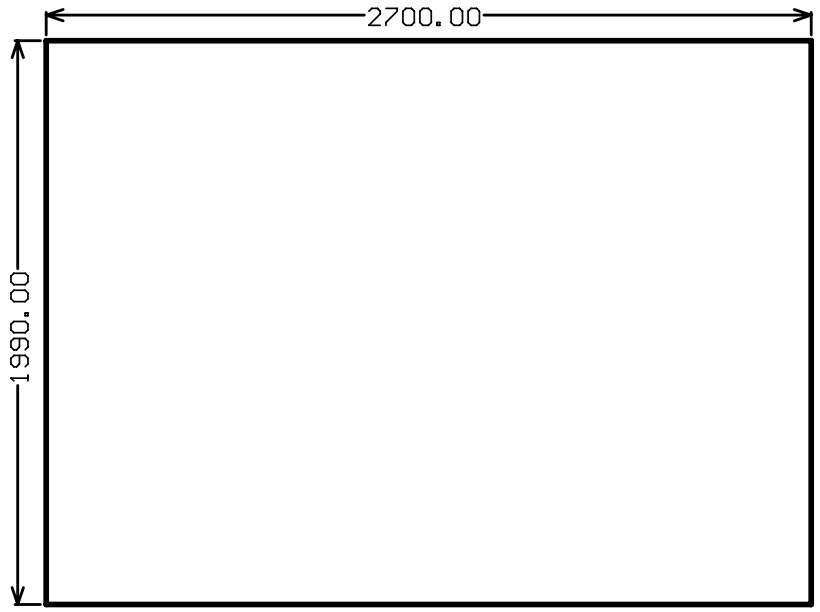
ACS7xx Demo Board

85-0322-000-BD1

PCB Outline
Page 1 of 1
FR4, 0.062, 2 Layers
4oz Finished Copper top/bottom
No Gold Plating
Top/bottom side silkscreen
Top/bottom soldermask

Rev 3
9/21/2006

SCALE: 1.48
9/21/2006
Min trace = 10mil, min trace spacing = 10mils, min hole size 15mil



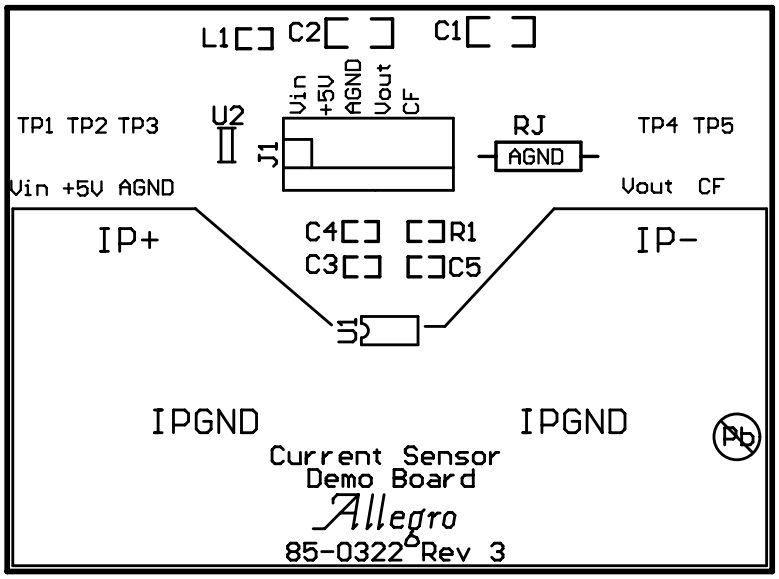
ACS7xx Demo Board

85-0322-000-SS1

Silkscreen Component Side
Page 1 of 1
FR4, 0.062, 2 Layers
4oz Finished Copper top/bottom
No Gold Plating
Top/bottom side silkscreen
Top/bottom soldermask

Rev 3
9/21/2006

SCALE: 1.48
9/21/2006
Min trace = 10mil, min trace spacing = 10mils, min hole size 15mil



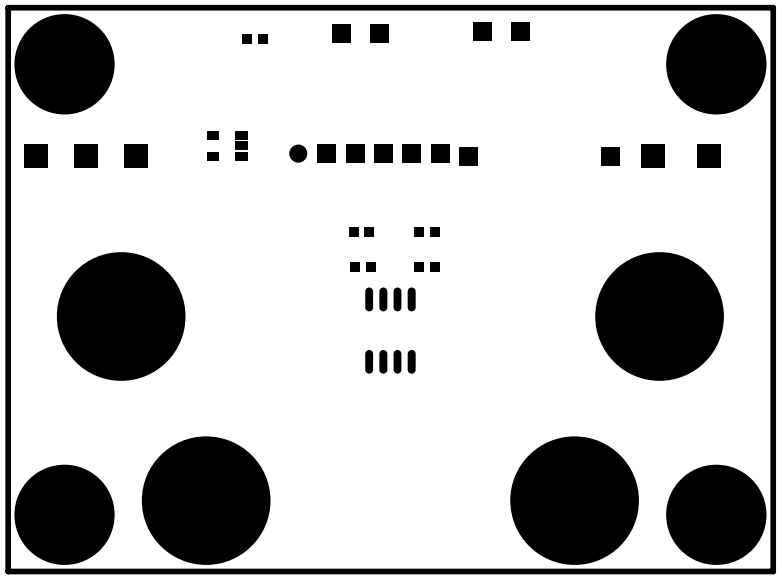
ACS7xx Demo Board

85-0322-000- SM1

Top Soldermask
Page 1 of 1
FR4, 0.062, 2 Layers
4oz Finished Copper top/bottom
No Gold Plating
Top/bottom side silkscreen
Top/bottom soldermask

Rev 3
9/21/2006

SCALE: 1.48
9/21/2006
Min trace = 10mil, min trace spacing = 10mils, min hole size 15mil



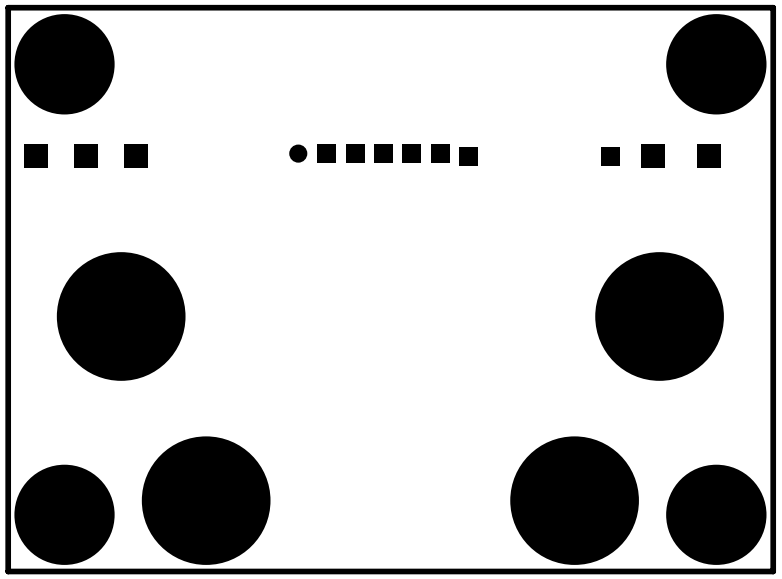
ACS7xx Demo Board

85-0322-000-SM2

Bottom Soldermask
Page 1 of 1
FR4, 0.062, 2 Layers
4oz Finished Copper top/bottom
No Gold Plating
Top/bottom side silkscreen
Top/bottom soldermask

Rev 3
9/21/2006

SCALE: 1.48
9/21/2006
Min trace = 10mil, min trace spacing = 10mils, min hole size 15mil



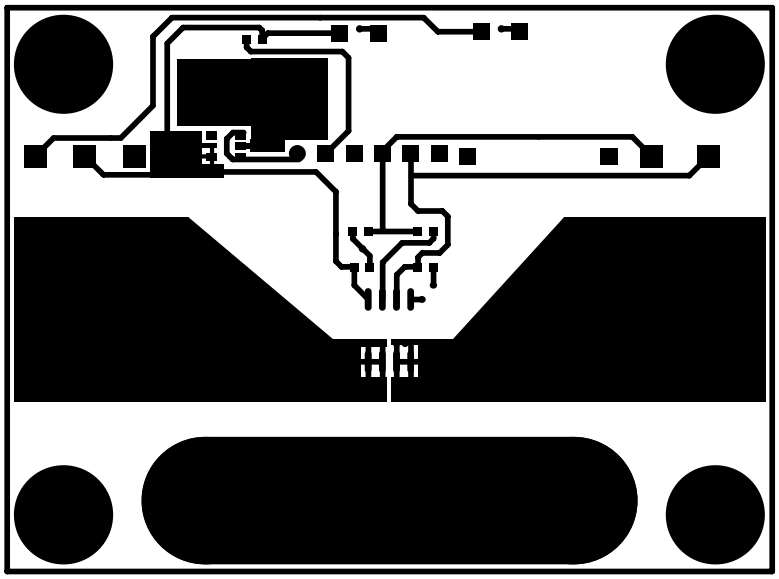
ACS7xx Demo Board

85-0322-000-CU1

Copper Component Side
Page 1 of 1
FR4, 0.062, 2 Layers
4oz Finished Copper top/bottom
No Gold Plating
Top/bottom side silkscreen
Top/bottom soldermask

Rev 3
9/21/2006

SCALE: 1.48
9/21/2006
Min trace = 10mil, min trace spacing = 10mils, min hole size 15mil



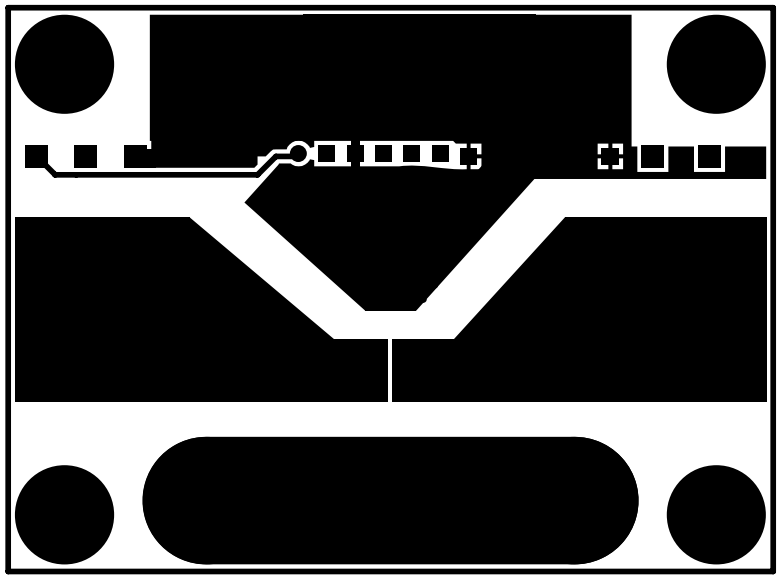
ACS7xx Demo Board

85-0322-000-CU2

Copper Solder Side
Page 1 of 1
FR4, 0.062, 2 Layers
4oz Finished Copper top/bottom
No Gold Plating
Top/bottom side silkscreen
Top/bottom soldermask

Rev 3
9/21/2006

SCALE: 1.48
9/21/2006
Min trace = 10mil, min trace spacing = 10mils, min hole size 15mil



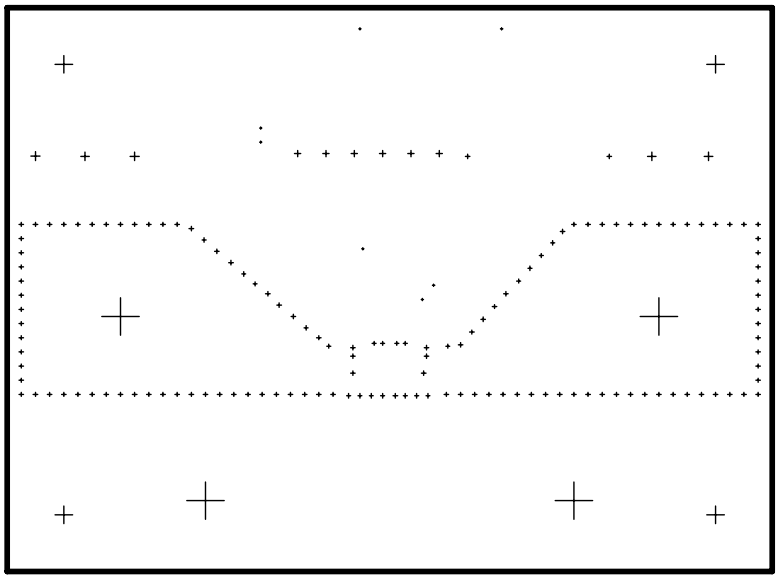
ACS7xx Demo Board

85-0322-000-GG1

Drill Guide
Page 1 of 1
FR4, 0.062, 2 Layers
4oz Finished Copper top/bottom
No Gold Plating
Top/bottom side silkscreen
Top/bottom soldermask

Rev 3
9/21/2006

SCALE: 1.48
9/21/2006
Min trace = 10mil, min trace spacing = 10mils, min hole size 15mil



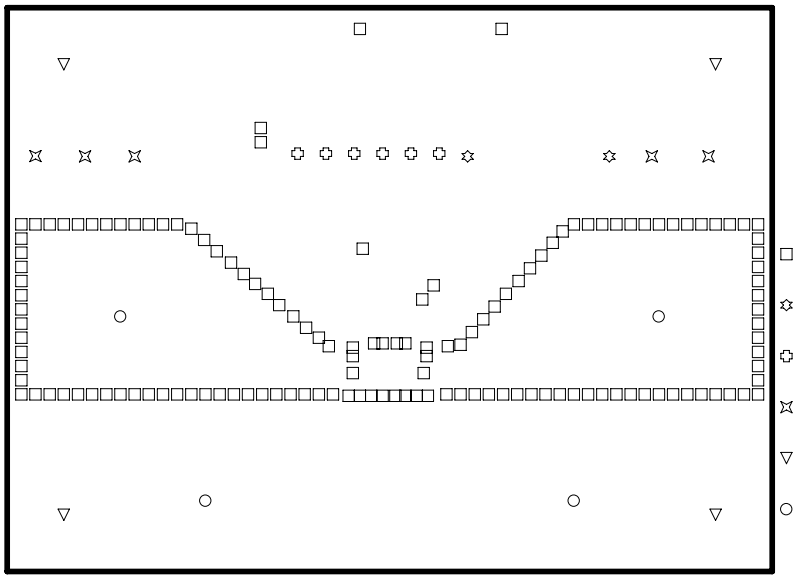
ACS7xx Demo Board

85-0322-000-GD1

Drill Drawing
Page 1 of 1
FR4, 0.062, 2 Layers
4oz Finished Copper top/bottom
No Gold Plating
Top/bottom side silkscreen
Top/bottom soldermask

Rev 3
9/21/2006

SCALE: 1.48
9/21/2006
Min trace = 10mil, min trace spacing = 10mils, min hole size 15mil



142	15mil	0.381mm	PTH
2	32mil	0.8128mm	PTH
6	42mil	1.0668mm	PTH
5	62mil	1.5748mm	PTH
4	125mil	3.175mm	PTH
4	266mil	6.7564mm	PTH
163	Total		

ITEM	QTY	S	Manufacturer	P/N	DESCRIPTION	REF
1	2	6	Panasonic	ECJ-HVB1C106M	capacitor, monolythic, 1206, X5R, 10uF, 16V	C1, C2
2	1	6	Panasonic	ECJ-1VB1C104K	capacitor, monolythic, 0603, X5R, 0.1uF, 16V	C3
3					Do Not Install	C4, C5
4	1	6	Panasonic	ERJ-3GEY0R00V	resistor, metal film, 0603, 5%, zero ohm	R1
5	1	6	Murata	BLM18BB471SN1D	inductor, 0603	L1
6	1	10	National Semi	LP2980AIM5-5.0	IC, voltage regulator, 5V, SOT-23-5	U2
7	4	10	Johnson Components	111-2223-001	connector, banana plug	IP+, IP-, IPGND, IPGND
8	5	10	Keystone Electronics	5005K	testpoint, 0.063 inch diameter, red	TP1 through TP5
9	4				screw, zinc metal plated, 4-40, 0.5 inch, Philips	see construction notes
10	4	6	Keystone Electronics	1450C	standoff, male/male, zinc metal plated, 4-40,	see construction notes
					0.5 inch long, hex shaped	
11	1	10	Molex	22-11-2062	connector, friction lock header, 6 pin	J1
12	1				buss wire, tinned, 22 or 24 gauge	RJ
					0.5 inch long. See construction notes	
13	1	10			PCB, as from gerber files	
					marked "85-0322"	
14	1	10	Allegro	Current Sensor	IC, SOIC8, as provided by Allegro	U1

All components and assembly practices must be RoHS Compliant
Certificates of RoHS compliance must be sent to Allegro for record keeping

BOM Explanation

Item: each distinct component has a "line item" (but may span multiple lines). When questions arise to a component parameter/designation/etc, please refer to line item number first when inquiring.
QTY: the quantity of items to be ordered per finished assembly. Note: higher level documents may call this BOM multiple times
S: BOM Substitution Instructions. See below
Manufacturer: Recommended (or required) Manufacturer for the part(s). Note: multiple manufacturers may be listed per line item.
Note: if no manufacturer part number is given, the the item is considered generic enough that that any manufacturer should work. Ie, 1N4001 in a DO-41
P/N: The manufacturers part number. Note: if multiple manufacturers are listed, this P/N will correspond only to the manufacturer to the immediate left of the P/N
Note: Manufacturer part number may be incomplete; if not enough information is given, see below.
Description: this is a generic description of the part. Package size, part type, minimum/maximum requirements are listed.
Note: this is generic and may not exactly reflect the suggested/required part. For example, "capacitor, 25V" while the manufacturer P/N is actually 50V. The capacitor is required to a minimum of 25V rated (important only if second sourcing)
Ref: This is the list of component designators.
If "see construction notes" is listed, the construction notes must be used to determine component location (not marked on board etc)
Note: surface mount components may have a designator listed but not marked on PCB silkscreen; if so then refer to -CPG (or similar) drawing for location and/or the pick and place file (as found in the gerber files)
If a line item has multiple part numbers, they are not to be interpreted as any order of preference
If a line item has multiple part numbers, and the substitution code is 10, then only use parts as listed.
Mixing is allowed (for example, if 2 manufacturers are listed, and qty is 5, then 2 parts may be from vendor A and 3 parts from vendor B) regardless of code.

BOM Substitution Notes:

The third column nomenclature is to be used for second sourcing components as follows:
1. Any substitution allowed, as long as mechanically identical (non-electrical items only) (visually different ok)
2. Any susbstitution allowed, as long as mechanically similar (non-electrical items only) (visually different ok)
3. Any substitution, as long as mechanically and visually identical (non-electrical items only)
4. Any substitution allowed, as long as mechanically and visually similar (non-electrical items only)
5. Any substitution allowed, as long as mechanically and visually identical and electrically similar
6. Any substitution allowed, as long as mechanically, electrically and visually similar
7. Reserved for future usage.
8. Reserved for future usage
9. Substitution not recommended, but allowed if mechanically, electrically and visually similar. Only substitute if no alternative.
10. No substitution allowed.

"Identical" is to be interpreted as "meeting the same specifications" with no deviation from the specifications.
If no manufacturer is given, then do not deviate from stated specifications in the Description field.
If a manufacturer is given, do not deviate from the specifications from the manufacturer--the Description field is for reference only then.
"Similar" is to be interpreted as "meeting or exceeding the stated specifications, in regards to electrical and/or mechanical parameters (see Substitution code).

If no manufacturer is given, then do not deviate from stated specifications in the Description field.
If a manufacturer is given, do not deviate from the specifications from the manufacturer--the Description field is for reference only then.

"Similar" as applied to visual means different colors may be used, unless otherwise noted. For example, an item with Substitution code 6 can typically be any color.
However, if the description states "red" and the substitution code is 4, 6 or similar, then a red item must be used--but it may be any shade of red.
For example, if a capacitor is to be "identical", it must have the same voltage and tempco etc ratings as stated in the description.
If a capacitor is to be similar, the voltage rating may be higher, the tempco lower, etc.
Unless if the Substitution code is 10, "identical" parts may be sourced from different manufacturers and may have slight differences in appearance.
These subtle differences are ok.

Substituting for "Similar" parts:
Capacitors:
-tempco must be same or go down. Alternately, go up in this order: Z5U, X5R, X7R, NP0, C0G
-tolerance must be same or go down
-voltage rating must be same or go up
-unless otherwise stated, capacitance value must be identical
-unless otherwise stated, lead spacing must be same; external dimensions must be the same or smaller

Resistors:
-tempco must same or go down
-tolerance must be same or go down
-unless otherwise stated, resistance value must be identical
Note: when going from 5% to 1%, use nearest value size
-power dissapation must be same or greater
-unless otherwise stated, package size must be the same
-unless otherwise stated, coloring and marking can vary

Diodes and Transistors:
-unless otherwise stated, package size must be the same

IC's, Connectors, and all other parts::
-unless otherwise stated, package size must be the same (DIP16, SOIC-8, etc)

Manufacturer Part Number Discrepencies
Every attempt will be made to provide a workable part number. However, prefixes and suffixes can vary over time.
If second sourcing from a different manufacturer, make sure that the requirements as noted under the Description column are met.
In general, if temperature option(s) are not noted, parts specified to work from 0-85C will be sufficent.
If package information is not given, please check the manufacturer datasheet for package type.

Any and all descrepencies should be reported to Allegro MicroSystems for correction and updates.

ACS7xx Demo Board | **Bill of Materials** | **Rev 3**
85-0322-010-BOM | **Page 1 of 1** | **5/28/2008**
Originator: Shawn Upton

ITEM	QTY	S	Manufacturer	P/N	DESCRIPTION	REF
1	1	10	Allegro	85-0322-001	board	
2	1	10	Allegro	ACS712ELC-05B-T	IC, SOIC8, current sensor	U1

All components and assembly practices must be RoHS Compliant
Certificates of RoHS compliance must be sent to Allegro for record keepin

ACS7xx Demo Board | **Bill of Materials** | **Rev 3**
85-0322-011-BOM | **Page 1 of 1** | **5/28/2008**
Originator: Shawn Upton

ITEM	QTY	S	Manufacturer	P/N	DESCRIPTION	REF
1	1	10	Allegro	85-0322-001	board	
2	1	10	Allegro	ACS712ELC-20A-T	IC, SOIC8, current sensor	U1

All components and assembly practices must be RoHS Compliant
Certificates of RoHS compliance must be sent to Allegro for record keepin

ACS7xx Demo Board | **Bill of Materials** | **Rev 3**

85-0322-012-BOM | **Page 1 of 1** | **5/28/2008**

Originator: Shawn Upton

ITEM	QTY	S	Manufacturer	P/N	DESCRIPTION	REF
1	1	10	Allegro	85-0322-001	board	
2	1	10	Allegro	ACS712ELC-30A-T	IC, SOIC8, current sensor	U1

All components and assembly practices must be RoHS Compliant

Certificates of RoHS compliance must be sent to Allegro for record keepinç

ACS7xx Demo Board | **Bill of Materials** | **Rev 3**
85-0322-013-BOM | **Page 1 of 1** | **5/28/2008**
Originator: Shawn Upton

ITEM	QTY	S	Manufacturer	P/N	DESCRIPTION	REF
1	1	10	Allegro	85-0322-001	board	
2	1	10	Allegro	ACS713ELC-20A-T	IC, SOIC8, current sensor	U1

All components and assembly practices must be RoHS Compliant
Certificates of RoHS compliance must be sent to Allegro for record keepin

ACS7xx Demo Board | **Bill of Materials** | **Rev 3**

85-0322-014-BOM | **Page 1 of 1** | **5/28/2008**

Originator: Shawn Upton

ITEM	QTY	S	Manufacturer	P/N	DESCRIPTION	REF
1	1	10	Allegro	85-0322-001	board	
2	1	10	Allegro	ACS713ELC-30A-T	IC, SOIC8, current sensor	U1

All components and assembly practices must be RoHS Compliant

Certificates of RoHS compliance must be sent to Allegro for record keepin