

# HKTS 200/230 SUB

# HKTS 210/230 SUB

**Active subwoofers.**

**Part of systems HKTS 20, HKTS 30 and HKTS 60 and more.**

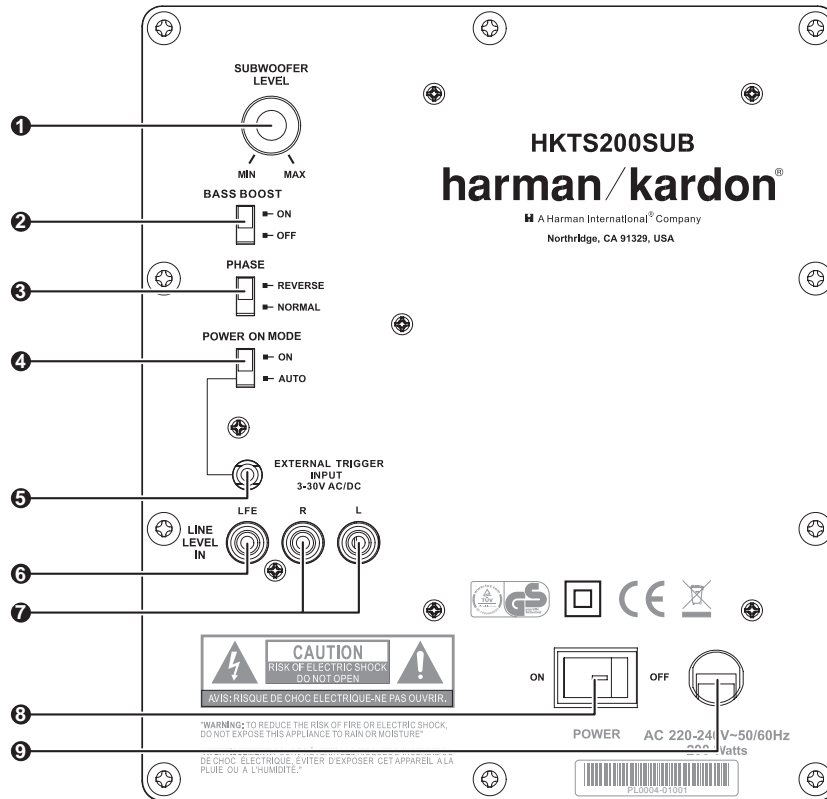
**Also sold separately.**



## CONTENTS

HKTS 200SUB rear panel connections	2	HKTS 200SUB PARTS LIST	8
HKTS 210SUB rear panel connections	3	HKTS 200SUB SCHEMATIC DIAGRAM	9
HKTS 210SUB operation	4	HKTS 210SUB EXPLODED VIEW/PARTS	10
TROUBLESHOOTING HKTS system	5	HKTS 210SUB PARTS LIST	11
TECHNICAL SPECIFICATIONS	6	HKTS 210SUB SEMICONDUCTOR PINOUT	12
HKTS 200SUB EXPLODED VIEW/PARTS	7	HKTS 210SUB SCHEMATIC DIAGRAMS	13-18

# HKTS200SUB Rear-Panel Connections

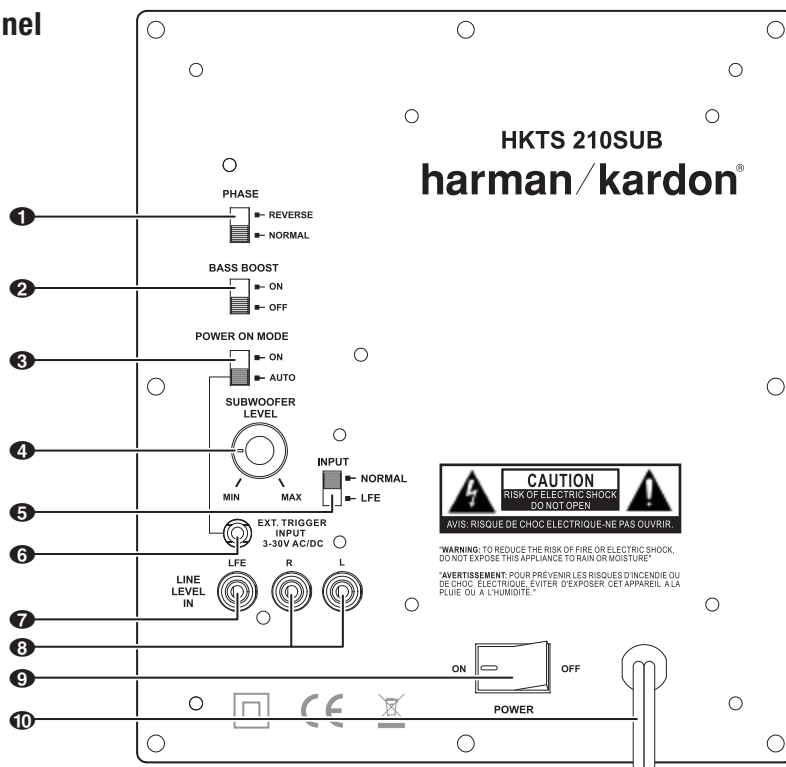


- 1 **Subwoofer Level Control:** Use this control to adjust the HKTS200SUB's volume. Turn clockwise to increase the volume; turn counterclockwise to decrease the volume.
- 2 **Bass Boost Switch:** Set this switch to **ON** to enhance the HKTS200SUB's low-frequency performance. Set this switch to **OFF** for normal low-frequency performance.
- 3 **Phase Switch:** The Phase Switch **3** determines whether the HKTS200SUB's piston-like action moves in and out in phase with the satellite speakers. If the subwoofer were to play out of phase with the satellite speakers, the sound waves produced by the subwoofer could be canceled out, reducing bass performance and sonic impact. This phenomenon depends in part on the relative placement of all the speakers in the room. In most cases the Phase Switch **3** should be left in the **NORMAL** position. However, it does no harm to experiment, and you can leave the Phase Switch **3** in the position that maximizes bass response and impact.
- 4 **Power On Mode Switch:** When set in the **AUTO** position and when the Power Switch **8** is set to **ON**, the HKTS200SUB will automatically turn itself on when it receives an audio signal, and will enter the standby mode once no audio signal has been received for about 15 minutes. When this switch is set in the **ON** position, the HKTS200SUB will remain on whether or not it is receiving an audio signal. An LED on the HKTS200SUB's top panel indicates whether the subwoofer is in the on or standby state:
  - When the LED is illuminated white, the HKTS200SUB is turned on.
  - When the LED is not illuminated, the HKTS200SUB is in standby mode.
 When the Master Power Switch **8** is set to **OFF**, the LED will not be illuminated, no matter what setting the Power On Mode Switch **4** is in.
- 5 **External Trigger Input:** Use the mini-plug of the supplied combination LFE and trigger cable to connect the External Trigger Input to the trigger output of another compatible component. Whenever a trigger signal between 3 and 30V (AC or DC) is detected, the HKTS200SUB's amplifier will turn on. The HKTS200SUB's amplifier will turn off after the trigger signal ceases. (This will occur even when the Power On Mode Switch **4** is in the **AUTO** position.)
- 6 **Line-Level LFE In Connector:** Use the LFE (purple) connector of the supplied combination LFE and trigger cable to connect the Line-Level LFE In to the dedicated subwoofer output of a receiver or preamp/processor. This input bypasses the HKTS200SUB's internal crossover circuitry, so it should only be used with a subwoofer output that has been low-pass filtered. If your receiver or preamp/processor does not have a dedicated subwoofer output that is low-pass filtered you should use the HKTS200SUB's Line-Level L/R In Connectors **7** instead.
- 7 **Line-Level L/R In Connectors:** Use these connectors if your receiver or preamp/processor does not have digital surround sound decoding or a subwoofer output that is low-pass filtered.
  - If your receiver or preamp/processor has a separate subwoofer output, use the LFE (purple) connector of the supplied combination LFE and trigger cable to connect it to either one of the HKTS200SUB's Line-Level L/R In Connectors.
  - If your receiver or preamp/processor does not have a separate subwoofer output, use two Y-adapters (not supplied). Connect an adapter's single end to the unit's preamp output for that channel. Connect one of the adapter's dual ends to the main amp input for that channel, and connect the adapter's other dual end to one of the HKTS200SUB's Line-Level L/R In Connectors. Repeat with the other Y-adapter, preamp channel, main amp input and HKTS200SUB Line-Level L/R In Connector.
- 8 **Power Switch:** Set this switch in the **ON** position to turn the HKTS200SUB on. The subwoofer will then either be on or in standby mode, depending on the setting of the Power On Mode Switch **4**.
- 9 **Power Cord (Non-Detachable):** After you have made and verified all subwoofer and speaker connections described in this manual, plug this cord into an active, *unswitched* electrical outlet for proper operation of the HKTS200SUB. DO NOT plug this cord into the accessory outlets found in some audio components.

## HKTS 60BQ/230

## HKTS 210SUB Rear-Panel Connections, Color-Coding System

## HKTS 210SUB Rear-Panel Connections



**1 Phase switch:** The Phase switch 1 determines whether the HKTS 210SUB's piston-like action moves in and out in phase with the satellite speakers. If the subwoofer were to play out of phase with the satellite speakers, the sound waves produced by the subwoofer could be canceled out, reducing bass performance and sonic impact. This phenomenon depends in part on the relative placement of all the speakers in the room. In most cases the Phase switch 1 should be left in the NORMAL position. However, it does no harm to experiment, and you can leave the Phase switch 1 in the position that maximizes bass response and impact.

**2 Bass Boost switch:** Set this switch to ON to enhance the HKTS 210SUB's low-frequency performance. Set this switch to OFF for normal low-frequency performance.

**3 Power On Mode switch:** If this switch is set in the AUTO position and the Power switch 9 is set to ON, the HKTS 210SUB will automatically turn itself on when it receives an audio signal and will enter the standby mode once no audio signal has been received for about 15 minutes. When this switch is set in the ON position, the HKTS 210SUB will remain on whether or not it is receiving an audio signal. An LED on the HKTS 210SUB's top panel indicates whether the subwoofer is in the on or standby state:

- When the LED glows white, the HKTS 210SUB is turned on.
- When the LED is not illuminated, the HKTS 210SUB is in standby mode.

When the Power switch 9 is set to OFF, the LED will not be illuminated, no matter what setting the Power On Mode switch 3 is in.

**4 Subwoofer Level control:** Use this control to adjust the HKTS 210SUB's volume. Turn clockwise to increase the volume; turn counterclockwise to decrease the volume.

**5 Input Mode switch:** When this switch is in the "Normal" setting, the input signal from the Line-Level L/R In connectors 8 is active. When this switch is in the "LFE" setting, the input signal from the Line-Level LFE In connector 7 is active.

**6 External Trigger input:** Use the mini-plug of the supplied combination LFE and trigger cable to connect the External Trigger input to the trigger output of another compatible component. Whenever a trigger signal between 3V and 30V (AC or DC) is detected by the HKTS 210SUB, its amplifier will turn on. The HKTS 210SUB's amplifier will turn off after the trigger signal ceases. (This will occur even when the Power On Mode switch 3 is in the AUTO position.)

**7 Line-Level LFE In connector:** The signal from this connector bypasses the subwoofer's internal low-pass crossover. When you're connecting the subwoofer to the dedicated subwoofer output of a receiver/processor that has its own low-pass crossover network, use the Line-Level LFE In connector 7 and set the subwoofer's Input Mode switch 5 in the "LFE" position.

**8 Line-Level L/R In connectors:** The signals from these connectors pass through the subwoofer's internal low-pass crossover. When you're connecting the subwoofer to the preamp or subwoofer outputs of a receiver/processor that does not have its own low-pass crossover network, use both Line-Level L/R In connectors 8 and set the Input Mode switch 5 in the "Normal" position. If your receiver/processor has only one subwoofer output, you can use either the L or R connector.

**9 Power switch:** Set this switch in the ON position to turn the HKTS 210SUB on. The subwoofer will then either be on or in standby mode, depending on the setting of the Power On Mode switch 3.

**10 Power cord (non-detachable):** After you have made and verified all subwoofer and speaker connections described in this manual, plug this cord into an active, unswitched electrical outlet for proper operation of the HKTS 210SUB. DO NOT plug this cord into the accessory outlets found in some audio components.

## Color-Coding System

The HKTS 60BQ use the channel color-coding system established by the CEA to make setting up your home theater speaker system as easy as possible. The HKTS 60BQ systems include speaker wires with color bands on each end.

Speaker Position	Wire Color Band
Front Left	White
Front Right	Red
Center	Green
Surround Left	Blue
Surround Right	Gray
Subwoofer	Purple

# HKTS 60BQ/230

## Operation

### Operation

#### Turning the Subwoofer On and Off

Set the HKTS 210SUB's **Power Switch 9** to the **ON** position.

- If the **Power On Mode Switch 3** is set to **AUTO**, the HKTS 210SUB will automatically turn itself on when it receives an audio signal, and it will go into the standby mode after it has received no audio signal for 15 minutes. The HKTS 210SUB's LED will glow white when the subwoofer is on and will not be illuminated when the subwoofer is in standby.
- If the **Power On Mode Switch 3** is set to **ON**, the HKTS 210SUB will remain on at all times. The HKTS 210SUB's LED will glow white.
- If the **External Trigger Input 6** is connected to a trigger-voltage source, the HKTS 210SUB will turn on whenever a trigger voltage is present and will enter the standby mode after the trigger voltage ceases, regardless of the position of the **Power On Mode Switch 3**.

If you will be away from home for an extended period of time, or if you will not be using the subwoofer for an extended period, switch the **Power Switch 9** to the **OFF** Position.

#### Subwoofer Adjustments: Volume

Use the **Subwoofer Level Control 4** to set the HKTS 210SUB's volume. Turn the knob clockwise to increase the subwoofer's volume; turn the knob counterclockwise to decrease the subwoofer's volume.

#### Subwoofer Adjustments: Phase

The **Phase Switch 1** determines whether the HKTS 210SUB's piston-like action moves in and out in phase with the satellite speakers. If the subwoofer were to play out of phase with the satellite speakers, the sound waves from the satellites could cancel out sound waves from the subwoofer, reducing bass performance and sonic impact. This phenomenon depends in part on the placement of all the speakers in the room.

Although in most cases the **Phase Switch 1** should be left in the **NORMAL** position, there is no absolutely correct setting for the **Phase Switch 1**. When the HKTS 210SUB is properly in phase with the satellite speakers, the audio will be clearer, have maximum impact and make percussive sounds like drums, piano and plucked strings sound more lifelike. The best way to set the **Phase Switch 1** is to listen to music that you know well and set the switch in the position that gives drums and other percussive sounds maximum impact.

#### Subwoofer Adjustments: Bass Boost

When set to the **ON** position, the **Bass Boost Switch 2** enhances low-frequency performance, resulting in bass with more impact, which you may prefer while watching movies or listening to music. There is no harm in experimenting with this control. Setting the switch to the **OFF** position will return normal low-frequency performance.

## HKTS 60BQ/230

## Troubleshooting

**Troubleshooting**

This unit is designed for trouble-free operation. Most problems that users encounter are due to operating errors. So if you have a problem, first check this list for a possible solution. If the problem persists, consult your authorized harman kardon service centre.

Problem	Solution
If there is no sound from <i>any</i> of the speakers:	<ul style="list-style-type: none"> <li>• Check that the receiver/amplifier is on and a source is playing.</li> <li>• Make sure that all wires and connections between the receiver/amplifier and the speakers are connected properly.</li> <li>• Make sure none of the speaker wires is frayed, cut or punctured.</li> <li>• Review the proper operation of your receiver/amplifier.</li> </ul>
If there is no sound coming from <i>one speaker</i> :	<ul style="list-style-type: none"> <li>• Check that the balance control on your receiver/amplifier is not set all the way to one channel.</li> <li>• Check your receiver/amplifier's speaker setup procedure to make sure that the speaker in question has been enabled and its volume level has not been turned all the way down.</li> <li>• Make sure that all wires and connections between the receiver/amplifier and the speaker are connected properly.</li> <li>• Make sure the speaker wires are not frayed, cut or punctured.</li> </ul>
If there is no sound coming from the <i>center speaker</i> :	<ul style="list-style-type: none"> <li>• Check your receiver/amplifier's speaker setup procedure to make sure that the center speaker has been enabled and its volume level has not been turned all the way down.</li> <li>• Make sure that all wires and connections between the receiver/amplifier and the center speaker are connected properly.</li> <li>• Make sure the speaker wires are not frayed, cut or punctured.</li> <li>• If your receiver is operating in Dolby® Pro Logic® mode, make sure that the center speaker is not set to Phantom.</li> </ul>

You can find additional troubleshooting information in the FAQs link on the Support page at [www.harmankardon.com](http://www.harmankardon.com).

# HKTS 60BQ/230

## Specifications

### Specifications

#### HKTS 60BQ/230 System

Frequency Response	45Hz – 20kHz (-6dB)
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#### SAT-TS60 Satellites

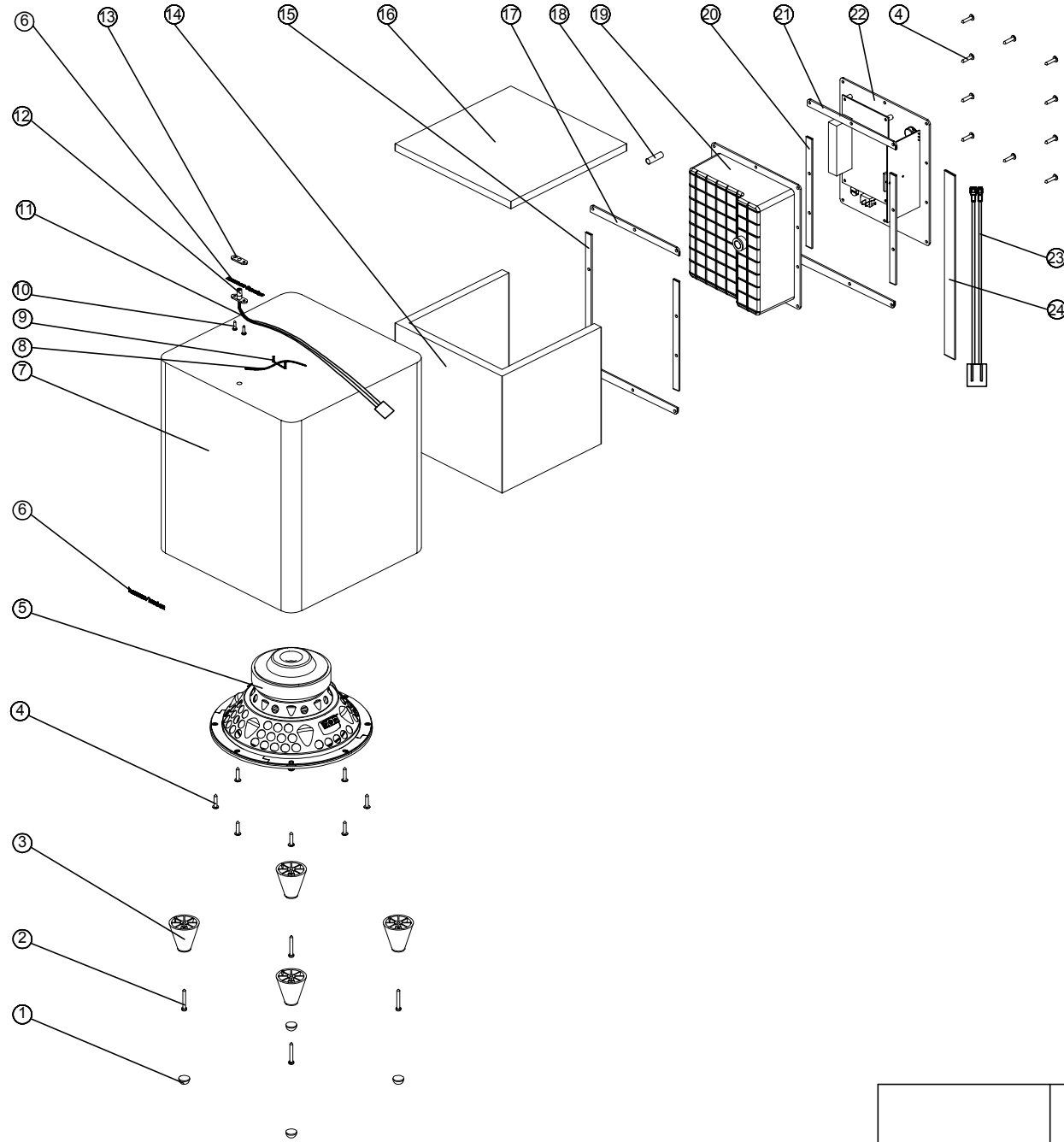
Recommended Power	20 ~ 150 watts
Impedance	8 ohms nominal
Sensitivity	83dB @ 2.83V/1 meter
Tweeter	One 1" (25mm) CMMD Lite dome, video-shielded
Midrange	Dual 3" (75mm) flat-diaphragm drivers, video-shielded
Dimensions – including stands (H x W x D)	299mm x 110mm x 88mm (11-25/32" x 4-11/32" x 3-15/32")
Weight	1.5 kg (3.4 lb)

#### CEN-TS60

Recommended Power	20 ~ 150 watts
Impedance	8 ohms nominal
Sensitivity	83dB @ 2.83V/1 meter
Tweeter	One 1" (25mm) CMMD Lite dome, video-shielded
Midrange	Dual 3" (75mm) flat-diaphragm drivers, video-shielded
Dimensions (H x W x D)	110mm x 272mm x 88mm (4-11/32" x 10-11/32" x 3-15/32" )
Weight	1.5kg (3.3 lb)

#### HKTS 210SUB Subwoofer

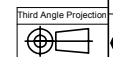
Power requirement	AC 100–120V, 50/60 Hz, 200W (USA) AC 220–240V, 50/60 Hz, 200W (EU)
Amplifier Power	200 watts RMS
Woofer	8" (200mm) woofer, sealed enclosure
External Trigger Input Voltage	3 ~ 30 volts AC/DC
Dimensions (H x W x D)	353mm x 267mm x 267mm (13-29/32" x 10-1/2" x 10-1/2")
Weight	9.0 kg (19.8 lb)



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24	EVA FOAM	IVEA00152-0001	L700.0XW30.0XT3.0 单面背胶	2	
23	Speaker Cable	VWT502421-0300	2P 300mm 2468#18 RED/BLACK	1	
22	AMP ASSMEBLY	ASLA00341-0002	HKTS200SUB 230V	1	
21	SEAL PE PAD	IVHA12002-0001	L176XW11.0XT1 单面背胶	2	
20	SEAL PE PAD	IVHA12002-0002	L178XW11.0XT2 单面背胶	2	
19	AMP Rear Cover	BPVA00032-0001	L173.4XW198.4XH79.5MM	1	
18	BUTYL TAPE	XBT090001-M000	L20.0XØ9.0	1	
17	Amp Rear Cover EVA	IVEA00168-0002	L178XW11.0XT2 单面背胶	2	
16	Wadding	IVMA20001-0027	L235XW235XT10MM	1	
15	Amp Rear Cover EVA	IVEA00168-0001	L176XW11.0XT2 单面背胶	2	
14	Wadding	IVMA20001-0026	L660XW240XT10MM	1	
13	EVA PAD	IVEA00178-0001	L28XW9.5XT1.5 BLACK 单面背胶3#	1	
12	LED Cup	BPNA00008-0001	Ø6.8XØ3.2XL9.0 ABS HB	1	
11	LED Cup Base	BPSA02012-0001	L28*W9.5*H10.1MM ABS HB	1	
10	BLUE LED CABLE	VOT050001-0010	2P 350mm RED/BLACK	1	
10	Screw	HSBA70051-3120	BT3.0XL12 Steel 1018	2	
9	STAPLE	XNJA21206-0011	L11.2XH5.7XT1.3X(12X6)MM	4	
8	WIRE TIE	DWT000012-0900	L90.0	1	
7	Cabinet	ASLA00340-0001	L304.8XW266.7XD266.7 MDF E1	1	
6	Logo	GALA00198-0001	L70XW7.2XT0.5 CHROME PLATING	2	
5	WF 8"	FSBA2B080-0401	8" 4OHM 200W	1	
4	Screw	HSBA50431-3201	BT4.0XL20 Steel 1018	18	
3	Foot	BPEA00006-0001	Ø42XH42 SATIN BLACK PAINTED	4	
2	Screw	HSPA50352-4300	BT4.0XL30 Steel 1018	4	
1	Rubber Feet	BRFA00049-0001	Ø15XH9.0MM SILICON 60~65度	4	
Item NO.	Part Name	Part NO.	Description	Qty.	Total

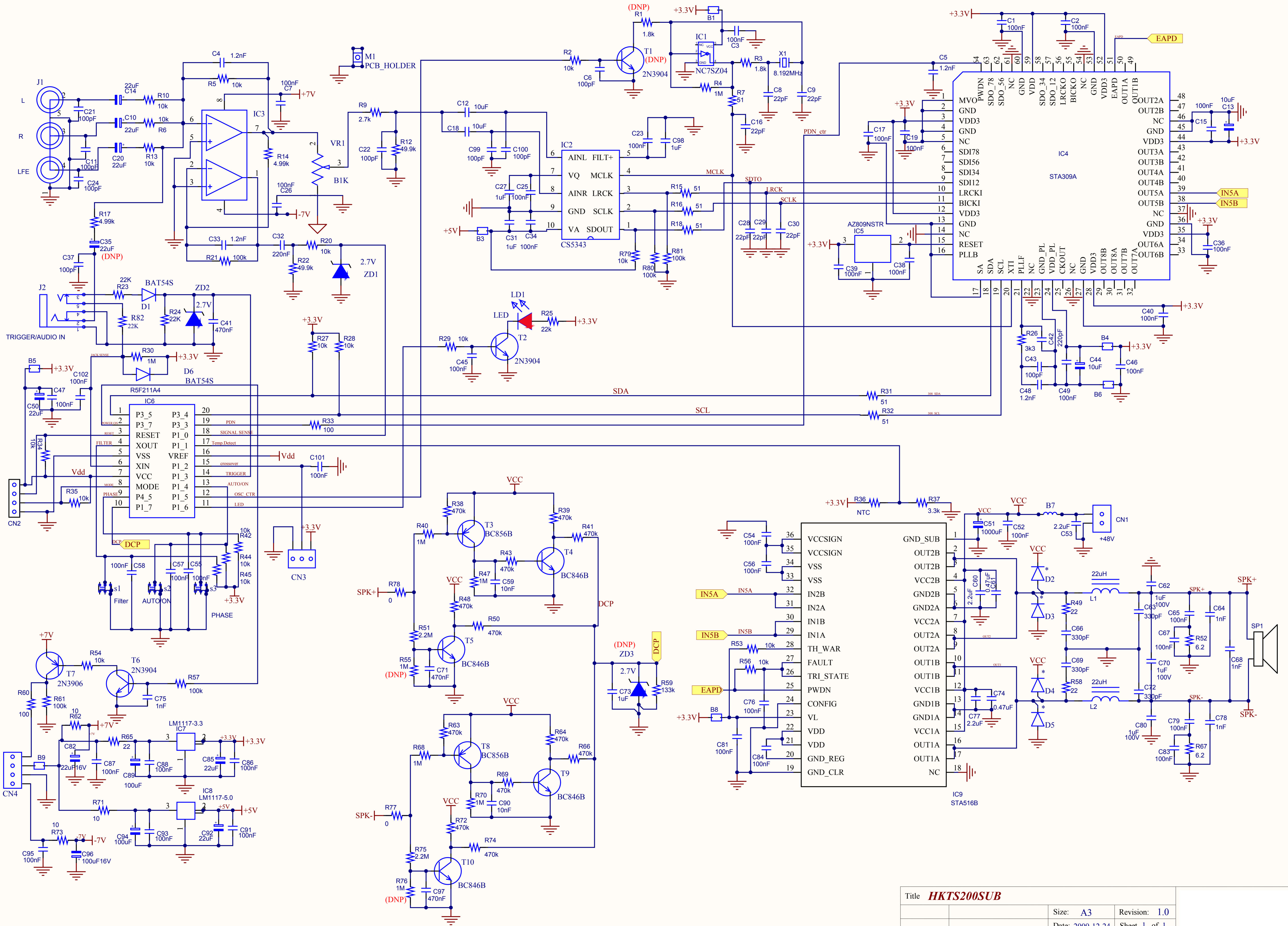
				Tolerance					Model NO.	
				Angular ±0.25°					HKTS200SUB	
Quotation	Version NO.:	Scale:	Unit:	Dimension	F	G	H	J	ANWAHKTS3-4310	
	00	1:1	MM	0~8	±0.05	±0.1	±0.1	±0.2		
Sample	Drawn By	Checked By	Approved By	8~25	±0.08	±0.15	±0.15	±0.3	Part NO. HKTS3LZY0-0001	
				25~80	±0.12	±0.2	±0.25	±0.4		
Tooling				80~250	±0.25	±0.3	±0.4	±0.6	Drawing NO. HKTS3LZY0-0001	
				250~800	±0.5	±0.6	±0.8	±1.0		
Official Issue				800~2500	±1.0	±1.0	±1.5	±1.7	Page 7 of 18	
				2500~	±2.0	±2.0	±3.0	±3.0		



Model name: HKTS200 SUB\230V for HKTS 20 and 30 systems

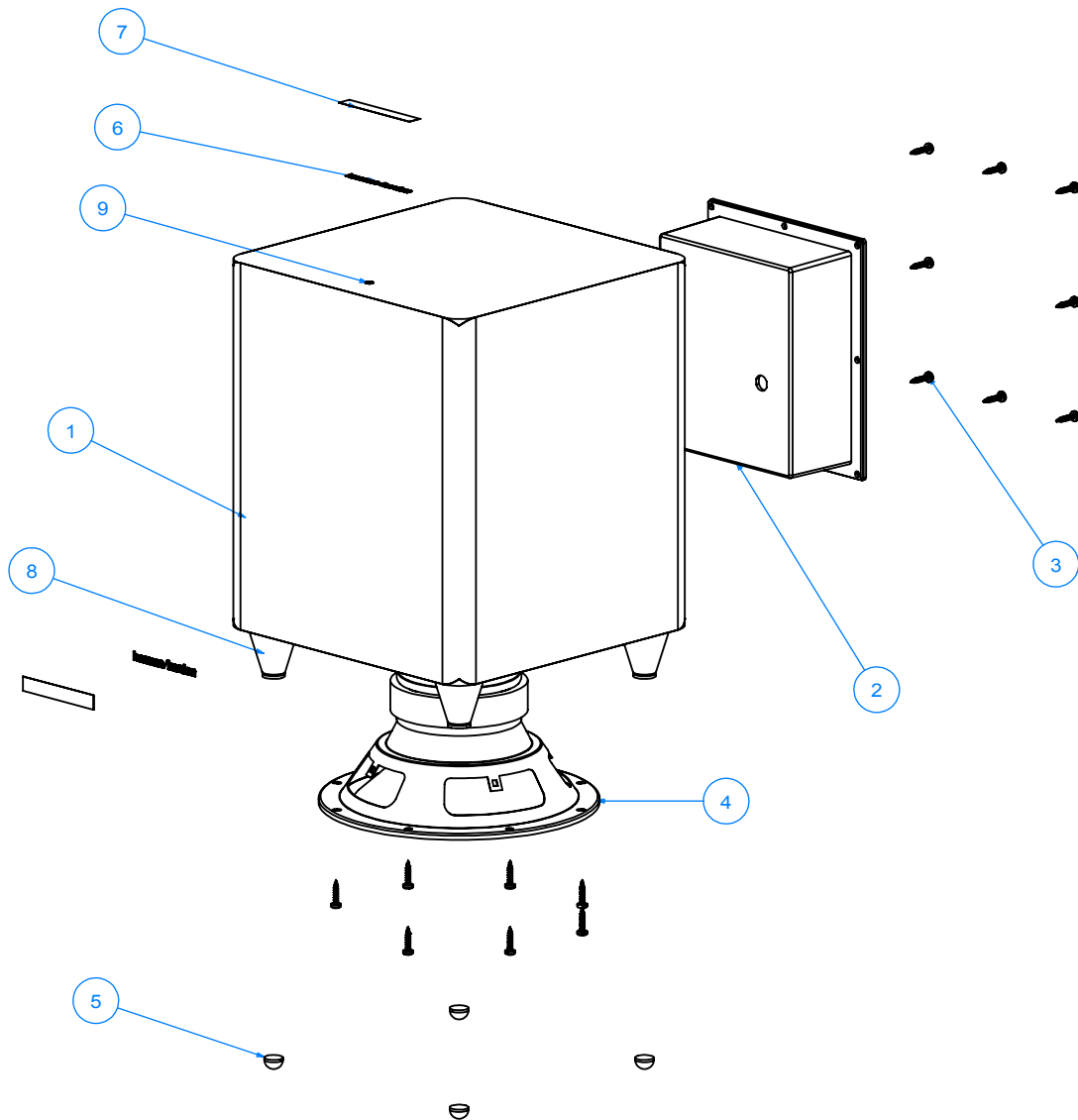
Component No.	Description	UOM	Usage(pcs)
HSBA50431-3201	SCREW T4.0x2.85PxL20MM CED COATING	PC	18
HSPA50352-4300	SCREW T4.0x2.85PxL30MM BLACK ZINC	PC	4
HSBA70051-3120	GP SCREW STEEL BLACK ZINC	PC	2
BRFA00049-0001	HKTS30-RUBBER FEET	PC	4
BPVA00032-0001	AMP REAR COVER	PC	1
GALA00198-0001	HKTS30-Logo AL	PC	2
BPNA00008-0001	HKTS30-LED Cup	PC	1
BPEA00006-0001	HKTS30-FOOT ABS HB	PC	4
IVEA00168-0001	EVA BLACK	PC	2
IVEA00168-0002	EVA BLACK	PC	2
XBT090001-M000	BUTYL TAPE DIA 9.0 (2.5M/1R)	M	
XNL000003-0002	HOT MELT GLUE #1-286 D11.2mm	KG	
XNL500006-0001	PVC GLUE	KG	
XNJA21206-0011	STAPLE FOR C803/5/7/9 STEEL PLATE ZINC	PC	4
DWT000012-0900	GP WIRE TIE GT-90M 90mm	PC	2
XTP020300-0001	PE PROTECTIVE SHEET W300xT0.05mm	RL	
XNB000008-0001	THINNER MEK 丁酮 18L/PAILFUL	L	
IVHA12002-0001	HKTS30-SEAL PE PAD	PC	2
IVHA12002-0002	HKTS30-SEAL PE PAD	PC	2
VOT050001-0010	BLUE LED CABLE 2P 350mm RED/BLACK	PC	1
BPSA02012-0001	HKTS30-LED Cup Base	PC	1
VWT502421-0300	GP WIRE TERM 2P 380mm RED/BLACK	PC	1
XGLA00102-0001	704 BLACK SILICON GLUE 1pcs=90g	PC	
XAD050010-0001	DOUBLE SIDE TAPE W10mmxL50M/RL	RL	
IVEA00178-0001	EVA PAD	PC	1
IVEA00152-0001	SPONGE L700*W30*T3.0 GRAY 单面背胶	PC	2
ASLA00340-0001	CABINET ASSY FOR HKTS30	PC	1
IVMA20001-0026	WADDING 杂布棉	PC	1
IVMA20001-0027	WADDING 杂布棉	PC	1
ASLA00340-0004	ACCESSORY ASSY FOR HKTS30	PC	1
IVAA02036-0001	PE BAG For WIRE	PC	1
VRC202001-0010	RCA CABLE UL2547 24AWG BLACK/PURPLE	PC	1
APKA00116-0001	PACKING ASSY FOR HKTS30 230V	PC	1
ITFA30086-0001	HKTS30-TOP POLYFOAM	PC	1
ITFA30086-0002	HKTS30-BOTTOM POLYFOAM	PC	1
IVSA10047-0001	NON WEAVE BAG	PC	1
ICCA00227-0001	HKTS30-CARTON BOX 230V	PC	1
XAD030060-0001	OPP TAPE W60mmxL60YD 100RL/BOX	RL	
IVHA04022-0001	EPE PAD	PC	1
XTP020020-0002	PE PROTECTIVE SHEET L100xW20xT0.05mm	PC	2
YLBA18028-0001	BAR+SERIAL LABEL HKTS200 230V 一式四份	SET	1
YLBA18029-0001	BAR+SERIAL AMP LABEL FOR HKTS200 230V	PC	1
DOT040004-0001	DESICCANT 5G/BAG	BAG	4
IVAA02034-0001	PE BAG	PC	1
IVAA07021-0001	SOFT BAG	PC	1
IVHA02016-0001	SOFT SHEET(单面附膜)	PC	2
IVHA02016-M000	SOFT(单面附膜)	M	
FSA2B080-0401	HKTS30 SUBWOOFER DRIVER	PC	1
ASLA00341-0002	AMPLIFIER ASS'Y 230V HKTS30	PC	1





Title <b>HKTS200SUB</b>		Size: <b>A3</b>	Revision: <b>1.0</b>
		Date: <b>2009-12-24</b>	Sheet <b>1</b> of <b>1</b>
File: <b>E:\Work\HKTS\SCH2.SchDoc</b>			

Date	Editions	Page	Exploded View Instruction	Client: harman/kardon
2010.09.27	1	1		Model: HKTS210SUB/230



Item	Part Name	Description	Q'ty
1	241-080-05531-0BAE	Cabinet	1
2	010-0N20-05317-E	Amplifier	1
3	352-FM04020D605-E	Screw	16
4	24MR11DZA-DW01-E	8" Subwoofer	1
5	320-SR-05226-0BAE	Rubber Feet	4
6	316-AG-00557-E	LogoBadge	2
7	413-000-05591-E	Static Label	2
8	321-ABS-05141-0BAE	Plastic Feet	4
9	162-A025D023-E	LED+Cable	1

3				Apvd. By	Check. By	Dsgn. By
2						
1						
0	A0	2010.09.27				
ISSUE	REVISIONS	DATE	NAME			

<b>HKTS210SUB parts list</b>		
<b>Part Number</b>	<b>DESCRIPTION</b>	<b>SAP Description</b>
010-0N20-05317-E	AMPLIFIER, COMPLETE	
050-A05317A-E	SMD PCB ASS'Y HKTS210/230 POWER-AMP	
051-A05317D-E	HKTS210/230 LFE SW assy	LFE SWITCH ASSY HKTS210/230 SUB
051-A05317A-E	PCB ASSY HKTS210/230 POWER AMP	POWERAMP PCB ASSY HKTS210/230 SUB
050-A05317B-E	SMD PCB ASS'Y HKTS210/230 PSU	
051-A05317C-E	PCB ASSY HKTS210/230 CONTROL BOARD	CONTROL BOARD PCB ASSY HKTS210/230
051-A05317B-E	PCB ASS'Y HKTS210/230 PSU PCB ASSY	POWER SUPPLY HKTS210/230 SUB
152-V60202603-E	POWER CABLE, 6FT SPO21A HO3VVH2-F	
156-H220050-E	HEATSHRINK TUE 22ø 55MM	
162-5025D009-E	+ 2.5 CONNECTOR	
162-A013D011-E	3.96 HOUSING 3 205 0.8T TERMINAL	
162-A042D002-E	3.96 HOUSING 3 250 #250 # 205 TERMINAL	
163-11009-E	NYLON TIE 100MM CLEARCOLOR	
180-P3024DB-E	ROCKER SIWTCH 3024-DB	
302-AL-05293-1BAE	AMP PANEL + SILK SCREEN	REAR PANEL +SILKSCREEN HKTS210/230 SUB
306-ABS-05175-0BAE	REAR HOUSING FOR AMP	
311-ABS-00028-0BAE	KNOB	KNOB REAR HKTS210/230 SUB
323-A;-05202-0LAE	HEATSINK	
335-NYL-00002-0BAE	POWER CORD	PWR CORD GROMMET
24MR11DZA-DW01-E	WOOFER	WOOFER 8"
165-550005500-E	SIGNAL CABLE ( 5 M, RCA + 3.5ø PIN )	SIGNAL CABLE 5 M RCA 3.5ø PIN HKTS210/230
241-080-05531-0BAE	WOOD CABINET	
316-AG-00557-E	LOGO	LOGO "HK"
283-001-05347-0WAE	NON-WOVEN CLOTH BAG	
431-000-07204-E	STYROFOAM(TOP/BOTTOM)	
402-000-06417-E	BEAUTY CARTON	
406-000-06259-E	OM	



# FTP14N50C FTA14N50C

## N-Channel MOSFET

**Pb** Lead Free Package and Finish

### Applications:

- Adaptor
- TV Main Power
- SMPS Power Supply
- LCD Panel Power

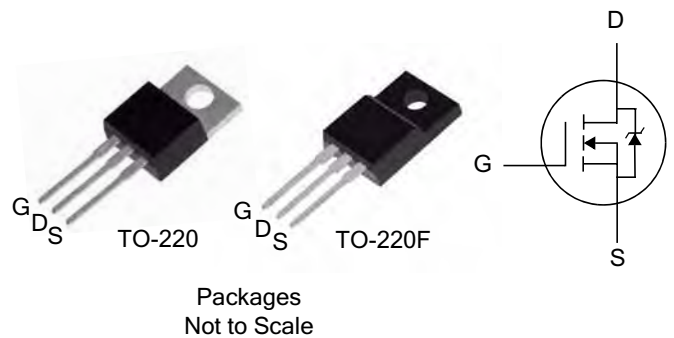
### Features:

- RoHS Compliant
- Low ON Resistance
- Low Gate Charge
- Peak Current vs Pulse Width Curve

$V_{DSS}$	$R_{DS(ON)}$ (Max.)	$I_D$
500 V	0.46 $\Omega$	14 A

### Ordering Information

PART NUMBER	PACKAGE	BRAND
FTP14N50C	TO-220	FTP14N50C
FTA14N50C	TO-220F	FTA14N50C



### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	FTP14N50C	FTA14N50C	Units
$V_{DSS}$	Drain-to-Source Voltage (NOTE *1)	500		V
$I_D$	Continuous Drain Current	14.0	14.0*	A
$I_{D@ 100^\circ\text{C}}$	Continuous Drain Current	Figure 3		
$I_{DM}$	Pulsed Drain Current, $V_{GS}@ 10\text{V}$ (NOTE *2)	Figure 6		
$P_D$	Power Dissipation	188	50	W
	Derating Factor above $25^\circ\text{C}$	1.52	0.40	W/ $^\circ\text{C}$
$V_{GS}$	Gate-to-Source Voltage	$\pm 30$		V
$E_{AS}$	Single Pulse Avalanche Energy $L=10\text{ mH}$ , $I_D=6.7\text{ Amps}$	225		mJ
$I_{AS}$	Pulsed Avalanche Rating	Figure 8		A
$dv/dt$	Peak Diode Recovery $dv/dt$ (NOTE *3)	5.0		V/ns
$T_L$ $T_{PKG}$	Maximum Temperature for Soldering Leads at 0.063 in (1.6 mm) from Case for 10 seconds	300		$^\circ\text{C}$
	Package Body for 10 seconds	260		
$T_J$ and $T_{STG}$	Operating Junction and Storage Temperature Range	-55 to 150		

\*Drain Current Limited by Maximum Junction Temperature

**Caution:** Stresses greater than those listed in the "Absolute Maximum Ratings" Table may cause permanent damage to the device.

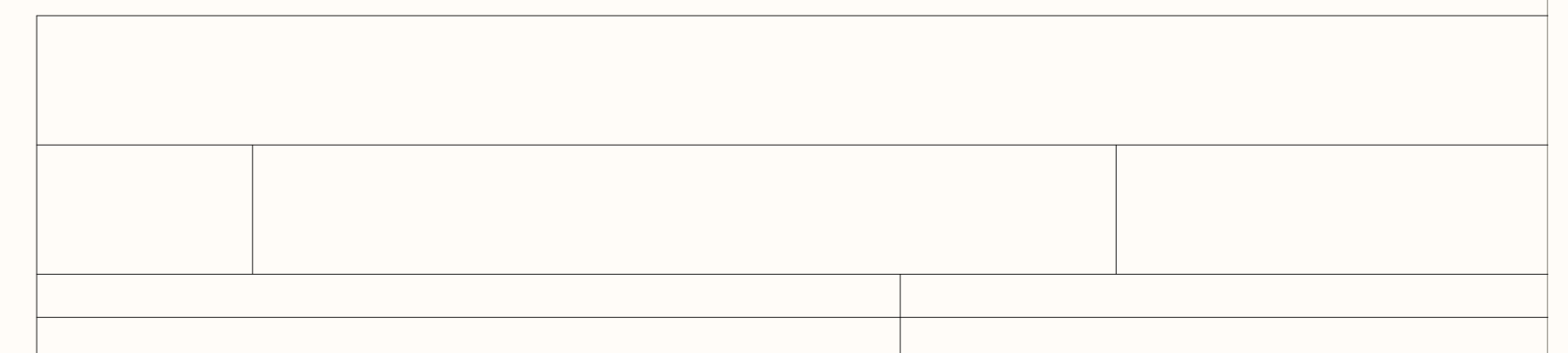
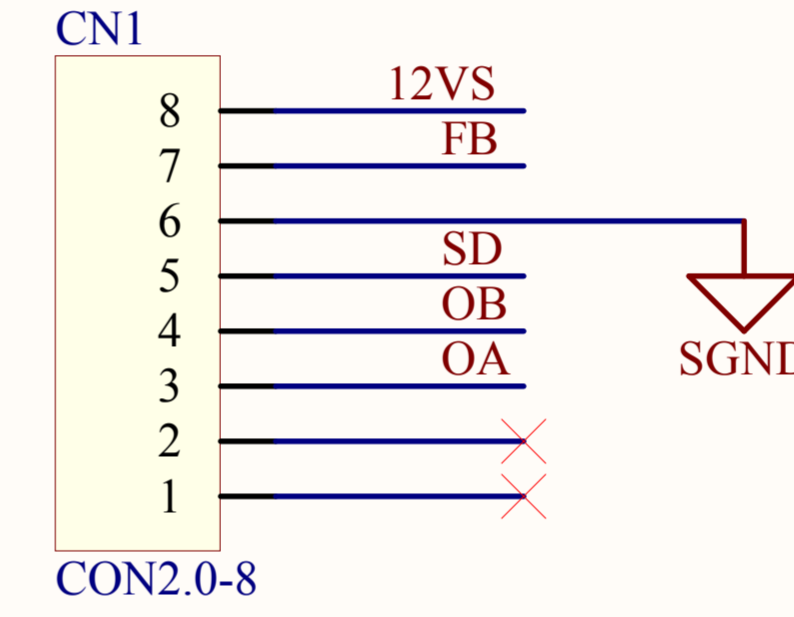
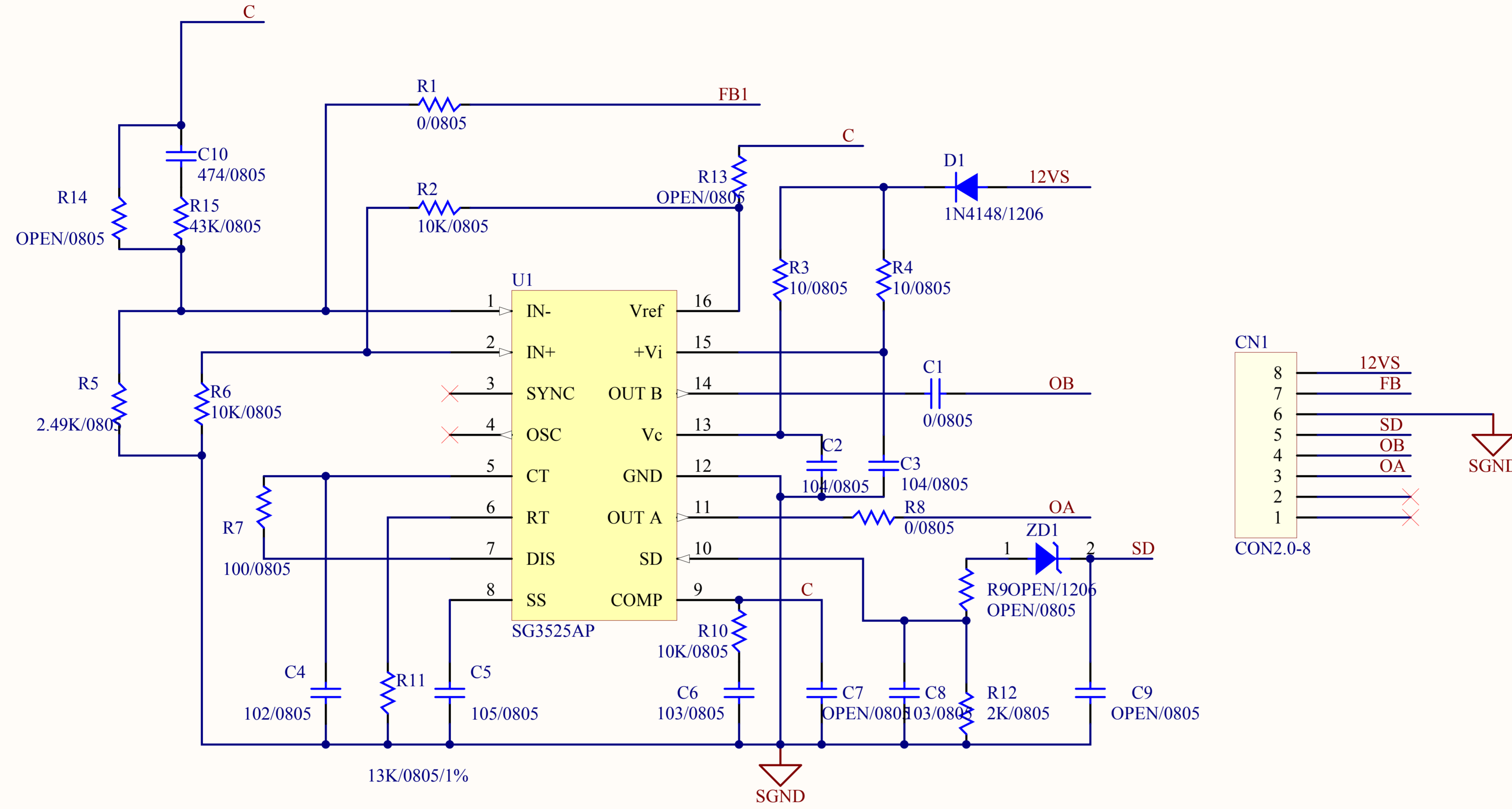
### Thermal Resistance

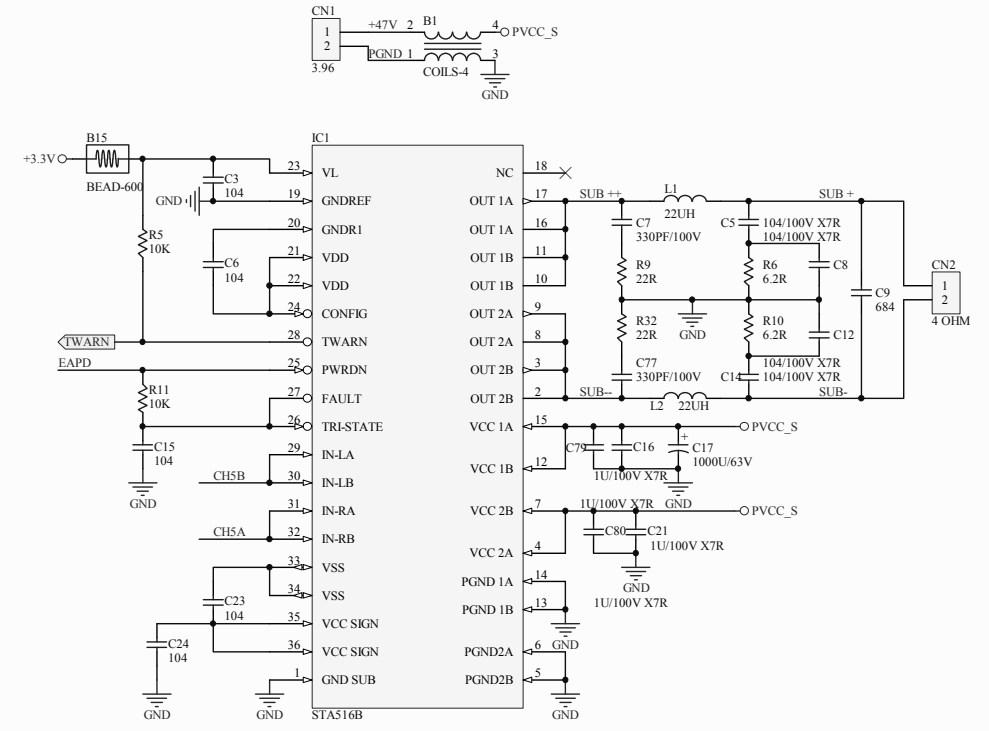
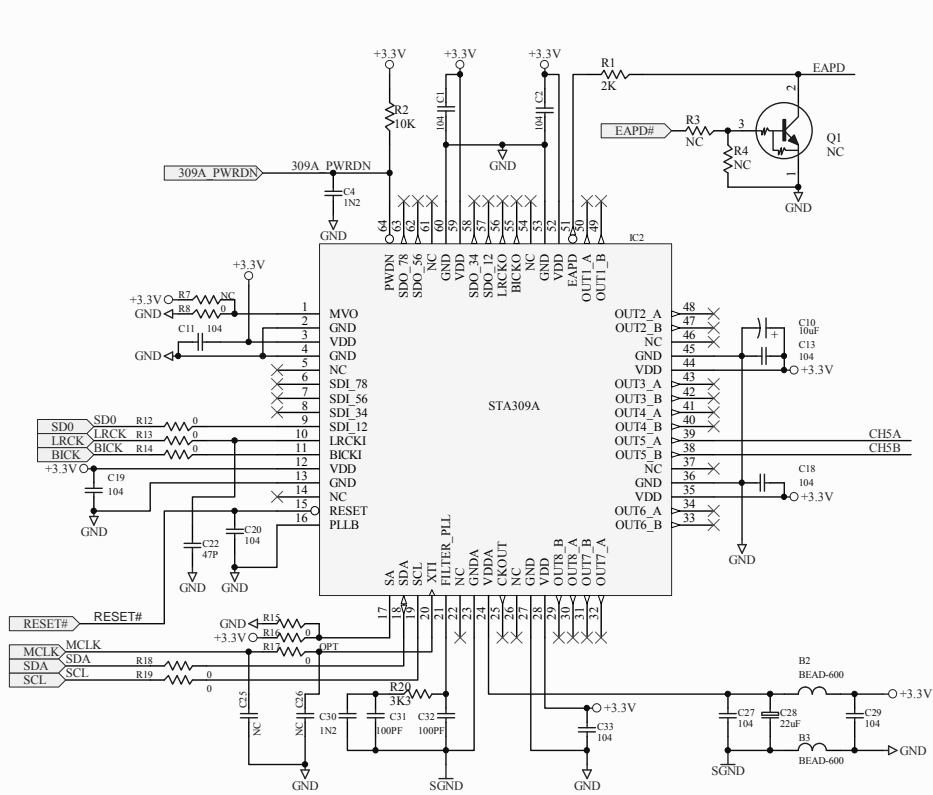
Symbol	Parameter	FTP14N50C	FTA14N50C	Units	Test Conditions
$R_{\theta JC}$	Junction-to-Case	0.66	2.5	$^\circ\text{C}/\text{W}$	Drain lead soldered to water cooled heatsink, $P_D$ adjusted for a peak junction temperature of $+150^\circ\text{C}$ . 1 cubic foot chamber, free air.
$R_{\theta JA}$	Junction-to-Ambient	62	100		





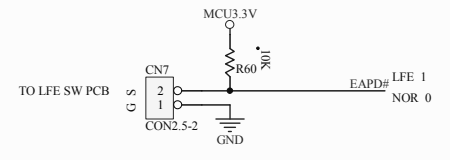
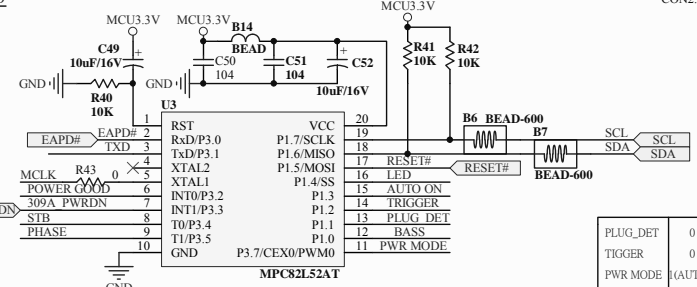
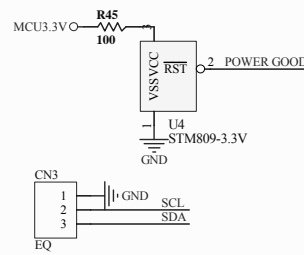
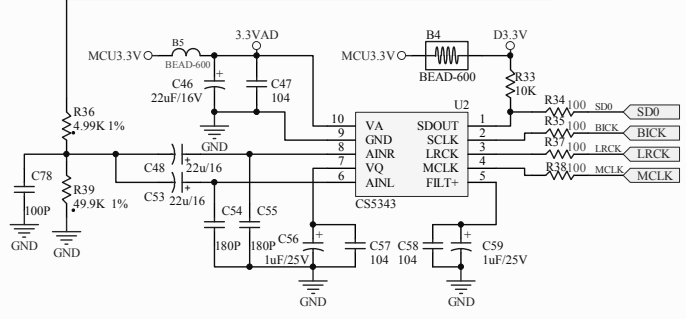
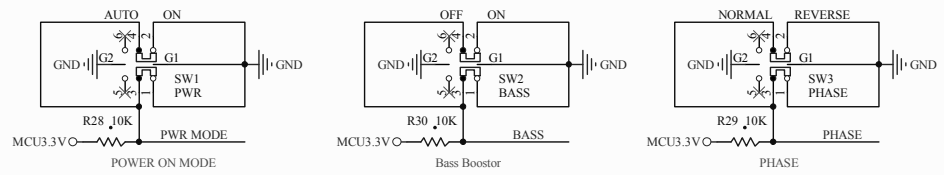
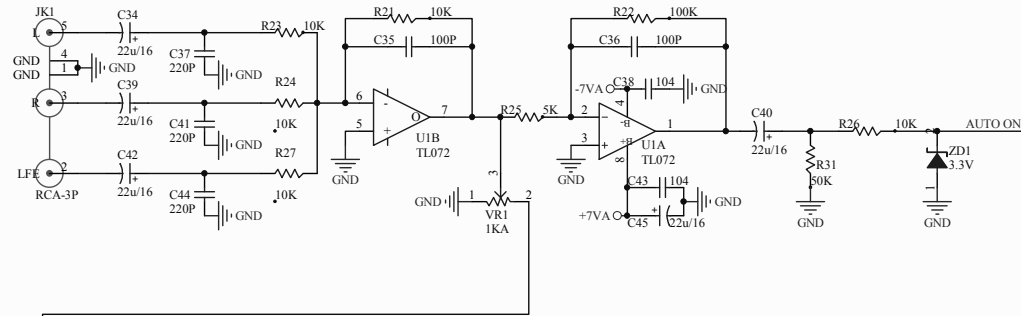
HKTS 210 SUB CONTROL BOARD (CV) SCHEMATICS. SIZE A3.





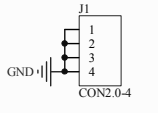
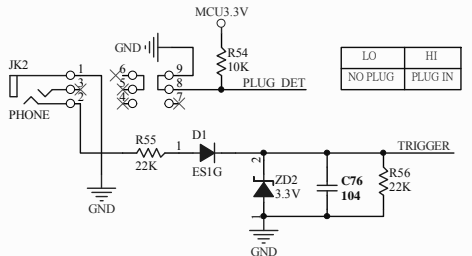
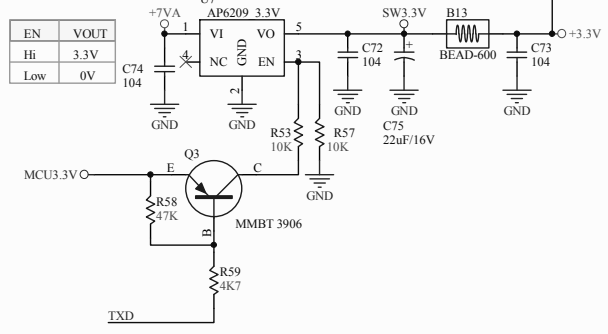
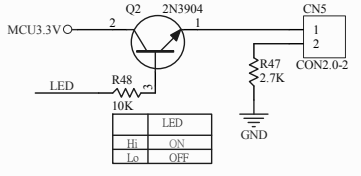
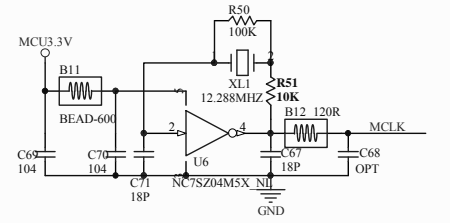
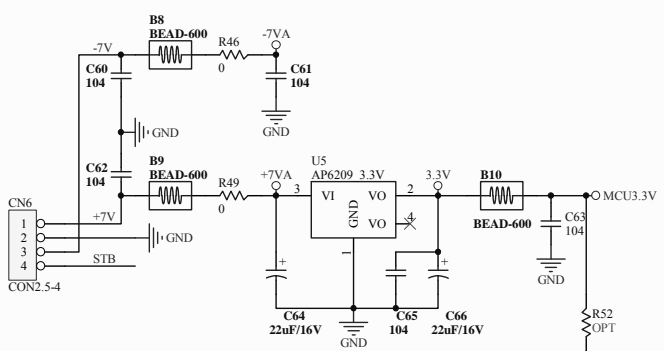
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Size	Number	Revision
A3		
Date:	2010/8/3	Sheet of
File:	D:\HKTS210\DV1\AMP_DV1.SCHDOC	Drawn By:





	0	0	0	1	1
PLUG_DET	0	0	0	1	1
TIGGER	0	0	0	0	1
PWR MODE	(AUTO)	(AUTO)	(0)	(ON)	X
AUTO ON	1	0	X	X	X
STB	1	0	1	0	1
LED	1	0	1	0	1

AUTO OFF TIME=15 MIN



Title		
HKTS210SUB		
Size	Number	Revision
A3		
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File:	D:\HKTS210\DV1\INPUT_DV1.SchDoc	Drawn By:

1

2

3

4

A

A

B

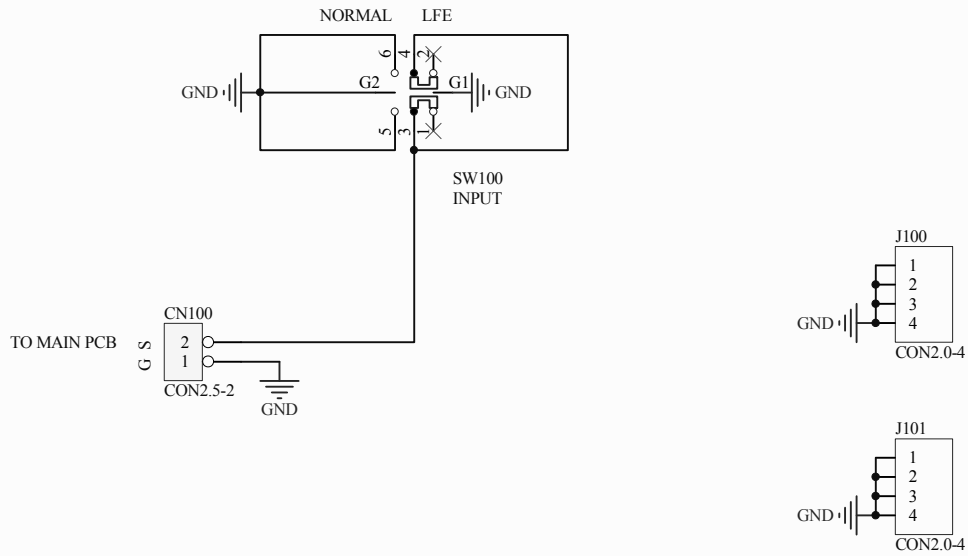
B

C

C

D

D



Title		
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4