MUTE
VOL-UP
VOL-DN
MODE1
MODE2
MODE3
MODE4
LOAD
C57 470pF
C48 470pF
C49 470pF
C50 470pF
C51 470pF
C25 470pF
C26 470pF
C53 470pF
R38 33.2k
R39 33.2k
R40 33.2k
R42 33.2k
R44 33.2k
R60 33.2k
R61 33.2k
R45 33.2k
3.3V
GND

U2
MSP430F5234IRGZT
P1.0/TA0CLK/ACLK
P1.1/TA0.0
P1.2/TA0.1
P1.3/TA0.2
P1.4/TA0.3
P1.5/TA0.4
P1.6/TA1CLK/CBOUT
P1.7/TA1.0
P2.7/UCB0STE/UCA0CLK
P3.0/UCB0SIMO/UCB0SDA
P3.1/UCB0SOMI/UCB0SCL
P3.2/UCB0CLK/UCA0STE
P3.3/UCA0TXD/UCA0SIMO
P3.4/UCA0RXD/UCA0SOMI
P4.0/PM_UCB1STE/PM_UCA1CLK
P4.1/PM_UCB1SIMO/PM_UCB1SDA
P4.2/PM_UCB1SOMI/PM_UCB1SCL
P4.3/PM_UCB1CLK/PM_UCA1STE
P4.4/PM_UCA1TXD/PM_UCA1SIMO
P4.5/PM_UCA1RXD/PM_UCA1SOMI
P4.6/PM_NONE
P5.0
P5.1
P5.2/XT2IN
P5.3/XT2OUT
P5.4/XIN
P5.5/XOUT
P6.0/CB0
P6.1/CB1
P6.2/CB2
P6.3/CB3
P6.4/CB4
P6.5/CB5
PJ.0/TDO
PJ.1/TDI/TCLK
PJ.2/TMS
PJ.3/TCK
AVCC
DVCC
DVCC
VCORE
RSTDVCC/SBWTDIO
TEST/SBWTCK
RST/NMI
NC
AVSS
DVSS
DVSS
PAD
SDA
SCL
SBWTDIO
SBWTCK
RESET

R12 2.00k
R13 2.00k
R93 0
R64 100k
R2 0
U11
24LC512-I/ST
0xA0
A0
A1
A2
VSS
VCC
WP
SCL
SDA
DNP

C58 12pF
C59 12pF
Y2 32.768kHz

SPI BI-WIRE JTAG
R41 47.5k
C52 2200pF
R43 332
J11
JTAG
TCK
SBWTDIO
VCC TOOL
TCK
TDIO
GND

RESET
R74 47.5k
C28 2200pF

R46 100
R50 2.15k
Q2
D5 MODE1
Blue
R62 100
R63 2.15k
Q4
D1 MODE2
Blue
R65 100
R67 2.15k
Q5
D2 MODE3
Blue
R68 100
R69 2.15k
Q6
D3 MODE4
Blue
R70 100
R71 2.15k
Q7
D4 ACTIVITY
Blue
R72 100
R73 2.15k
Q8
D6 MUTE
Red

GPIO EXPANDER
U1
TCA6408ARSVR
0x20
VCCP
VCCI
SCL
SDA
INT
ADDR
RESET
P0
P1
P2
P3
P4
P5
P6
P7
R59 10.0k
R54 10.0k
R55 10.0k
R56 10.0k
R57 10.0k
R58 10.0k
TO AMPS
AMP-RESET1
AMP-RESET2
AMP-RESET3
AMP-RESET4
AMP-RESET5

I2C EXPANDER
U3
TCA9548ARGER
0x70
R66 10.0k
R3 2.00k
R4 2.00k
R5 2.00k
R6 2.00k
R7 2.00k
R8 2.00k
R9 2.00k
R10 2.00k
R11 2.00k
R14 2.00k
R15 2.00k
R16 2.00k
TO DACS
SDA1 SCL1 Surround
SDA2 SCL2 UpMix
SDA3 SCL3 Front Right
SDA4 SCL4 Front Left
SDA5 SCL5 Center
SDA6 SCL6 SubWoofer

USB-I2X
USB-I2X CONTROLLER
SCL
MCLK
BCLK
DATA
LRCLK

DECOUPLING
C55 1µF
C56 0.1µF
C29 0.1µF
C30 0.1µF
C31 0.1µF
C32 0.1µF
C33 0.1µF
C34 0.1µF

Orderable: TIDA-01414	Designed for: Public Release	Mod. Date: 8/14/2017	
TID #: TIDA-01414	Project Title: TPA3244 Dolby Atmos SoundBar Reference Design		
Number: TIDA-01414	Sheet Title: MSP540 IO		
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 1 of 12	
Drawn By: LDN	File: TIDA-01414 Control.SchDoc	Size: BC	Rev: E1
Engineer: MATT BEARDSWORTH	Contact: http://www.ti.com/support		

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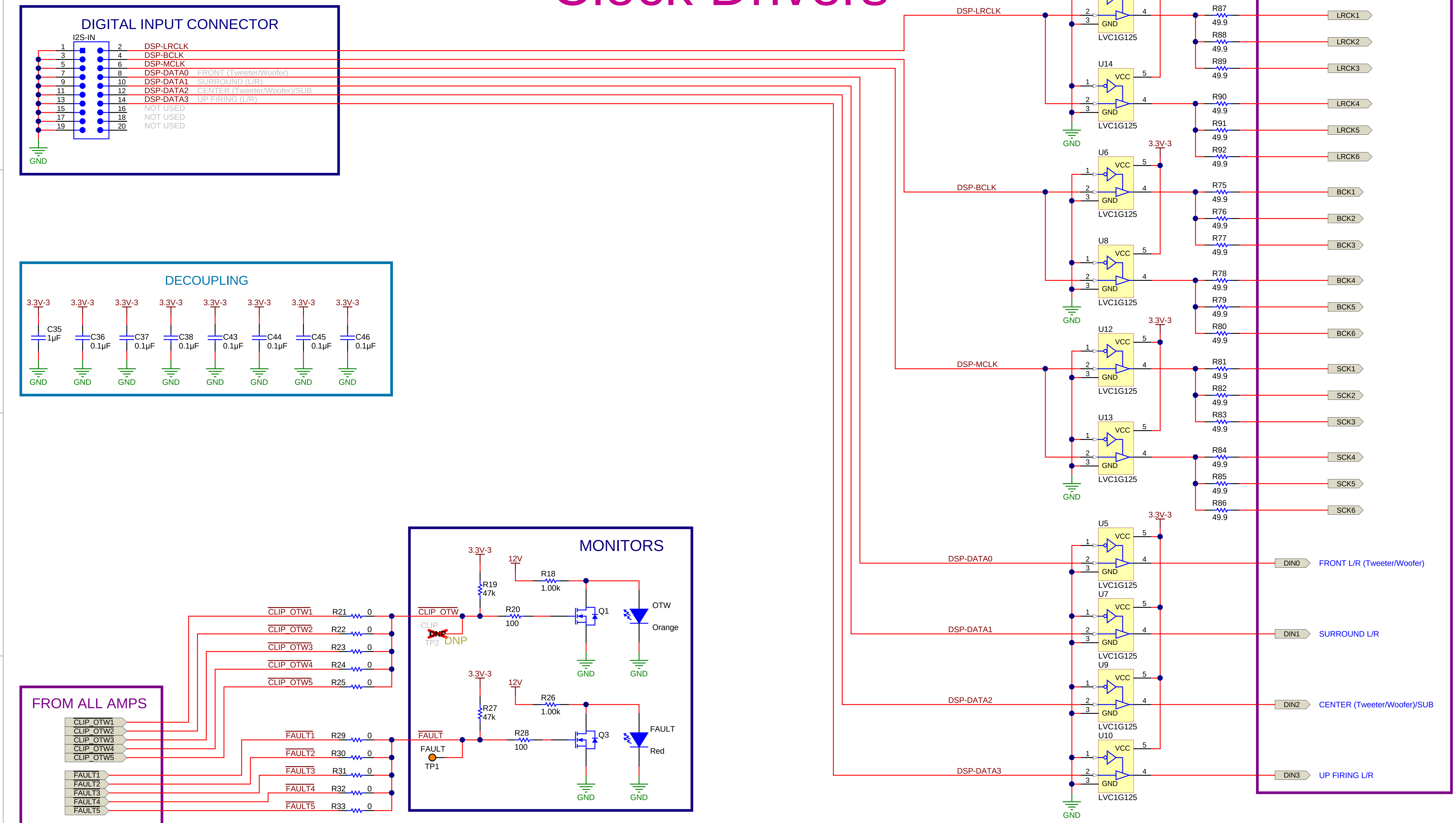
Clock Drivers



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Orderable: TIDA-01414	Designed for: Public Release	Mod. Date: 11/18/2016
TID #: TIDA-01414	Project Title: TPA3244 Dolby Atmos SoundBar Reference Design	
Number: TIDA-01414 Rev: E1	Sheet Title: Main Schematic	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 2 of 12
Drawn By: LDN	File: TIDA-01414_ClockDrivers.SchDoc	Size: B
Engineer: MATT BEARDSWORTH	Contact: http://www.ti.com/support	

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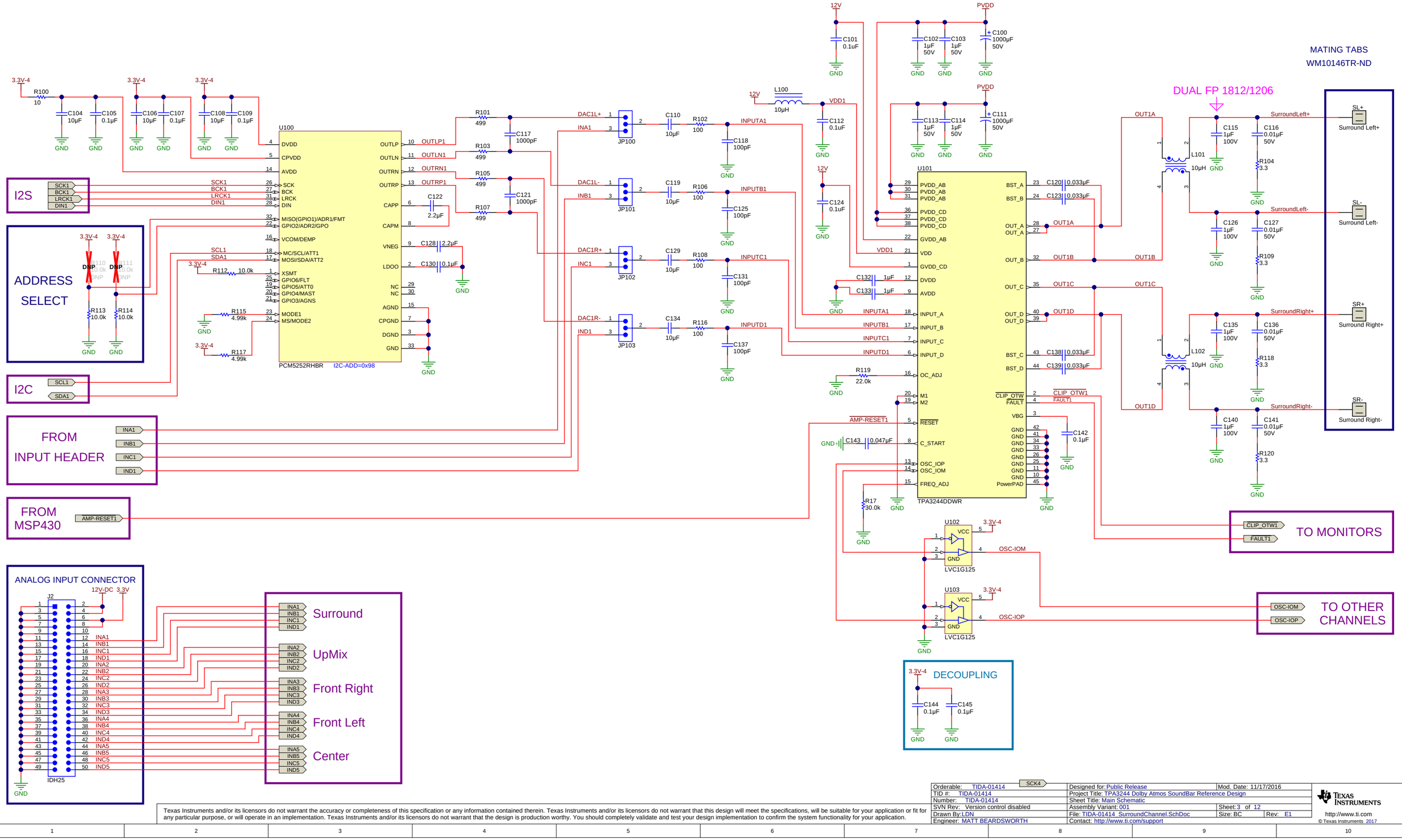
SURROUND CHANNEL



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Orderable: TIDA-01414	Designed for: Public Release	Mod. Date: 11/17/2016
TID #: TIDA-01414	Project Title: TPA3244 Dolby Atmos SoundBar Reference Design	
Number: TIDA-01414	Sheet Title: Main Schematic	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 3 of 12
Drawn By: LDN	File: TIDA-01414_SurroundChannel.SchDoc	Size: BC Rev: E1
Engineer: MATT BEARDSWORTH	Contact: http://www.ti.com/support	

SCK4

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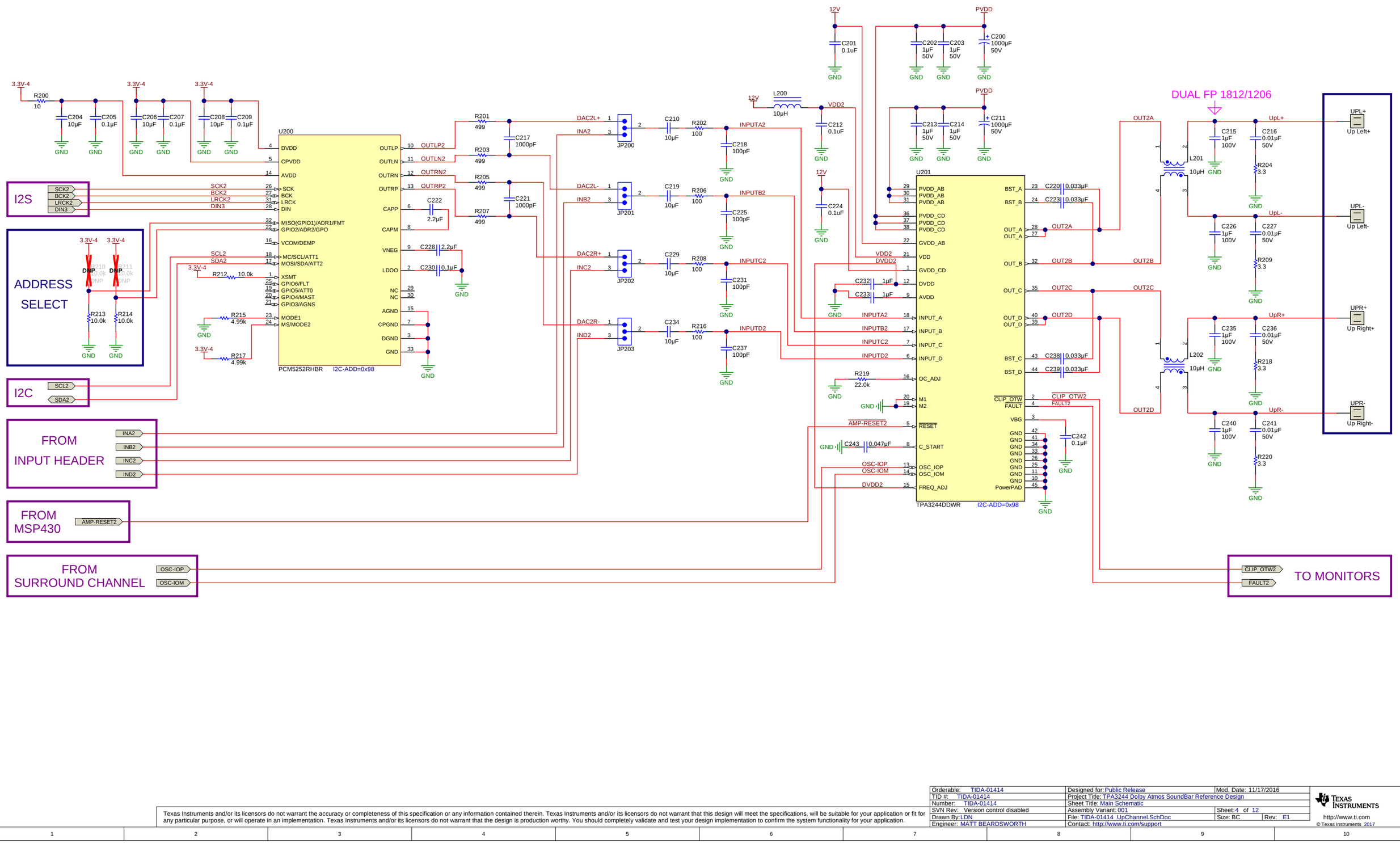
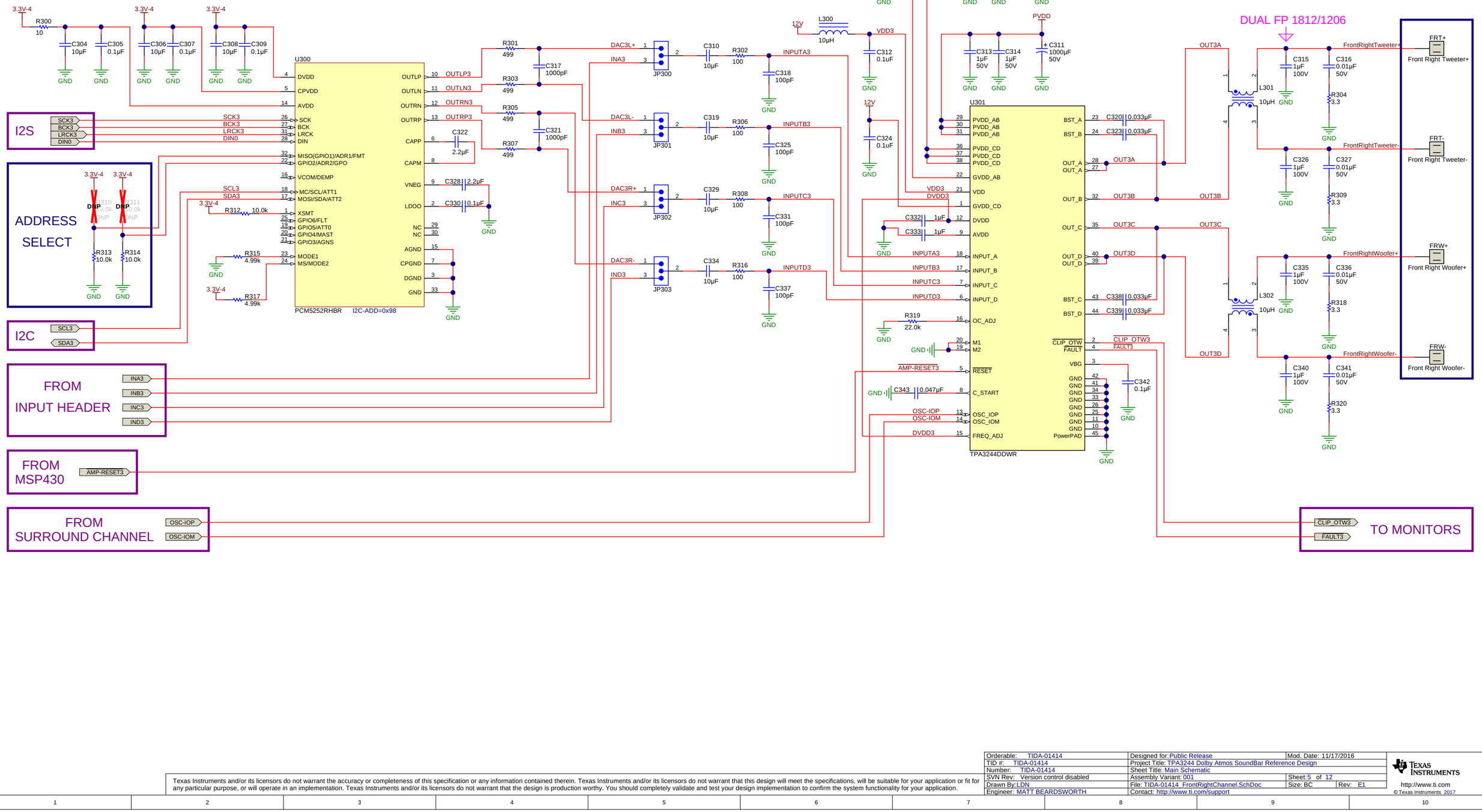
UP CHANNEL



Orderable: TIDA-01414	Designed for: Public Release	Mod. Date: 11/17/2016
TID #: TIDA-01414	Project Title: TPA3244 Dolby Atmos SoundBar Reference Design	
Number: TIDA-01414	Sheet Title: Main Schematic	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 4 of 12
Drawn By: LDN	File: TIDA-01414_UpChannel.SchDoc	Size: BC / Rev: E1
Engineer: MATT BEARDSWORTH	Contact: http://www.ti.com/support	

FRONT RIGHT CHANNEL



Orderable: TIDA-01414	Designed for: Public Release	Mod. Date: 11/17/2016
TID #: TIDA-01414	Project Title: TPA3244 Dolby Atmos SoundBar Reference Design	
Number: TIDA-01414	Sheet Title: Main Schematic	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 5 of 12
Drawn By: LDN	File: TIDA-01414_FrontRightChannel.SchDoc	Size: BC / Rev: E1
Engineer: MATT BEARDSWORTH	Contact: http://www.ti.com/support	

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FRONT LEFT CHANNEL

U400 PCM5252RHBR I2C-ADD=0x98

U401 TPA3244DDWR

DUAL FP 1812/1206

I2S

ADDRESS SELECT

I2C

FROM INPUT HEADER

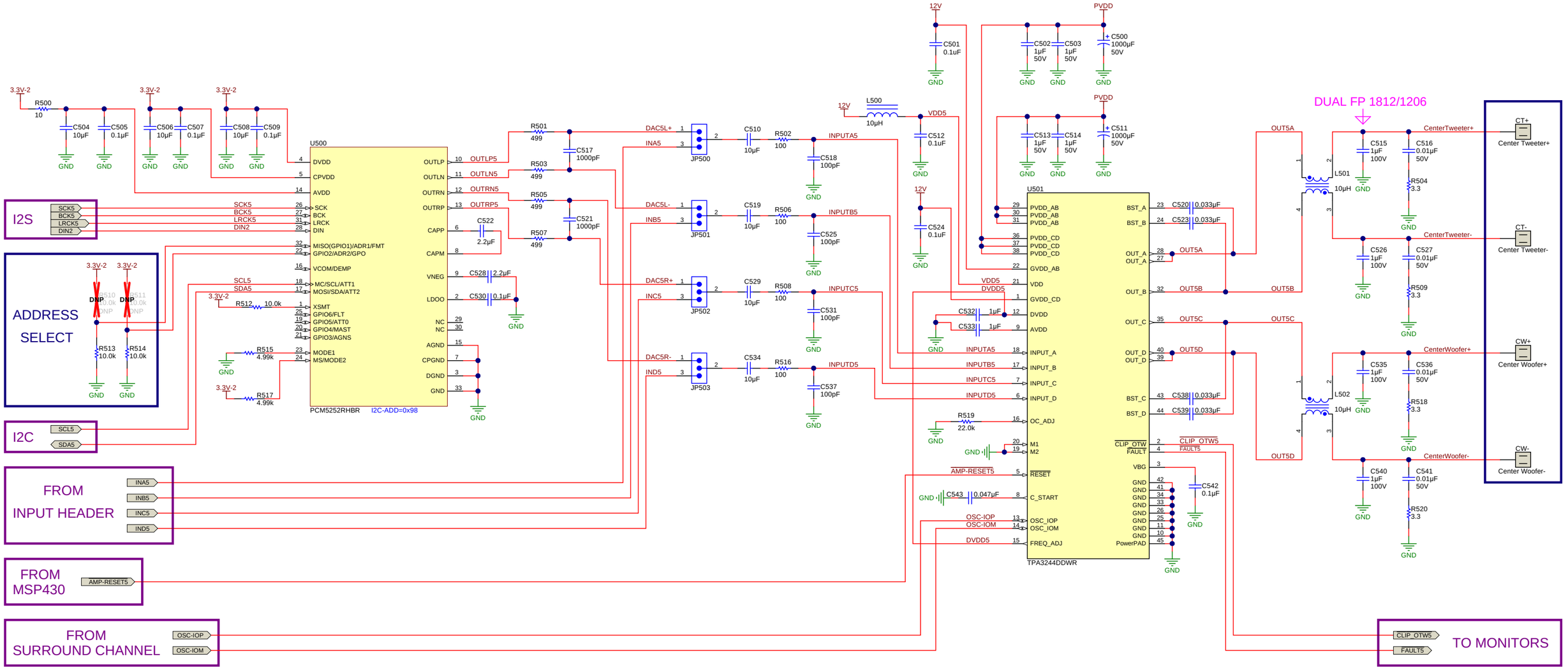
FROM MSP430

FROM SURROUND CHANNEL

TO MONITORS

Orderable: TIDA-01414	Designed for: Public Release	Mod. Date: 11/17/2016	
TID #: TIDA-01414	Project Title: TPA3244 Dolby Atmos SoundBar Reference Design		
Number: TIDA-01414	Sheet Title: Main Schematic		
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 6 of 12	
Drawn By: LDN	File: TIDA-01414_FrontLeftChannel.SchDoc	Size: BC	Rev: E1
Engineer: MATT BEARDSWORTH	Contact: http://www.ti.com/support		

CENTER CHANNEL



Orderable: TIDA-01414	Designed for: Public Release	Mod. Date: 11/17/2016
TID #: TIDA-01414	Project Title: TPA3244 Dolby Atmos SoundBar Reference Design	
Number: TIDA-01414	Sheet Title: Main Schematic	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 7 of 12
Drawn By: LDN	File: TIDA-01414_CenterChannel.SchDoc	Size: BC / Rev: E1
Engineer: MATT BEARDSWORTH	Contact: http://www.ti.com/support	

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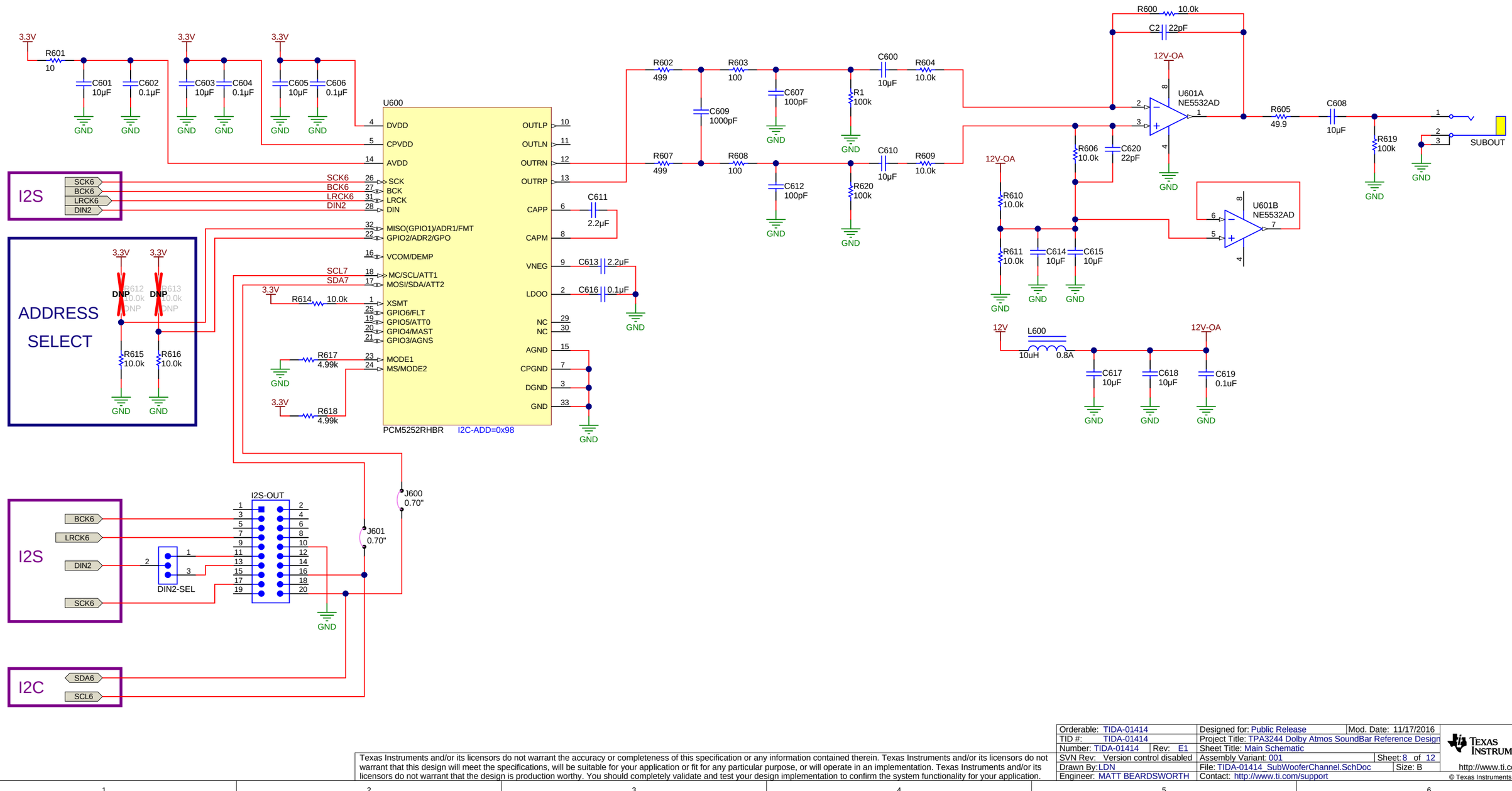
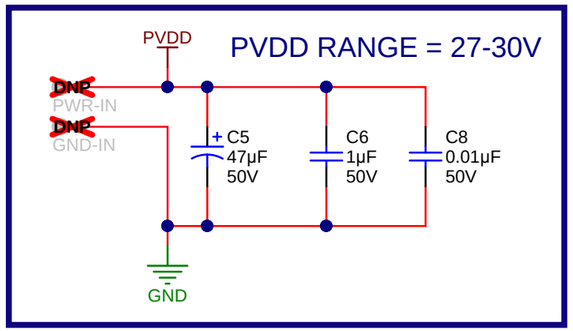
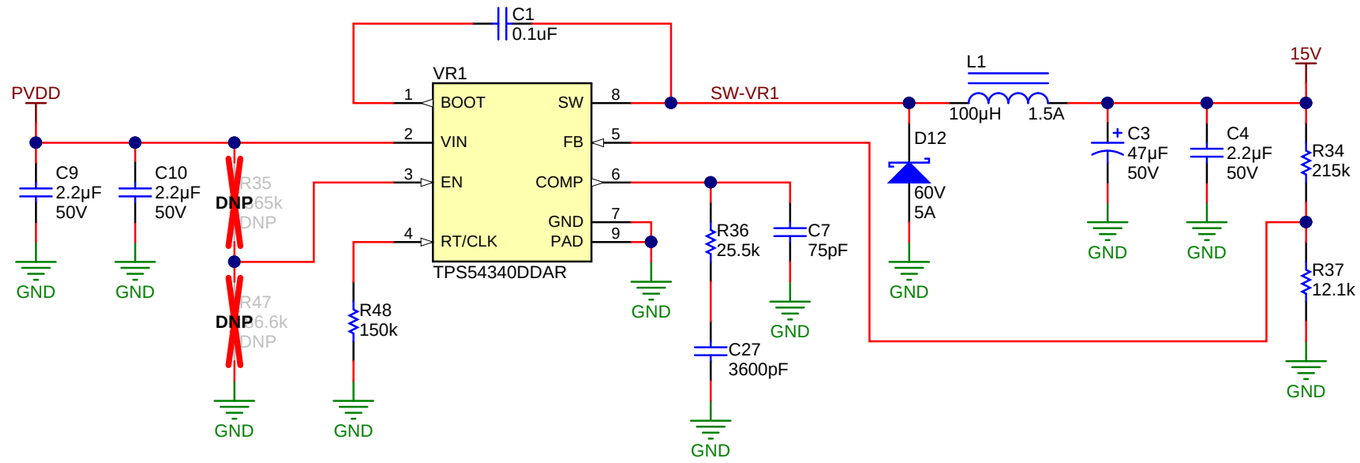
SUBWOOFER CHANNEL

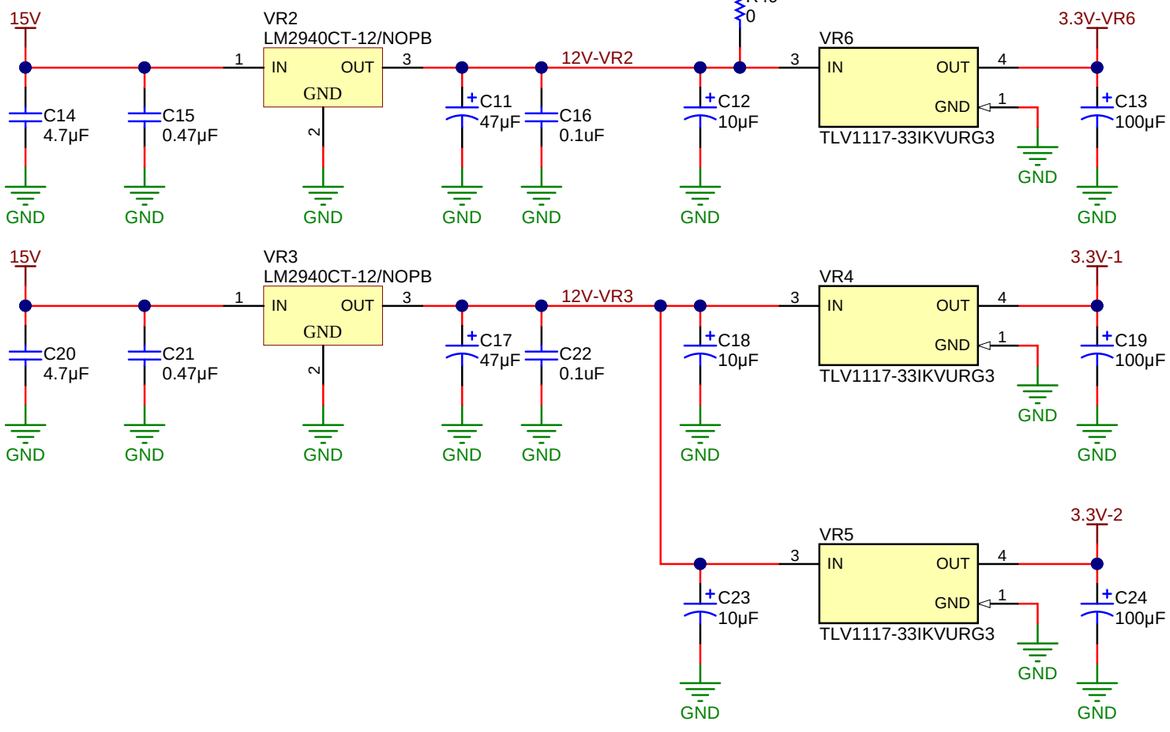


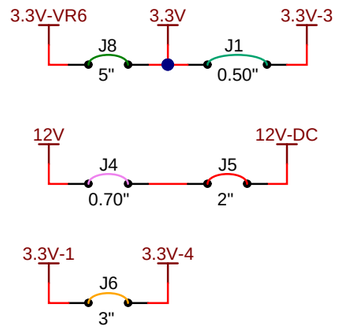
Orderable: TIDA-01414		Designed for: Public Release	Mod. Date: 11/17/2016
TID #: TIDA-01414		Project Title: TPA3244 Dolby Atmos SoundBar Reference Design	
Number: TIDA-01414	Rev: E1	Sheet Title: Main Schematic	
SVN Rev: Version control disabled		Assembly Variant: 001	Sheet: 8 of 12
Drawn By: LDN		File: TIDA-01414_SubWooferChannel.SchDoc	Size: B
Engineer: MATT BEARDSWORTH		Contact: http://www.ti.com/support	

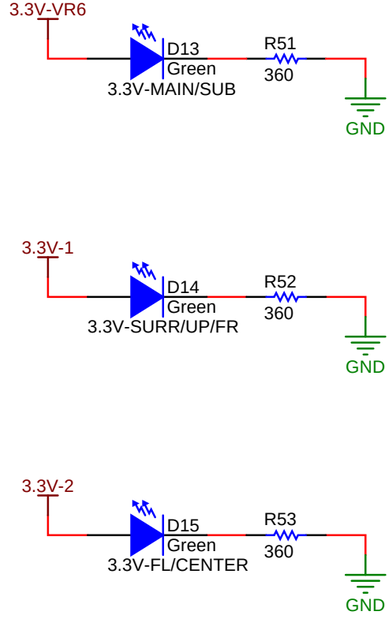




POWER SUPPLIES



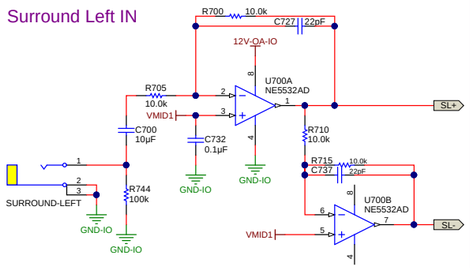




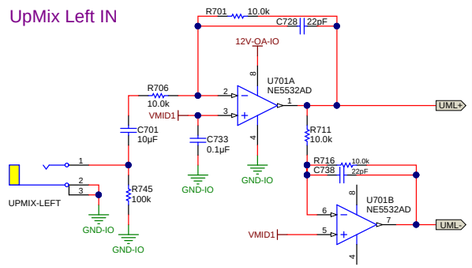
Number: TIDA-01414	Designed for: Public Release		
SVN Rev: Version control disabled	Project Title: TPA3244 Dolby Atmos SoundBar Reference Design		
Drawn By: LDN	Sheet Title: Hardware		
Engineer: MATT BEARDSWORTH	Assembly Variant: 001		
	File: TIDA-01414_PowerSupplies.SchDoc	Mod. Date: 11/18/2016	
Sheet: 9 of 12	Contact: http://www.ti.com/support	Size: AB	Rev: E1

ANALOG IO BOARD

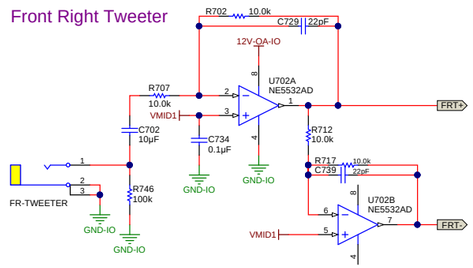
Surround Left IN



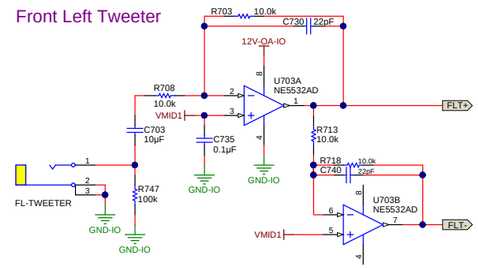
UpMix Left IN



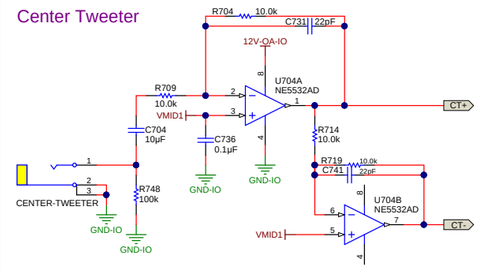
Front Right Tweeter



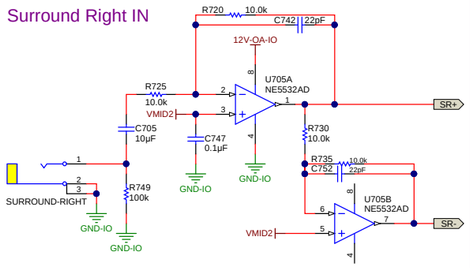
Front Left Tweeter



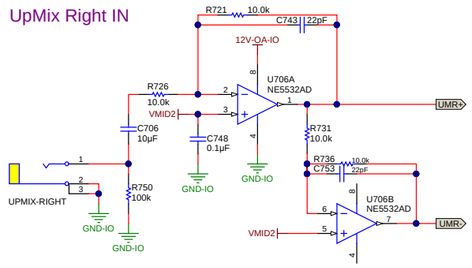
Center Tweeter



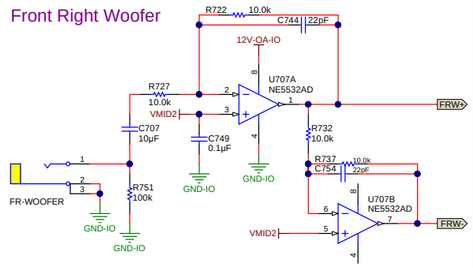
Surround Right IN



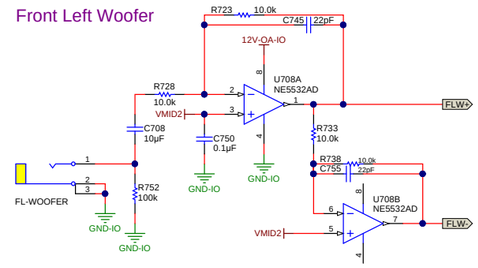
UpMix Right IN



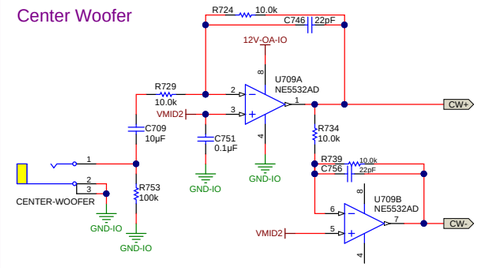
Front Right Woofer



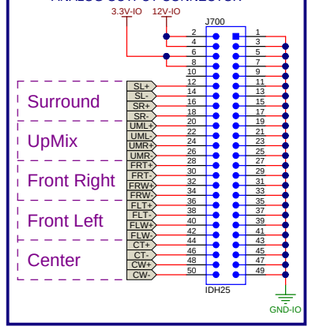
Front Left Woofer

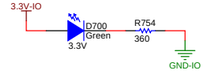


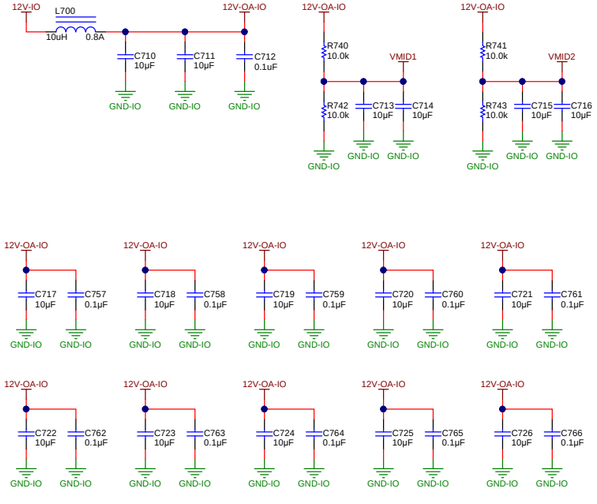
Center Woofer



ANALOG OUTPUT CONNECTOR







Number: TIDA-01414	Orderable: TIDA-01414	Designed for: Public Release	Mod. Date: 11/16/2016
SVN Rev: Version control disabled		Project Title: TPA3244 Dolby Atmos SoundBar Reference Design	
Drawn By: LDN		Sheet Title: Analog Connector Board	
Engineer: MATT BEARDSWORTH		Assembly Variant: 001	Sheet: 10 of 12
		File: TIDA-01414_Analog-Input_DaughterCard.SchDoc	Size: BC Rev: E1
		Contact: http://www.ti.com/support	

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H1 Spacer
H2 Spacer
H3 Spacer
H4 Spacer
H5 Spacer
H6 Spacer
H7 Spacer
H8 Spacer
H9 Spacer

H10 Washer
H11 Washer
H12 Washer
H13 Washer
H14 Washer
H15 Washer
H16 Washer
H17 Washer
H18 Washer

DNP FID1
DNP FID2
DNP FID3
DNP FID4
DNP FID5
DNP FID6
FID7
FID8
FID9

PCB Number: TIDA-01414
PCB Rev: E1

PCB LOGO
Pb-Free Symbol

PCB LOGO
FCC disclaimer

PCB LOGO
Pb-Free Symbol

PCB LOGO
FCC disclaimer

Cable1	Cable2	Cable3	Cable4	Cable5
MECH	MECH	MECH	MECH	MECH
Analog In	I2S-OUT	I2S-IN	I2S-IN	110V Power Cable
IDC50x18"	IDC20x18"	IDC20-24x18"	IDC20-24x26"	TBD

ZZ1
Assembly Note
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

ZZ2
Assembly Note
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3
Assembly Note
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

Orderable: TIDA-01414		Designed for: Public Release	Mod. Date: 8/14/2017
TID #: TIDA-01414		Project Title: TPA3244 Dolby Atmos SoundBar Reference Design	
Number: TIDA-01414	Rev: E1	Sheet Title: Hardware	
SVN Rev: Version control disabled		Assembly Variant: 001	Sheet: 11 of 12
Drawn By: LDN		File: TIDA-01414_TID_Hardware.SchDoc	Size: Letter
Engineer: MATT BEARDSWORTH		Contact: http://www.ti.com/support	

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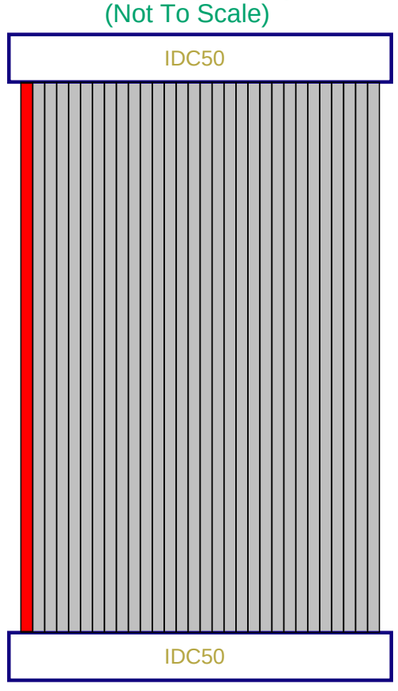
CABLE ASSEMBLIES

Cable 1
Analog Input Cable
IDC50x18"

Digi-Key Part#
H3CCS-5018G-ND
(Cable Assembly)

No Instructions for Cable Assembly

Assembled Cable
(Not To Scale)

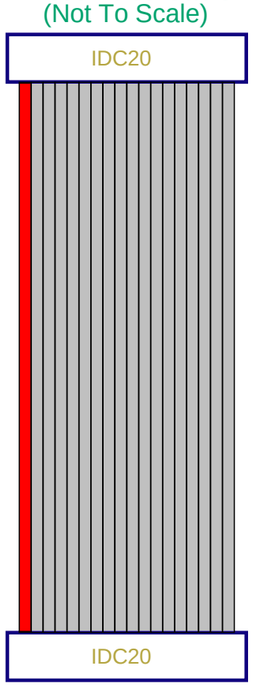


Cable 2
I2S-OUT
IDC20x18"

Digi-Key Part#
H3CCS-2018G
(Cable Assembly)

No Instructions

Assembled Cable
(Not To Scale)



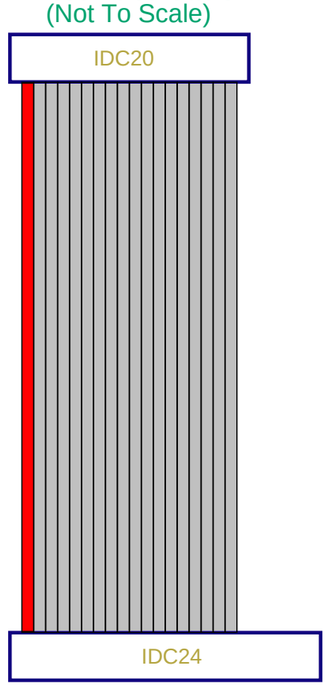
Cable 3
I2S-IN
IDC20-24x18"

Digi-Key Part#s
H3CCS-2018G-ND (Cbl Assy)
HHKC24S-ND (IDC Connector)

Instructions for Cable Assembly

1. Cut One Connector Leaving Max Ribbon
2. Crimp 24 Pin IDC Connector To Open End, Aligning Pin1 to Pin1

Assembled Cable
(Not To Scale)



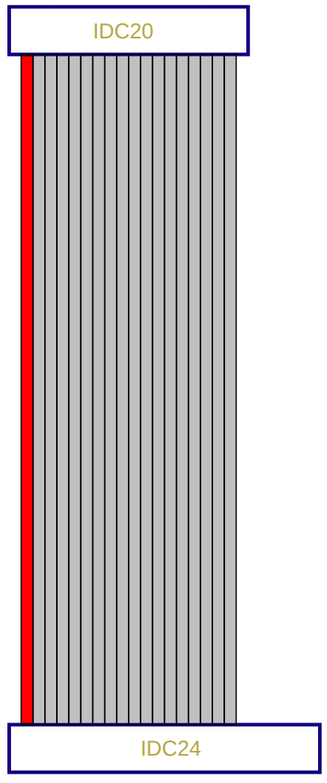
Cable 4
I2S-IN
IDC20-24x26"

Digi-Key Part#s
H3CCS-2036G-ND (Cbl Assy)
HHKC24S-ND (IDC Connector)

Instructions for Cable Assembly

1. Cut One Connector off, Cut Cable Length = 26"
2. Crimp 24 Pin IDC Connector To Open End, Aligning Pin1 to Pin1

Assembled Cable
(Not To Scale)

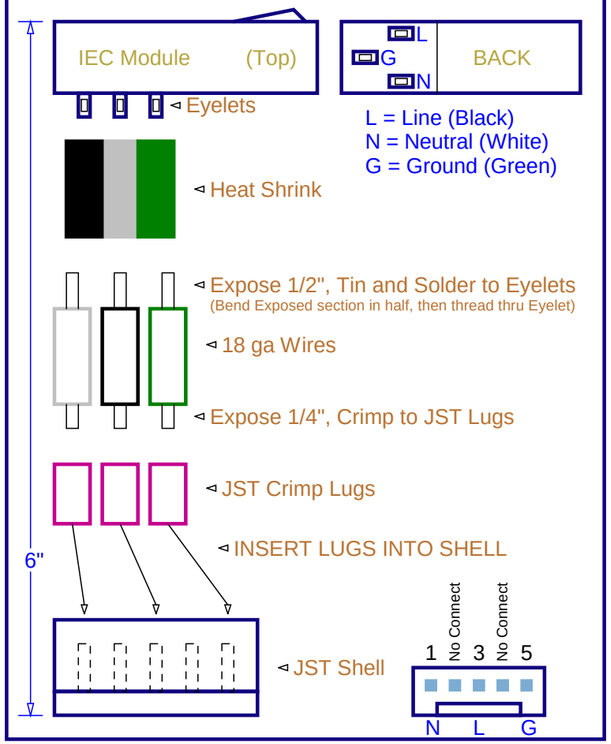


Cable 5
110V Power Cable
JST to Lugs

Digi-Key Part#s
Q307-ND (IEC Power Module)
COLORED HEAT SHRINK (Any Vendor)
18ga Alpha Wire, Series 3055
(Black, White and Green)
455-1186-ND (JST 5 Pin Shell)
Shell Crimp Pins (TI Will Supply These)

Assembled Cable + Module
(Not To Scale)
(Pin Positioning Moved for Clarity)

Instructions for Cable Assembly



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Number: TIDA-01414	Sheet Title: Cable Assemblies		
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 12 of 12	
Drawn By: LDN	File: TIDA-01414_CableAssemblies.SchDoc	Size: BC	Rev: E1
Engineer: MATT BEARDSWORTH	Contact: http://www.ti.com/support		

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