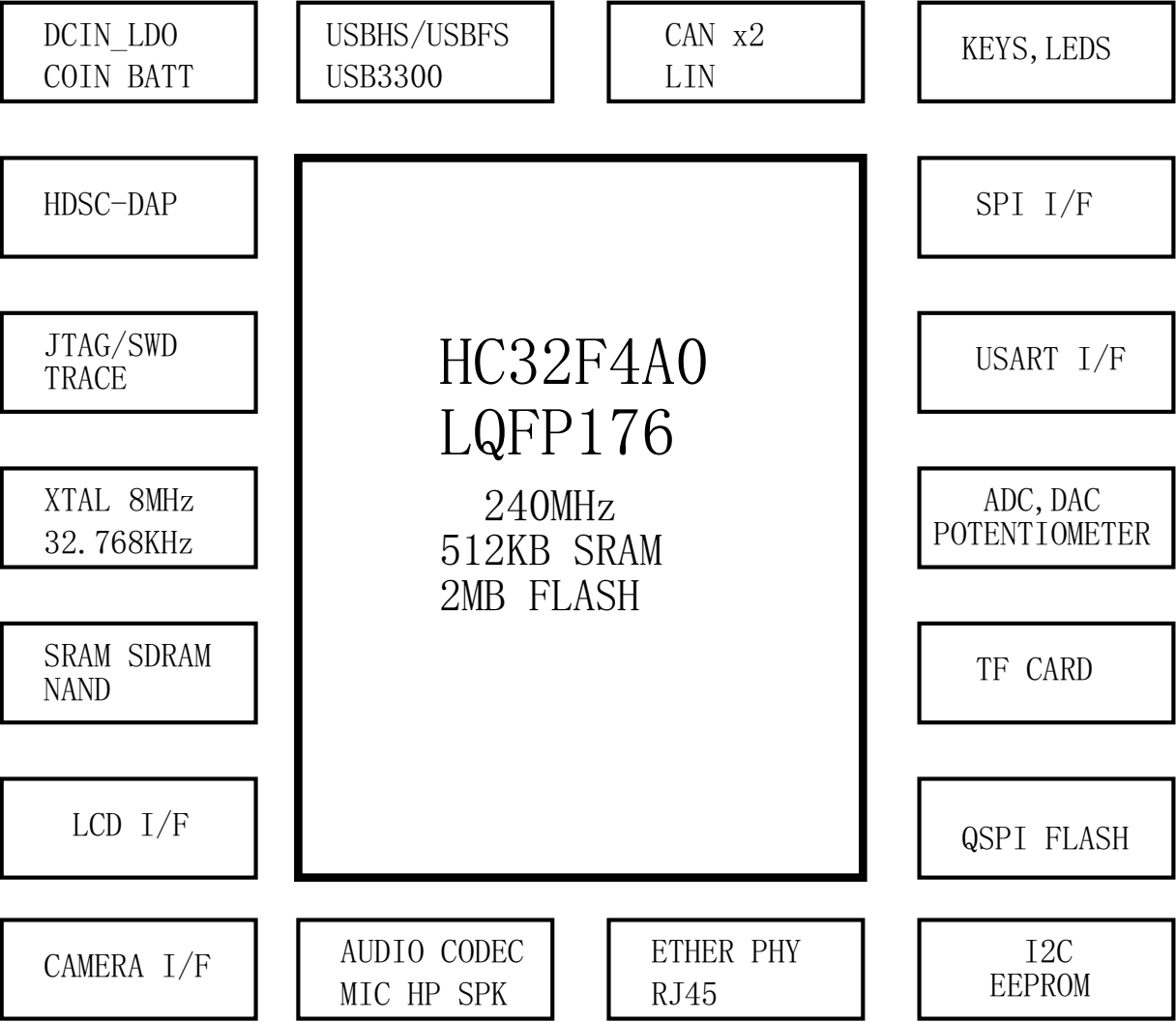


Table of Content

Page 01	TITLE PAGE
Page 02	POWER, HDSC-DAP, JTAG,TRACE
Page 03	HC32F4A0
Page 04	PIN MUX, IO EXPANDER
Page 05	ETHERNET
Page 06	AUDIO
Page 07	SRAM, SDRAM, NAND,LCD
Page 08	QSPI FLASH, EEPROM,TF CARD
Page 09	USBFS, USBHS, USB3300
Page 10	CAN,LIN
Page 11	ADC, KEYS, LEDS,CAMERA
Page 12	USART,SPI,I2C,SMART CARD

Revision History

Rev	Date	Description
V01	02/14/2020	- New design.
V02	05/11/2020	- modify IO-expander assignment. - add leds and rocker switch. - add wake up key.
V03	06/16/2020	- modify SPST allscreen. - add resistor bridge to VBUS detection. - add 33R resistor to NRST_4A0#.
V04	07/20/2020	- change 5V0 LED resistor to 1K. - modify MCU status LED circuit. - reset button PN changed. - AVCC capacitor value changed.
V05	11/12/2020	- add Schottky Diode to IOEXP_RST/CT_RST. - add pull up resistor to LIN-TX. - add pull up resistor to DIAP RESET. - change 10R resistor to 22R. - add MCO to ETH PHY REFCLK. - add DAP to target ISP function.



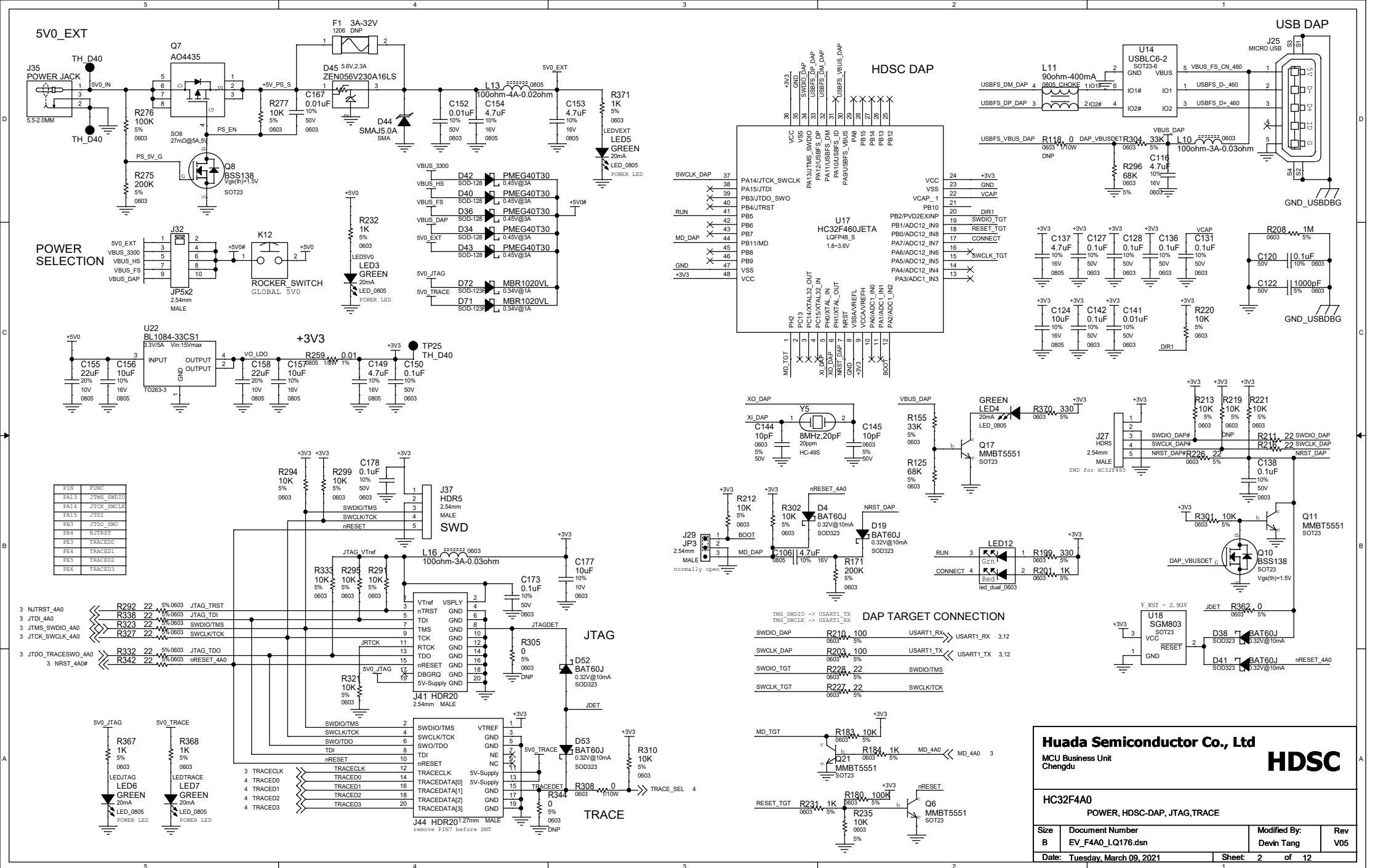
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Chengdu

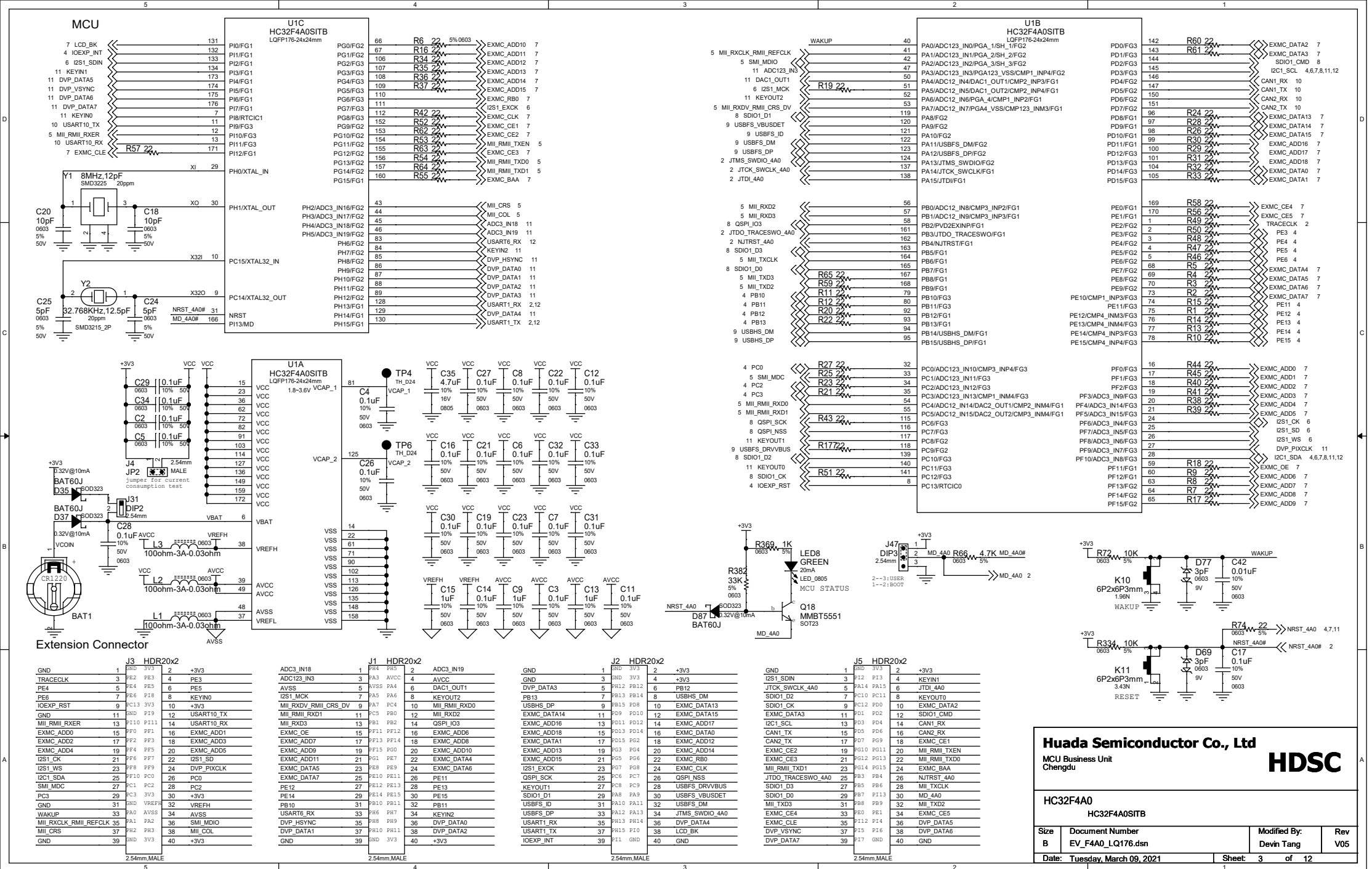
HDSC

HC32F4A0

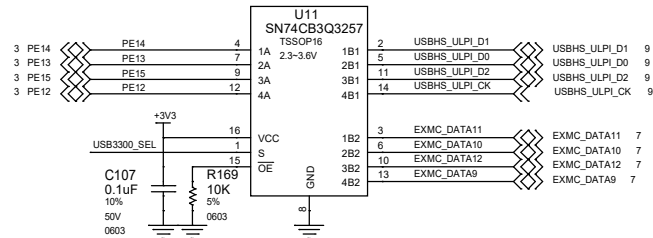
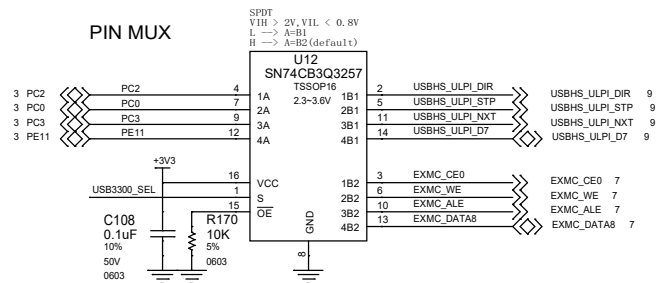
TITLE PAGE

Size	Document Number	Modified By:	Rev
B	EV_F4A0_LQ176.dsn	Devin Tang	V05
Date: Monday, February 01, 2021		Sheet: 1	of 12

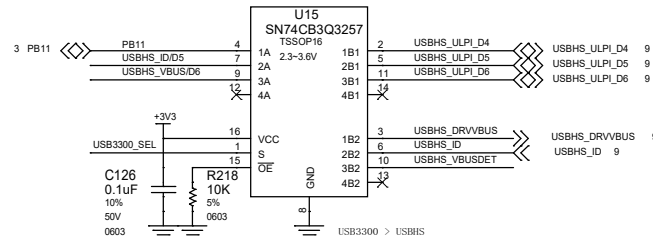
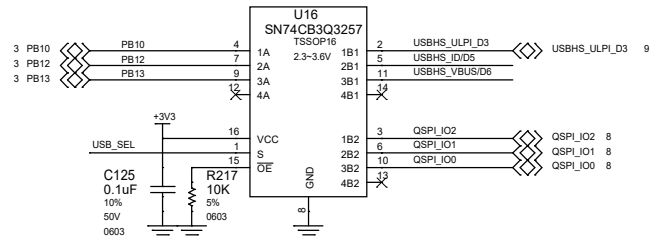




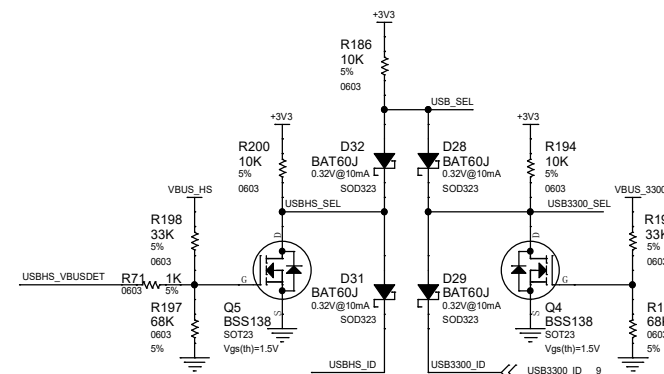
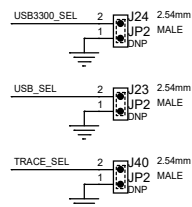
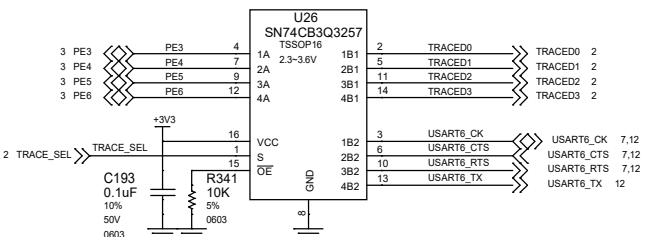
PIN MUX



PC0	DEFAULT	USBS1300_DETECTED	USBS DETECTED
PC1	KMCM_WR	USBS_ULPI_STP	
PC2	KMCM_CED	USBS_ULPI_DIR	
PC3	KMCM_ALE	USBS_ULPI_NXT	
PE11	KMCM_DATA8	USBS_ULPI_D7	
PE12	KMCM_DATA9	USBS_ULPI_CR	
PE13	KMCM_DATA10	USBS_ULPI_D0	
PE14	KMCM_DATA11	USBS_ULPI_D1	
PE15	KMCM_DATA12	USBS_ULPI_D2	
PE10	QSPIT_IO2	USBS_ULPI_D3	
PE11	USBS DRVVRB12	USBS_ULPI_D4	
PE12	QSPIT_IO1	USBS_ULPI_D5	USBS ID
PE13	QSPIT_IO0	USBS_ULPI_D6	USBS ID

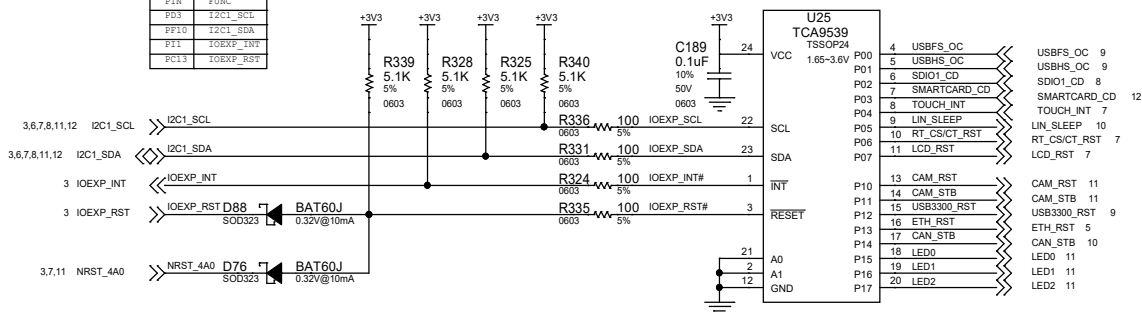


PIN	DEFAULT	TRACE DETECT
PE3 (FG2)	USART6_CK	TRACED0
PE4 (FG2)	USART6_CTS	TRACED1
PE5 (FG2)	USART6_RTS	TRACED2
PE6 (FG2)	USART6_TX	TRACED3



IO-EXPANDER

PIN	FUNC
PD3	I2C1_SCL
PF10	I2C1_SDA
PI1	IOEXP_INT
PC13	IOEXP_RST



I2C ADDRESS:1110 100

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Chengdu

HDSC

HC32F4A0

PIN MUX, IO EXPANDER

Size B	Document Number EV_F4A0_LQ176.dsn	Modified By: Devin Tang	Rev V05
Date:	Thursday, February 04, 2021	Sheet:	4 of 12

ETHERNET PHY

3 SMI_MDIO << SMI_MDIO
3 SMI_MDC << SMI_MDC

3 MII_RMII_RXD0 << MII_RMII_RXD0
3 MII_RMII_RXD1 << MII_RMII_RXD1
3 MII_RXD2 << MII_RXD2
3 MII_RXD3 << MII_RXD3

3 MII_RMII_RXER << MII_RMII_RXER

3 MII_TXCLK/RMII_REFCLK << MII_TXCLK/RMII_REFCLK
3 MII_RMII_TXEN << MII_RMII_TXEN
3 MII_RMII_TXD0 << MII_RMII_TXD0
3 MII_RMII_TXD1 << MII_RMII_TXD1
3 MII_TXD2 << MII_TXD2
3 MII_TXD3 << MII_TXD3

3 MII_COL << MII_COL
4 ETH_RST << ETH_RST

31 CKXTAL1
32 CKXTAL2

33 GND

34 LED0/PHYAD0/PMEB
25 LED1/PHYAD1

35 MII_RXD0/RMII_CRS_DV
36 MII_RMII_RXD0
37 MII_RMII_RXD1
38 MII_TXCLK
39 MII_RMII_TXEN
40 MII_RMII_TXD0
41 MII_RMII_TXD1
42 MII_TXD2
43 MII_TXD3

44 MII_CRS/RMII_CRS_DV
45 ETH_RST

46 ETH_MDIO
47 ETH_MDC

48 ETH_TXC
49 ETH_TXEN
50 ETH_TXD0
51 ETH_TXD1
52 ETH_TXD2
53 ETH_TXD3

54 ETH_COL
55 ETH_CRS/RMII_CRS_DV
56 ETH_RST

57 ETH_TXC
58 ETH_TXEN
59 ETH_TXD0
60 ETH_TXD1
61 ETH_TXD2
62 ETH_TXD3

63 ETH_COL
64 ETH_CRS/RMII_CRS_DV
65 ETH_RST

66 ETH_TXC
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70 ETH_TXD2
71 ETH_TXD3

72 ETH_COL
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83 ETH_RST

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110 ETH_RST

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116 ETH_TXD3

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137 ETH_RST

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146 ETH_RST

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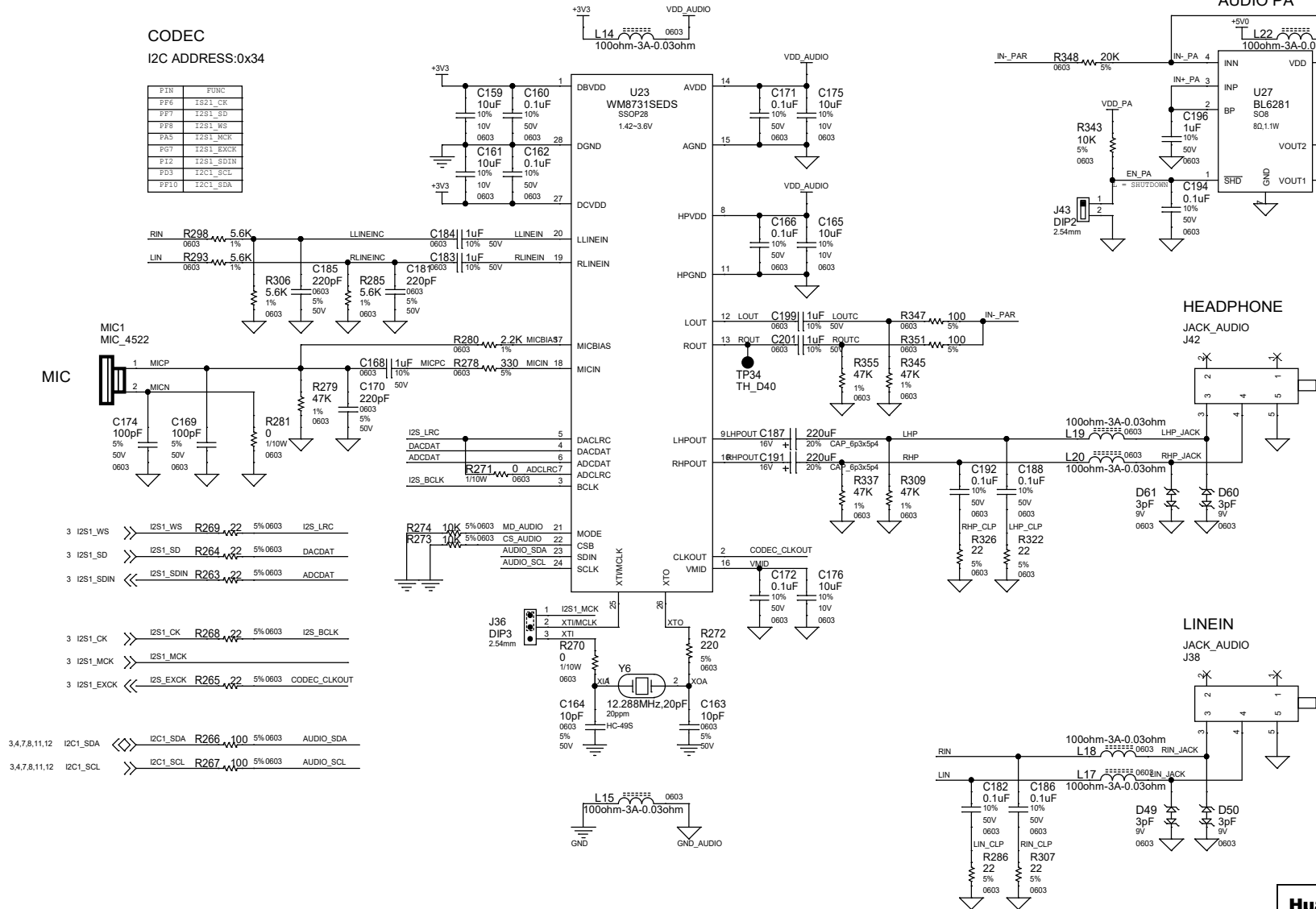
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405 ETH_COL
406 ETH_C

Huada Semiconductor Co., Ltd MCU Business Unit Chengdu		HDSC	
HC32F4A0 ETHERNET			
Size B	Document Number EV_F4A0_LQ176.dsn	Modified By: Devin Tang	Rev V05
Date: Thursday, March 11, 2021		Sheet: 5 of 12	

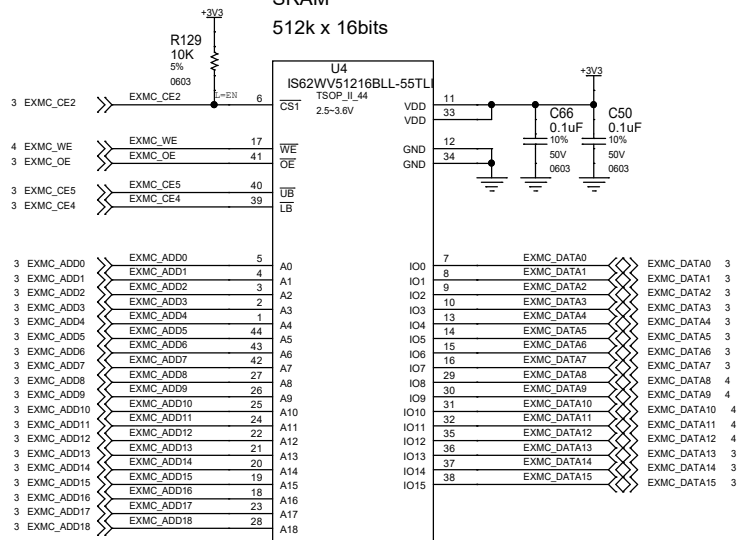
CODEC
I2C ADDRESS:0x34

PIN	FUNC
PF6	I2S1_CK
PF7	I2S1_SD
PF8	I2S1_WS
PAS	I2S1_MCK
PG7	I2S1_EXCK
PI2	I2S1_SDIIN
PD3	I2C1_SCL
PF10	I2C1_SDA

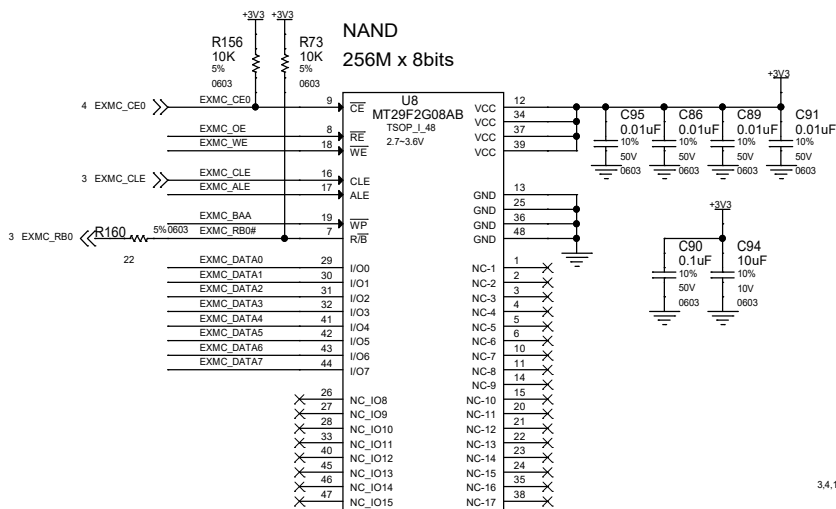


Huada Semiconductor Co., Ltd			
MCU Business Unit Chengdu			
HDSC			
HC32F4A0 AUDIO			
Size B	Document Number EV_F4A0_LQ176.dsn	Modified By: Devin Tang	Rev V05
Date: Tuesday, March 09, 2021		Sheet: 6	of 12

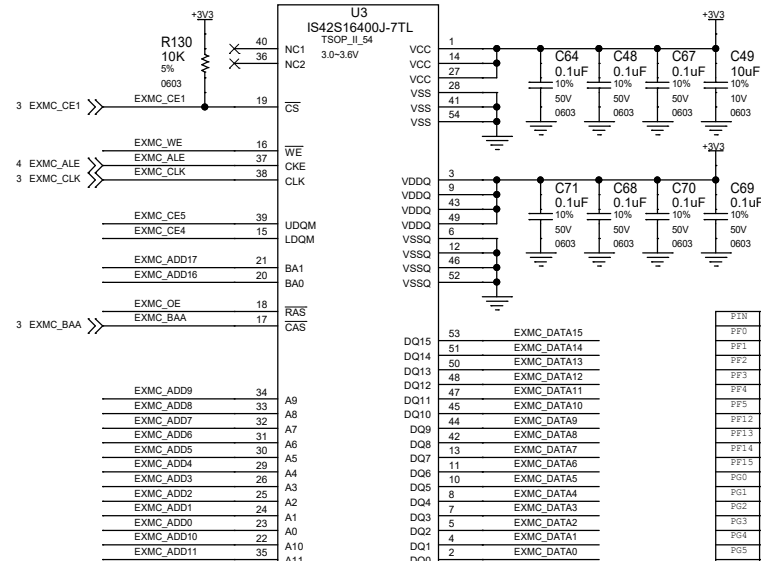
SRAM
512k x 16bits



NAND
256M x 8bits

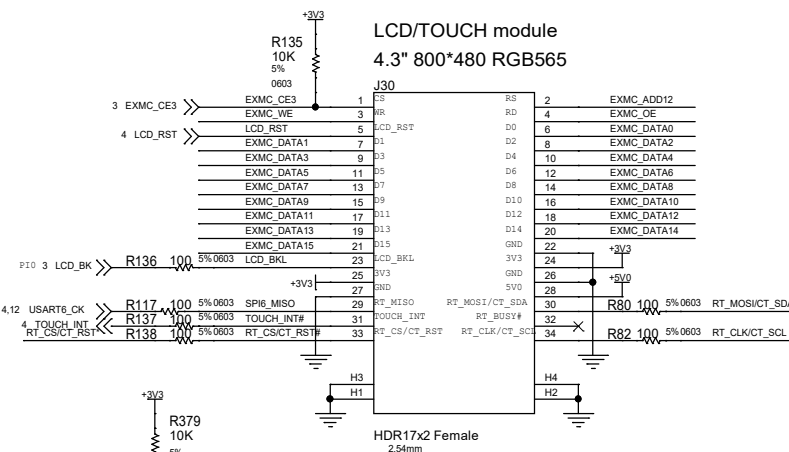


SDRAM
1M x 16bits x 4Banks



PIN	PUNC	PIN	PUNC	PIN	PUNC
PF0	EXMC_A0D0	PD14	EXMC_DAT0	PC2	EXMC_CE0
PF1	EXMC_A0D1	PD15	EXMC_DAT1	PG9	EXMC_CE1
PF2	EXMC_A0D2	PD0	EXMC_DAT2	PG10	EXMC_CE2
PF3	EXMC_A0D3	PD1	EXMC_DAT3	PG12	EXMC_CE3
PF4	EXMC_A0D4	PE7	EXMC_DAT4	PE0	EXMC_CE4
PF5	EXMC_A0D5	PE8	EXMC_DAT5	PE1	EXMC_CE5
PF12	EXMC_A0D6	PE9	EXMC_DAT6	PC0	EXMC_CE6
PF13	EXMC_A0D7	PE10	EXMC_DAT7	PF11	EXMC_CE6
PF14	EXMC_A0D8	PE11	EXMC_DAT8	PC3	EXMC_ALE
PF15	EXMC_A0D9	PE12	EXMC_DAT9	PI12	EXMC_CLE
PG0	EXMC_A0D10	PE13	EXMC_DAT10	PG15	EXMC_BAA
PG1	EXMC_A0D11	PE14	EXMC_DAT11	PG6	EXMC_RB0
PG2	EXMC_A0D12	PE15	EXMC_DAT12	PG8	EXMC_CLR
PG3	EXMC_A0D13	PD8	EXMC_DAT13		
PG4	EXMC_A0D14	PD9	EXMC_DAT14		
PG5	EXMC_A0D15	PD10	EXMC_DAT15		
PD1	EXMC_A0D16				
PD12	EXMC_A0D17				
PD13	EXMC_A0D18				

LCD/TOUCH module
4.3" 800*480 RGB565



TOUCH selection



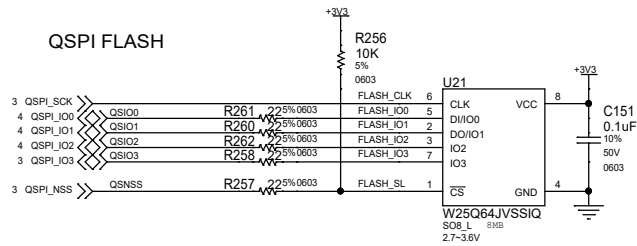
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Chengdu

HDSC

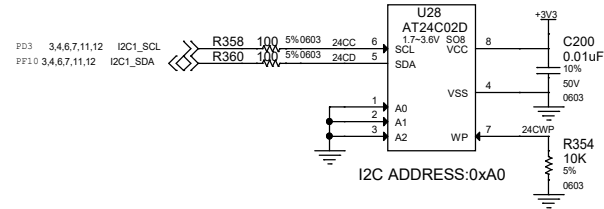
HC32F4A0
SRAM, SDRAM, NAND, LCD

Size B	Document Number EV_F4A0_LQ176.dsn	Modified By: Devin Tang	Rev V05
Date: Thursday, February 04, 2021	Sheet: 7 of 12		

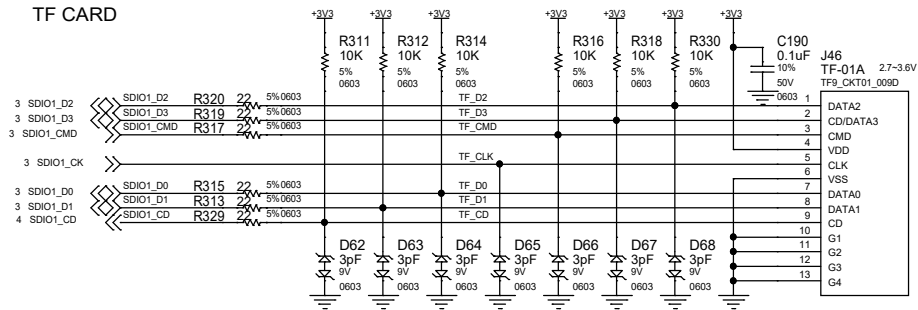
PIN	FUNC
PB13	QSPI_FIO0
PB12	QSPI_FIO1
PB10	QSPI_FIO2
PB2	QSPI_FIO3
PC6	QSPI_SCK
PC7	QSPI_NSS



EEPROM

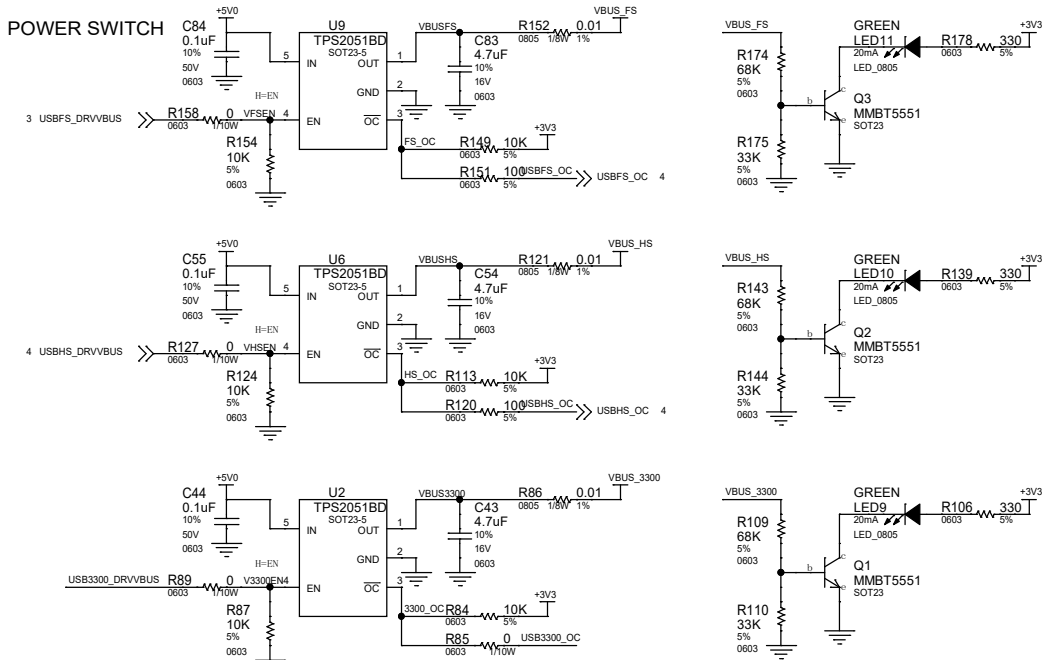


PIN	FUNC
PB7	SDIO1_D0
PA8	SDIO1_D1
PC10	SDIO1_D2
PB5	SDIO1_D3
PD2	SDIO1_CMD
PC12	SDIO1_CLK

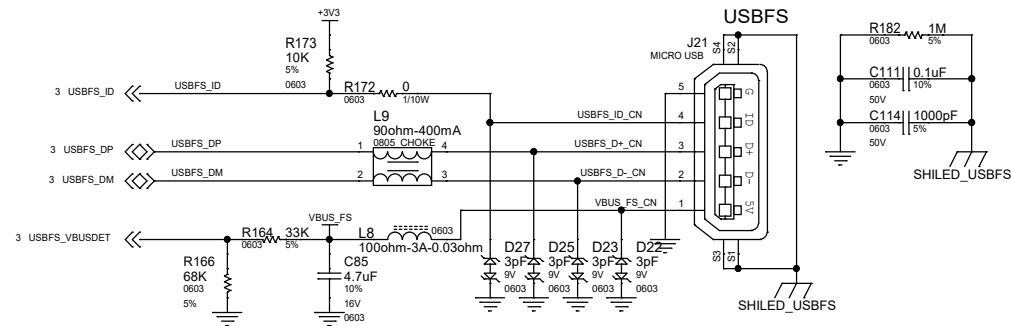


Huada Semiconductor Co., Ltd MCU Business Unit Chengdu			
HDSC			
HC32F4A0 QSPI FLASH, EEPROM, TF CARD			
Size B	Document Number EV_F4A0_LQ176.dsn	Modified By: Devin Tang	Rev V05
Date: Thursday, January 28, 2021	Sheet: 8	of 12	

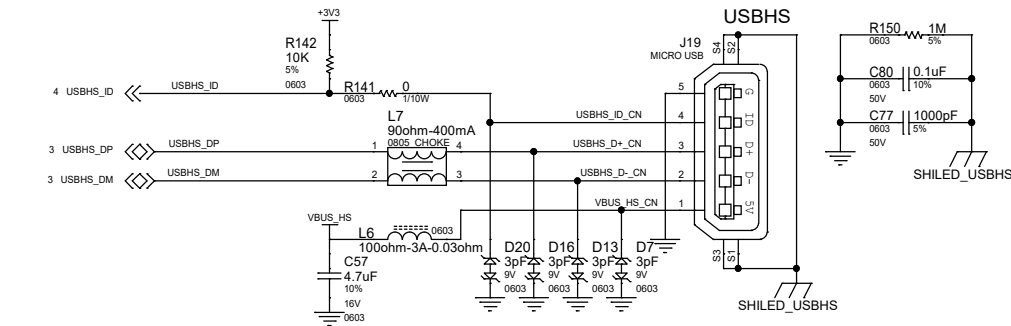
POWER SWITCH



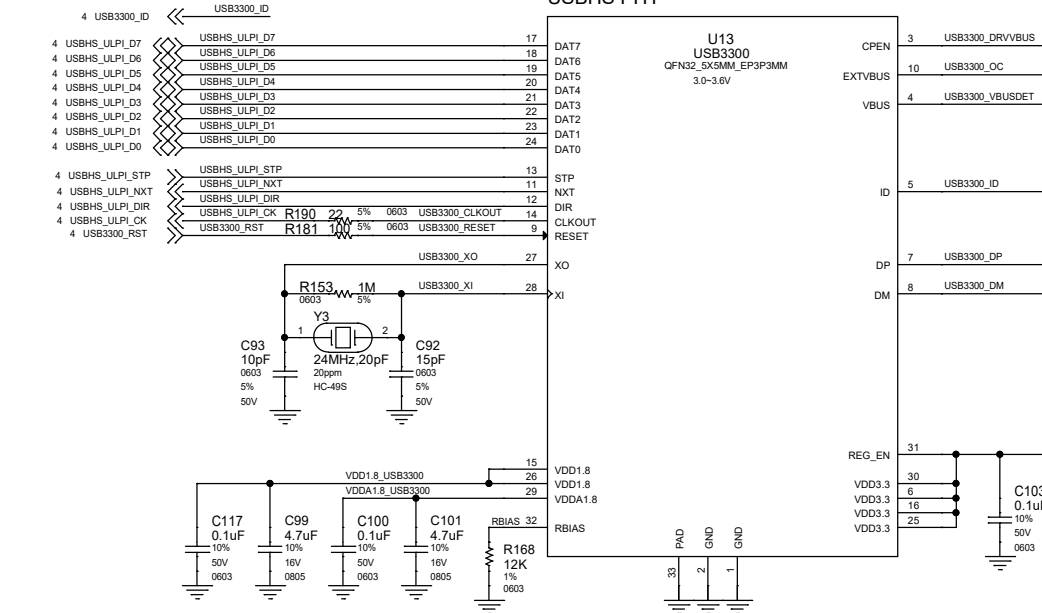
USBFS



USBHS



USB3300 PHY



PIN	FUNC	PIN	FUNC
PC0	USBHS_ULPI_STP	PA11	USBFS_DM
PC2	USBHS_ULPI_DIR	PA12	USBFS_DP
PC3	USBHS_ULPI_NXT	PC9	USBFS_DRVVBUS
PE12	USBHS_ULPI_CLK	PA9	USBFS_VBUSDET
PE13	USBHS_ULPI_D0	PA10	USBFS_ID
PE14	USBHS_ULPI_D1	PB14	USBHS_DM
PE15	USBHS_ULPI_D2	PB15	USBHS_DP
PB10	USBHS_ULPI_D3	PB11	USBHS_DRVVBUS
PB11	USBHS_ULPI_D4	PB12	USBHS_ID
PB12	USBHS_ULPI_D5	PB13	USBHS_VBUSDET
PB13	USBHS_ULPI_D6		
PE11	USBHS_ULPI_D7		

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Chengdu

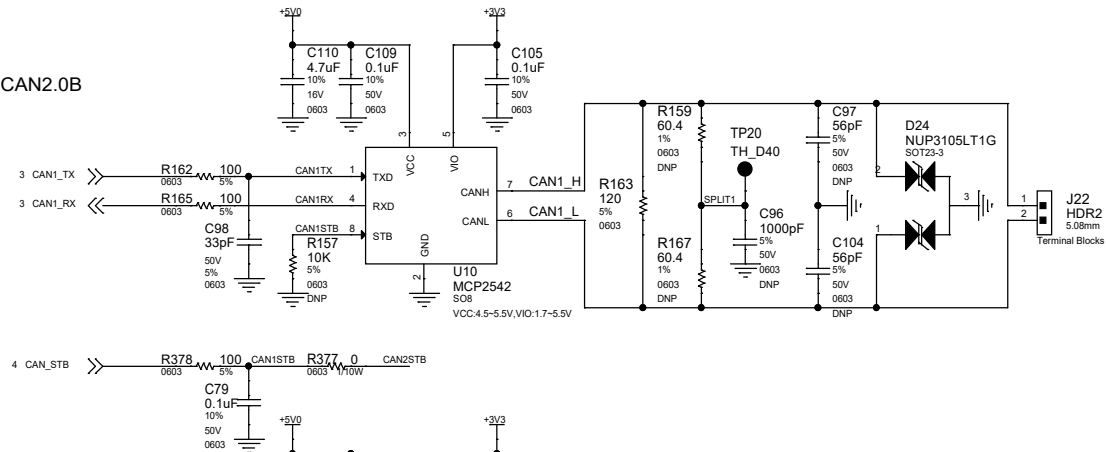
HDSC

HC32F4A0

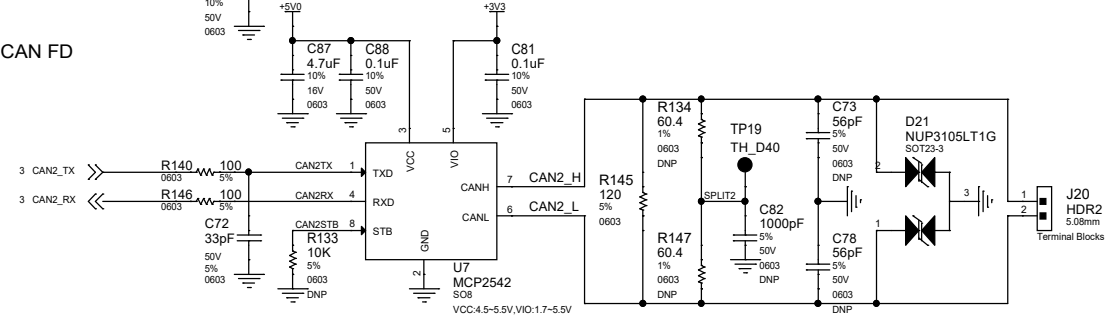
USBFS, USBHS, USB3300

Size	Document Number	Modified By:	Rev
B	EV_F4A0_LQ176.dsn	Devin Tang	V05
Date:	Thursday, January 28, 2021	Sheet: 9 of 12	

CAN2.0B

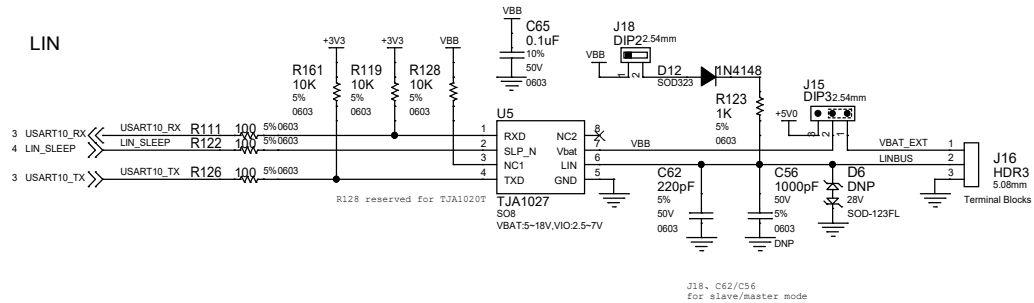


CAN FD



PIN	FUNC
PD4	CAN1_RX
PD5	CAN1_TX
PD6	CAN2_RX
PD7	CAN2_TX
PI9	USART10_RX
PI11	USART10_TX

LIN



Size

B

Document Number

EV_F4A0_LQ176.dsn

Date:

Tuesday, March 09, 2021

Modified By:

Devin Tang

Rev

V05

Sheet: 10

of 12

HC32F4A0

CAN,LIN

Terminal Blocks

J22 HDR2 5.08mm

J20 HDR2 5.08mm

J16 HDR3 5.08mm

Size

B

Document Number

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Date:

Tuesday, March 09, 2021

Modified By:

Devin Tang

Rev

V05

Sheet: 10

of 12

HC32F4A0

CAN,LIN

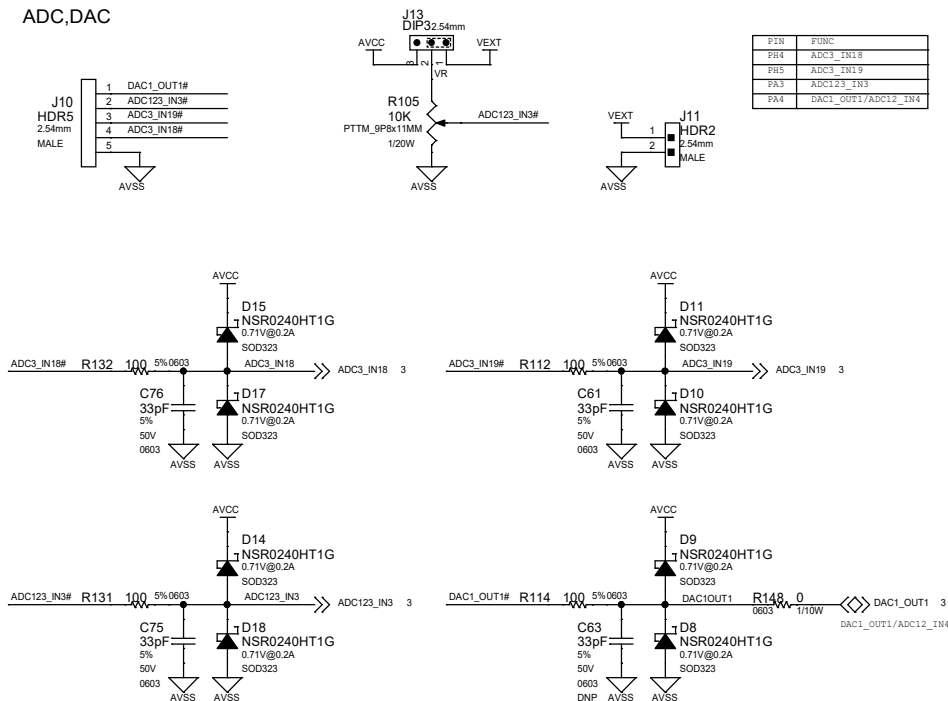
Terminal Blocks

J22 HDR2 5.08mm

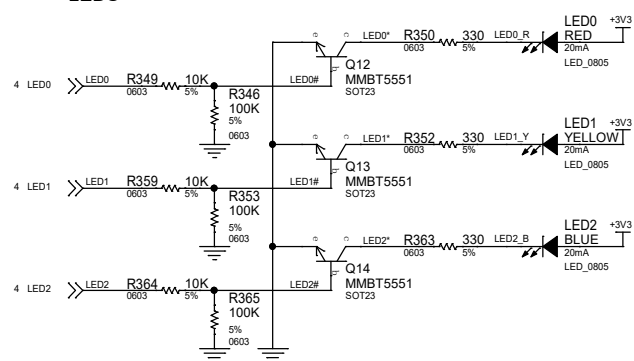
J20 HDR2 5.08mm

J16 HDR3 5.08mm

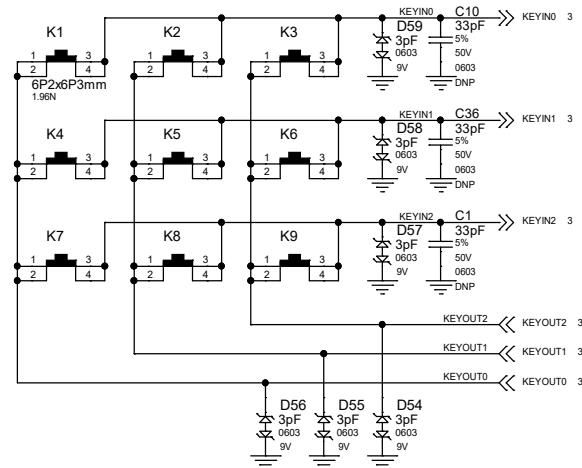
ADC,DAC



LEDS

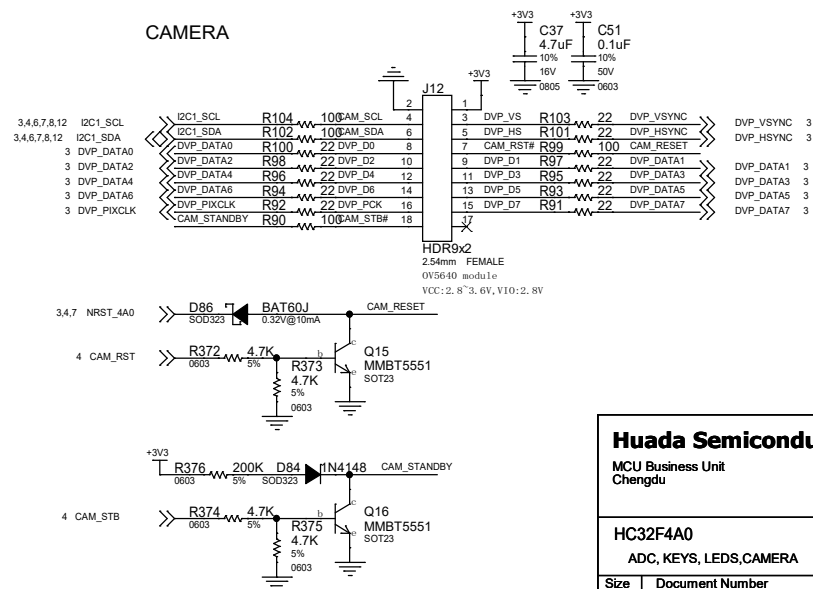


MATRIX KEYBOARD



PIN	FUNC
PH8	KEYIN0
PH7	KEYIN1
PH3	KEYIN2
PC11	KEYOUT0
PC8	KEYOUT1
PA6	KEYOUT2

CAMERA



USART/SPI

PIN	USART6	SMART CARD	SPI6	TRACE
PE3(FG2)	CK	CLK	SCK	TRACED0
PE4(FG2)	CTS	RESET	MOSI	TRACED1
PE5(FG2)	RTS	PWR_EN	MISO	TRACED2
PE6(FG2)	TX	TX	NSS0	TRACED3
PH6(FG2)	RX	RX		

SMART CARD

3V3/5V0 OUT

I2C1

USART1

TP/FID/FAB HOLES