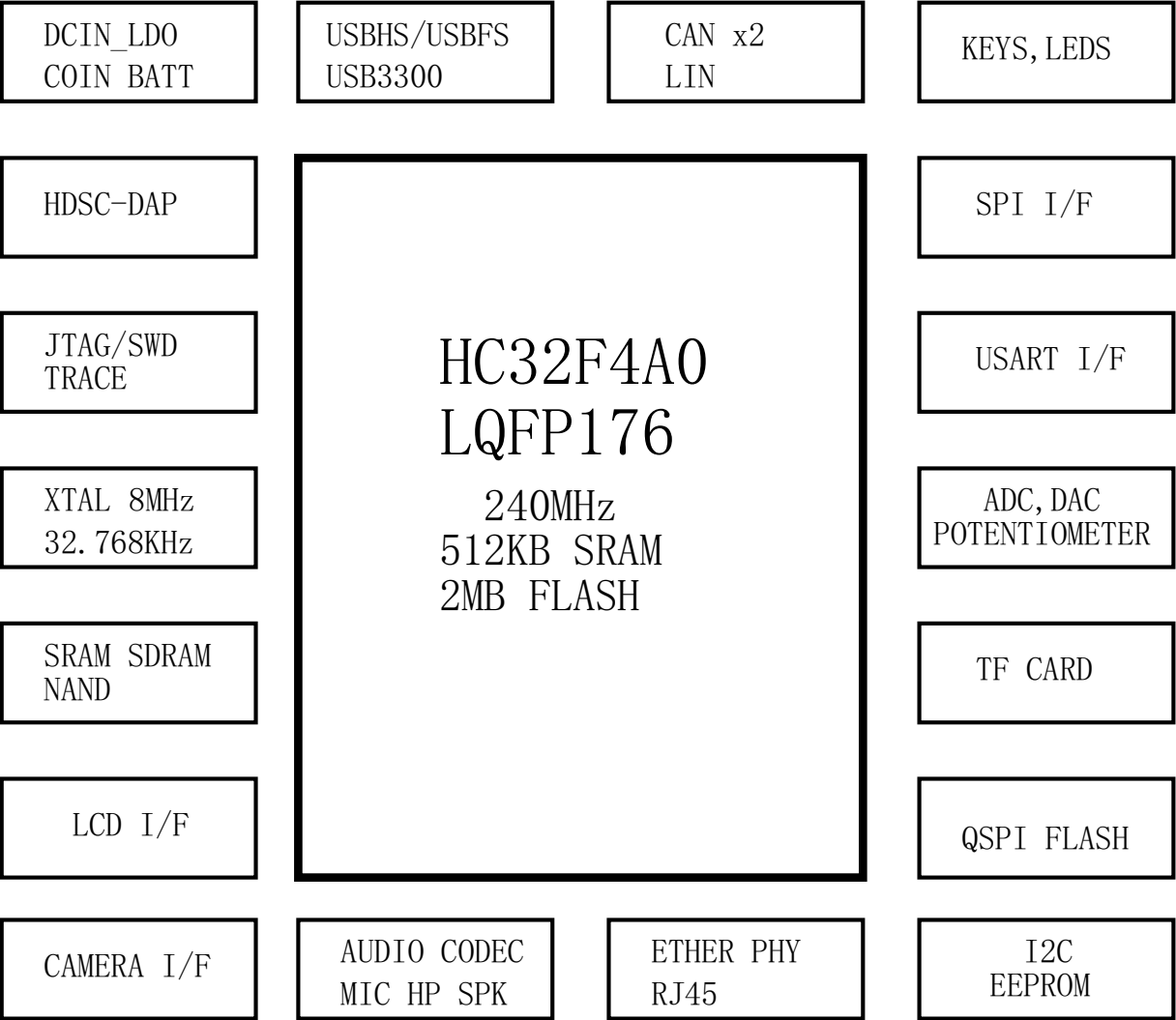


Table of Content

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.



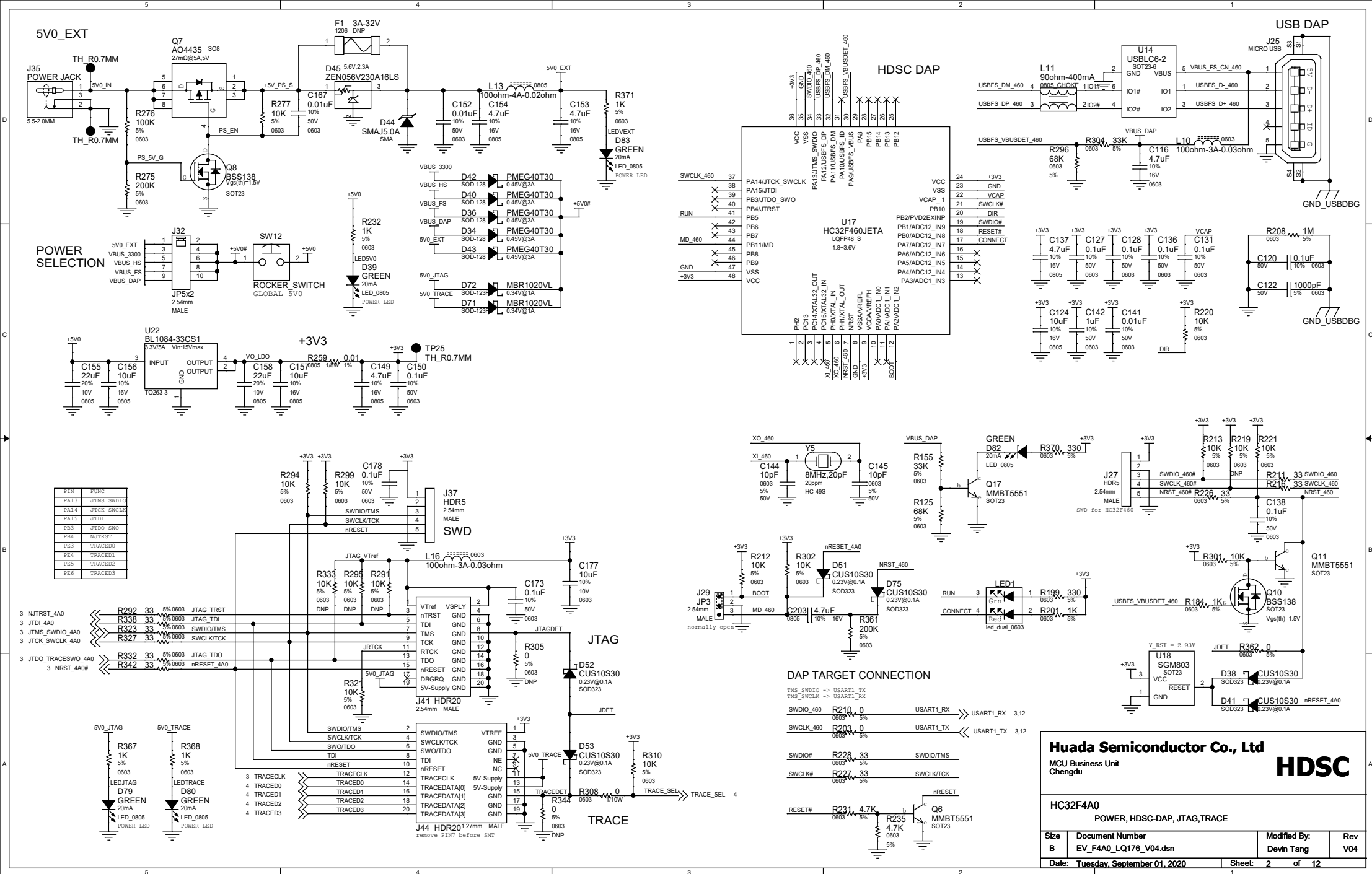
**Huada Semiconductor Co., Ltd**  
MCU Business Unit  
Chengdu

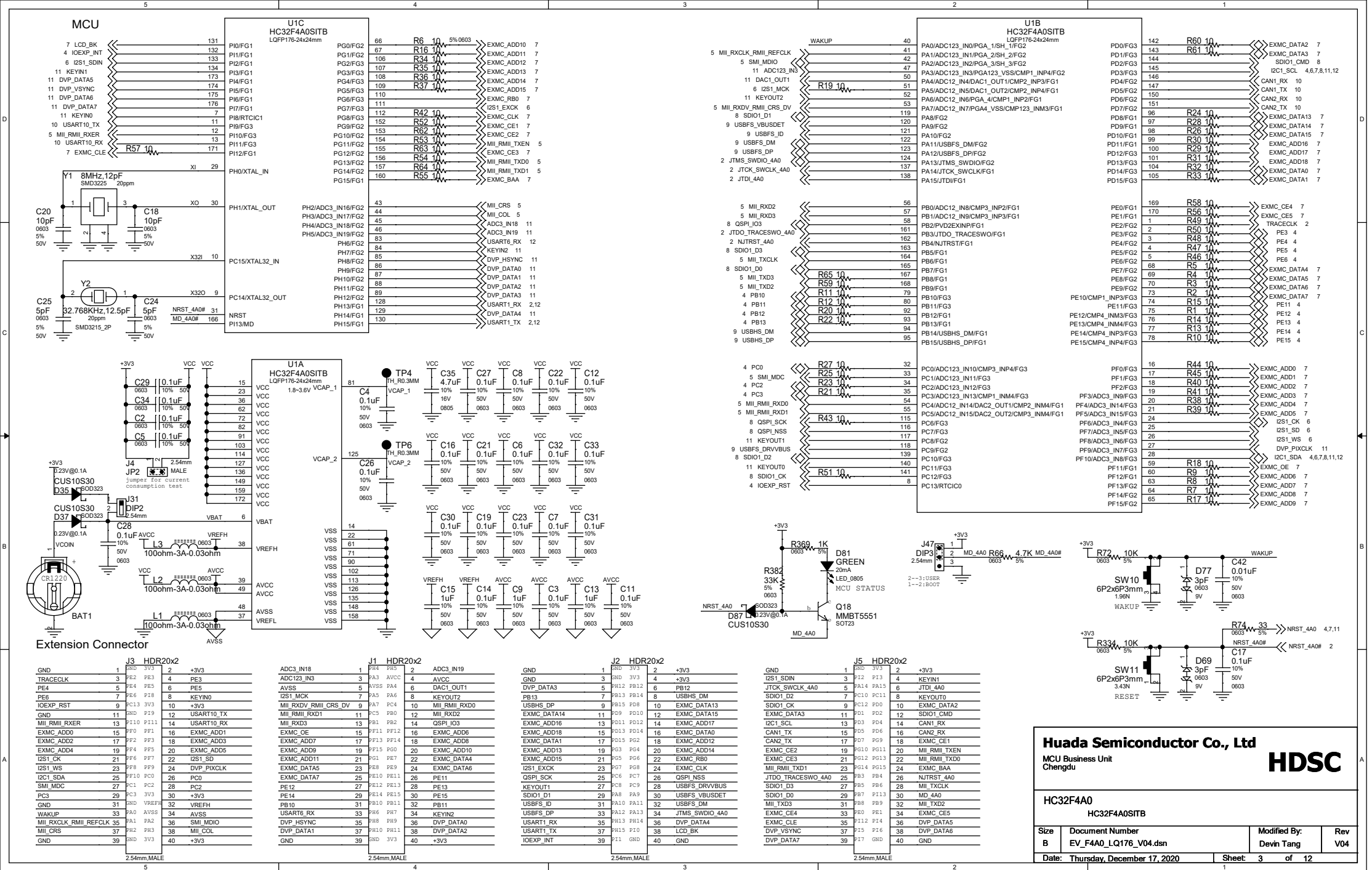
**HDSC**

HC32F4A0

TITLE PAGE

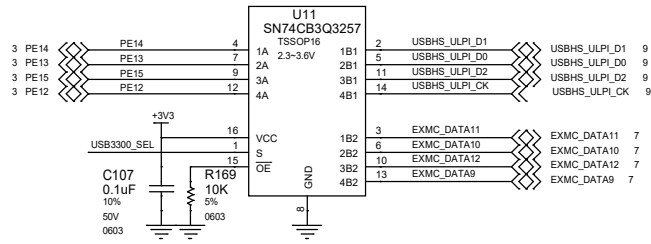
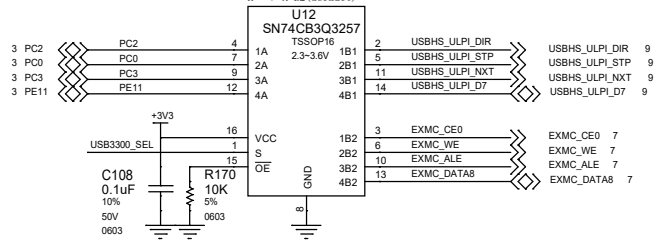
Size	Document Number	Modified By:	Rev
B	EV_F4A0_LQ176_V04.dsn	Devin Tang	V04
Date: Thursday, December 17, 2020		Sheet: 1	of 12



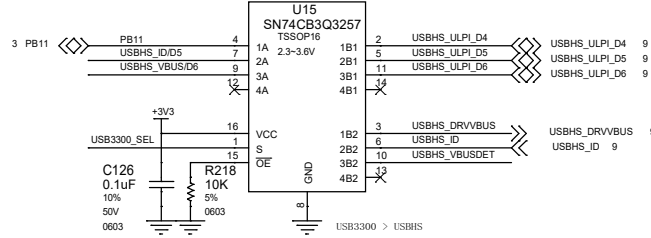
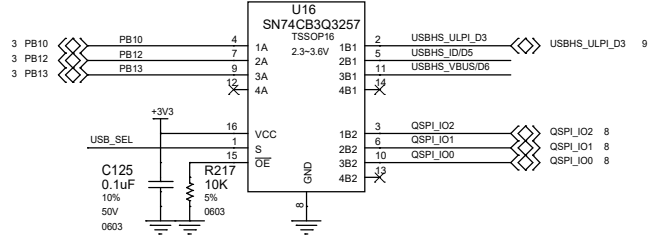


## PIN MUX

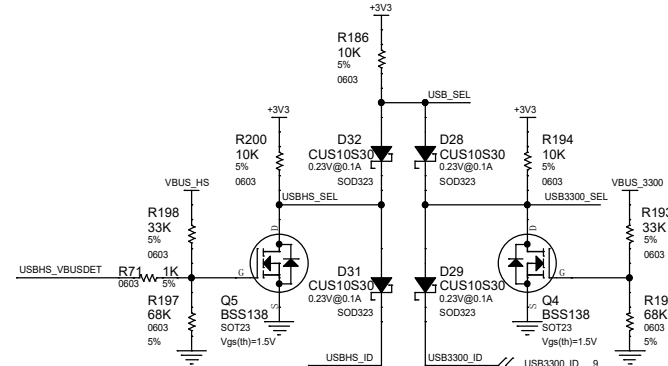
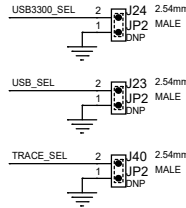
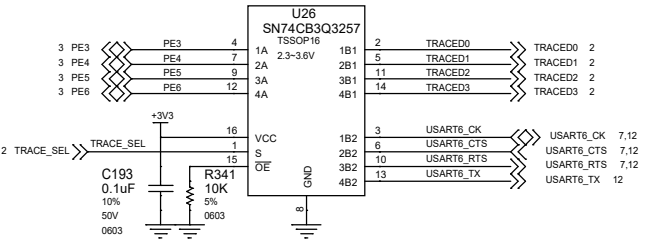
SPDT  
V<sub>IH</sub> > 2V, V<sub>IL</sub> < 0.8V  
L → A=B1  
H → A=B2 (default)



PIN	DEFAULT	USB3300 DETECTED	USBHS DETECTED
PC0	EXMC_WE	USBHS_ULPI_STP	
PC2	EXMC_CE0	USBHS_ULPI_DIR	
PC3	EXMC_ALE	USBHS_ULPI_NXT	
PE11	EXMC_DATA8	USBHS_ULPI_D7	
PE12	EXMC_DATA9	USBHS_ULPI_CK	
PE13	EXMC_DATA10	USBHS_ULPI_D0	
PE14	EXMC_DATA11	USBHS_ULPI_D1	
PE15	EXMC_DATA12	USBHS_ULPI_D2	
PE17	QSPI_IO2	USBHS_ULPI_D3	
PE11	USBHS_DRVVBUS	USBHS_ULPI_D4	
PE12	QSPI_IO1	USBHS_ULPI_D5	USBHS_ID
PE13	QSPI_IO0	USBHS_ULPI_D6	USBHS_VBUS

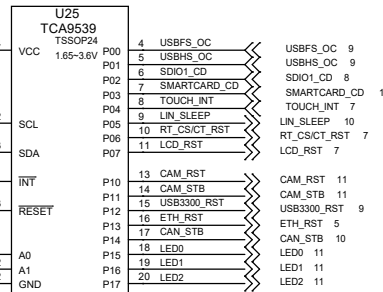
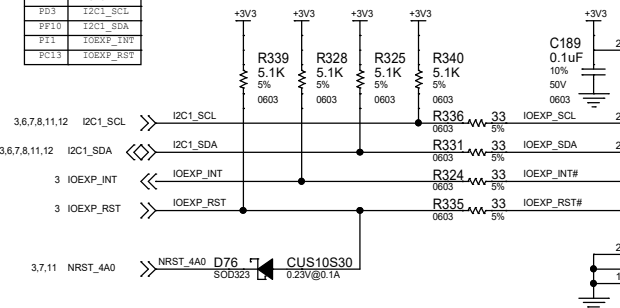


PIN	DEFAULT	TRACE DETECTED
PE3 (PG2)	USART6_CK	TRACED0
PE4 (PG2)	USART6_CTS	TRACED1
PE5 (PG2)	USART6_RTS	TRACED2
PE6 (PG2)	USART6_TX	TRACED3



## IO-EXPANDER

PIN	FUNC
PE3	I2C1_SCL
PE10	I2C1_SDA
PE11	IOEXP_INT
PE13	IOEXP_RST



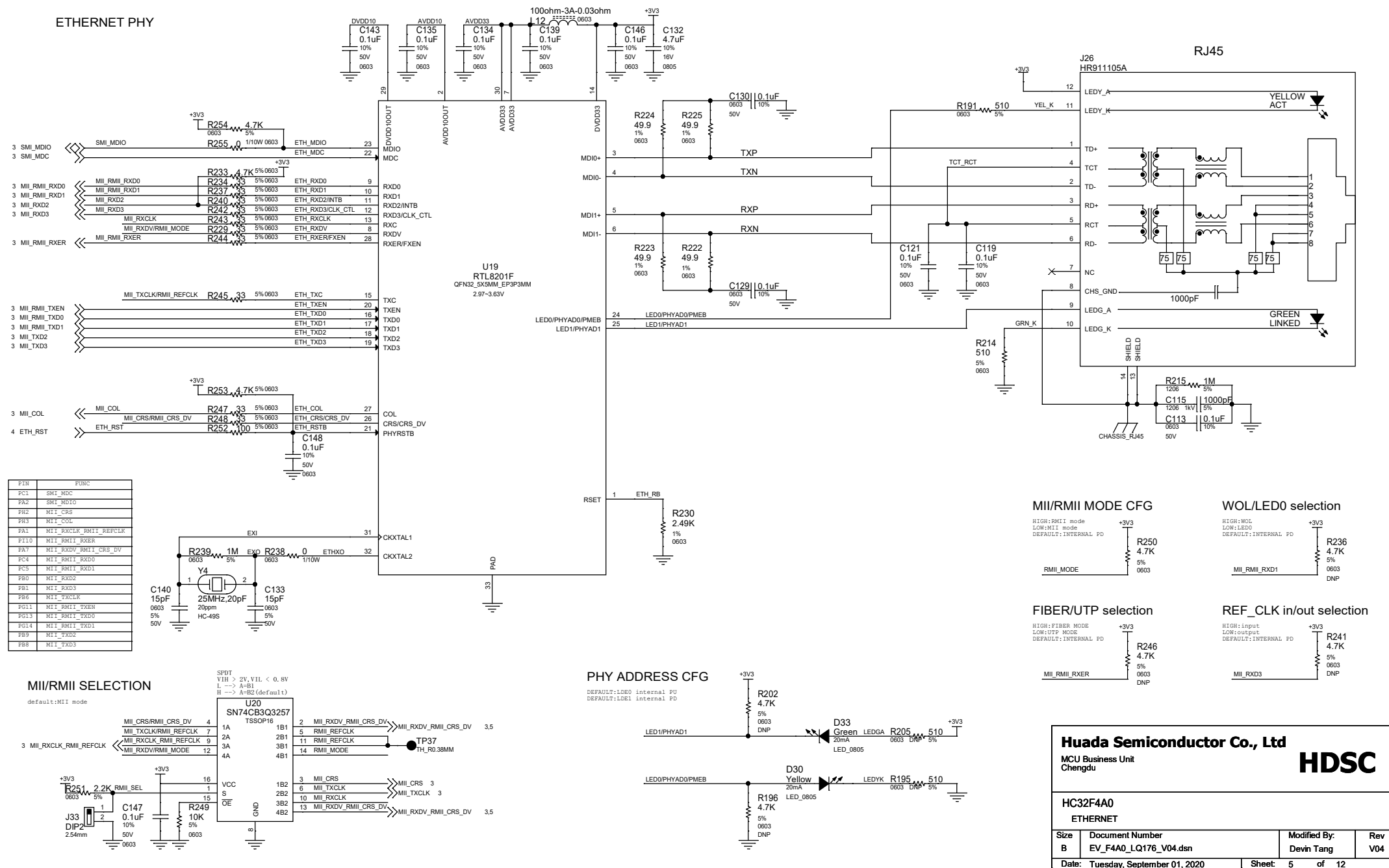
I2C ADDRESS:1110 100

**Huada Semiconductor Co., Ltd**  
MCU Business Unit  
Chengdu

**HDSC**

**HC32F4A0**  
PIN MUX, IO EXPANDER

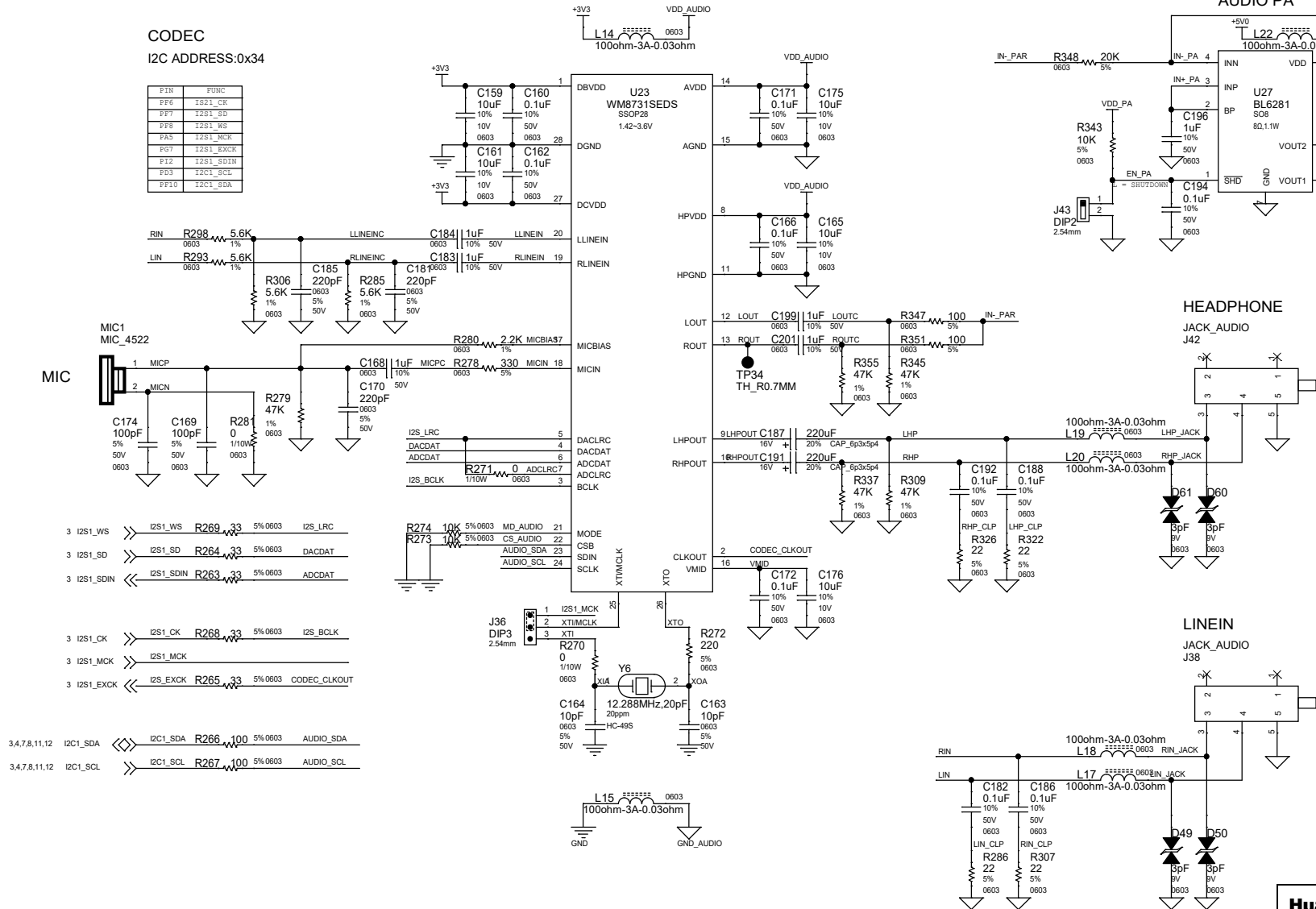
Size	Document Number	Modified By:	Rev
B	EV_F4A0_LQ176_V04.dsn	Devin Tang	V04
Date:	Tuesday, September 01, 2020	Sheet:	4 of 12



<b>Huada Semiconductor Co., Ltd</b> MCU Business Unit Chengdu		<b>HDSC</b>
<b>HC32F4A0</b> ETHERNET		
Size	Document Number	Modified By:
B	EV_F4A0_LQ176_V04.dsn	Devin Tang
Date:	Tuesday, September 01, 2020	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



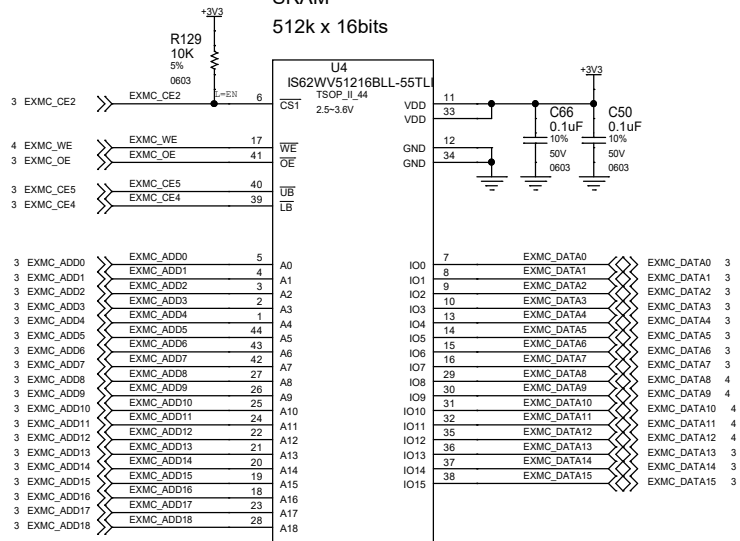
**Huada Semiconductor Co., Ltd**  
MCU Business Unit  
Chengdu

**HDSC**

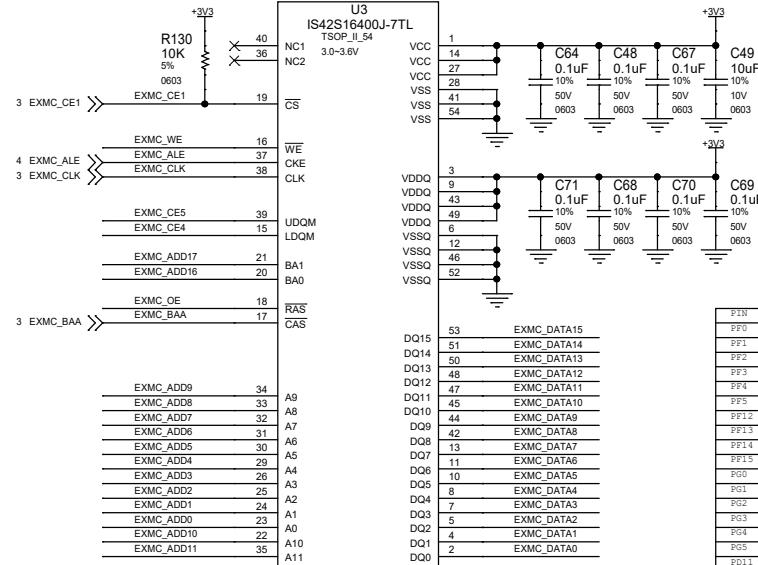
**HC32F4A0**  
AUDIO

Size	Document Number	Modified By:	Rev
B	EV_F4A0_LQ176_V04.dsn	Devin Tang	V04
Date:	Tuesday, September 01, 2020	Sheet: 6	of 12

## SRAM 512k x 16bits

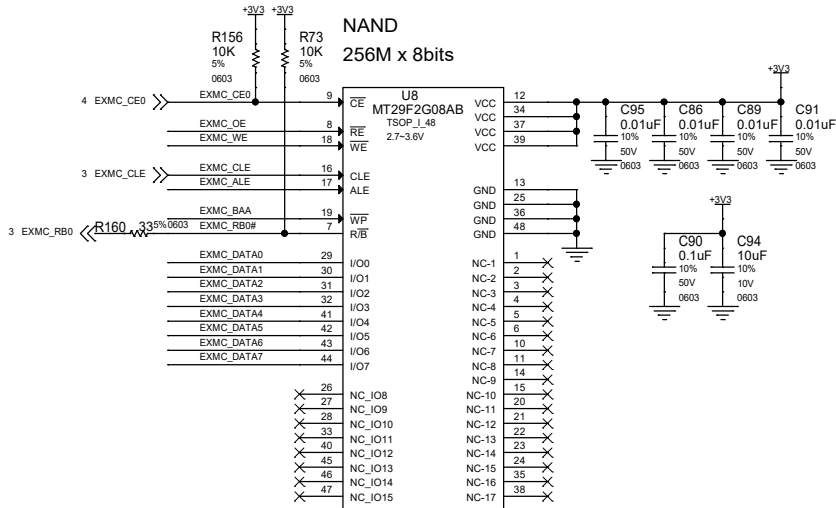


## SDRAM 1M x 16bits x 4Banks

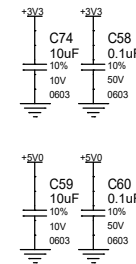
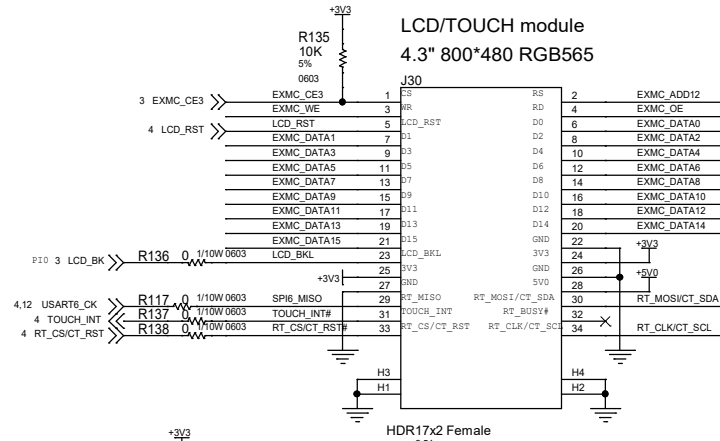


PIN	FUNC	PIN	FUNC	PIN	FUNC
PF0	EXMC_ADD0	PD14	EXMC_DATA0	PC2	EXMC_CE0
PF1	EXMC_ADD1	PD15	EXMC_DATA1	PG9	EXMC_CE1
PF2	EXMC_ADD2	PD0	EXMC_DATA2	PG10	EXMC_CE2
PF3	EXMC_ADD3	PD1	EXMC_DATA3	PG12	EXMC_CE3
PF4	EXMC_ADD4	PD7	EXMC_DATA4	PE0	EXMC_CE4
PF5	EXMC_ADD5	PD8	EXMC_DATA5	PE1	EXMC_CE5
PF12	EXMC_ADD6	PD9	EXMC_DATA6	PC0	EXMC_WE
PF13	EXMC_ADD7	PD10	EXMC_DATA7	PF11	EXMC_OE
PF14	EXMC_ADD8	PD11	EXMC_DATA8	PC3	EXMC_ALE
PF15	EXMC_ADD9	PD12	EXMC_DATA9	PI12	EXMC_CLE
PG0	EXMC_ADD10	PD13	EXMC_DATA10	PG15	EXMC_BAA
PG1	EXMC_ADD11	PD14	EXMC_DATA11	PG6	EXMC_RB0
PG2	EXMC_ADD12	PD15	EXMC_DATA12	PG8	EXMC_CLK
PG3	EXMC_ADD13	PD0	EXMC_DATA13		
PG4	EXMC_ADD14	PD1	EXMC_DATA14		
PG5	EXMC_ADD15	PD2	EXMC_DATA15		
PD11	EXMC_ADD16				
PD12	EXMC_ADD17				
PD13	EXMC_ADD18				

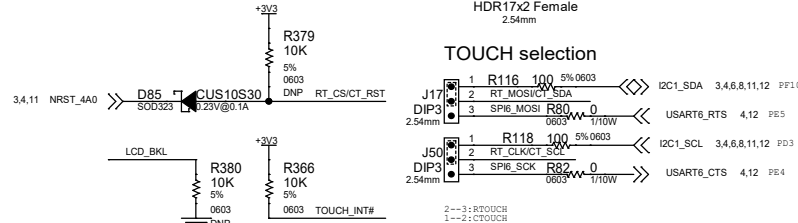
## NAND 256M x 8bits



## LCD/TOUCH module 4.3" 800\*480 RGB565



## TOUCH selection



**Huada Semiconductor Co., Ltd**  
MCU Business Unit  
Chengdu

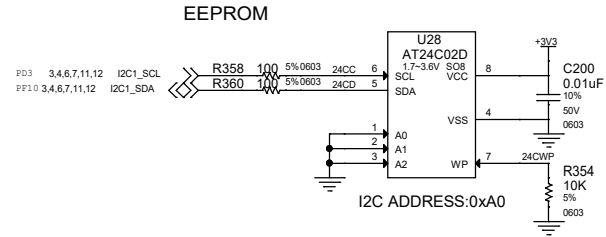
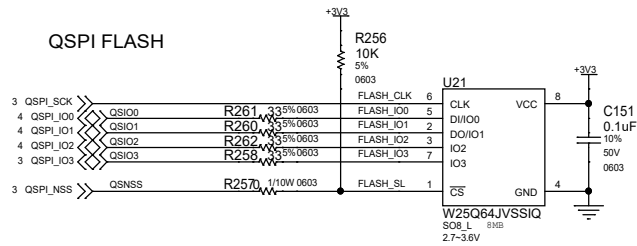
**HDSC**

HC32F4A0

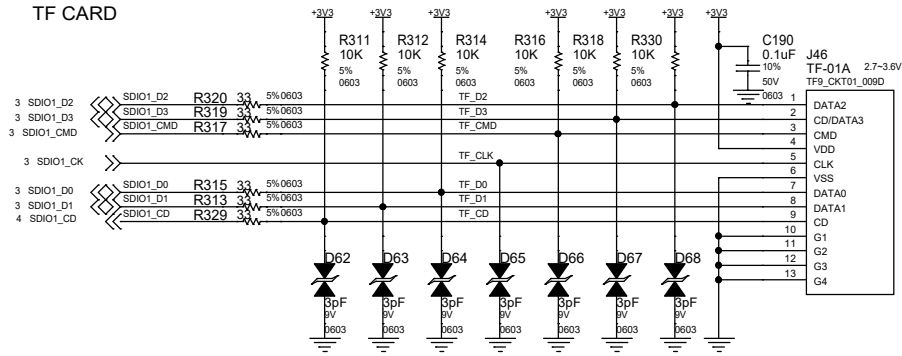
SRAM, SDRAM, NAND, LCD

Size	Document Number	Modified By:	Rev
B	EV_F4A0_LQ176_V04.dsn	Devin Tang	V04
Date:	Tuesday, September 01, 2020	Sheet:	7 of 12

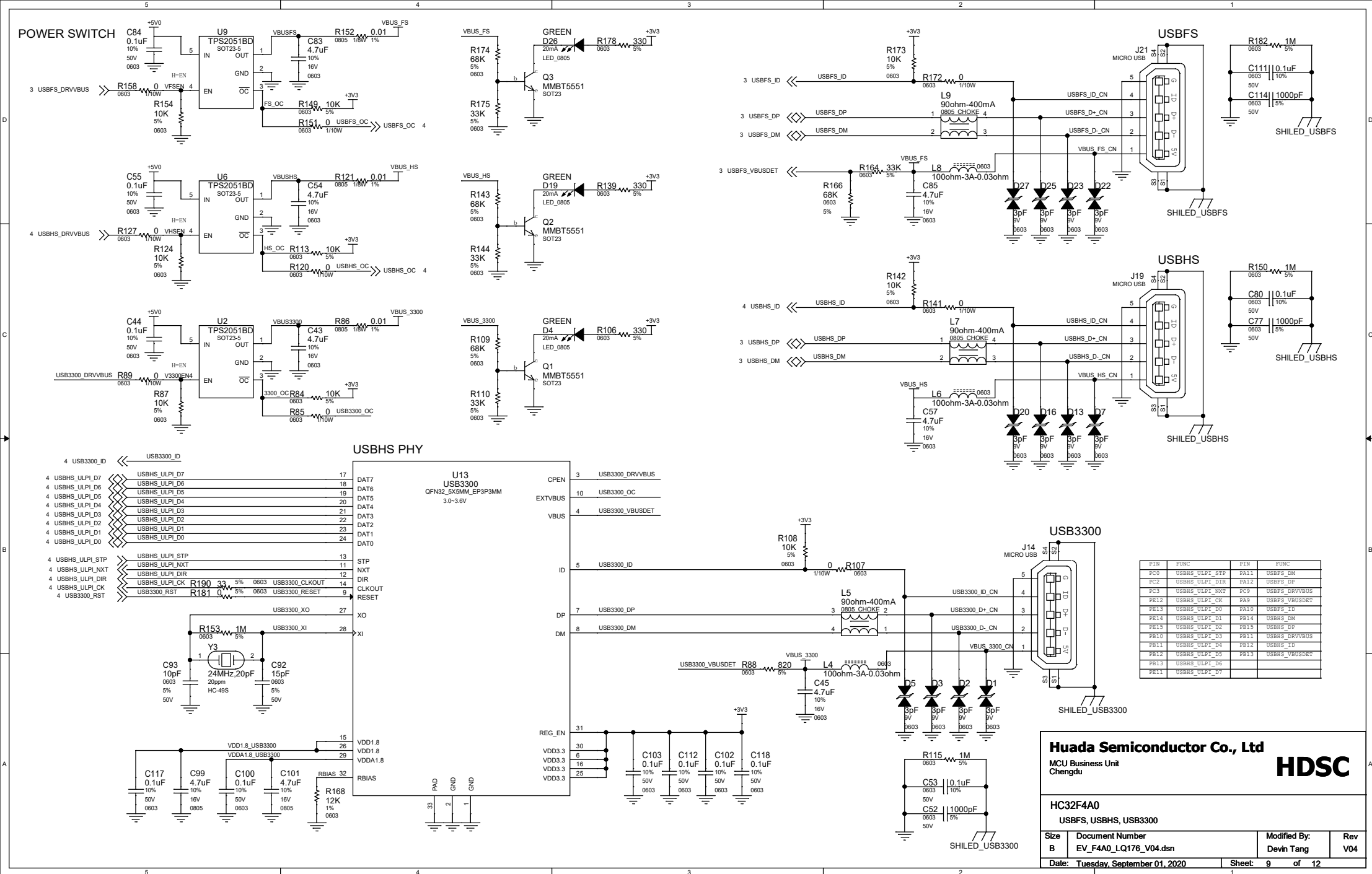
PIN	FUNC
PB13	QSPI_FIO0
PB12	QSPI_FIO1
PB10	QSPI_FIO2
PB2	QSPI_FIO3
PC6	QSPI_SCK
PC7	QSPI_NSS



PIN	FUNC
PA8	SDIO1_D0
PA9	SDIO1_D1
PC10	SDIO1_D2
PB5	SDIO1_D3
PD2	SDIO1_CMD
PC12	SDIO1_CLK

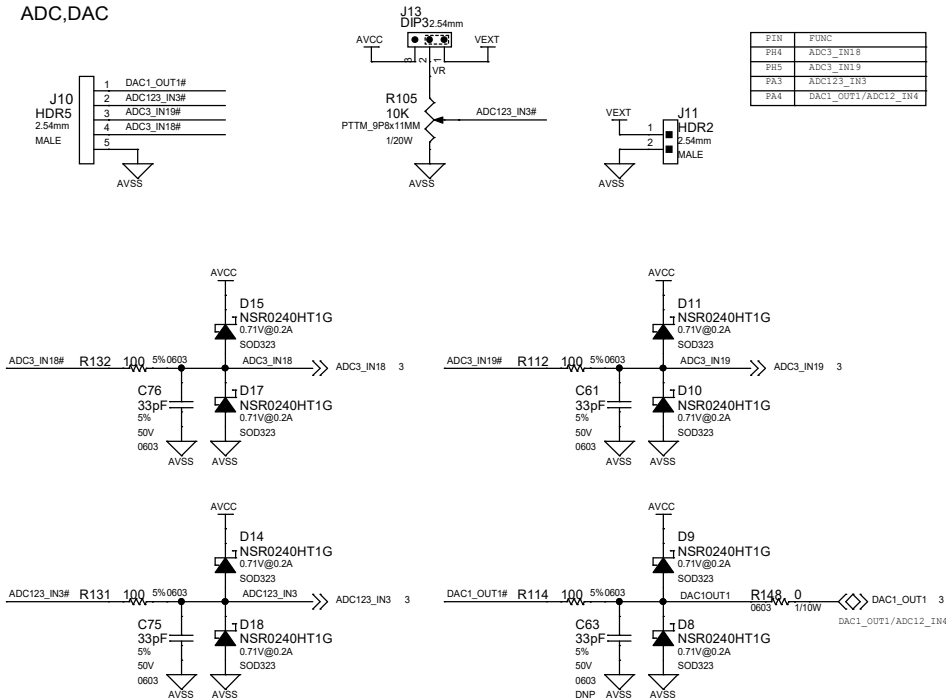


<b>Huada Semiconductor Co., Ltd</b>			
MCU Business Unit Chengdu			
<b>HDSC</b>			
<b>HC32F4A0</b>			
QSPI FLASH, EEPROM, TF CARD			
Size	Document Number	Modified By:	Rev
B	EV_F4A0_LQ176_V04.dsn	Devin Tang	V04
Date:	Tuesday, September 01, 2020	Sheet:	8 of 12



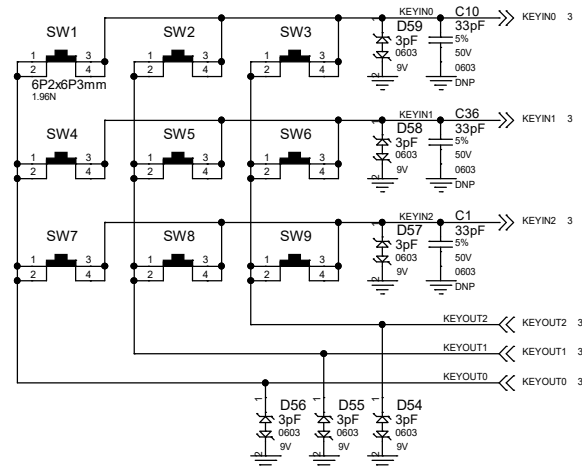


ADC,DAC



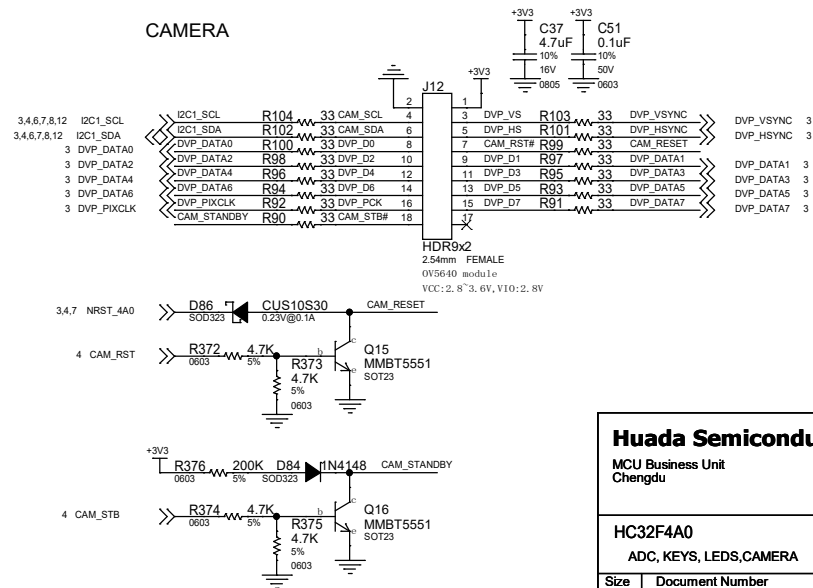
PIN	FUNC
PH4	ADC3_IN18
PH5	ADC3_IN19
PA3	ADC123_IN3
PA4	DAC1_OUT1/ADC12_IN4

MATRIX KEYBOARD



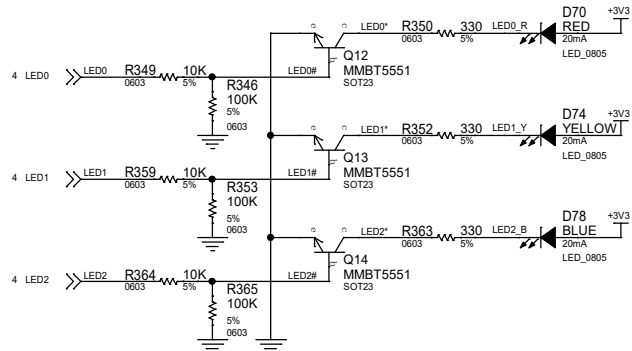
PIN	FUNC
PI8	KEYIN0
PI3	KEYIN1
PI7	KEYIN2
PC11	KEYOUT0
PC8	KEYOUT1
PA6	KEYOUT2

CAMERA



PIN	FUNC
PF9	DVP_PIXCLK
PI5	DVP_VSYNC
PH8	DVP_HSYNC
PH9	DVP_DATA0
PH10	DVP_DATA1
PH11	DVP_DATA2
PH12	DVP_DATA3
PH14	DVP_DATA4
PI4	DVP_DATA5
PI6	DVP_DATA6
PI7	DVP_DATA7
PD3	I2C1_SDA
PF10	I2C1_SCL

LEDS



**Huada Semiconductor Co., Ltd**

MCU Business Unit  
Chengdu

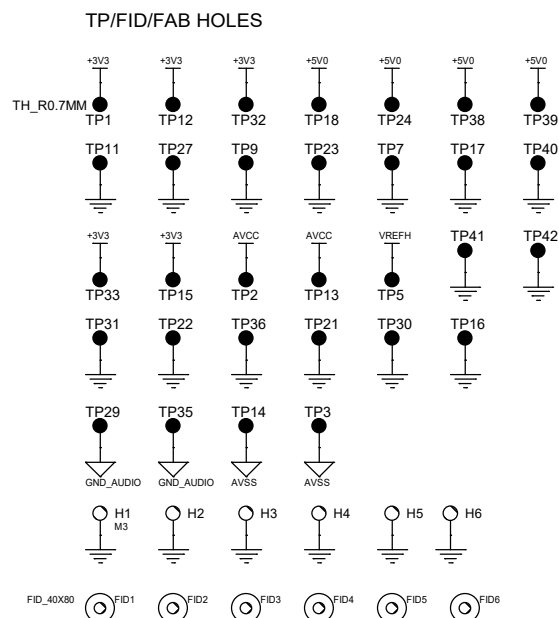
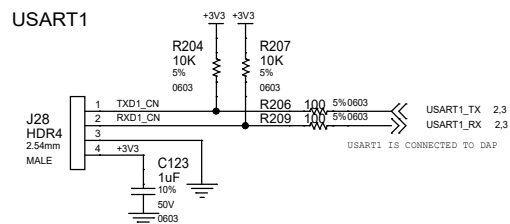
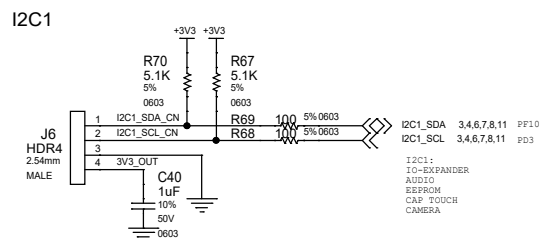
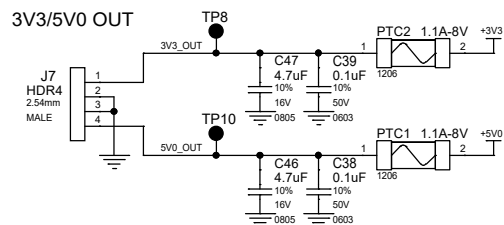
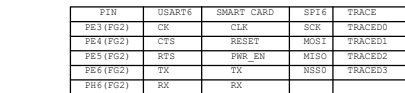
**HDSC**

**HC32F4A0**

ADC, KEYS, LEDS, CAMERA

Size	Document Number	Modified By:	Rev
B	EV_F4A0_LQ176_V04.dsn	Devin Tang	V04

Date:	Tuesday, September 01, 2020	Sheet: 11	of 12
-------	-----------------------------	-----------	-------



<h1 style="margin: 0;">Huada Semiconductor Co., Ltd</h1>		<h1 style="margin: 0;">HDSC</h1>
MCU Business Unit Chengdu		
HC32F4A0 USART, SPI, I2C, SMART CARD		
Size B	Document Number EV_F4A0_LQ176_V04.dsn	Modified By: Devin Tang
Date:	Tuesday, September 01, 2020	Sheet: 12 of 12