J1 USB

GND GND GND GND
9 8 7 6
GND 5
GND 4
D+ 3 D-
D- 2 D-
XUSB 1 +5V
F1 500MA

U1
D- 4 D-_OUT D-_IN 3 USB_DM
+3.3V 5 VBUS GND 2 GND
D+ 6 D+_OUT D+_IN 1 USB_DP
NUF2221W1T2
SPI_OE R17 1K
Q1 2N3904
GND

+5V C1 104
U2
CAN_TX 1 D RS 8
GND 2 GND CANH 7 CAN+
+5V 3 VCC CANL 6 CAN-
CAN_RX 4 R Vref 5
82C250T
D1 R1 1K
D2 R2 1K
LED
LED

U3
+5V 1 VIN VOUT 5 +3.3V
GND 2 GND C2 10uf
3 EN RSN 4
SPX3819-3.3V GND
C4 10uf GND

CLKIN
GND 3 Y1 1 CLKIN
27MHZ XFB
2

+5V C3
HSYNC R3 1K 10uf
VSYNC R4 1K
LOS R5 1K
C5 0.1uF GND

U4 STM32F405RG
3 PC14/OSC32_IN PB9/CAN1_TX 62 CAN_TX
4 PC15/OSC32_OUT PB8/CAN1_RX 61 CAN_RX
5 OSC_IN PB7/USART1_RX 59 AUDIO
6 OSC_OUT PB6/CAN2_TX 58
PB5/SPI3_MOSI 57
PB4 56 PWM_SPISCLK
2 PC13 PB3 55 HSYNC
8 PC0 54
V_SW2 9 PC1 PD2/UART5_RX 53 SPI3_MOSI
V_SW3 10 PC2/SPI2_MISO PC12/UART5_TX 52 SPI3_MISO
LEVEL 11 PC3/SPI2_MOSI PC11/SPI3_MISO 51 SPI3_SCK
14 PA0/UART4_TX PC10/SPI3_SCK 50 SPI3_CS
15 PA1/UART4_RX PA15 45 USB_DP
TXD2 16 PA2/USART2_TX PA12/USB_DP 44 USB_DM
RXD2 17 PA3/USART2_RX PA11/USB_DM 43
20 PA4 PA10/USB_ID 42 XUSB
PWM_SPISCLK PA5/SPI1_SCK PA9/USART1_TX 41
MASK 22 PA6/SPI1_MISO PA8 40
23 PA7/SPI1_MOSI PC9 39
LED1 24 PC4 PC8 38
LED2 25 PC5 PC7/USART6_RX 37
26 PB0 PC6/USART6_TX 36
VSYNC 27 PB1 PB15 35
28 PB2 PB14 34 PWM_SPISCLK
TXD3 29 PB10/USART3_TX PB13/SPI2_SCK 33 SPI_OE
RXD3 30 PB11/USART3_RX PB12/CAN2_RX

VBAT 1 VBAT

13 VDDA
19 VDD
32 VDD
48 VDD
64 VDD

SWCLK 49 SWCLK
SWDIO 46 SWDIO
NRST 7 NRST
VCAP_2 47 VCAP2
VCAP_1 31

GNDA GND BOOT0 GND
12 18 60 63

P1 JTAG
+3.3V 1
GND 2
SWDIO 3
SWCLK 4
NRST 5

R7 220R
PWM1 R8 220R
PWM2
R9

C8 8pF Y2
C9 8pF 8M
GND

+3.3V
C18 C19 C20 C21 C22
104 104 104 104 104
GND

D3 1K R15 LED1
LED
D4 1K R16 LED2
LED
+3.3V

U5 MAX7456EUI
1 NC NC 28
2 NC NC 27
+5V 3 DVDD VOUT 26
GND 4 DGND SAG 25
CLKIN 5 CLKIN PVDD 24 +5V
XFB 6 XFB PGND 23 GND
7 CLKOUT VIN 22
SPI3_CS 8 CS AVDD 21 +5V
SPI3_MOSI 9 SDIN AGND 20 GND
SPI3_SCK 10 SCLK RESET 19 +5V
SPI3_MISO 11 SDOUT HSYNC 18 HSYNC
LOS 12 LOS VSYNC 17 VSYNC
13 NC NC 16
14 NC NC 15
SPI3

C6 4.7uF C7 4.7uF
R6 75R VIDEO_O

C10 104 75R VIDEO_IN
R8 GND

U6 ADG733
VIDEO_IN2 1 S2B VDD 16 +3.3V
VIDEO_IN1 2 S2A D2 15 VIDEO_IN
3 S3B D1 14 VIDEO_MIX
4 D3 S1B 13 LEVEL
5 S3A S1A 12 VIDEO_O
GND 6 EN A0 11 MASK
GND 7 VSS A1 10 V_SW2
GND 8 GND A2 9 V_SW3
C11 0.1uF GND

GND C12 104 C13 1uf
U7 MAX7452
VIDEO_MIX +5V 1 VCC LOS 8 +5V
2 IN GSET 7
GND 3 GND OUT 6
3K R12 4 BPLVL AGCD 5 +5V
+3.3V R14 1.5K
VIDEO_OUT R11 75R R13 75R GND
GND

+3.3V R10 10K
NRST
C16 2.2uf C15 2.2uf C17 0.1uF
S1 TAC_SWITCHSMD
GND

P3 DF13-8P-1.25DSA
GND
CAN+ 1
CAN- 2
PWM1 3
PWM2 4
TXD3 5
RXD3 6
7
+5V 8

P2 DF13-7P-1.25DSA
VIDEO_IN2 1
GND 2
VIDEO_IN1 3
GND 4
VIDEO_OUT 5
GND 6
AUDIO_OUT 7

R18 75R C23 2.2uf AUDIO_OUT

Title
Size A4
Number
Revision
Date: 2015/4/23 星期四
Sheet of
File: G:\OneDrive\...\STM32F4_OSD_V12.Sch Drawn By:

Comment	Description	Designator	Footprint	LibRef	Quantity
104	Capacitor	C1	0603C	CAP	1
10uf		C2, C4	0805	E	2
10uf	Polarized Capacitor (Radial)	C3	0603C	Cap Pol1	1
Cap	Capacitor	C5, C11, C17	0402-CAP	Cap	3
4.7uF	Electrolytic Capacitor 1	C6, C7	0603C	ELECTRO1	2
8pF	Capacitor	C8, C9	0402-CAP	CAP0805	2
104	Capacitor	C10, C12, C14, C18, C19, C20, C21, C22	0402-CAP	CAP	8
1uf	Polarized Capacitor (Radial)	C13	0603C	Cap Pol1	1
2.2uf	Polarized Capacitor (Radial)	C15, C16, C23	0603C	Cap Pol1	3
LED		D1, D2, D3, D4	0603-LED	LED	4
500MA		F1	PTC-1206	RES	1
USB		J1	MOLEX_MICRO_USB_AB_BOTTOM_MOUNT	USB	1
JTAG	Header, 5-Pin	P1	DF13-5P-1.25DSA	Header 5	1
DF13-7P-1.25DSA	Header, 7-Pin	P2	DF13C-7P-1.25V	Header 7	1
DF13-8P-1.25DSA	Header, 8-Pin	P3	DF13C-8P-1.25V	Header 8	1
2N3904	NPN General Purpose Amplifier	Q1	TO-92A	2N3904	1
1K	[NoValue], [NoValue], Resistor, Resistor, Resistor, Resistor, Resistor, [NoValue]	R1, R2, R3, R4, R5, R15, R16, R17	0402-RES	RES, RES, Res2, Res2, Res2, Res2, Res2, RES	8
75R	Resistor	R6, R8, R11, R13, R18	0402-RES	Res2, Res2, Res1, Res1, Res2	5
220R	Resistor	R7, R9	0402-RES	Res2	2
10K	Resistor	R10	0402-RES	Res2	1
3K	Resistor	R12	0402-RES	Res2	1
1.5K	Resistor	R14	0402-RES	Res2	1
TAC_SWITCHSMD		S1	EVQP7J01K	TAC_SWITCHSMD	1
NUF2221W1T2		U1	SOT363	NUF2221W1T2	1
82C250T		U2	SO-8N	SN65HVD230D	1
SPX3819-3.3V		U3	SOT23-5	SP6	1
STM32F405RG		U4	LQFP64	STM32F405RG	1
MAX7456EUI		U5	SSOP-28	MAX7456	1
ADG733		U6	TSOP16	ADG733	1
MAX7452		U7	SOIC-SN8_N	MAX7452	1
27MHZ		Y1	27MHZ	晶振3脚	1
8M	7B-8.000MAAJ-T	Y2	OSCILLATOR-3.2X2.5	ZQ_KX12B	1