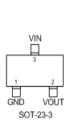
HS402 DIY Oscilloscope Components List

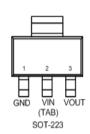
3.0 (provisional) PCB Version: Quantity Value Comment Photo Designator Description **Footprint** R1, R4, R5 1K C0805 Resistor R2, R6 2 910K Resistor C0805 R3, R7 2 100K Resistor C0805 VR5 R9 1 1K Potentiometer C1, C5 2 20pF var Adjustable Capacitor Capacitor Var 3*4mm use 1uF to improve AC bandwidth at C2, C6 2 100nF Capacitor C0805 lower frequencies (<100Hz) C3, C7 2 47pF C0805 Capacitor C0805 C4 1 1uF Capacitor TBC C8 47uF - 6.3V C0805 TBC 1 Capacitor C9 470nF C0805 TBC 1 Capacitor C10, C11 10uF C0805 TBC 2 Capacitor D1, D2 2 BAV99 Diodes SOT23 U1, U3 2 MCP6S21 PGA SOP-8 or SOIC-8 MSOP-8 in V1.6 U2 AMS1117-1.2 Linear Regulator SOT223 1 U5 1 AMS1117-3.3 Linear Regulator SOT223 Option 1 U6 TPS73733 Linear Regulator SOT223-6 Option 2 (lower noise) 1 PNSC-K1, K2 2 AQY210EH PhotoMOS DIP4(SMT)_V STM32 Black Pill Dev. MCU 1 STM32F411 Black Pill (or STM32F401) Board P2, P5 2 **BNC BNC Elbow Connector** BNC Header 5 Header, 5-Pin HDR1X5 12C Input Buttons Module IN 1 OUT HDR1X4 1 Header 4 Header, 4-Pin I2C Modules (other) UART Header 4 Header, 2-Pin HDR1X2 Serial Port (flashing & Wifi module) 1

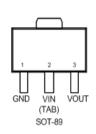
Designator	Quantity	Value	Description	Footprint	Comment	Photo
PWM	1	Header 2	Header, 2-Pin	HDR1X2	PWM Output	
BAT	1	Header 2	Header, 2-Pin	HDR1X2	Battery power	
SPI	1	Header 3	Header, 3-Pin	HDR1X3	SPI port (Wifi module)	

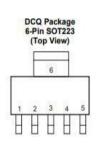
Revision History:

- V2.1: C1, C5 to 20pF since the value needed is quite low, some 30pF var capacitor do not allow to regulate around 6pF.
- V2.0: Removed J1, directly use PA2 pin for Vref, PWM become 2 pin header, added SP header (Serial Port), U1,U3 use SOP module.
- V1.6: Removed duplicated R8, Added comment for C2, C6.





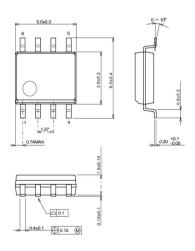


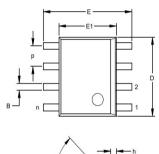


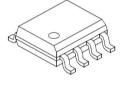


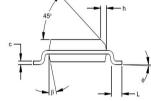
8-Lead Plastic Small Outline (SN) - Narrow, 150 mil (SOIC) or SOP8

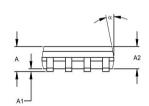
SOP8 JEDEC 150 mil



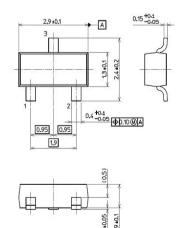








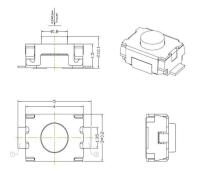
SOT-23

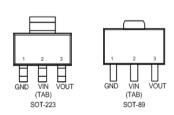


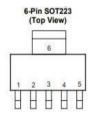
WIFI Module (PCB Built) Components List

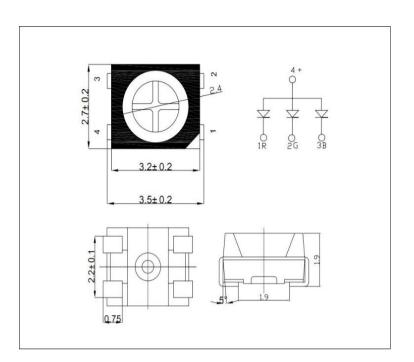
PCB Version: 3.0 (provisional)

Designator	Quantity	Value	Description	Footprint	Comment	Photo
R10, R11, R12	3	5.1K	Resistor	C0805		
R13, R14	2	20K	Resistor	C0805		
R15, R16, R17	3	1K	Resistor	C0805		age
C20, C21, C22	3	1uF	Capacitor	C0805	Testing	
C23	1	10uF	Capacitor	C0805	Testing	
C3, C7	2	47pF	Capacitor	C0805		
S1	1	-	Button	1206 (or 3x4mm)		•
LED	1	RGB LED 3528	Common anode	1210		
U10	1	ESP32-WROOM- 32D	МСИ	-	Older model is ok. New model ESP32-WROOM- 32E not tested yet	CSPRESSIF ESP32.WROOM -320 □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
U11 (or U11-1)	1	AMS1117-3.3	Linear Regulator	SOT223 (or SOT89)	Option 1 (to use when power with 5V)	
U12	1	TPS73733	Linear Regulator		Option 2 (to use when power directly with 3.7 Lithium battery)	
WIFI	1	Header 9	Header, 9-Pin	HDR1X9	Main connector	
SP	1	Header 2	Header, 2-Pin	HDR1X2	Serial connector (for flashing)	









WIFI Module (no PCB) Components List

HS402 PCB Ver: 3.0

Notes: The Wifi module can be implemented easily without the custom PC just by using this ESP32

Development Board.

Designator	Quantity	Value	Comment	Photo
MCU	1	ESP32 Development Board 30-pins	Based of ESP32 WROOM 32D (dual core)	
LED	1	RGB LED Module	Optional, it could be common catode or anode	S CIP