RAMN V1 main board (STM32L552, Non-automotive version)

Designation	Qty	Component	Reference	Maker	
C1 C2	2	4.7nF	GCM188R91H472KA37D	MURATA	
C11 C12 C21 C22 C31 C32 C41 C42	8	1uF	GCM31CL81H105KA55L	MURATA	
C3 C4 C8 C9 C10 C13 C14 C18 C19 C20 C23 C24 C28 C29 C30 C33 C34 C38 C39 C40 C43	21	100nF	GCM188R71H104KA57J	MURATA	
C5 C6 C15 C16 C25 C26 C35 C36	8	10pF	GCM1885C1H100JA16J	MURATA	
C7 C17 C27 C37	4	10uF	GRT31CR6YA106KE01L	MURATA	
R8 R10 R11 R12 R13 R14 R15 R17	8	10k	RK73H1JTTD1002F	KOA	
R1 R4 R5 R16	4	0ohm / solder bridge / shunt resistor	RK73Z1JTTD	KOA	
R2 R3 R6 R7	4	60R	RK73H1JTTD60R4F	KOA	
R9	1	Do not mount	Do not mount	Do not mount	
J1	1	USB Micro Connector	629105150521	Wurth	
J2	1	Terminal Block 3pin	1770966	Phoenix Contact	
J3 J4 J5 J6	4	Pin socket 2x13	M20-7831346	Harwin	
TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10	10	Test probe	20-313143	Vero Technologies	optional
U1 U4 U7 U10	4	MCP2558FD-H/SN	MCP2558FD-H/SN	Microchip	
U2 U5 U8 U11	4	STM32L552CET6	STM32L552CET6	STMicroelectronics	
U3 U6 U9 U12	4	NCV8163	NCV8163ASN330T1G	On Semi	
Y1 Y2 Y3 Y4	4	NX3225GD-10.000M-STD-CRA-3	NX3225GD-10.000M-STD-CRA-3	NDK	
D1 D2 D3 D4	4	Reverse current protection	RB520S30T1G	On Semi	

RAMN V1 expansions (Non-automotive version)

1 - Screen

Designation	Qty	Component	Reference	Maker
J1	1	Pin header 2x13	68021-226HLF	Amphenol ICC
J5	1	Pin socket 1x11	M20-7821146	Harwin
J3	1	Pin socket 1x13	Do not mount	Do not mount
J4	1	Pin socket 1x08	Do not mount	Do not mount

J2	1	Pin socket 1x11	Do not mount	Do not mount

2 - Chassis

Designation	Qty	Component	Reference	Maker
R7 R8 R9 R10 R11	5	10k	RK73H1JTTD1002F	KOA
C4	1	100nF	GCM188R71H104KA57J	MURATA
J7	1	Elevated socket 2x13	SSQ-113-23-G-D	Samtec
RV3	1	Rotating potentiometer	RK09D1110C0R	Alps Alpine
SW2	1	Slide Switch	OS102011MA1QN1	C&K
SW3	1	Rotating switch	NR01104ANG13-2A	NKK switches
TVS4 TVS5 TVS6	3	ESD Protection	SMF5V0TR	Rohm

3 - Powertrain

Designation	Qty	Component	Reference	Maker	
R1 R2 R3 R4 R5 R6	6	10k	RK73H1JTTD1002F	KOA	
C2 C3	2	100nF	GCM188R71H104KA57J	MURATA	
J6	1	Elevated socket 2x13	SSQ-113-23-G-D	Samtec	
RV1 RV2	2	Slide potentiometer	RS15111A900B	Alps Alpine	
SW1	1	Joystick	SKRHADE010	Alps Alpine	
Brake Accel Shift GND 3V3	5	Test probe	20-313143	Vero Technologies	optional
TVS1 TVS2 TVS3	3	ESD Protection	SMF5V0TR	Rohm	

4 - Body

Designation	Qty	Component	Reference	Maker	
C1	1	100nF	GCM188R71H104KA57J	MURATA	
R12 R13 R14	3	10k	RK73H1JTTD1002F	KOA	
R15	1	1.8k	RK73H1JTTD1801F	KOA	
D1 D2 D3 D4 D5	5	LED green	SML-310PT	Rohm	
D6 D7	2	LED orange	SML-310DT	Rohm	
D8	1	LED red	SML-310VT	Rohm	
J8	1	Elevated socket 2x13	SSQ-113-23-G-D	Samtec	
MOSI SCK LE GND KEY OE	6	Test probe	20-313143	Vero Technologies	optional
SW4	1	Key switch	SK14EG13	NKK	
U1	1	LED Driver	STP08CP05TTR	STMicroelectronics	
TVS7	1	ESD Protection	SMF5V0TR	Rohm	

5 - Debugger

Designation	Qty	Component	Reference	Maker	
J10	1	JTAG Connector 20pin	AWHW 20A-0202-T	Assmann	
J9	1	Elevated socket 2x13	SSQ-113-23-G-D	Samtec	
PB0 PA1 GND (x2) PB1 JTMS nRST JTDI JTDO JTCK JTRST1 PA2 PB2 GND PA3 PA4 PA5 PA6 PA7 PA8 PB10 PB11 PB12 PB13 PB14 PB15 3V3 5V	27	Test probe	20-313143	Vero Technologies	optional

Additional parts

Designation	Qty	Component	Reference	Maker	
external-1	1	TFT Screen	4313	Adafruit	**Pin header must be soldered separately**
external-2	1	Rotating Potentiometer Knob	1231-M	Davies Molding, LLC	
external-3	2	KNOB SMOOTH 0.157 X 0.079" NYLON	1300-F	Davies Molding, LLC	
external-4	4	Hex Standoff M3 10mm BRASS (male)	24313	Keystone	
external-5	4	Hex Standoff M3 5mm BRASS (female)	24390	Keystone	