

MULTIPLE ARBITRARY FUNCTION GENERATOR MODEL 248-1**BILL OF MATERIALS REV 2.0****PCB1****SEMICONDUCTORS**

VALUE	DESIGNATOR	QTY	DESCRIPTION
2N3904	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10	10	
1N457	D1-D20	14	
LM1117-3.3V	IC4	1	
uA7810	IC5	1	
HC165	IC11, IC12, IC13, IC14, IC15, IC16, IC17	7	
HC595	IC32, IC33, IC34, IC35	4	
TL072	IC18, IC20	2	
TL074	IC19, IC21	2	
CD4051	IC24	1	
	LED39, LED46	2	GREEN 3MM LED
	LED36, LED45	2	YELLOW 3MM LED
	ALL OTHER LEDES	43	RED 3MM LED

CAPACITORS

VALUE	DESIGNATOR	QTY	DESCRIPTION
15uF	C8, C11	2	ELECTROLYTIC 2MM LS
0.1uF	C9, C10, C12, C13, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C57, C58, C59, C60, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C81, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C104, C105, C106, C107	56	CERAMIC 5MM LS
47nF	C56, C61	2	CERAMIC 5MM LS

RESISTORS

VALUE	DESIGNATOR	QTY	DESCRIPTION
100R	R46, R86	2	1% 1/4W
220R	R48, R88	2	1% 1/4W
330R	R39, R79, R168, R169, R170, R171, R172, R173, R174, R175, R176, R177, R178, R179, R180, R181, R182, R183, R188, R189, R191, R193, R194, R195, R196, R197, R200, R201, R202, R203, R204, R205, R206, R207, R208, R209, R212, R213, R214, R215, R216, R217, R218, R219, R222	45	1% 1/4W
1K	R35, R36, R37, R40, R41, R42, R44, R47, R75, R76, R77, R80, R81, R82, R84, R87	16	1% 1/4W
2K2	R38, R63, R72, R78, R103, R112	6	1% 1/4W
4K7	R34, R61, R69, R74, R101, R109	6	1% 1/4W
10K	R49, R62, R67, R68, R70, R71, R89, R102, R107, R108, R110, R111, R114, R115, R116, R117, R118, R119, R120, R121, R122, R123, R124, R125, R126, R127, R128, R129, R130, R131, R132, R133, R134, R135, R136, R137, R138, R139, R140, R141, R142, R143, R144, R147, R148, R149, R150, R151, R190, R192, R198, R199, R210, R211, R220, R221	56	1% 1/4W
20K	R50, R90	2	1% 1/4W

22K	R64, R73, R104, R113, R152, R153, R156, R157	8	1% 1/4W
47K	R60, R66, R100, R106, R145, R146, R154, R155	8	1% 1/4W
100K	R51, R52, R53, R54, R55, R56, R57, R59, R91, R92, R93, R94, R95, R96, R97, R99	16	1% 1/4W
150K	R45, R58, R85, R98	4	1% 1/4W
392K	R43, R83	2	1% 1/4W
4M7	R65, R105	2	5% 1/4W
2K	TR1, TR2	2	SINGLE TURN TRIMMER
10-100K LINEAR		4	16MM ANGLED
10-100K LINEAR		2	9MM
50K LINEAR		32	45MM TRAVEL ALPS SLIDER

MISC

VALUE	DESIGNATOR	QTY	DESCRIPTION
PLD-18	PLD1	1	PLD 18 PIN (FEMALE)
PLD-20	PLD2	1	PLD 20 PIN (FEMALE)
PLD-16	PLD3, PLD4, PLD5	3	PLD 16 PIN (FEMALE)
		8	BANANA JACK BLACK
		10	BANANA JACK RED
		2	BANANA JACK VIOLET
		4	BANANA JACK BLUE
SPDT (ON)-ON	SW2, SW5, SW6, SW8, SW11, SW12, SW15, SW17, SW20, SW22, SW24, SW25, SW27, SW30, SW32, SW35	16	TOGGLE SWITCH
SPDT (ON)-OFF-(ON)	SW3, SW9, SW13, SW14, SW16, SW18, SW19, SW21, SW23, SW26, SW28, SW29, SW31, SW33, SW34	15	TOGGLE SWITCH
SPDT ON-OFF-(ON)	SW4, SW10	2	TOGGLE SWITCH
SPDT ON-ON	SW1, SW7	2	TOGGLE SWITCH
		13	RED SWITCH CAP
		2	YELLOW SWITCH CAP
		48	BLUE SWITCH CAP
		3	BLACK SWITCH CAP
		3	WHITE SWITCH CAP
		4	15MM MF STANDOFF
		4	NUT FOR 16MM POT
			ROGANS KNOBS

PCB2

SEMICONDUCTORS

VALUE	DESIGNATOR	QTY	DESCRIPTION
STM32F405 CARD	IC1	1	MICROCONTROLLER CARD
LM1117-3.3V	IC3	1	

CAT25512	IC6	1	
TL431	IC7	1	
MAX5250	IC8	1	
TL072	IC2	1	
TL074	IC9, IC10	2	
CD4051	IC22, IC23, IC27, IC28	4	
HC595	IC25, IC26, IC29, IC30, IC31	5	
25MHz	ZQ1	1	

CAPACITORS

VALUE	DESIGNATOR	QTY	DESCRIPTION
15uF	C2, C39, C40, C44	4	ELECTROLYTIC 2MM LS
4.7uF	C16	1	CERAMIC 5MM LS
2.2uF	C23, C24, C32, C34	4	CERAMIC 5MM LS
1uF	C22	1	CERAMIC 5MM LS
0.1uF	C3, C4, C5, C6, C14, C15, C17, C18, C19, C20, C21, C27, C28, C29, C30, C31, C33, C35, C36, C37, C38, C41, C42, C43, C78, C79, C80, C82, C99, C100, C101, C102, C103	33	CERAMIC 5MM LS
560pF	C1, C7	2	CERAMIC 5MM LS
22pF	C25, C26	2	CERAMIC 5MM LS

RESISTORS

VALUE	DESIGNATOR	QTY	DESCRIPTION
22R	R4	1	1% 1/4W
220R	R11, R19, R24, R31	4	1% 1/4W
1K	R1, R2, R12, R13, R16, R17, R18, R22, R23, R29, R30, R158, R159, R164, R165	15	1% 1/4W
10K	R3, R5, R6, R7, R8, R9, R10, R14, R20, R25, R32, R160, R161, R162, R163, R166, R167, R184, R185, R186, R187	21	1% 1/4W
30K	R15, R21, R26, R33	4	1% 1/4W
47K	R27, R28	2	1% 1/4W

MISC

VALUE	DESIGNATOR	QTY	DESCRIPTION
PLD-18	PBD1	1	PLD 18 PIN (MALE)
PLD-20	PBD2	1	PLD 20 PIN (MALE)
PLD-16	PBD3, PBD4, PBD5	3	PLD 16 PIN (MALE)
IDC-10	TO COMPUTER	1	IDC-10 THRUHOLE HEADER
IDC-16	TO SLIDERS	1	IDC-16 THRUHOLE HEADER
IDC-20	JTAG-STM	1	IDC-20 THRUHOLE HEADER
		1	DIP SWITCH
		4	PLS 16 PIN (MALE)
		4	PLS 16 PIN (FEMALE)
		6	12MM FF STANDOFF
		1	POWER CONNECTOR
		1	ST-LINK/V2 PROGRAMMER

1602

MOUSER PART#

610-2N3904

512-1N457

926-LM1117IDT3.3NOPB

595-UA78M10CKVURG3

595-SN74HC165N

595-SN74HC595N

595-TL072CP

595-TL074CN

595-CD4051BE

604-WP710A10SGD5V

604-WP710A10YD5V

604-WP710A10ID5V

MOUSER PART#

598-156PUM035M

581-SA105E104M

581-SA105C473K

MOUSER PART#

271-100-RC

271-220-RC

271-330-RC

271-1K-RC

271-2.2K-RC

271-4.7K-RC

271-10K-RC

271-20K-RC

271-22K-RC
271-47K-RC
271-100K-RC
271-150K-RC
271-392K-RC
291-4.7M-RC
858-25PR2KLF
http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/
http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-right-angle-pc-mount/
FARNELL/NEWARK: RS4511150K

MOUSER PART#
517-929975-01-09-RK
579-25AA512-I/P
517-929975-01-08-RK
530-108-0903-1
530-108-0902-1
530-108-0912-1
530-108-0910-1
633-M201501
633-M201801
633-M201901
633-M201201
https://www.samodular.com/product/switch-caps/
http://smallbear-electronics.mybigcommerce.com/nut-for-alpha-16mm-potentiometers
https://www.samodular.com/product/rogan-knob-sets-buchla-modules/
MOUSER PART#
https://electricmusicstore.com/products/microcontroller-card
926-LM1117IDT3.3NOPB

579-25AA512-I/P
511-TL431AIZ-AP
700-MAX5250AEPP
595-TL072CP
595-TL074CN
595-CD4051BE
595-SN74HC595N
695-HC49US-25-U

MOUSER PART#
598-156PUM035M
FG24X5R1H475KRT06
FG28X5R1E225KRT06
810-FG26X7R2A105KNT6
581-SA105E104M
810-FG28C0G1H561JNT0
581-SA102A220J

MOUSER PART#
271-22-RC
271-220-RC
271-1K-RC
271-10K-RC
271-30K-RC
271-47K-RC

MOUSER PART#
517-929836-01-10-RK
517-929836-01-10-RK
517-929836-01-08-RK
571-1761681-3
571-1761681-6
571-1761681-7
774-2084
517-929700-01-16
517-929974-01-16-RK
587-306-50-010
511-ST-LINK/V2