

* Darker tracework indicates parts side of module foil layout.
 ** Lighter tracework indicates bottom side of module foil layout.

Fig. 8.1 Control Module (Q42834-4)

CONTROL MODULE

Circuit Designation	Q42834-4		Description	Part #
	Description	Part #		
Resistors				
R1	300 Ohm 10W	C 7669-2		
R2	300 Ohm 10W	C 7669-2		
R3	150 K Ohm .25W	C 4216-5		
R4	10 K Ohm Trim Pot	C 3093-9		
R5	150 K Ohm .25W	C 4216-5		
R6	100 K Ohm .25W	C 2883-4		
R7	33. K Ohm .25W	C 4346-0		
R8	100 K Ohm .25W	C 2883-4		
R9	3.9 K Ohm .25W	C 2630-9		
R10	2.2 K Ohm .25W	C 2628-3		
R11	2.2 K Ohm .25W	C 2628-3		
R12	47 K Ohm .25W	C 2880-0		
R13	20 K Ohm .25W	C 5046-5		
R14	47 K Ohm .25W	C 2880-0		
R15	1 K Ohm .25W	C 2627-5		
R16	47 K Ohm .25W	C 2880-0		
R17	3.3 K Ohm .25W	C 2629-1		
R18	12 K Ohm .25W	C 2878-4		
R19	91 K Ohm .25W	C 3621-7		
R20	4.7 K Ohm .25W	C 3939-3		
R21	4.7 K Ohm .25W	C 3939-3		
R22	470 K Ohm .25W	C 4225-6		
R23	470 K Ohm .25W	C 4225-6		

CONTROL MODULE (CONT)

Circuit Designation	Q42834-4		Description	Part #
	Description	Part #		
R24	2.2 K Ohm .25W	C 2628-3		
R25	180 Ohm .5W	C 1006-3		
R26	36 Ohm .5W	C 2988-1		
R27	3.0 K Ohm .25W	C 3805-6		
R28	5K Ohm Trim Pot	C 3670-4		
R29	4.7 K Ohm .25W	C 3939-3		
Capacitors				
C1	.1 μ f 50V	C 6130-6		
C2	2.2 μ f 50V	C 5362-6		
C3	1800 μ f 35V	C 7819-3		
C4	1800 μ f 35V	C 7819-3		
C5	2.2 μ f 50V	C 5362-6		
C6	2.2 μ f 50V	C 5362-6		
C7	.1 μ f 200V	C 2938-6		
C8	.1 μ f 200V	C 2938-6		
C9	.1 μ f 200V	C 2938-6		
C10	.1 μ f 200V	C 2938-6		
C11	.1 μ f 50V	C 6130-6		
C12	.1 μ f 50V	C 6130-6		
C13	.47 μ f 250V	C 7502-5		
C16	.1 μ f 50V	C 6130-6		
C17	.01 μ f 100V	C 3161-4		
C18	100 μ f 35V	C 8026-4		

CONTROL MODULE (CONT)

Circuit Designation	Q42834-4		Description	Part #
	Description	Part #		
Transistors				
Q1	2N4125 PNP	C 3625-8		
Q2	2N4125 PNP	C 3625-8		
Q3	2N4125 PNP	C 3625-8		
Q4	MAC218A6 (TRIAC)	C 7662-7		
Q5	MJE15028 NPN	C 5890-6		
Integrated Circuits				
U1	LM339N	C 4345-2		
U2	MC7815CT	C 5095-2		
U3	MC7915CT	C 5096-0		
U4	MOC3011	C 7665-0		
Diodes				
D1	1N4004	C 2851-1		
D2	1N4004	C 2851-1		
D3	1N4004	C 2851-1		
D4	1N4004	C 2851-1		
D5	1N4004	C 2851-1		
D6	1N4004	C 2851-1		
D7	1N4004	C 2851-1		
D8	1N4004	C 2851-1		
D9	1N4004	C 2851-1		
D10	1N4004	C 2851-1		
D11	1N4004	C 2851-1		
D12	1N4148	C 3181-2		

CONTROL MODULE (CONT)

Circuit Designation	Q42834-4		Description	Part #
	Description	Part #		
D13	1N4148	C 3181-2		
D14	1N4148	C 3181-2		
D15	1N4148	C 3181-2		
D16	1N4148	C 3181-2		
D17	1N4004	C 2851-1		
D18	1N4004	C 2851-1		
D19	1N961B 10V Zener	C 3549-0		
D20	1N4148	C 3181-2		
D21	1N4148	C 3181-2		
Misc.	Relay (Cover)	C 7890-4		
CB1	Relay 30A	C 7891-2		
	6 X 32 Hex Nut	C 1889-2		
	14 Pin IC Socket	C 3450-1		
	16PIN IC Socket	C 4508-5		
	#6 INT.Star Washer	C 5594-4		
	T0220 Heat Sink	C 6510-9		
	Torque Spreader	C 6541-4		
	6-32 X .3125 RDHD	C 7009-1		
	4 Pos 1 Center Header	C 7592-6		
	5 Pos 1 Center Header	C 7593-4		
	.25 PC Mount	C 7817-7		
	Low Noise PWR Supply	C 8333-4		
	Connector 14-16 Ga	C 7352-5		

CONTROL MODULE (CONT)

Circuit Designation	Q42834-4		Description	Part #
	Description	Part #		
	Mate-N-Lock	C 7832-6		
	Mate-N-Lock Socket	C 7833-4		
	MR Control Bd (Blank)	P10279-1		

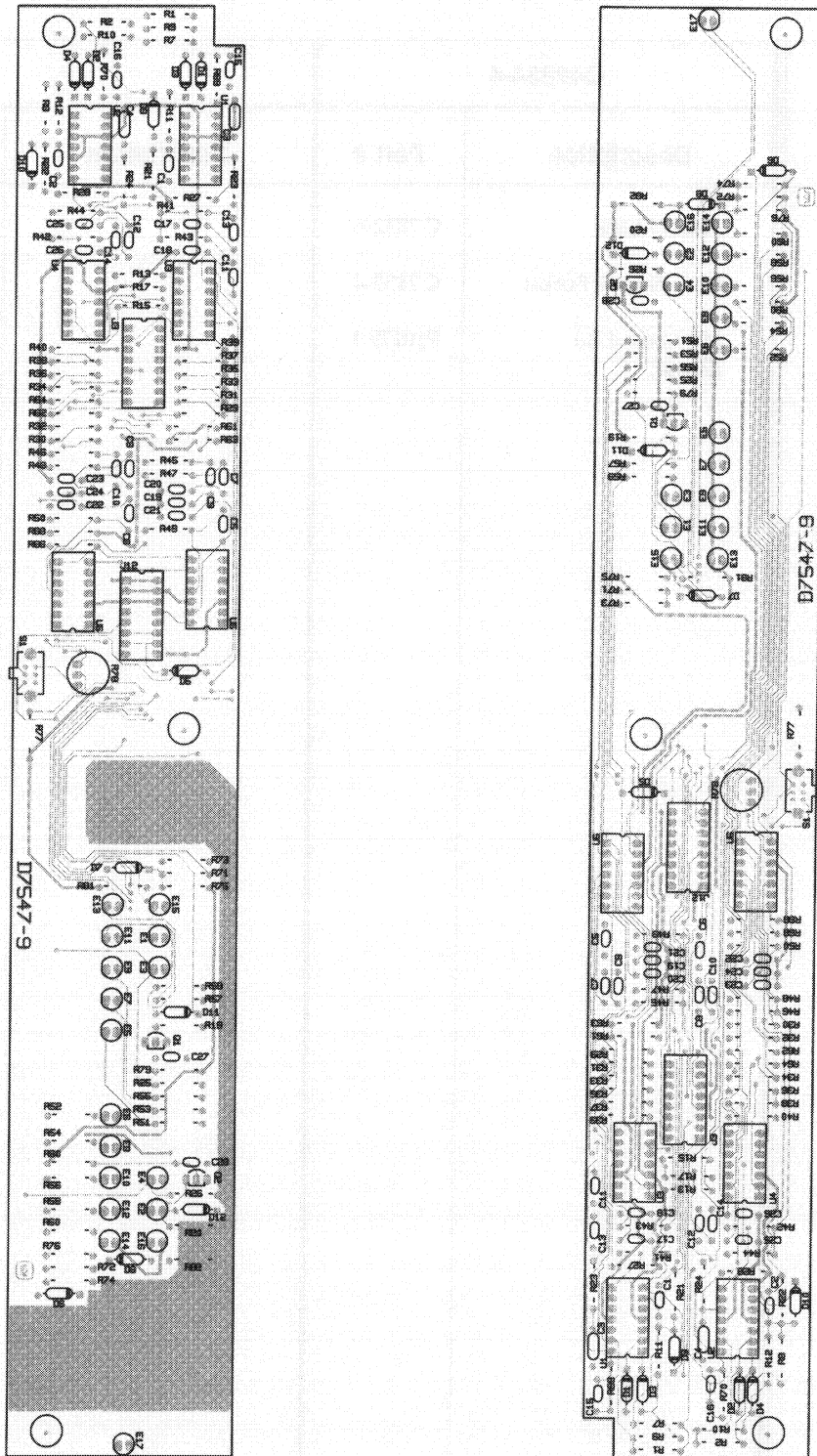


Fig. 8.2 Display Module (Q42835-1)

DISPLAY MODULE

Circuit Designation	Q42835-1		Description	Part #
	Description	Part #		
Resistors				
R1	100 K Ohm .25W 1%	C 5707-2		
R2	100 K Ohm .25W 1%	C 5707-2		
R7	100 K Ohm .25W 1%	C 5707-2		
R8	100 K Ohm .25W 1%	C 5707-2		
R9	10 K Ohm .25W 1%	C 4859-2		
R10	10 K Ohm .25W 1%	C 4859-2		
R11	4.99K Ohm .25W 1%	C 3686-0		
R12	4.99K Ohm .25W 1%	C 3686-0		
R13	8.25 K Ohm .25W 1%	C 7810-2		
R15	14.3 K Ohm .25W 1%	C 6165-2		
R17	8.25 K Ohm .25W 1%	C 7810-2		
R19	820 Ohm .25W	C 3301-6		
R20	820 Ohm .25W	C 3301-6		
R21	10 K Ohm .25W 1%	C 4859-2		
R22	10 K Ohm .25W 1%	C 4859-2		
R23	1.5 K Ohm .25W	C 2876-8		
R24	1.5 K Ohm .25W	C 2876-8		
R25	820 Ohm .25W	C 3301-6		
R26	820 Ohm .25W	C 3301-6		
R27	1.8 M Ohm .25W	C 4236-3		
R28	1.8 M Ohm .25W	C 4236-3		
R29	6.81 K Ohm .25W 1%	C 6104-1		
R30	6.81 K Ohm .25W 1%	C 6104-1		

DISPLAY MODULE (CONT)

Circuit Designation	Q42835-1		Description	Part #
	Description	Part #		
R31	1.69 K Ohm .25W 1%	C 7434-1		
R32	1.69 K Ohm .25W 1%	C 7434-1		
R33	953 Ohm .25W 1%	C 6317-9		
R34	953 Ohm .25W 1%	C 6317-9		
R35	536 Ohm .25W 1%	C 5044A8		
R36	536 Ohm .25W 1%	C 5044A8		
R37	300 Ohm .25W	C 3801-5		
R38	300 Ohm .25W	C 3801-5		
R39	390 Ohm .25W	C 6495-3		
R40	390 Ohm .25W	C 6495-3		
R41	22 K Ohm .25W	C 3302-4		
R42	22 K Ohm .25W	C 3302-4		
R43	22 K Ohm .25W	C 3302-4		
R44	22 K Ohm .25W	C 3302-4		
R45	22 K Ohm .25W	C 3302-4		
R46	22 K Ohm .25W	C 3302-4		
R47	22 K Ohm .25W	C 3302-4		
R48	22 K Ohm .25W	C 3302-4		
R49	22 K Ohm .25W	C 3302-4		
R50	22 K Ohm .25W	C 3302-4		
R51	390 Ohm .25W	C 6495-3		
R52	390 Ohm .25W	C 6495-3		
R53	390 Ohm .25W	C 6495-3		
R54	390 Ohm .25W	C 6495-3		

DISPLAY MODULE (CONT)

Circuit Designation	Q42835-1		Description	Part #
	Description	Part #		
R55	390 Ohm .25W	C 6495-3		
R56	390 Ohm .25W	C 6495-3		
R57	390 Ohm .25W	C 6495-3		
R58	390 Ohm .25W	C 6495-3		
R59	390 Ohm .25W	C 6495-3		
R60	390 Ohm .25W	C 6495-3		
R61	1.0 M Ohm .25W	C 3198-6		
R62	1.0 M Ohm .25W	C 3198-6		
R63	3.3 M Ohm .25W	C 4237-1		
R64	3.3 M Ohm .25W	C 4237-1		
R66	47 K Ohm .25W	C 2880-0		
R68	1 K Ohm .25W	C 2627-5		
R69	5.1 M Ohm .25W	C 4126-6		
R70	5.1 M Ohm .25W	C 4126-6		
R71	820 Ohm .25W	C 3301-6		
R72	820 Ohm .25W	C 3301-6		
R73	1.8 K Ohm .25W	C 3807-2		
R74	1.8 K Ohm .25W	C 3807-2		
R75	3.3 K Ohm .25W	C 2629-1		
R76	3.3 K Ohm .25W	C 2629-1		
R77	20 K Ohm .25W	C 5046-5		
R78	5K Ohm Helipot Trim	C 3670-4		
R79	470 K Ohm .25W	C 4225-6		
R80	470 K Ohm .25W	C 4225-6		

DISPLAY MODULE (CONT)

Circuit Designation	Q42835-1		Description	Part #
	Description	Part #		
R82	1.5 K Ohm .25W	C 2876-8		
R83	1.5 K Ohm .25W	C 2876-8		
Capacitors				
C1	27PF 100V	C 6813-7		
C2	27PF 100V	C 6813-7		
C3	.47µf 50V	C 6802-0		
C4	.47µf 50V	C 6802-0		
C5	.1µf 50V	C 6804-6		
C6	.1µf 50V	C 6804-6		
C7	.1µf 50V	C 6804-6		
C8	.1µf 50V	C 6804-6		
C9	.1µf 50V	C 6804-6		
C10	.1µf 50V	C 6804-6		
C11	.1µf 50V	C 6804-6		
C12	.1µf 50V	C 6804-6		
C13	.1µf 50V	C 6804-6		
C14	.1µf 50V	C 6804-6		
C15	.47µf 50V	C 6802-0		
C16	.47µf 50V	C 6802-0		
C17	.001µf 100V	C 6807-9		
C18	.001µf 100V	C 6807-9		
C19	.001µf 100V	C 6807-9		
C20	.001µf 100V	C 6807-9		
C21	.001µf 100V	C 6807-9		

DISPLAY MODULE (CONT)

Circuit Designation	Q42835-1		Description	Part #
	Description	Part #		
C22	.001 μ f 100V	C 6807-9		
C23	.001 μ f 100V	C 6807-9		
C24	.001 μ f 100V	C 6807-9		
C25	.001 μ f 100V	C 6807-9		
C26	.001 μ f 100V	C 6807-9		
C27	.1 μ f 50V	C 6804-6		
C28	.1 μ f 50V	C 6804-6		
Diodes				
D1	1N4148	C 3181-2		
D2	1N4148	C 3181-2		
D3	1N4148	C 3181-2		
D4	1N4148	C 3181-2		
D5	1N4148	C 3181-2		
D6	1N4148	C 3181-2		
D7	1N4148	C 3181-2		
D8	1N4148	C 3181-2		
D9	1N4148	C 3181-2		
D10	1N4148	C 3181-2		
D11	1N4148	C 3181-2		
D12	1N4148	C 3181-2		
LEDs				
E1	Yellow LED	C 4431-0		
E2	Yellow LED	C 4431-0		
E1	Green LED	C 7863-1		

DISPLAY MODULE (CONT)

Circuit Designation	Q42835-1		Description	Part #
	Description	Part #		
E2	Green LED	C 7863-1		
E3	Green LED	C 7863-1		
E4	Green LED	C 7863-1		
E5	Green LED	C 7863-1		
E6	Green LED	C 7863-1		
E7	Green LED	C 7863-1		
E8	Green LED	C 7863-1		
E9	Green LED	C 7863-1		
E10	Green LED	C 7863-1		
E11	Green LED	C 7863-1		
E12	Green LED	C 7863-1		
E13	Green LED	C 7863-1		
E14	Green LED	C 7863-1		
E15	Green LED	C 7863-1		
E16	Green LED	C 7863-1		
E17	Amber LED	C 4342-9		
Integrated Circuits				
U1	MC33079P	C 7558-7		
U2	MC33079P	C 7558-7		
U3	LM339N	C 4345-2		
U4	LM339N	C 4345-2		
U5	LM339N	C 4345-2		
U6	LM339N	C 4345-2		

DISPLAY MODULE (CONT)

Circuit Designation	Q42835-1		Description	Part #
	Description	Part #		
Misc.	16Pin Dip Cable	D 6990-2		
	Display Brd (Blank)	D 7547-9		

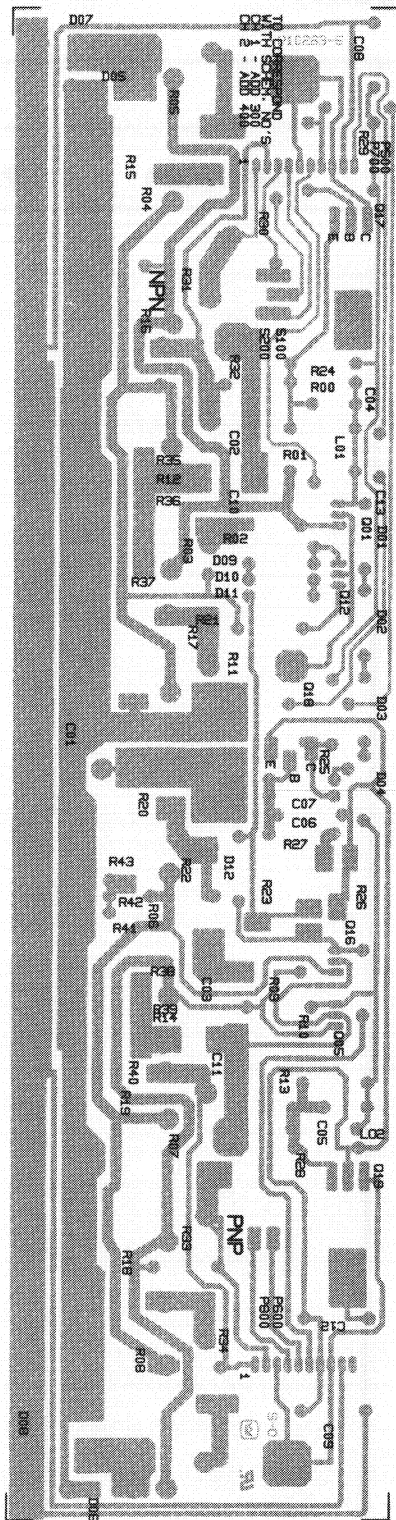


Fig. 8.3 Output Module (Q42822-9)

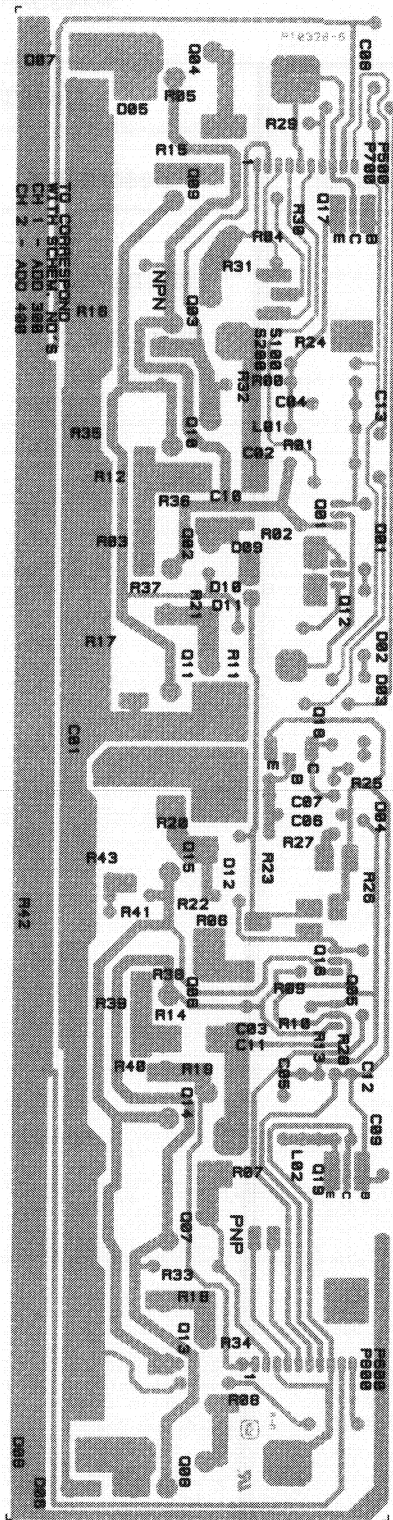


Fig. 8.4 Output Module (Q428941-7)

OUTPUT MODULE

Circuit Designation	Q42822-9		Q42941-6	
	Description	Part #	Description	Part #
Resistors				
R300 R400	68 Ohm .25W	C 6079-5		
R301 R401	100 Ohm .25W	C 2872-7		
R302 R402	5.6 Ohm .5W	C 7778-1		
R303 R403	.2 Ohm 5W	C 6486-2		
R304 R404	.2 Ohm 5W	C 6486-2		
R305 R405	.2 Ohm 5W	C 6486-2		
R306 R406	.2 Ohm 5W	C 6486-2		
R307 R407	.2 Ohm 5W	C 6486-2		
R308 R408	.2 Ohm 5W	C 6486-2		
R309 R409	22 Ohm .25W	C 7779-9		
R310 R410	100 Ohm .25W	C 2872-7		
R311 R411	2.7 Ohm 10W	C 5862-5		
R312 R412	2.7 Ohm 1W	C 1001-4		
R313 R413	68 Ohm .25W	C 6079-5		
R314 R414	2.7 Ohm 1W	C 1001-4		

OUTPUT MODULE (CONT)

Circuit Designation	Q42822-9		Q42941-6	
	Description	Part #	Description	Part #
R315 R415	.2 Ohm 5W	C 6486-2		
R316 R416	.2 Ohm 5W	C 6486-2		
R317 R417	.2 Ohm 5W	C 6486-2		
R318 R418	.2 Ohm 5W	C 6486-2		
R319 R419	.2 Ohm 5W	C 6486-2		
R320 R420	.2 Ohm 5W	C 6486-2		
R321 R421	5.6 Ohm .5W	C 7778-1		
R322 R422	22 Ohm .25W	C 7779-9		
R323 R423	250 Ohm Lin Trimpot	C 6844-2		
R324 R424	13 K Ohm .25W	C 4300-7		
R325 R425	2.2 K Ohm .25W	C 2628-3		
R326 R426	250 Ohm Lin Trimpot	C 6844-2		
R327 R427	390 Ohm .25W	C 6495-3		
R328 R428	13 K Ohm .25W	C 4300-7		
R329 R429	51 Ohm .25W	C 6402-9		
R330 R430	102 Ohm .25W 1%	C 6626-3		

OUTPUT MODULE (CONT)

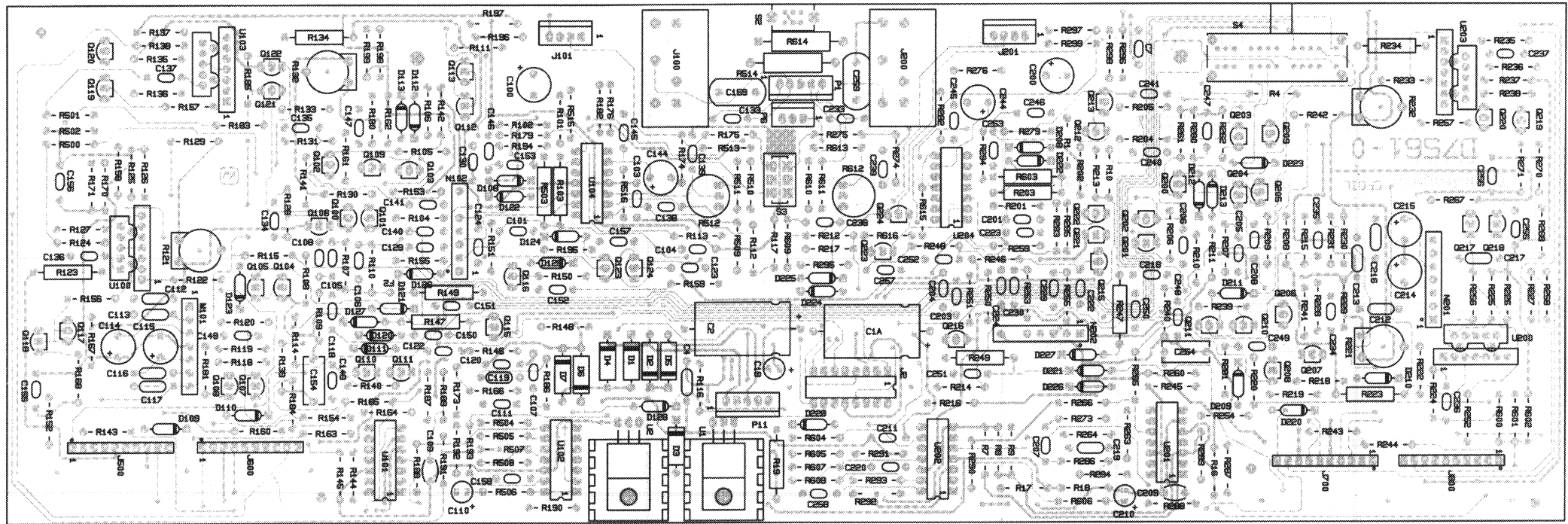
Circuit Designation	Q42822-9		Q42941-6	
	Description	Part #	Description	Part #
Capacitors				
C301 C401	.047 μ f 200V	C 3978-1		
C302 C402	.1 μ f 200V	C 2938-6		
C303 C403	.1 μ f 200V	C 2938-6		
C304 C404	.0022 μ f 100V	C 3285-1		
C305 C405	.0027 μ f 200V	C 3481-6		
C306 C406	.01 μ f 100V	C 6806-1		
C307 C407	.001 μ f 100V	C 6807-9		
C308 C408	180pF 100V	C 6810-3		
C312 C412	470pF 100V	C 6808-7		
C313 C413	.47 μ f 250V	C 7502-5		
Inductors				
L300 L400	2.5 μ H Coil	D 7407-6		
L301 L401	.470 μ H	C 3510-2		
L302 L402	.470 μ H	C 3510-2		
Diodes				
D301 D401	1N4004	C 2851-1		

OUTPUT MODULE (CONT)

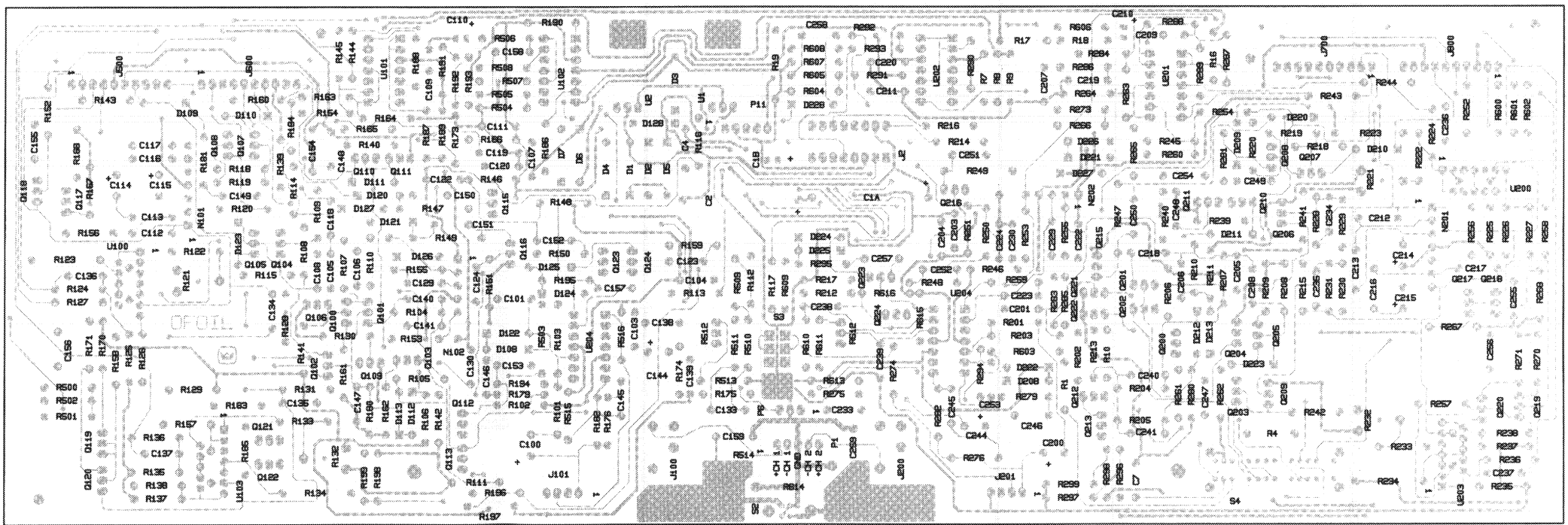
Circuit Designation	Q42822-9		Q42941-6	
	Description	Part #	Description	Part #
D302 D402	1N4004	C 2851-1		
D303 D403	1N4004	C 2851-1		
D304 D404	1N4004	C 2851-1		
D305 D405	MR822 Pwr Rect	C 8383-9		
D306 D406	MR822 Pwr Rect	C 8383-9		
D307 D407	MR822 Pwr Rect	C 8383-9		
D308 D408	1N4004	C 2851-1		
D309 D409	1N4004	C 2851-1		
D310 D410	1N4004	C 2851-1		
D311 D411	1N4004	C 2851-1		
Transistors				
Q317 Q417	MPS-U10 NPN	C 7271-7		
Q318 Q418	MPS8097 NPN	D 2962-5	C 8813-5	
Q319 Q419	MPSU60 PNP	C 7318-6		

OUTPUT MODULE (CONT)

Circuit Designation	Q42822-9		Q42941-6	
	Description	Part #	Description	Part #
Misc.	0 Ohm Jumper	C 5868-2		
	10P HDR	C 7057-0		
	Output Brd (Blank)	P10263-5		P10328-6



Component Side



Foil Side

Fig. 9.5 Main Module (Q42837-7)