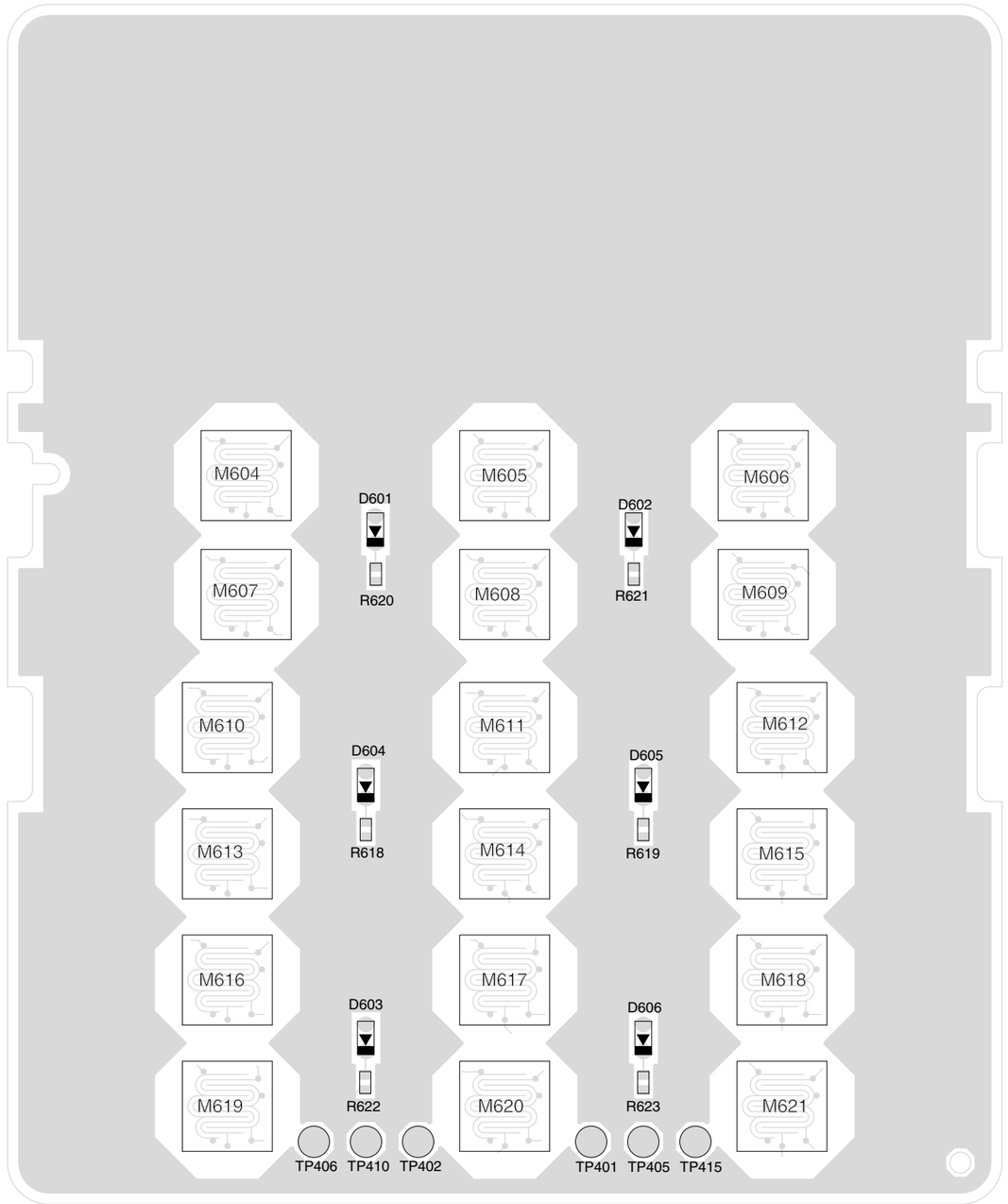
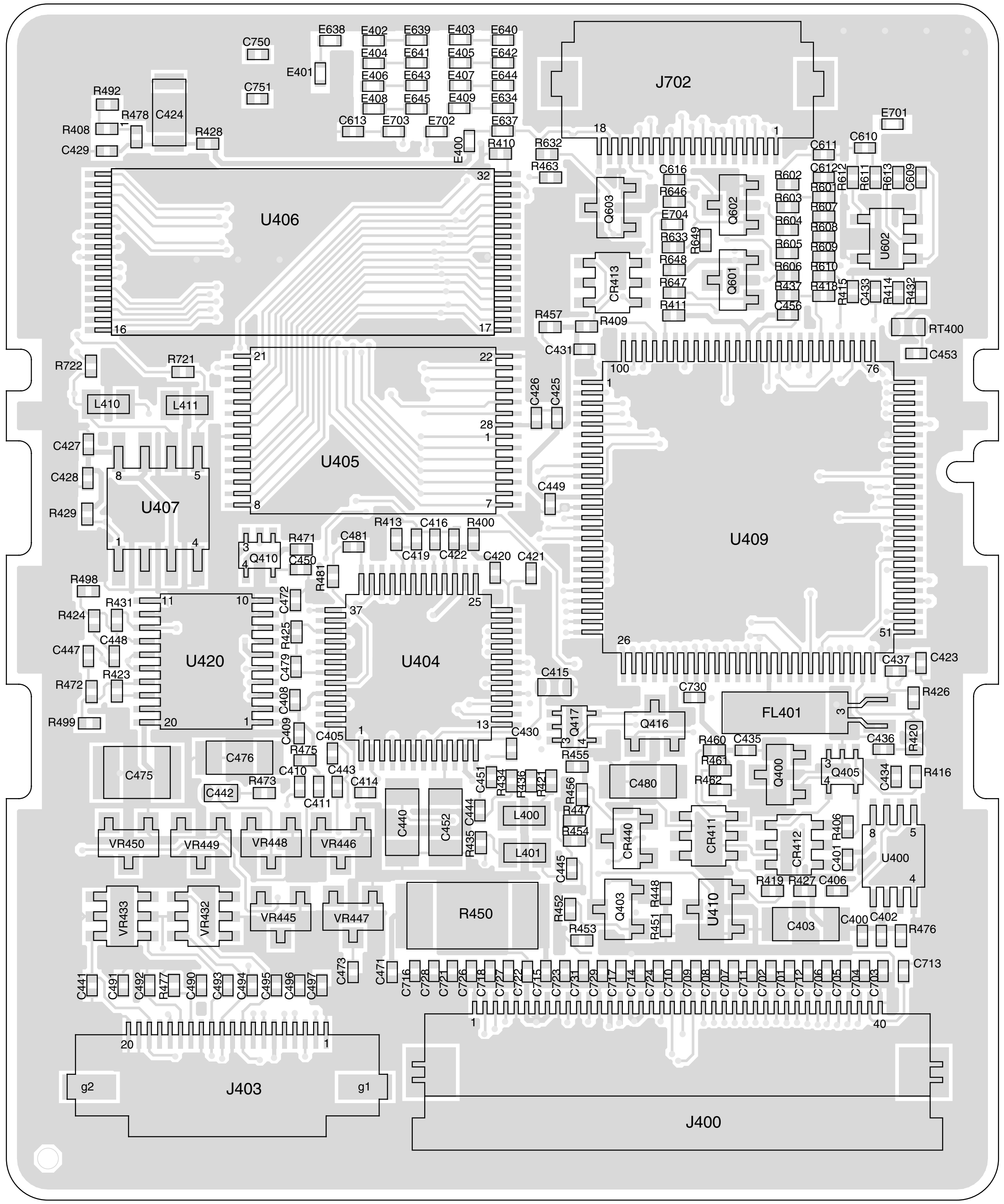
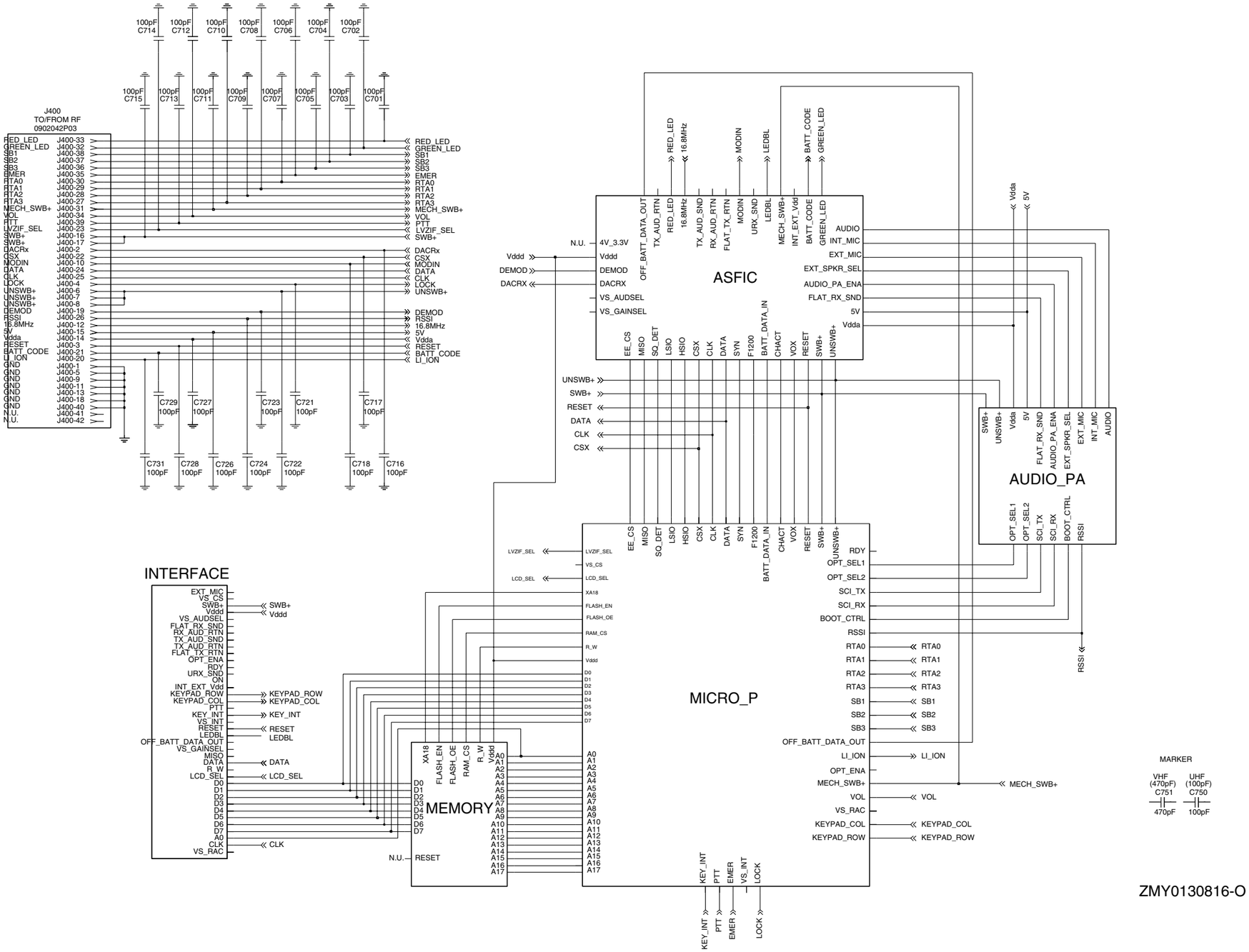
4.4 Controller Board Diagrams for Radios with Keypad and Display



Controller Board Top View for VHF, UHF1 & UHF2 Radios with Display and Keypad (PCB No. 8404056G02)

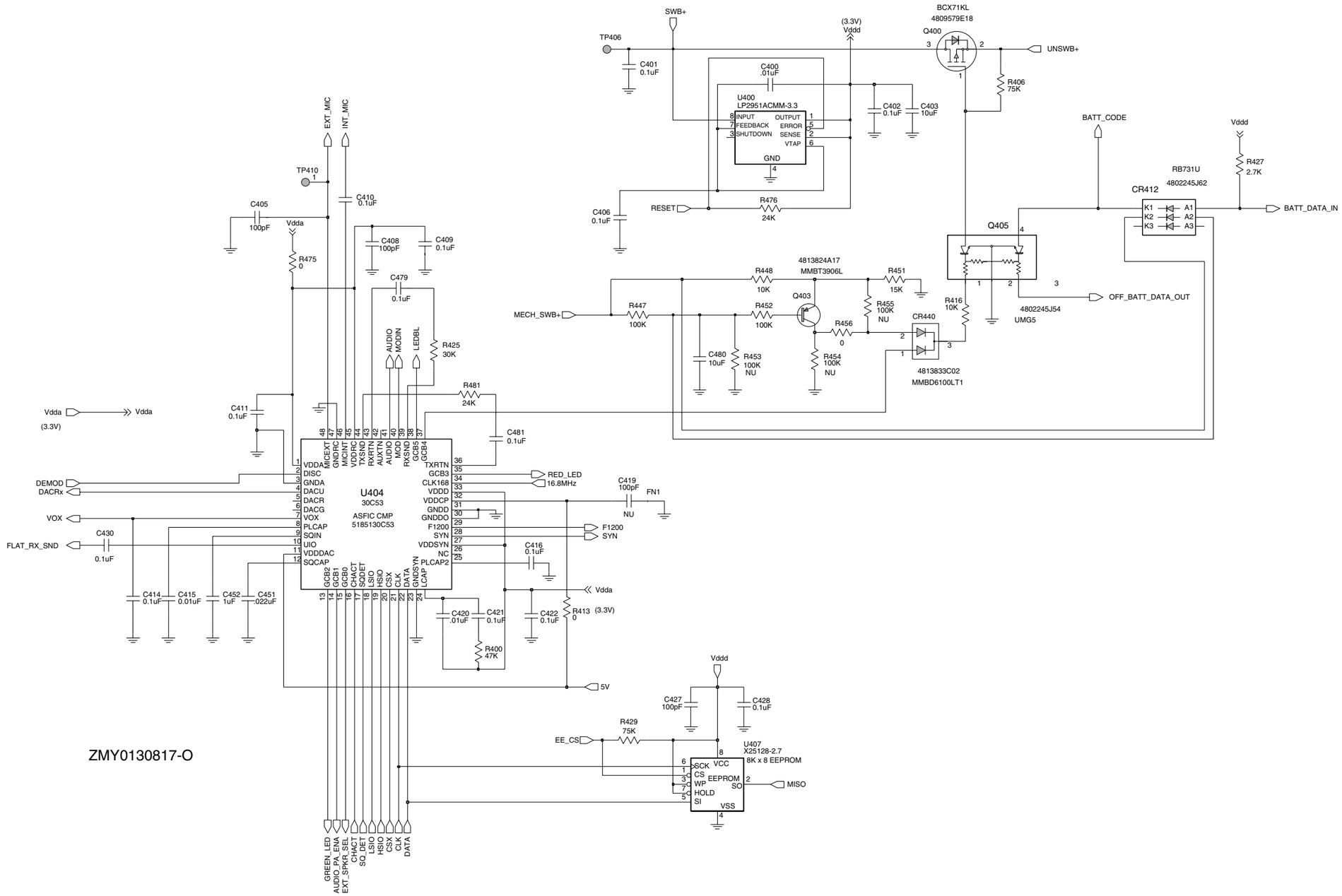


Controller Board Bottom View for VHF, UHF1 & UHF2 Radios
with Display and Keypad (PCB No. 8404056G02)



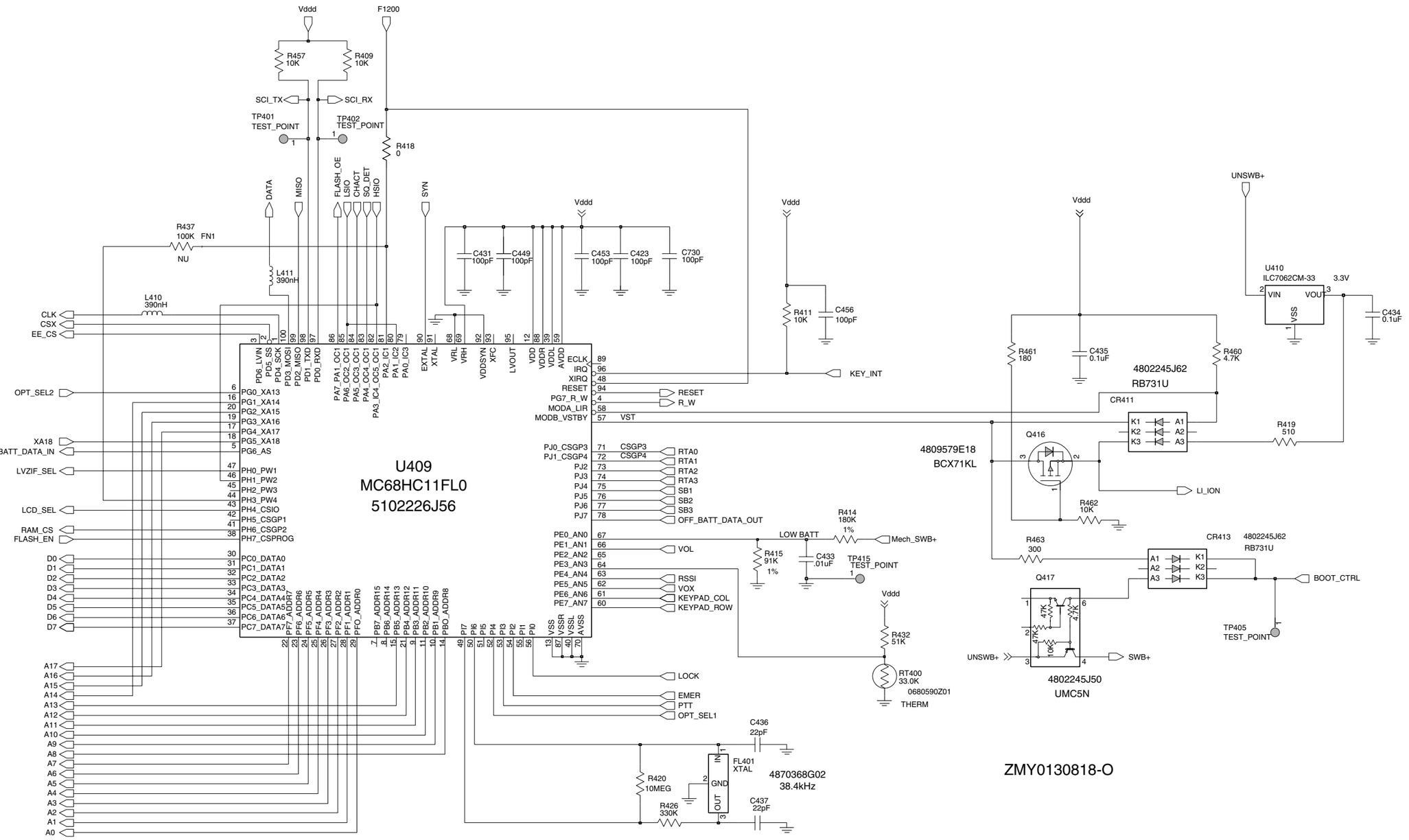
ZMY0130816-O

Complete Controller Schematic Diagram



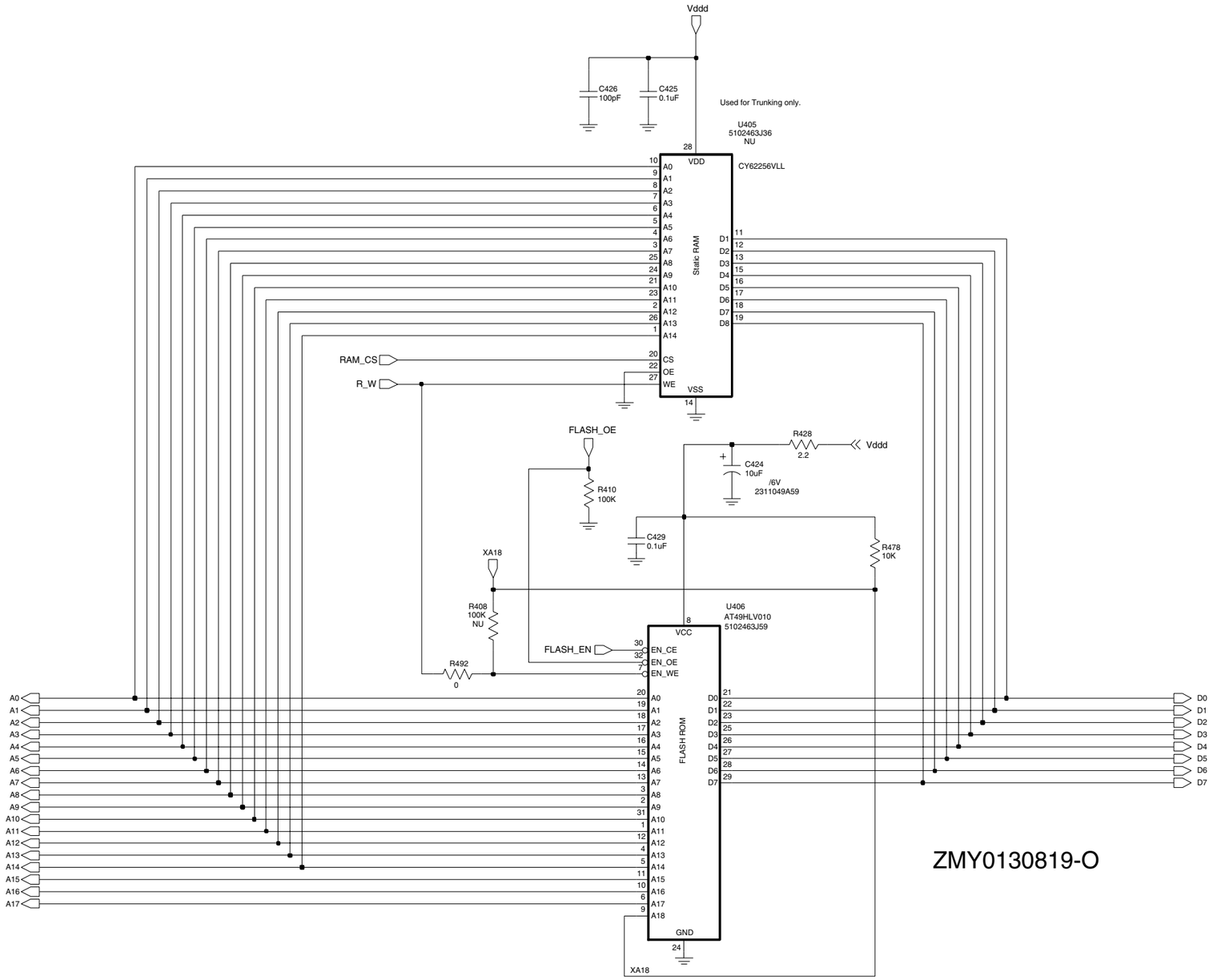
ZMY0130817-O

Controller ASFIC/ON_OFF Schematic Diagram

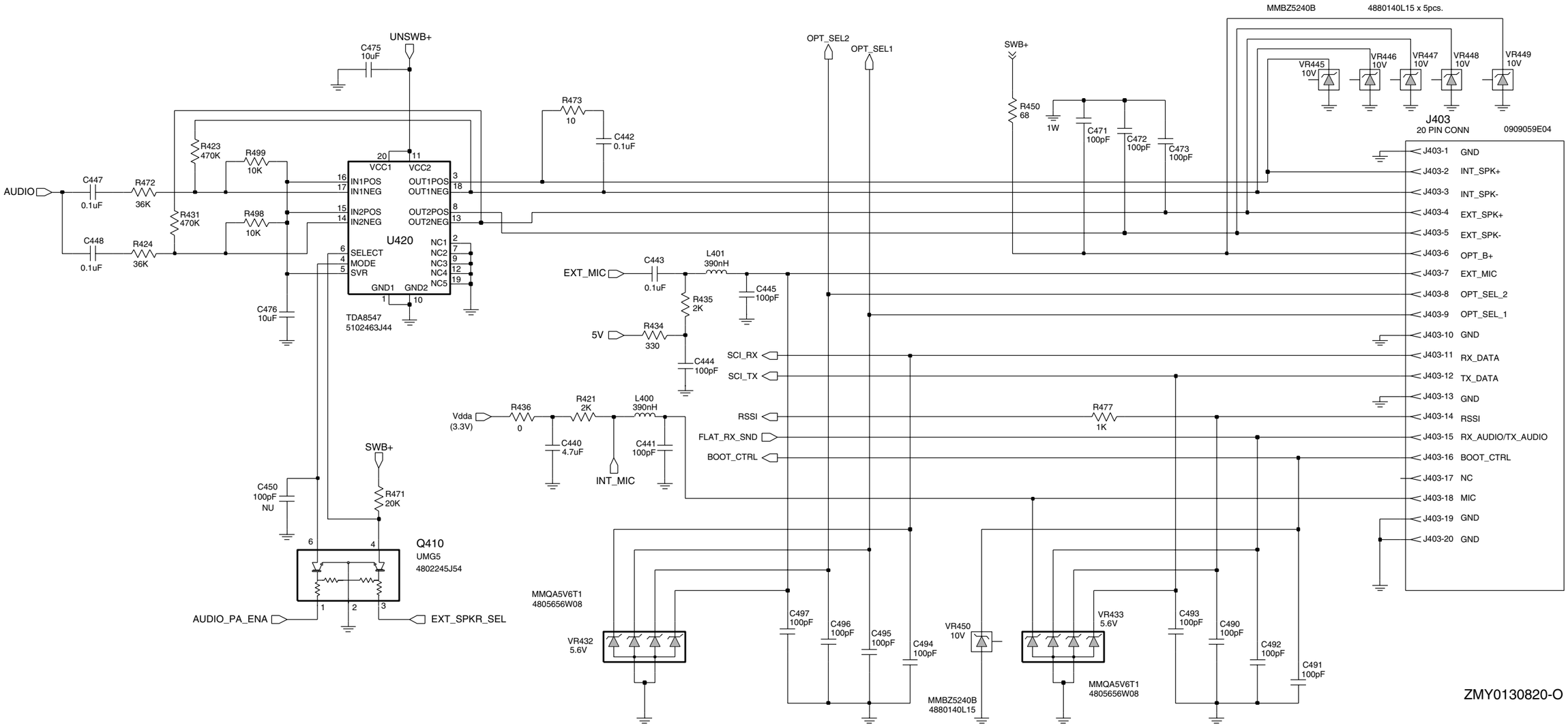


ZMY0130818-O

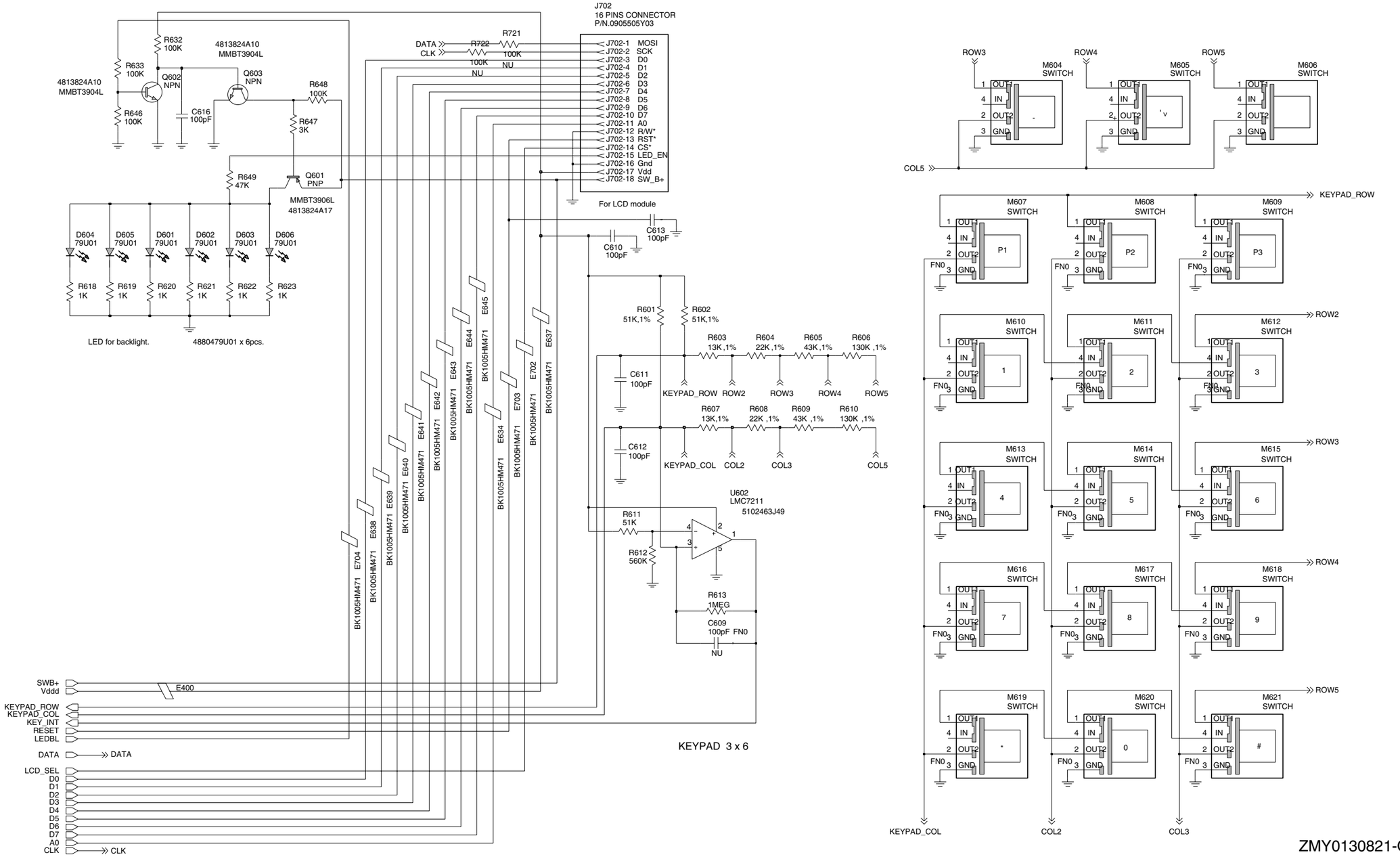
Controller Micro Processor Schematic Diagram



Controller Memory Schematic Diagram



Controller Audio Power Amplifier Schematic Diagram



ZMY0130821-O

Controller Interface Schematic Diagram

Controller VHF, UHF1, UHF2 Parts List PCB 8404056G02 (with Keypad/Display)

Circuit Ref	Motorola Part No.	Description
C400	2113743L41	10000 pF
C401	2113743M24	1.00uF
C402	2113743M24	1.00uF
C403	2113928D08	10.0uF
C405	2113743N50	100pF
C406	2113928N01	0.1uF
C408	2113743N50	100pF
C409	2113743M24	1.00uF
C410	2113928N01	0.1uF
C411	2113743M24	1.00uF
C414	2113743M24	1.00uF
C415	2185895Z01	0.01uF
C416	2113928N01	0.1uF
C420	2113743L41	10001 pF
C421	2113928N01	0.1uF
C422	2113743M24	1.00uF
C423	2113743N50	100pF
C424	2311049A59	10uF
C425	2113743M24	1.00uF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	1.00uF
C429	2113743M24	1.00uF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C433	2113743L41	10000 pF
C434	2113743M24	1.00uF
C435	2113743M24	1.00uF
C436	2113743N34	22pF
C437	2113743N34	22pF
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	0. 10 uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113928N01	0.1uF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C451	2113743M08	0.022uF
C452	2113743B29	1.00 uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C471	2113743N50	100pF
C472	2113743N50	100pF
C473	2113743N50	100pF
C475	2113743H14	10.0 uF
C476	2113928D08	10.0uF
C479	2113743M24	1.00uF
C480	2113928D08	10.0uF
C481	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C610	2113743N50	100pF
C611	2113743N50	100pF
C612	2113743N50	100pF
C613	2113743N50	100pF
C616	2113743N50	100pF
C701	2113743N50	100pF
C702	2113743N50	100pF
C703	2113743N50	100pF
C704	2113743N50	100pF
C705	2113743N50	100pF
C706	2113743N50	100pF
C707	2113743N50	100pF
C708	2113743N50	100pF
C709	2113743N50	100pF
C710	2113743N50	100pF
C711	2113743N50	100pF
C712	2113743N50	100pF
C713	2113743N50	100pF
C714	2113743N50	100pF
C715	2113743N50	100pF
C716	2113743N50	100pF
C717	2113743N50	100pF
C718	2113743N50	100pF
C721	2113743N50	100pF
C722	2113743N50	100pF
C723	2113743N50	100pF
C724	2113743N50	100pF
C726	2113743N50	100pF
C727	2113743N50	100pF
C728	2113743N50	100pF
C729	2113743N50	100pF
C730	2113743N50	100pF
C731	2113743N50	100pF
CR411	4802245J62	SCHOTTKY DIODE
CR412	4802245J62	SCHOTTKY DIODE
CR413	4802245J62	SCHOTTKY DIODE
CR440	4813833C02	DIODE DUAL 70V ‘
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
E400	2480640Z01	Ferrite Bead
E401 -		
E409	2480640Z01	Ferrite Bead Not on PCB 8404056G01
E634	2480640Z01	Ferrite Bead
E637	2480640Z01	Ferrite Bead
E638	2480640Z01	Ferrite Bead
E639	2480640Z01	Ferrite Bead
E640	2480640Z01	Ferrite Bead
E641	2480640Z01	Ferrite Bead
E642	2480640Z01	Ferrite Bead
E643	2480640Z01	Ferrite Bead
E644	2480640Z01	Ferrite Bead
E645	2480640Z01	Ferrite Bead
E702	2480640Z01	Ferrite Bead

Circuit Ref	Motorola Part No.	Description
E703	2480640Z01	Ferrite Bead
E704	2480640Z01	Ferrite Bead
FL401	4870368G02	CLOCK OSC XTAL
J400	0902042P03	40PIN connector
J403	0909059E04	ZIF 20 POS connector
J702	0905505Y03	CONN ZIF HORIZONTAL
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
Q400	4809579E18	TSTR MOSFET
Q403	4813824A17	XSTR PNP40V
Q405	4802245J54	Dual NPN
Q410	4802245J54	Dual NPN
Q416	4809579E18	TSTR MOSFET
Q417	4809939C05	DUAL NPN/PNP
Q601	4813824A17	XSTR PNP40V
Q602	4813824A10	NPN 40V .2A
Q603	4813824A10	NPN 40V .2A
R400	0662057N15	47K
R406	0662057N20	75K
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057M98	10K
R418	0662057M01	0
R419	0662057M67	0

Circuit Ref	Motorola Part No.	Description
R420	0662057B46	10.0 MEG
R421	0662057M81	2K
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R426	0662057N35	330K
R427	0662057M84	2.7K
R428	0662057M10	2.2
R429	0662057N20	75K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2K
R436	0662057M01	0
R447	0662057N23	100K
R448	0662057M98	10K
R450	0683962T45	CHIP 68
R451	0662057N03	15K
R452	0662057N23	100K
R456	0662057M01	0
R457	0662057M98	10K
R460	0662057M90	4.7K
R461	0662057M56	180
R462	0662057M98	10K
R463	0662057M61	300
R471	0662057N06	20K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N08	24K

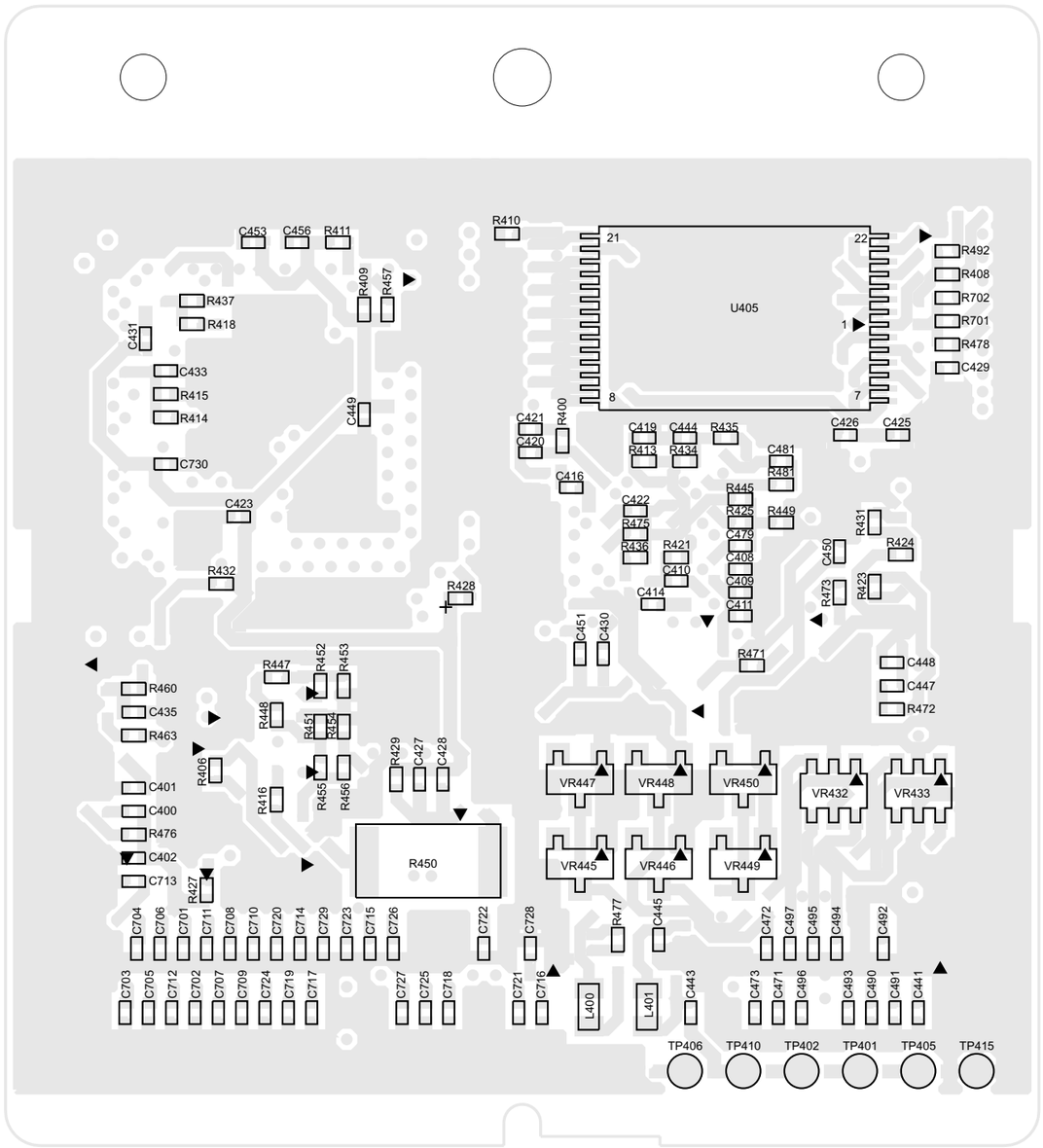
Circuit Ref	Motorola Part No.	Description
R477	0662057M74	1K
R478	0662057M98	10K
R481	0662057N08	24K
R492	0662057M01	0
R498	0662057M98	10K
R499	0662057M98	10K
R601	0662057V20	51k
R602	0662057V20	51k
R603	0662057V05	13K
R604	0662057V11	22K
R605	0662057V18	43K
R606	0662057V30	130K
R607	0662057V05	13K
R608	0662057V11	22K
R609	0662057V18	43K
R610	0662057V30	130K
R611	0662057N16	51K
R612	0662057N41	560K
R613	0662057N47	1.0 MEG
R618	0662057M74	1K
R619	0662057M74	1K
R620	0662057M74	1K
R621	0662057M74	1K
R622	0662057M74	1K
R623	0662057M74	1K
R632	0662057N23	100K
R633	0662057N23	100K
R646	0662057N23	100K
R647	0662057M85	3K
R648	0662057N23	100K

Circuit Ref	Motorola Part No.	Description
R649	0662057N15	47K
RT400	0680590Z01	33K
U400	5102463J40	“ 3.3V,”
U404	5185130C53	IC ASFIC_CMP_R1
U405	5102463J36	SRAM 32K x 8 Indust Temp
U406	*5102463J60	512K x 8 FLASH ROM
U407	*5102463J64	16K x 8 SPI SERIAL EEPROM
U409	5102226J56	uPHC11FLO
U410	5102463J57	“REGULATOR 3.3V,”
U420	5102463J44	AUDIO PA
U602	5102463J49	COMPARATOR
VR432	4805656W08	5.6v ZENER
VR433	4805656W08	5.6v ZENER
VR445	4880140L15	10V ZENER
VR446	4880140L15	10V ZENER
VR447	4880140L15	10V ZENER
VR448	4880140L15	10V ZENER
VR449	4880140L15	10V ZENER
VR450	4880140L15	10V ZENER
	8404056G02	CONTROLLER PCB AOBA WITH KEY

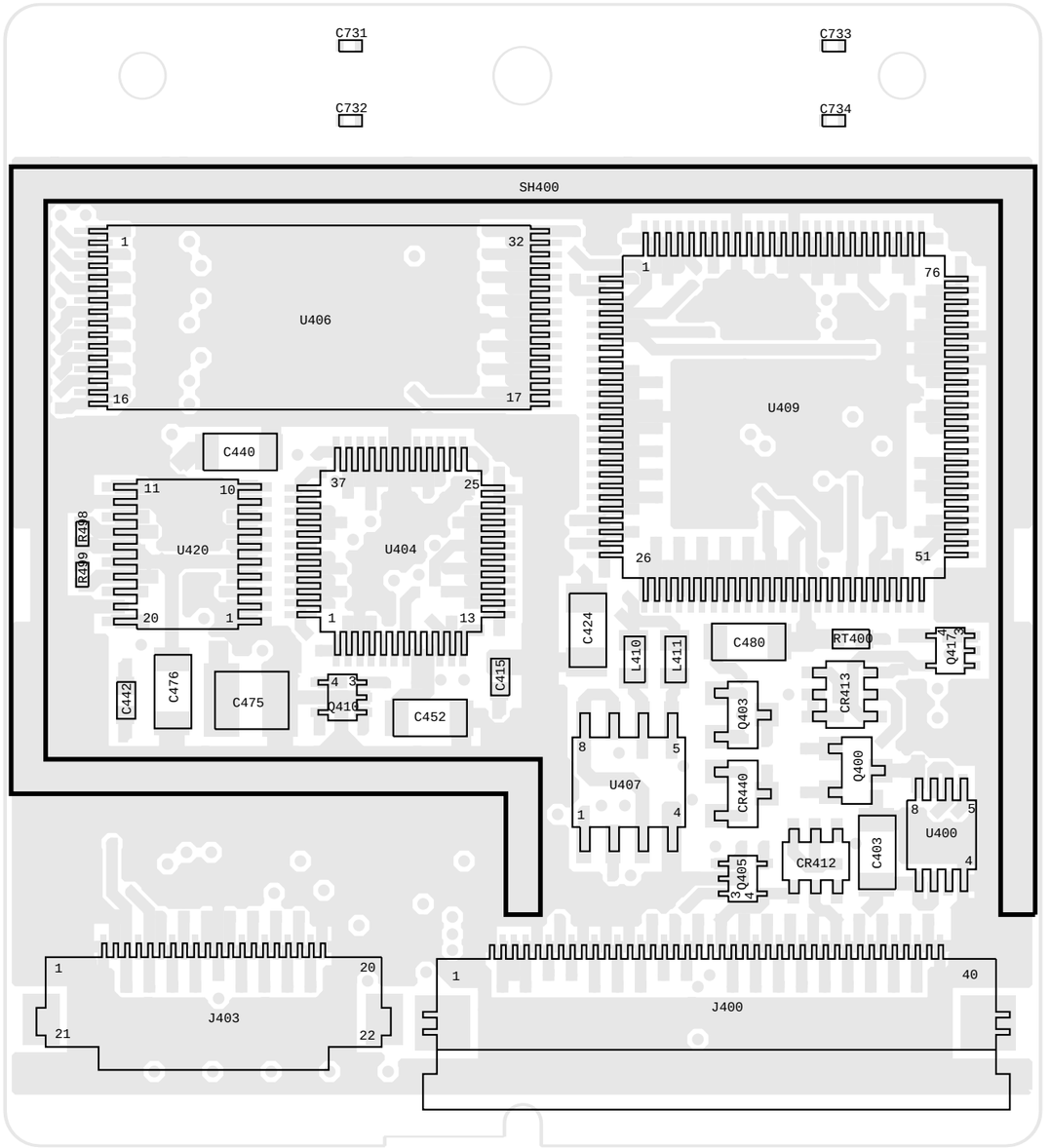
*Motorola Depot Servicing only

4.5 Controller PCB-Schematics for Radios without Keypad and Display

ZMY0130794-O

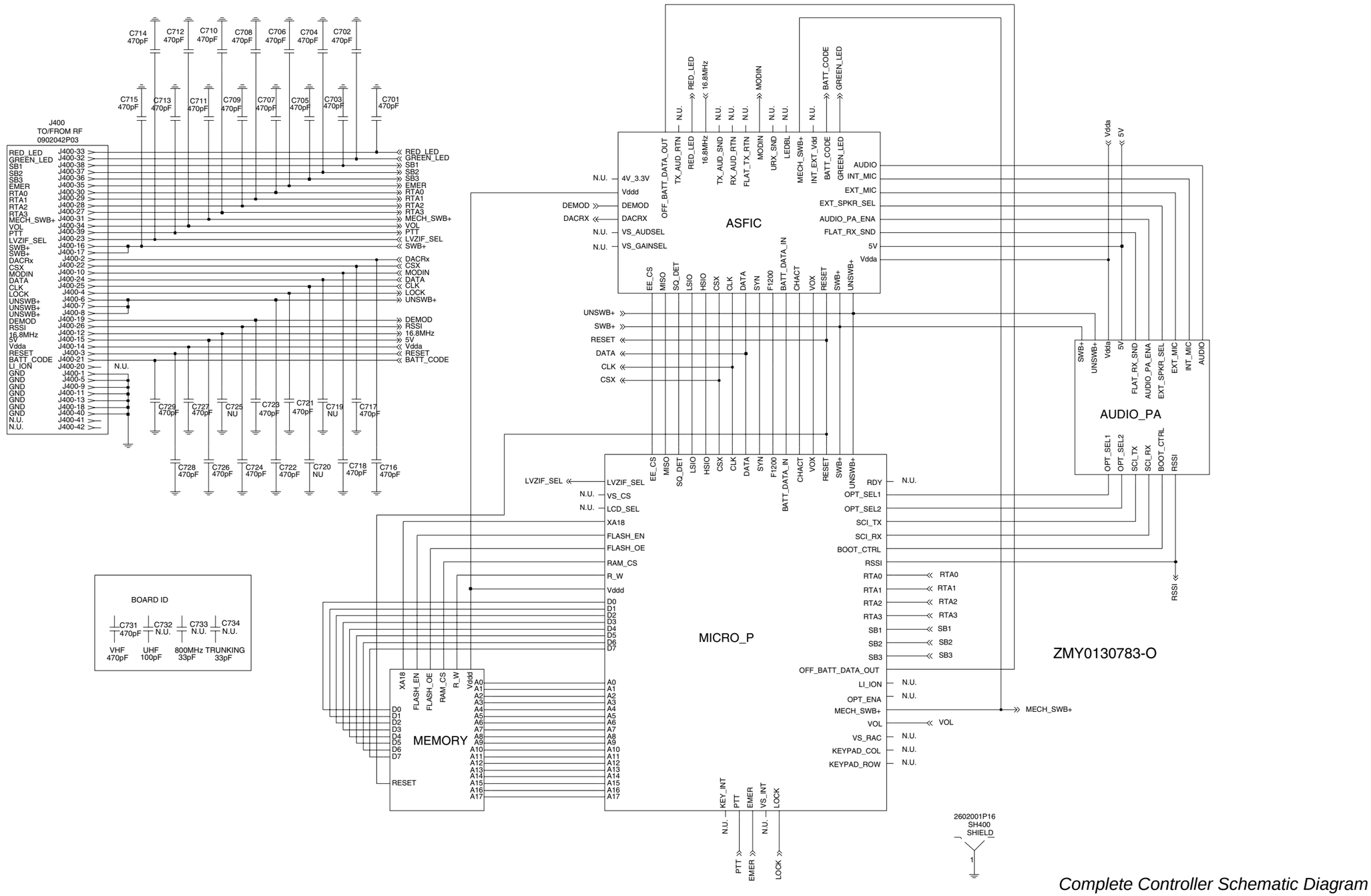


Controller Board Top View for VHF, UHF1 & UHF2 Radios without Display and Keypad *(PCB No. 8404051G07)*

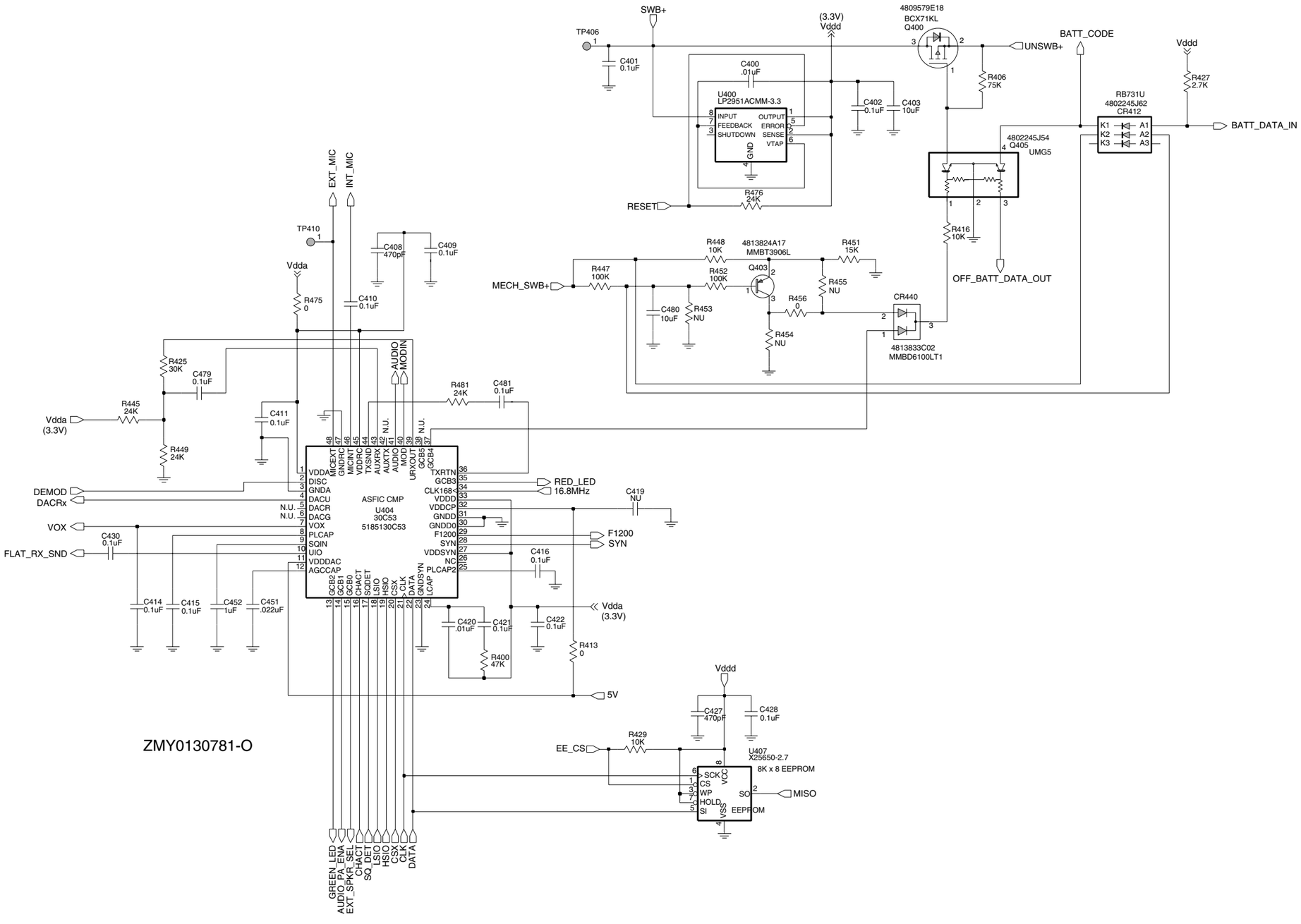


ZMY0130795-O

Controller Board Bot View for VHF, UHF1 & UHF2 Radios without Display and Keypad *(PCB No. 8404051G07*

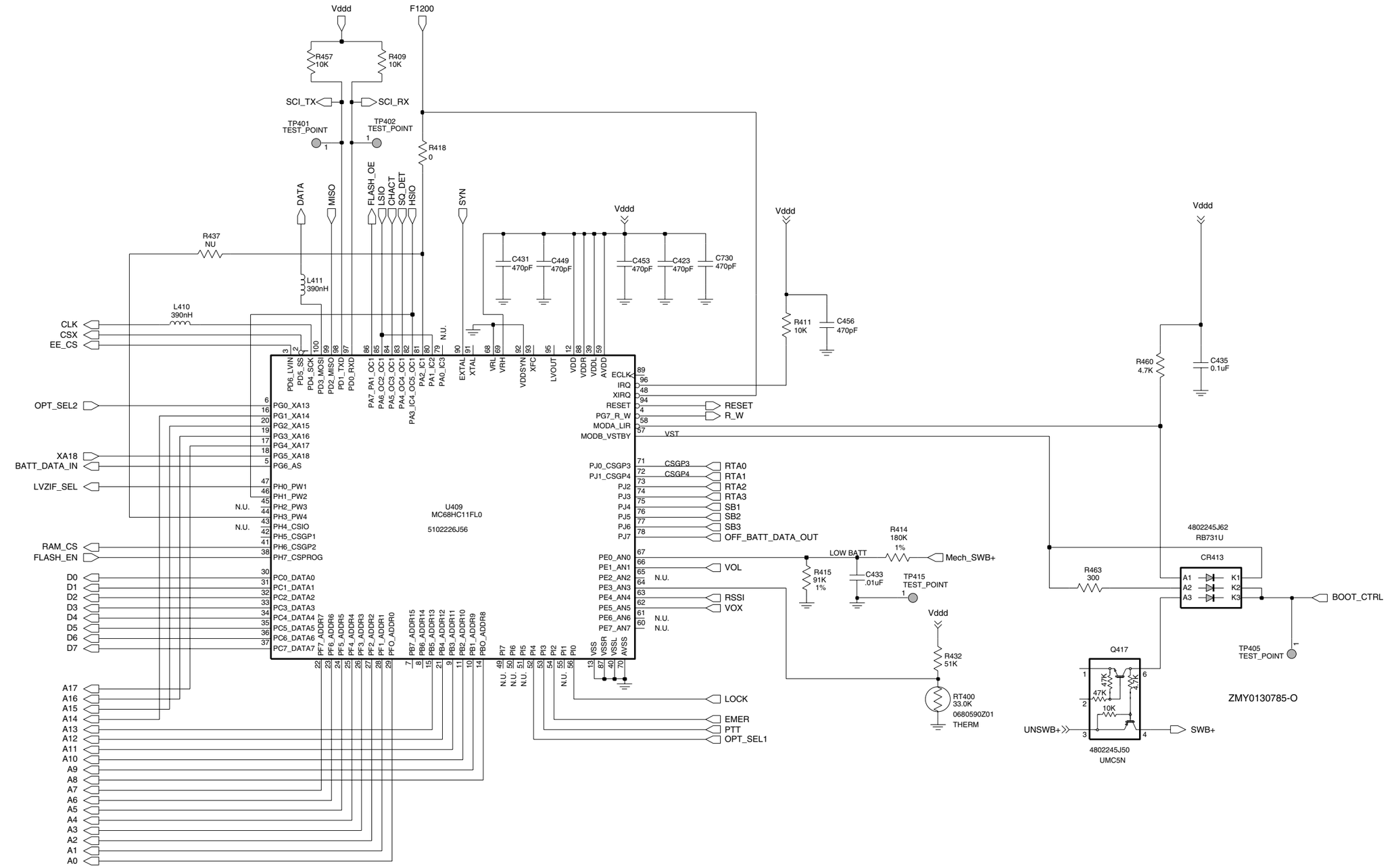


Complete Controller Schematic Diagram

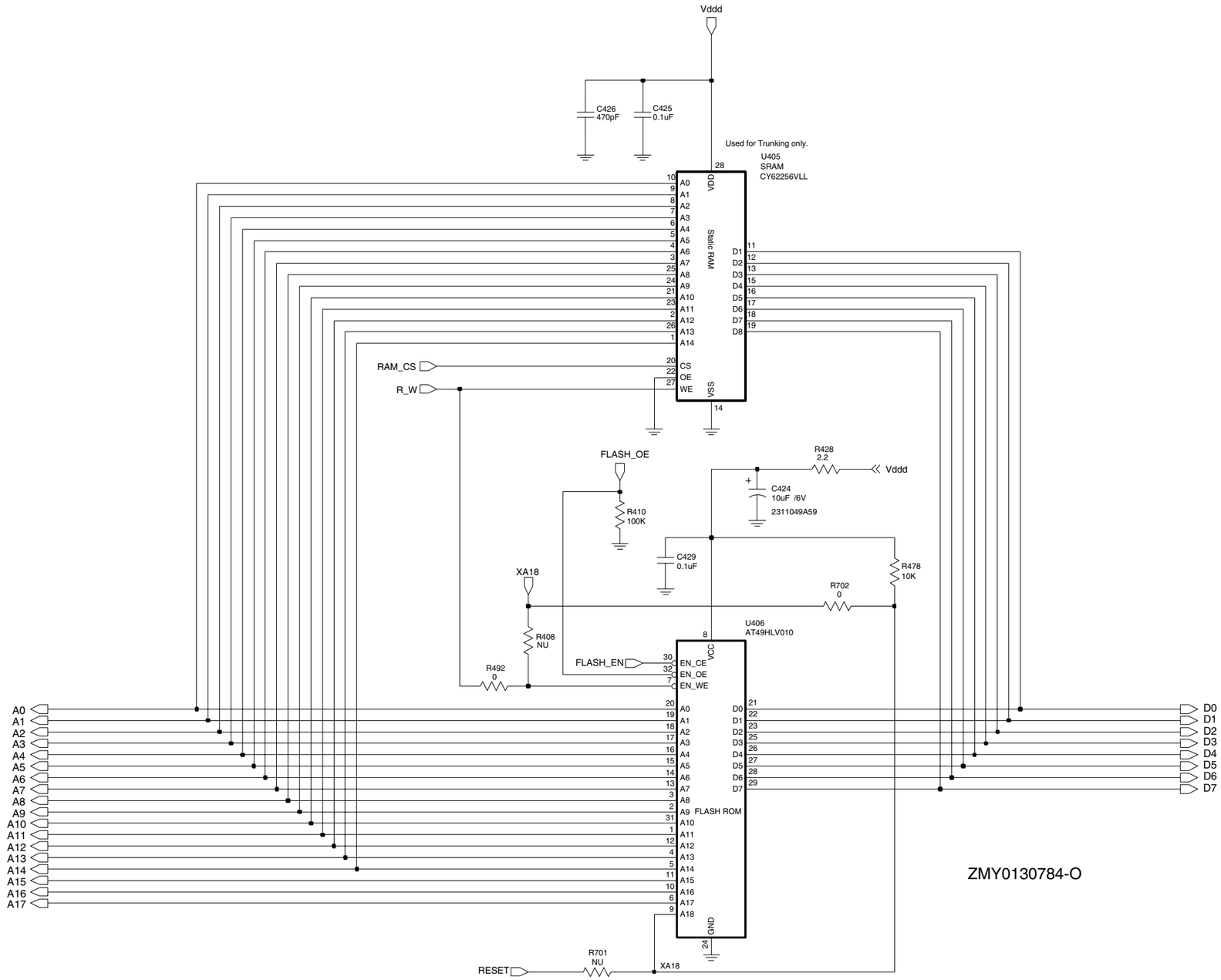


ZMY0130781-O

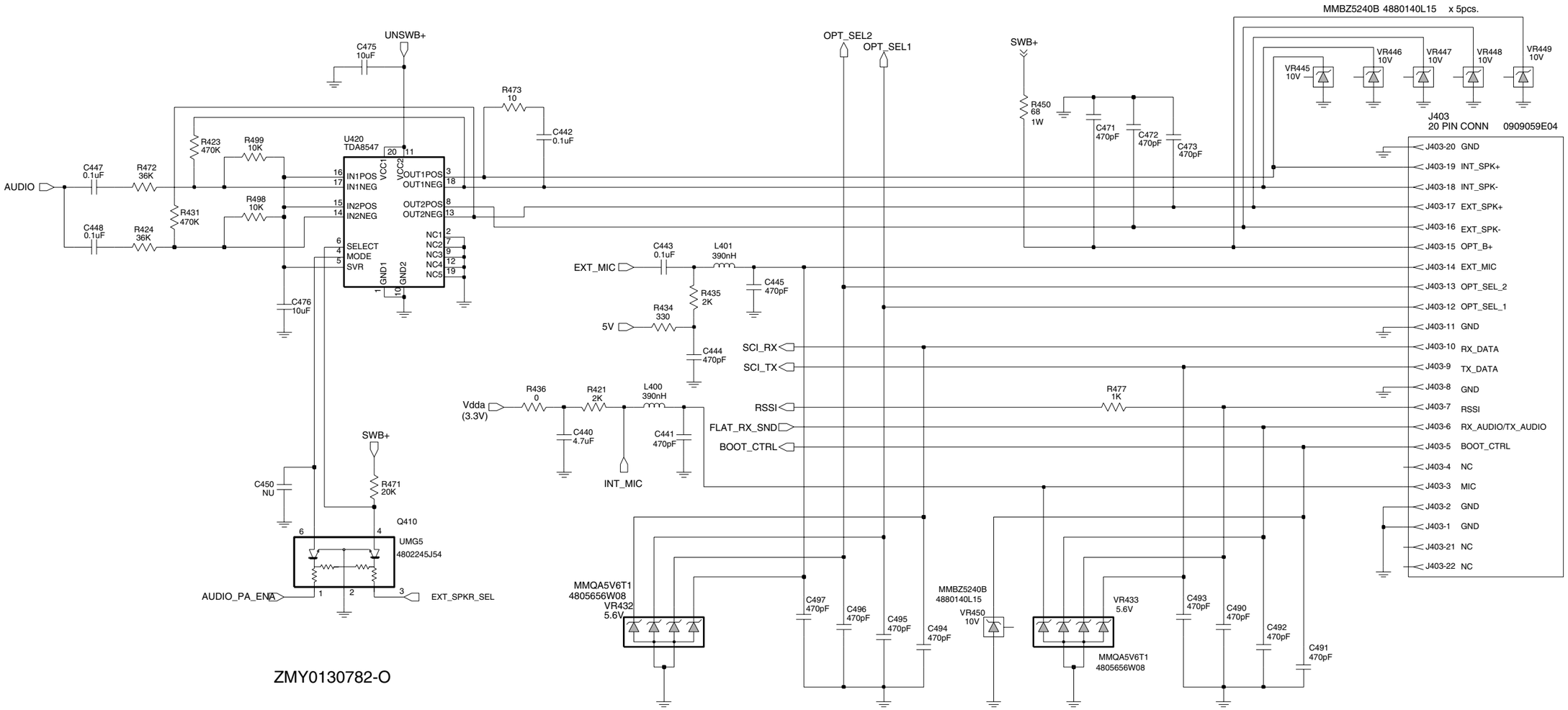
Controller ASFIC/ON_OFF Schematic Diagram



Controller Micro Processor Schematic Diagram



Controller Memory Schematic Diagram



ZMY0130782-O

Controller Audio Power Amplifier Schematic Diagram

Controller Parts List for UHF1, UHF2 (PCB 8404051G07)

Circuit Ref	Motorola Part No.	Description
C400	2113743L41	0.01uF
C401	2113743M24	0.1uF
C402	2113743M24	0.1uF
C403	2113928D08	10uF
C408	2113743N50	100pF
C409	2113743M24	0.1uF
C410	2113928N01	0.1uF
C411	2113743M24	0.1uF
C414	2113743M24	0.1uF
C415	2185895Z01	0.1uF
C416	2113928N01	0.1uF
C420	2113743L41	0.01uF
C421	2113928N01	0.1uF
C422	2113743M24	0.1uF
C423	2113743N50	100pF
C424	2311049A59	10UF
C425	2113743M24	0.1uF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	0.1uF
C429	2113743M24	0.1uF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C433	2113743L41	0.01uF
C435	2113743M24	0.1uF
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	10uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113928N01	0.1uF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C451	2113743M08	0.022uF
C452	2113743B29	1.00 uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C471	2113743N50	100pF
C472	2113743N50	100pF
C473	2113743N50	100pF
C475	2113743H14	10.0uF
C476	2113928D08	10uF
C479	2113928N01	0.1uF
C480	2113928D08	10uF
C481	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C701	2113743N50	100pF
C702	2113743N50	100pF
C703	2113743N50	100pF
C704	2113743N50	100pF
C705	2113743N50	100pF
C706	2113743N50	100pF
C707	2113743N50	100pF
C708	2113743N50	100pF
C709	2113743N50	100pF
C710	2113743N50	100pF
C711	2113743N50	100pF
C712	2113743N50	100pF
C713	2113743N50	100pF
C714	2113743N50	100pF
C715	2113743N50	100pF
C716	2113743N50	100pF
C717	2113743N50	100pF
C718	2113743N50	100pF
C721	2113743N50	100pF
C722	2113743N50	100pF
C723	2113743N50	100pF
C724	2113743N50	100pF
C726	2113743N50	100pF
C727	2113743N50	100pF
C728	2113743N50	100pF
C729	2113743N50	100pF
C730	2113743N50	100pF
C732	2113743N50	100pF
CR412	4802245J62	Schottky Diode
CR413	4802245J62	Schottky Diode
CR440	4813833C02	Dual Diode Common Cathode
J400	0902042P03	40 Pins Connector
J403	0909059E04	20 Pins Connector
L400	2462587Q42	390NH 10%
L401	2462587Q42	390NH 10%
L410	2462587Q42	390NH 10%
L411	2462587Q42	390NH 10%
Q400	4809579E18	MOSFET P-CHAN TP010IT
Q403	4813824A17	XSTR PNP40V .2A
Q405	4802245J54	UMG5N DIGITAL TSTR
Q410	4802245J54	UMG5N DIGITAL TSTR
Q417	4809939C05	DUAL NPN/PNP TSTR
R400	0662057N15	47K
R406	0662057N20	75K
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057M98	10K
R418	0662057M01	0
R421	0662057M81	2K
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R427	0662057M84	2.7K
R428	0662057M10	2.2
R429	0662057N20	75K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2K
R436	0662057M01	0
R445	0662057N08	24K
R447	0662057N23	100K
R448	0662057M98	10K
R449	0662057N08	24K
R450	0683962T45	68,1 W
R451	0662057N03	15K
R452	0662057N23	100K
R456	0662057M01	0
R457	0662057M98	10K
R460	0662057M90	4.7K
R463	0662057M61	300
R471	0662057N06	20K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N08	24K
R477	0662057M74	1K
R478	0662057M98	10K
R481	0662057N08	24K
R492	0662057M01	0
R498	0662057M98	10K
R499	0662057M98	10K
R702	0662057M01	0
RT400	0680590Z01	THERMISTOR 33K
SH400	2602001P16	Ctrl Shield
U400	5102463J40	3.3V Reg
U404	5185130C53	AsficCmp
U405	5102436J36	SRAM 32kX8 INDUST TEMp
U406	*5102463J60	Flash Rom 512KX8
U407	*5102463J64	EEPROM 16KX8
U409	5102226J56	uP HC11FLO
U420	5102463J44	Audio PA
VR432	4805656W08	5.6V Zener
VR433	4805656W08	5.6V Zener
VR445	4880140L15	10V Zener
VR446	4880140L15	10V Zener
VR447	4880140L15	10V Zener
VR448	4880140L15	10V Zener
VR449	4880140L15	10V Zener
VR450	4880140L15	10V Zener

* Motorola Depot Servicing only

Controller Parts List for VHF (for 8404051G07))

Circuit Ref	Motorola Part No.	Description
C400	2113743L41	0.01uF,10%
C401	2113743M24	0.1uF +80-20%
C402	2113743M24	0.1uF +80-20%
C403	2113928D08	10uF
C408	2113743N50	100pF
C409	2113743M24	0.1uF +80-20%
C410	2113928N01	0.1uF 10%
C411	2113743M24	0.1uF +80-20%
C414	2113743M24	0.1uF +80-20%
C415	2185895Z01	0.1uF
C416	2113928N01	0.1uF 10%
C420	2113743L41	0.01uF,10%
C421	2113928N01	0.1uF 10%
C422	2113743M24	0.1uF +80-20%
C423	2113743N50	100pF
C424	2311049A59	10UF 10%
C425	2113743M24	0.1uF +80-20%
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	0.1uF +80-20%
C429	2113743M24	0.1uF +80-20%
C430	2113928N01	0.1uF 10%
C431	2113743N50	100pF
C433	2113743L41	0.01uF,10%
C435	2113743M24	0.1uF +80-20%
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	10uF
C443	2113928N01	0.1uF 10%
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113928N01	0.1uF 10%
C448	2113928N01	0.1uF 10%
C449	2113743N50	100pF
C451	2113743M08	0.022uF,80%/-20%
C452	2113743B29	1.00 UF
C453	2113743N50	100pF
C456	2113743N50	100pF
C471	2113743N50	100pF
C472	2113743N50	100pF
C473	2113743N50	100pF
C475	2113743H14	10.0uF
C476	2113928D08	10uF
C479	2113928N01	0.1uF 10%
C480	2113928D08	10uF
C481	2113928N01	0.1uF 10%
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C701	2113743N50	100pF
C702	2113743N50	100pF
C703	2113743N50	100pF
C704	2113743N50	100pF
C705	2113743N50	100pF
C706	2113743N50	100pF
C707	2113743N50	100pF
C708	2113743N50	100pF
C709	2113743N50	100pF
C710	2113743N50	100pF
C711	2113743N50	100pF
C712	2113743N50	100pF
C713	2113743N50	100pF
C714	2113743N50	100pF
C715	2113743N50	100pF
C716	2113743N50	100pF
C717	2113743N50	100pF
C718	2113743N50	100pF
C721	2113743N50	100pF
C722	2113743N50	100pF
C723	2113743N50	100pF
C724	2113743N50	100pF
C726	2113743N50	100pF
C727	2113743N50	100pF
C728	2113743N50	100pF
C729	2113743N50	100pF
C730	2113743N50	100pF
C732	2113743N50	100pF
CR412	4802245J62	Schottky Diode
CR413	4802245J62	Schottky Diode
CR440	4813833C02	Dual Diode Common Cathode
J400	0902042P03	40 Pins Connector
J403	0909059E04	20 Pins Connector
L400	2462587Q42	390NH 10%
L401	2462587Q42	390NH 10%
L410	2462587Q42	390NH 10%
L411	2462587Q42	390NH 10%
Q400	4809579E18	MOSFET P-CHAN TP010IT
Q403	4813824A17	XSTR PNP40V .2A
Q405	4802245J54	UMG5N DIGITAL TSTR
Q410	4802245J54	UMG5N DIGITAL TSTR
Q417	4809939C05	DUAL NPN/PNP TSTR
R400	0662057N15	47K
R406	0662057N20	75K
R406	0662057N20	75K
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057M98	10K
R418	0662057M01	0
R421	0662057M81	2K
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R427	0662057M84	2.7K
R428	0662057M10	2.2
R429	0662057N20	75K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2K
R436	0662057M01	0
R445	0662057N08	24K
R446	0662057N31	220K
R447	0662057N23	100K
R448	0662057M98	10K
R449	0662057N08	24K
R450	0683962T45	68,1 W
R451	0662057N03	15K 5%
R452	0662057N23	100K
R456	0662057M01	0
R457	0662057M98	10K
R460	0662057M90	4.7K
R463	0662057M61	300
R471	0662057N06	20K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N08	24K
R477	0662057M74	1K
R478	0662057M98	10K
R481	0662057N08	24K
R492	0662057M01	0
R498	0662057M98	10K
R499	0662057M98	10K
R702	0662057M01	0
RT400	0680590Z01	THERMISTOR 33K
SH400	2602001P16	Ctrl Shield
U400	5102463J40	3.3V Reg
U404	5185130C53	Asfic Cmp
U405	5102463J36	SRAM 32K x 8 Indust Temp
U406	*5102463J60	512K x 8 FLASH ROM
U407	*5102463J64	16K x 8 SERIAL EEPROM
U409	5102226J56	uP HC11FLO
U420	5102463J44	Audio PA
VR432	4805656W08	5.6V Zener
VR433	4805656W08	5.6V Zener
VR445	4880140L15	10V ZENER
VR446	4880140L15	10V ZENER
VR447	4880140L15	10V ZENER
VR448	4880140L15	10V ZENER
VR449	4880140L15	10V ZENER
VR450	4880140L15	10V ZENER

* Motorola Depot Servicing only