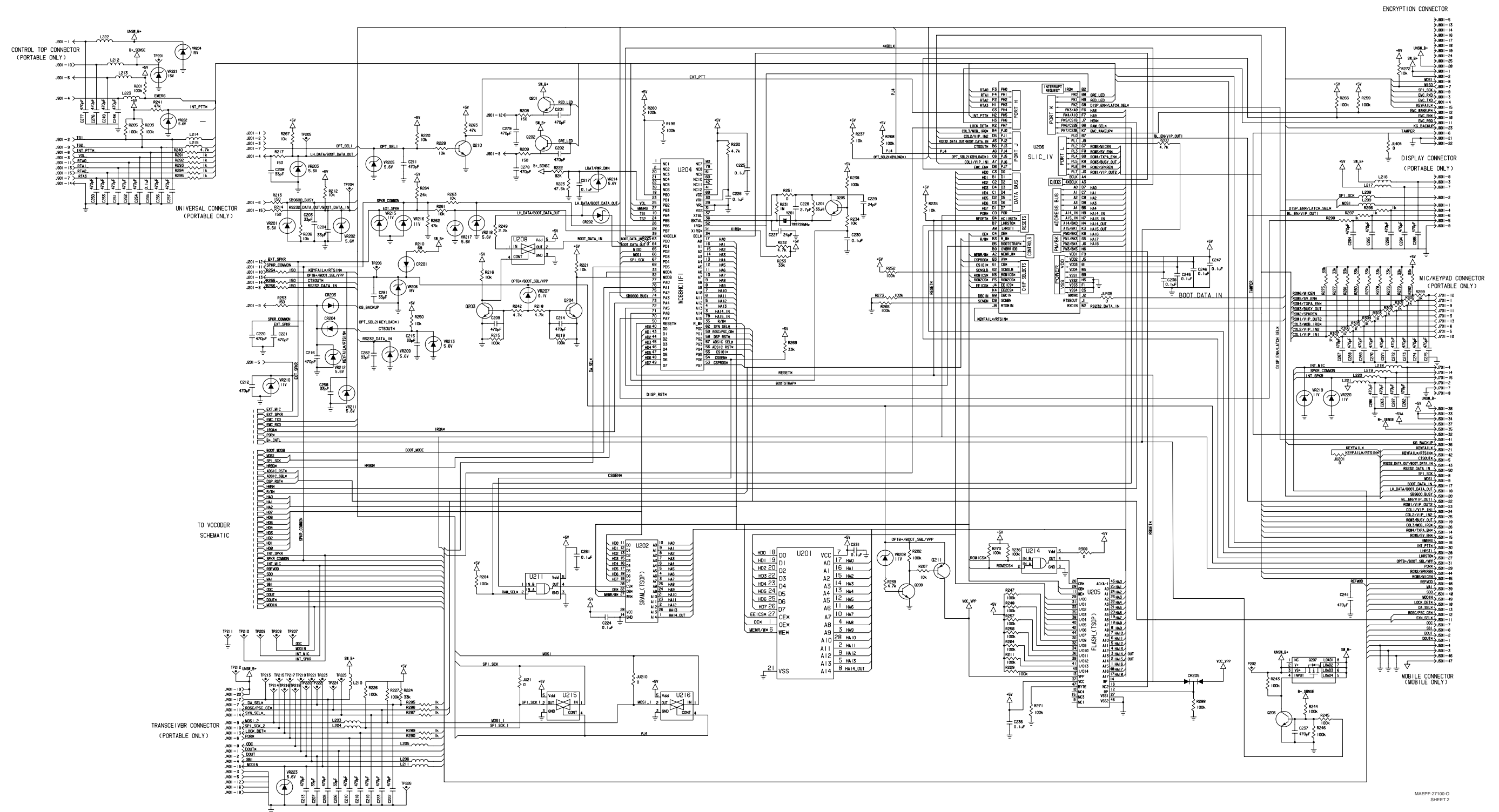
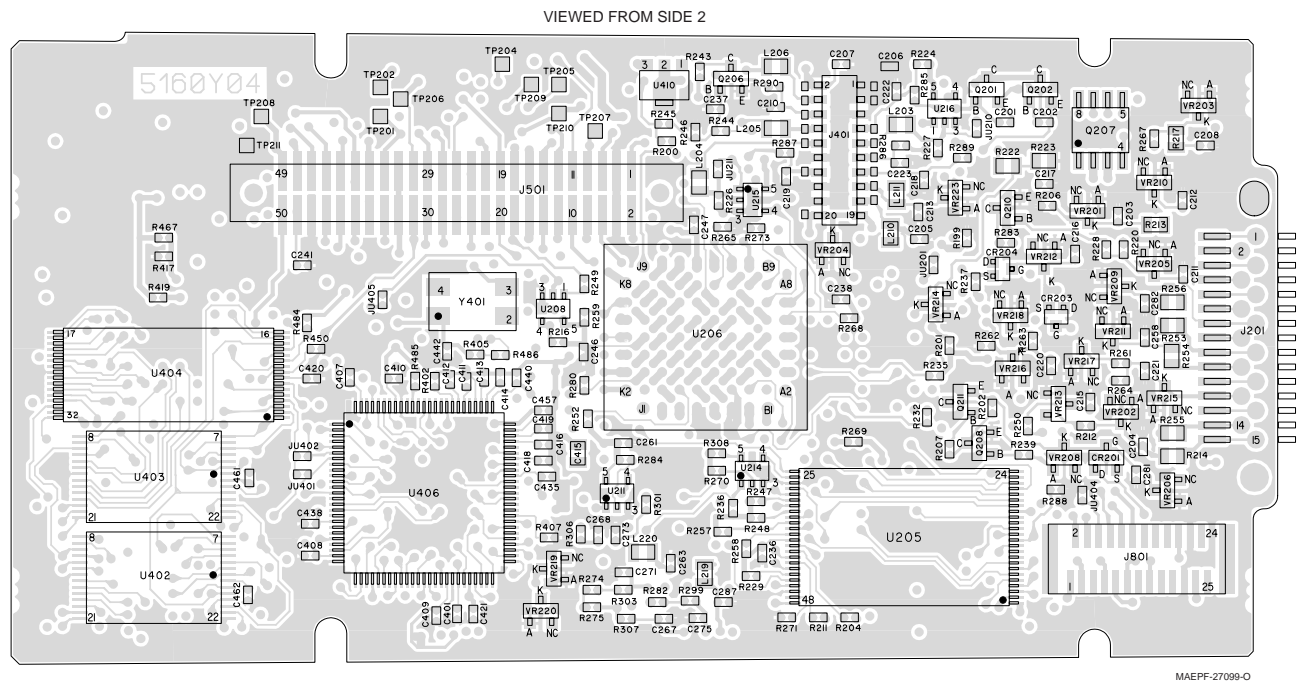
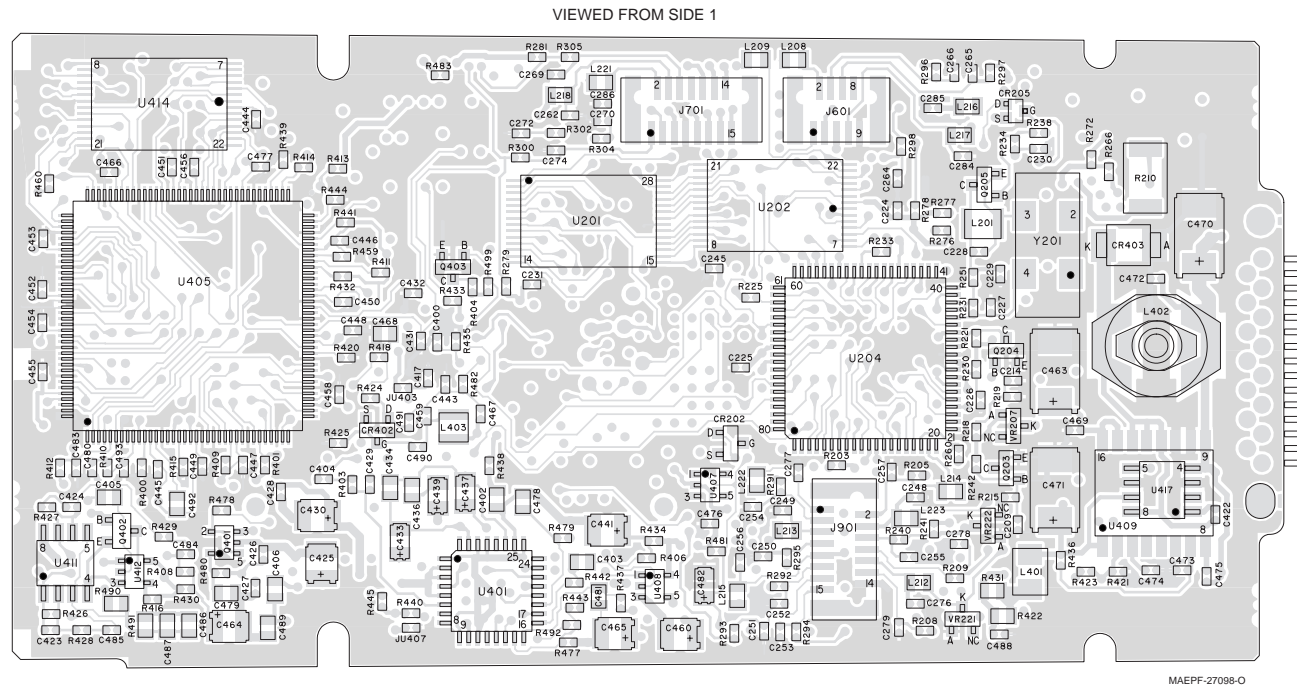


NTN7749G VOCON (Vocoder/Controller) Board Schematic Diagram, Sheet 1 of 2



NTN7749G VOCON (Vocoder/Controller) Board Schematic Diagram, Sheet 2 of 2

NTN7749G VOCON (Vocoder/Controller) Board
Electrical Parts List



ITEM	MOTOROLA PART NUMBER	DESCRIPTION
		CAPACITOR, Fixed: pF ±5%; 50V Unless otherwise stated
C201, C202	2113931F17	470
C203, C204	2113930F39	33
C205	2113931F17	470
C206 thru C208	2113930F39	33
C209 thru C214	2113931F17	470
C215	2113930F39	33
C216	2113931F17	470
C217	2113932K15	0.1 uF +80/-20% 16V
C218 thru C223	2113931F17	470
C224 thru C226	2113932K15	0.1 uF +80/-20% 16V
C227	2113930F36	24
C228	-----	Not Placed.
C229	2113930F36	24
C230, C231	2113932K15	0.1 uF +80/-20% 16V
C236	2113932K15	0.1 uF +80/-20% 16V
C237	2113931F17	470
C238	2113932K15	0.1 uF +80/-20% 16V
C241	2113931F17	470
C245 thru C247	2113932K15	0.1 uF +80/-20% 16V
C248 thru C254	2113931F17	470
C255	2113932K15	0.1 uF +80/-20% 16V
C256, C257	2113931F17	470
C258	2113930F39	33
C261	2113932K15	0.1 uF +80/-20% 16V
C262 thru C279	2113931F17	470
C281, C282	2113930F39	33
C284 thru C287	2113931F17	470
C400	2113932K15	0.1 uF +80/-20% 16V
C401	2113931F17	470
C402, C403	2113743A23	0.22 uF 10%
C404	2113932K15	0.1 uF +80/-20% 16V
C405, C406	2113743A23	0.22 uF 10%
C407 thru C414	2113932K15	0.1 uF +80/-20% 16V
C415	2113743A23	0.22 uF 10%
C416 thru C420	2113932K15	0.1 uF +80/-20% 16V
C421	2113931F17	470
C422	-----	Not Placed.
C423, C424	2113930F51	100
C425	2311049J12	4.7 uF
C426	2113932K15	0.1 uF +80/-20% 16V
C427	2113931F41	4.7 nF
C428	2113932K15	0.1 uF +80/-20% 16V
C429	2113931F49	10 nF
C430	2311049J12	4.7 uF
C431, C432	-----	Not Placed.
C433	2311049A07	1 uF
C434	2113743F12	0.33 uF
C435	2113932K15	0.1 uF +80/-20% 16V
C436	2113743F12	0.33 uF
C437	2311049A07	1 uF
C438	2113930F34	20
C439	2311049A07	1 uF
C440	2113932K15	0.1 uF +80/-20% 16V
C441	2311049J12	4.7 uF
C442, C443	2113930F09	1.8 pF 50V ±0.1 pF 50V
C444 thru C456	2113932K15	0.1 uF +80/-20% 16V
C457	2113931F13	330
C458	2113932K15	0.1 uF +80/-20% 16V
C459	2113930F03	1 pF 50V ±0.1 pF 50V
C460	2311049J12	4.7 uF

C461, C462	2113932K15	0.1 uF +80/-20% 16V
C463	2311049C08	33 uF 20V 10%
C464, C465	2311049J12	4.7 uF
C466	2113932K15	0.1 uF +80/-20% 16V
C467	2113930F21	5.6 pF 50V ±0.25 pF 50V
C468	2113743A23	0.22 uF 10%
C469	2113932K15	0.1 uF +80/-20% 16V
C470	2311049C07	100 uF 10V 10%
C471	2311049C08	33 uF 20V 10%
C472	2113931F17	470
C473	2113932K15	0.1 uF +80/-20% 16V
C474	2113931F49	10 nF
C475	2113931F13	330
C476, C477	2113932K15	0.1 uF +80/-20% 16V
C478, C479	2113743A23	0.22 uF 10%
C480	2113930F46	62
C481	2113743A23	0.22 uF 10%
C482	2311049A05	0.47 uF
C483	2113930F39	33
C484, C485	2113932E20	0.1 uF 10% 16V
C486	2113743A23	0.22 uF 10%
C487	2113743A19	0.1 uF 10%
C488	2113932K15	0.1 uF +80/-20% 16V
C489	2113743A13	.047 uF
C490, C491	2113931F17	470
C492	-----	Not Placed.
C493	2113932K15	0.1 uF +80/-20% 16V
CR201, CR202	4884939C35	DIODE: See Note 1.
CR203 thru	4805218N57	Hot Carrier, 4V Dual
CR205		
CR402	4813825A06	PIN, 35V
CR403	4813833B09	Schottky, 30V
J201	2802624J02	JACK: Connector, VOCON/Universal (15-position)
J401	0905461X03	Connector, VOCON/Transceiver (20-position)
J501	-----	Not Placed.
J601	0913915A07	Connector, VOCON/LCD Display (9-position)
J701	0913915A09	Connector, VOCON/Mic-Keypad (15-position)
J801	0913915A11	Connector, VOCON/Encryption Bd (25-position)
J901	0913915A09	Connector, VOCON/Control Top (15-position)
JU201	0662057B47	JUMPER: 0 Ω ±.05 Ω
JU210, JU211	-----	Not Placed.
JU401	-----	Not Placed.
JU402 thru JU405	0662057B47	0 Ω ±.05 Ω
JU407	0662057B47	0 Ω ±.05 Ω
L201	2460578C43	COIL, RF: 33 uH
L203 thru L206	2462587Q40	270 nH
L208 thru L223	2462587Q40	270 nH
L401	2484657R01	675 nH
L402	2405528W03	100 uH
L403	2462587E71	1.8 uH
Q201 thru Q206	4805128M12	TRANSISTOR: See Note 1. NPN
Q207	4805718V01	PNP
Q208	4805128M12	NPN
Q210	4805128M12	NPN
Q211	4805128M40	PNP
Q401	-----	Not Placed.
Q402	4880048M01	NPN

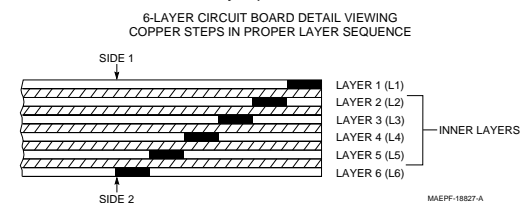
Q403	4805128M12	NPN RESISTOR, Fixed: $\Omega \pm 5\%$; 1/8W Unless otherwise stated.
R199	-----	Not Placed.
R200	0662057A65	4.7k
R201 thru R205	0662057A97	100k
R206, R207	0662057A73	10k
R208, R209	0662057A29	150
R210	0683962T45	68
R211	0662057A97	100k
R212	0662057A73	10k
R213, R214	0662057C55	150
R215	0662057A97	100k
R216	0662057A73	10k
R217	0662057C55	150
R218	0662057A65	4.7k
R219	0662057A97	100k
R220, R221	0662057A73	10k
R222	0662057G08	82.5k
R223	0662057R92	47.5k
R224	0662057A85	33k
R225	0662057B47	0 \pm .050
R226, R227	0662057A97	100k
R228	0662057A73	10k
R229	0662057A97	100k
R230	0662057A65	4.7k
R231	0662057B22	1 M
R232	0662057A65	4.7k
R233	0662057A85	33k
R234, R235	0662057A73	10k
R236	0662057A97	100k
R237	0662057A73	10k
R238	0662057A97	100k
R239, R240	0662057A65	4.7k
R241	0662057A89	47k
R242	0662057A65	4.7k
R243 thru R248	0662057A97	100k
R249	0662057A57	2.2k
R250	0662057A73	10k
R251	0662057B47	0 \pm .050
R252	0662057A97	100k
R253 thru R256	0662057C55	150
R257 thru R260	0662057A97	100k
R261	0662057A73	10k
R262	0662057A89	47k
R263	0662057A73	10k
R264	0662057A82	24k
R265, R266	0662057A97	100k
R267	0662057A73	10k
R268	0662057A97	100k
R269	0662057A85	33k
R270, R271	0662057A97	100k
R272	0662057A73	10k
R273	0662057A97	100k
R274 thru R282	0662057A85	33k
R283	0662057A89	47k
R284	0662057A97	100k
R285	0662057A49	1k
R286	0662057B47	0 \pm .050
R287	0662057A49	1k
R288	0662057A97	100k
R289 thru R295	0662057A49	1k
R296	0662057B47	0 \pm .050
R297 thru R307	0662057A49	1k
R308	0662057B47	0 \pm .050
R400, R401	0662057A73	10k
R402	0662057B12	390k
R403	0662057A49	1k

R404	0662057A73	10k
R405	0662057B22	1 M
R406	0662057A57	2.2k
R407	0662057A97	100k
R408	0662057A57	2.2k
R409 thru R411	0662057A73	10k
R412	0662057A65	4.7k
R413, R414	0662057A73	10k
R415	0662057A97	100k
R416, R417	0662057A73	10k
R418	0662057A49	1k
R419	0662057A73	10k
R420	0662057A97	100k
R421	0662057A73	10k
R422	0662057C03	1
R423	0662057A73	10k
R424	0662057A63	3.9k
R425	0662057A69	6.8k
R426, R427	0662057B02	150K
R428, R429	0662057A81	22K
R430	0662057A39	390
R431	0662057C03	1
R432	0662057A73	10k
R433	0662057A57	2.2K
R434	0662057A39	390
R435	0662057A73	10K
R436	0662057B14	470K
R437	-----	Not Placed.
R438, R439	0662057A73	10k
R440	-----	Not Placed.
R441	0662057A73	10k
R442	-----	Not Placed.
R443	0662057B47	0 \pm .050
R444	0662057A73	10k
R445	0662057B47	0 \pm .050
R450	0662057A89	47k
R459	0662057A73	10k
R460	0662057A73	10k
R467	-----	Not Placed.
R477, R478	-----	Not Placed.
R479	0662057A73	10k
R480	-----	Not Placed.
R481	0662057A97	100k
R482	0662057B47	0 \pm .050
R483 thru R485	0662057A97	100k
R486	-----	Not Placed.
R490	0662057G14	110k 1%
R491	0662057G08	82.5k 1%
R492	0662057A82	24k
R499	0662057A73	10k
INTEGRATED CIRCUIT MODULE:		
See Note 1.		
U201	5105109Z72	32k x 8 EEPROM
U202	5185748L01	32k X 8 SRAM, 28 Pin
U204	5113802A75	MCU (Microcontrol Unit, type MC68HC11F1)
U205	5185963A84	FLASH (TSOP)
U206	5185765B19	SLIC (Support Logic IC)
U208	5105750U28	MUX
U211	5105279V65	AND Gate
U214	5105279V65	AND Gate
U215, U216	5105750U28	MUX
U401	5105457W68	Audio PA (Power Amplifier)
U402, U403	5185963A18	8k x 24 DSPRAM
U404	5185130C54	FLASH (TSOP)
U405	5105457W66	DSP (Digital Signal Processor)
U406	5185963A10	ADSIC (ABACUS/DSP Support IC)
U407	5105492X73	Voltage Detector

U408	5105750U28	MUX
U409	5105625U38	5-Volt Regulator, Digital
U410	5105625U41	5-Volt Regulator, Analog
U411	5105364W01	Low-power Op Amp
U412	5105750U28	MUX
U414	5185963A18	8k x 24 DSPRAM
U417	-----	Not Placed.
VR201 thru VR203	4813830A15	Zener, 5.6V
VR204	4813830A28	Zener, 15V
VR205	4813830A15	Zener, 5.6V
VR206	4813830A31	Zener 18V
VR207	4813830A22	Zener, 9.1V
VR208	4813830A24	Zener, 11
VR209	4813830A15	Zener, 5.6V
VR210	4813830A24	Zener, 11V
VR211 thru VR214	4813830A15	Zener, 5.6V
VR215, VR216	4813830A24	Zener, 11V
VR217, VR218	4813830A15	Zener, 5.6V
VR219, VR220	4813830A24	Zener, 11V
VR221	4813830A28	Zener, 15V
VR222, VR223	4813830A15	Zener, 5.6V
Y201	4805574W01	7.3728 MHz
Y401	4805573W01	33 MHz

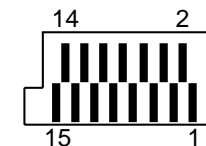
Notes:

- For optimum performance, order replacement diodes, transistors, and circuit modules by Motorola part number only.
- When ordering crystals, specify carrier frequency, crystal frequency, crystal type number, and Motorola part number.
- Part value notations:
 $p=10^{-12}$
 $n=10^{-9}$
 $\mu=10^{-6}$
 $m=10^{-3}$
 $k=10^3$
 $M=10^6$
- ITEM refers to the component reference designator.
- The VOCON Board uses a 6-layer printed circuit board.



J201 VOCON/Universal Connector

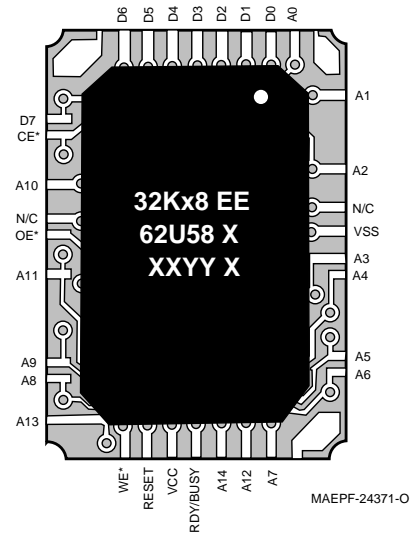
- J201-1 N.C
- J201-2 N.C.
- J201-3 N.C.
- J201-4 LH_DATA/BOOT_DATA_OUT
- J201-5 Ext Mic
- J201-6 SB9600_BUSY
- J201-7 Option Select 1
- J201-8 RS232_DATA_IN
- J201-9 Option Sel 2 (Keyload*)
- J201-10 RTSIN*/KEYFAIL*
- J201-11 Speaker Common
- J201-12 External Speaker
- J201-13 OPTB+/Boot Sel/Vpp
- J201-14 CTSOUT*
- J201-15 RS232 Data Out/ Boot Data In



MAEPP-24344-0

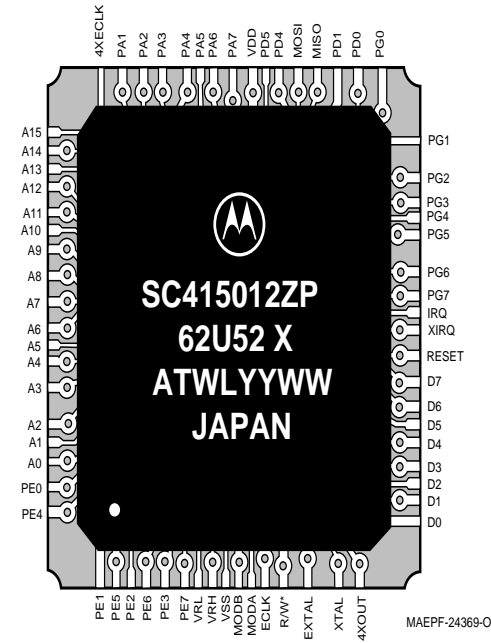
VOCON Board Integrated Circuit Modules

U201: EEPROM



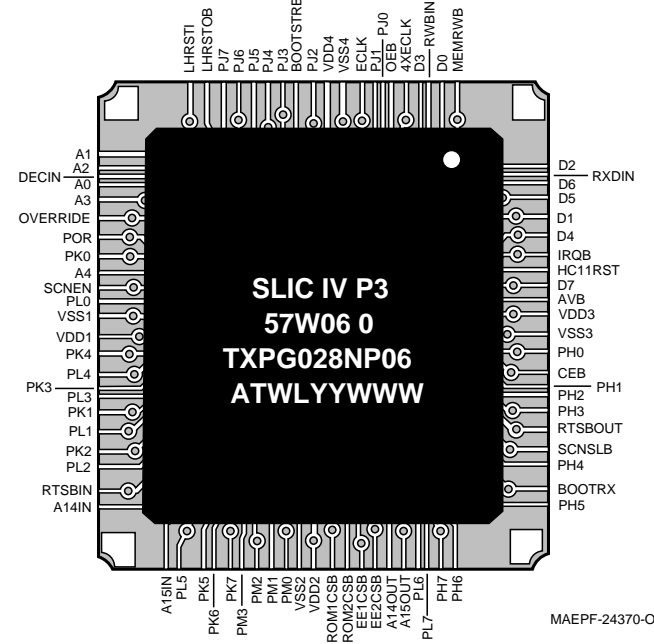
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U204: MCU



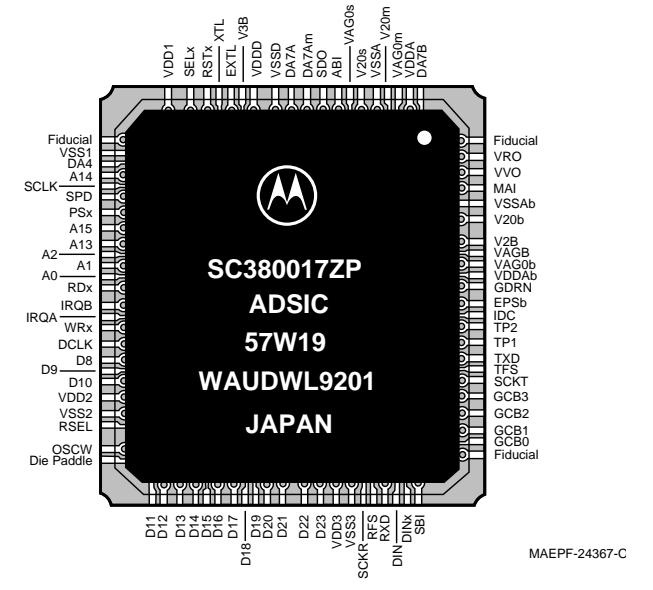
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U206: SLIC



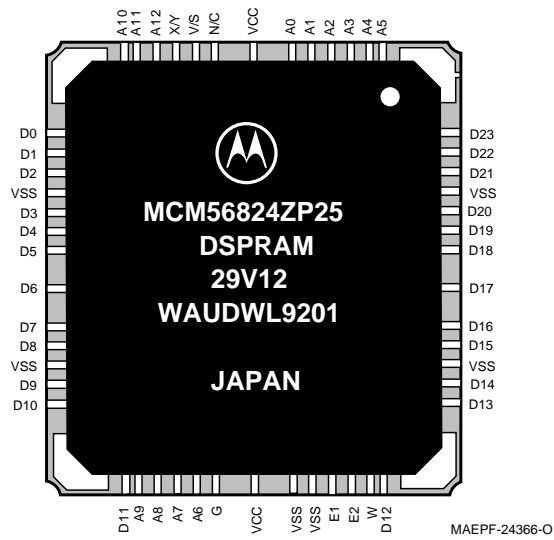
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U406: ADSIC



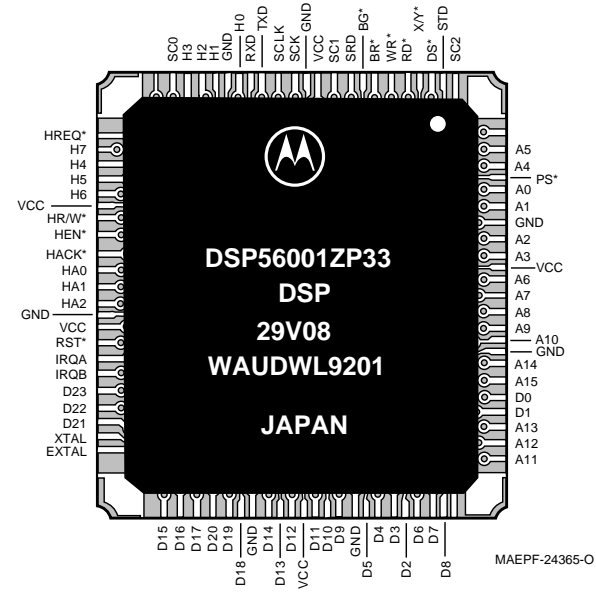
MAEPF-24367-C

U402, U403, U414: DSP SRAM



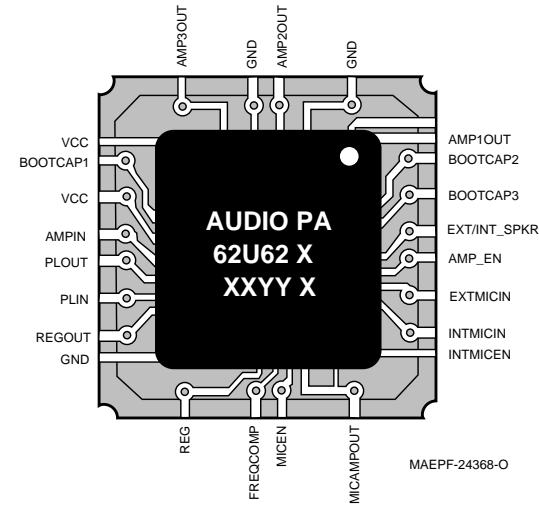
MAEPF-24366-O

U405: DSP



MAEPF-24365-O

U401: Audio Pa



MAEPF-24368-O