

**Agilent 66104A  
Component Level  
Information**

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# Agilent 66104A

## DC Power Module 60V, 2.5A

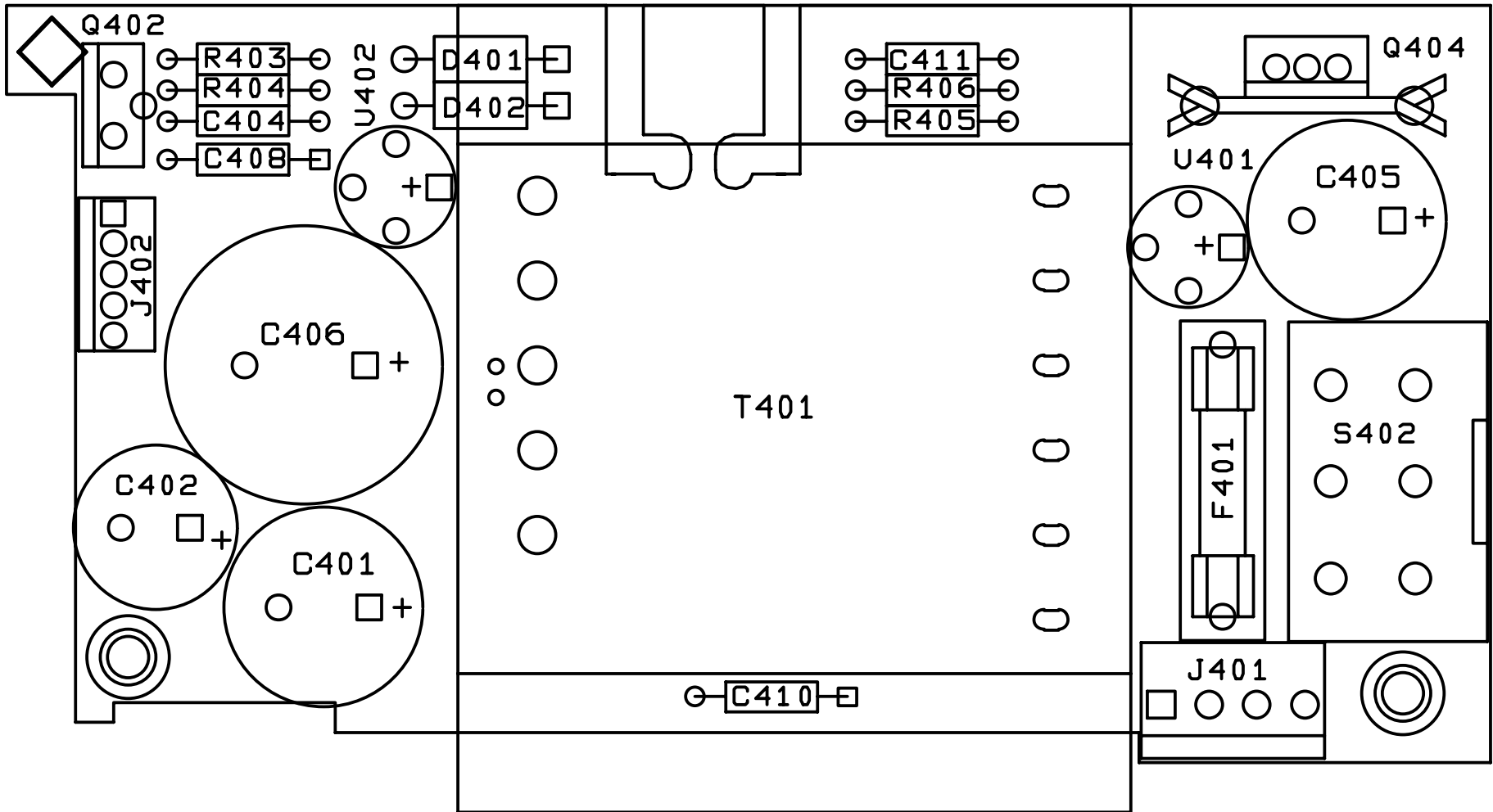
### Component Level Information

**Information in this packet applies to the following assemblies:**

- 1. 5060-3352 Bias Board Assembly**
- 2. 66104-60022 Power Board Assembly**

**The following is included in this packet:**

- 1. Component Locators**
- 2. Schematics**
- 3. Parts lists with Agilent and manufacturer's part numbers**



Agilent 66104A  
DC Power Module, 60V, 2.5A

5060-3352  
Bias Board Assembly  
Component Locator

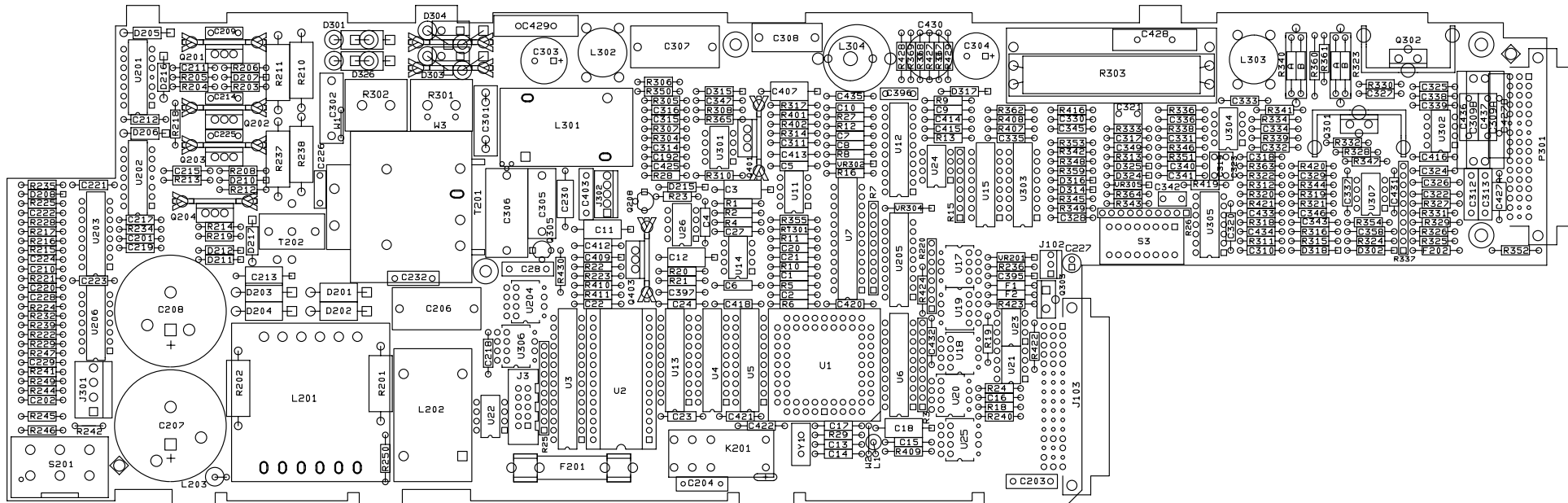


### 5060-3352 Bias Board Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
C401, 405	2	0180-3587	CAP-FXD 1000uF +-20pct 50 V AL-ELCTLT	ELXZ500ELL102ML25S	NIPPON CHEMI-CON
C402	1	0180-4273	CAP-FXD 1000uF +-20pct 50 V AL-ELCTLT	SMG50VB102M12X25FT	NIPPON CHEMI-CON
C404	1	0160-5422	CAP-FXD 0.047uF +-20pct 50 V CER X7R	C420C473M5R5CA DA13X7R1H473M SA205C473MAAH	KEMET ELECTRONICS TDK AVX
C406	1	0180-4389	CAP-FXD 6800uF +-20pct 25 V AL-ELCTLT	SMG25VB682M22X30LL UVR1E682MRD6	NIPPON CHEMI-CON NICHICON
C408, 410	2	0180-4129	CAP-FXD 1uF +-10pct 35 V TA	TARR105K035 T322B105K035AS	AVX KEMET ELECTRONICS
C411	1	0160-4835	CAP-FXD 0.1uF +-10pct 50 V CER X7R	C420C104K5R5CA SA105C104KAAH SA105C104KAAH	KEMET ELECTRONICS AVX KYOCERA
D401, 402	2	1901-0731	DIODE-PWR RECT 400V 1A	1N4004G 1901-0731 GP10G044	ON SEMICONDUCTOR TEMIC TELEFUNKEN MICROELECTRON VISHAY
F401	1	2110-0820	FUSE (METRIC) .5A 250V FE UL-LST CSA	217.500P	LITTELFUSE
F401a	1	2110-0925	FUSEHLDR-CLP-TYP 6.3A 250V UL/CSA	OGN 031.8201	SCHURTER
J401	1	1252-0056	CONN-POST TYPE .156-PIN-SPCG-MTG-END	26-60-4040	MOLEX
J402	1	1251-8676	CONN-POST TYPE .100-PIN-SPCG-MTG-END	1107-8-105-01	METHODE ELECTRONICS
Q402	1	1826-0527	IC PWR MGT-V-REG-ADJ-NEG 1.2/37V 3 PINS	LM337T-NOPB	NATIONAL SEMICONDUCTOR
Q404	1	5060-2942	ASSY-HS 317T		
Q404a	1	0361-1641	EYELET-RLD-FLG .121-OD .187-LG .0095-THK	GS 4-6 STEEL-TIN PLATE	STIMPSON EDWIN B
Q404b	1	1826-0393	IC PWR MGT-V-REG-ADJ-POS 1.2/37V 3 PINS	LM317T-NOPB	NATIONAL SEMICONDUCTOR
Q404c	1	1205-0282	HEAT SINK PLSTC-PWR-CS	6025D	AAVID THERMALLOY
R403	1	0699-0486	RESISTOR 2K +-0.1pct .1W TF TC=0+-10	PR1/10TC102K0.1% PTF-562K0BT-13 UXBB2K0000B	PRECISION RESISTIVE PRODUCTS VISHAY VISHAY BC COMPONENTS
R404	1	0699-1069	RESISTOR 229 +-0.1pct .125W TF TC=0+-25	B0207E229R0B CMF-552290BT-9	VISHAY BC COMPONENTS VISHAY
R405	1	0698-3447	RESISTOR 422 +-1pct .125W TF TC=0+-100	5053HD422R0F CMF-554220FT-1 NK4H.125W1%+/- 100PPM422R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

### 5060-3352 Bias Board Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R406	1	0757-0437	RESISTOR 4.75K +-1pct .125W TF TC=0+-100	5053HD4K750F CMF-554751FT-1 NK4H.125W1%+/- 100PPM4751	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
S402	1	3101-2966	SWITCH-SL DPDT STD 5A 250VAC PC	4021.4922	MARQUARDT
T401	1	9100-4932	XFMR-BIAS	9100-4932	AGILENT TECHNOLOGIES
U401, 402	2	1906-0006	DIODE-FW BRDG 400V 1A	W04G W04M	VISHAY MICROSEMI



**Magnify to see component reference designators.**

**NOTE**

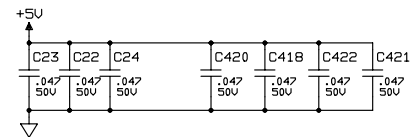
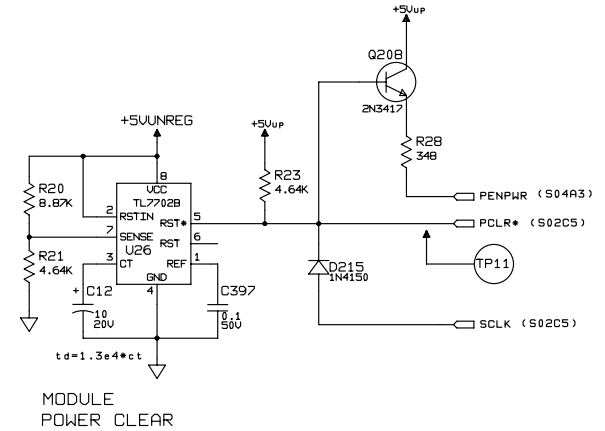
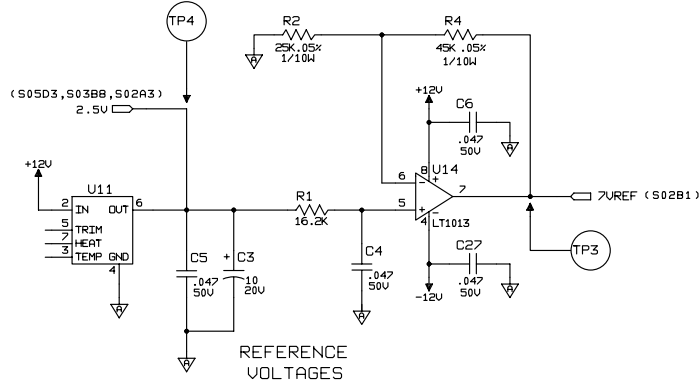
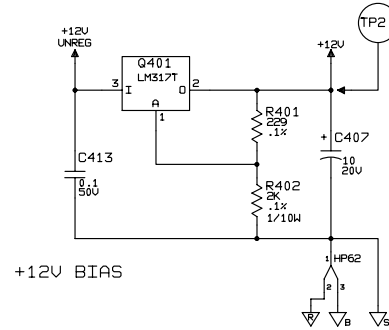
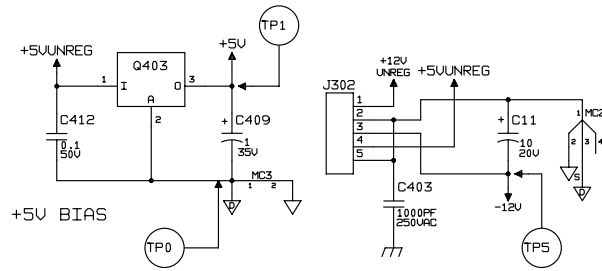
**This assembly is used on the 66101A - 66106A. Not all components are loaded for every model. Each model is loaded with the unique parts for the specified output of that model.**

**Please refer to the Parts List that follows the schematics for the parts that are specific to the Agilent 66104A. The schematics indicate the parts loaded for the 66105A.**

**Agilent 66104A  
DC Power Module, 60V, 2.5A**

**66104-60022  
Power Board Assembly  
Component Locator**

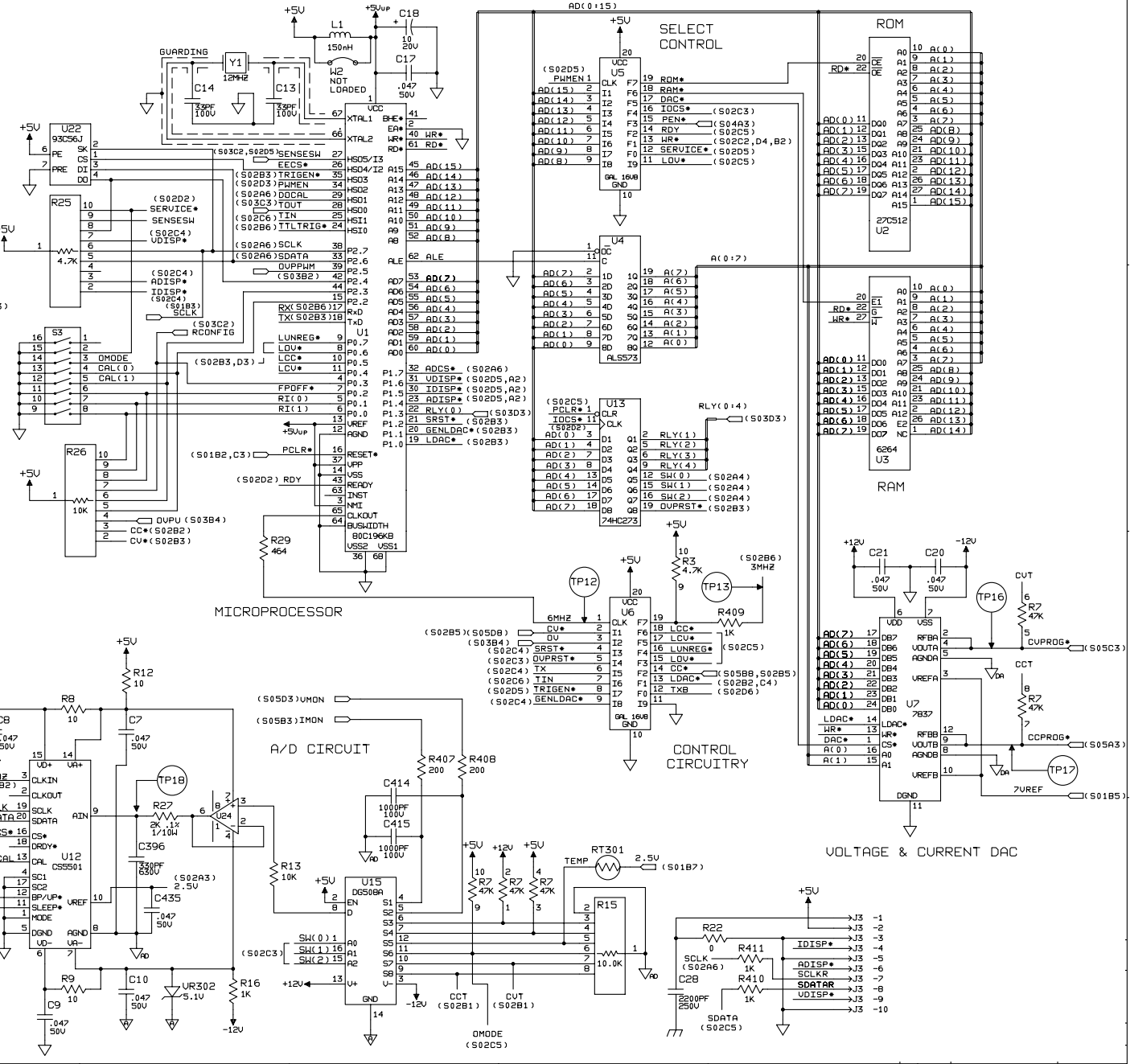
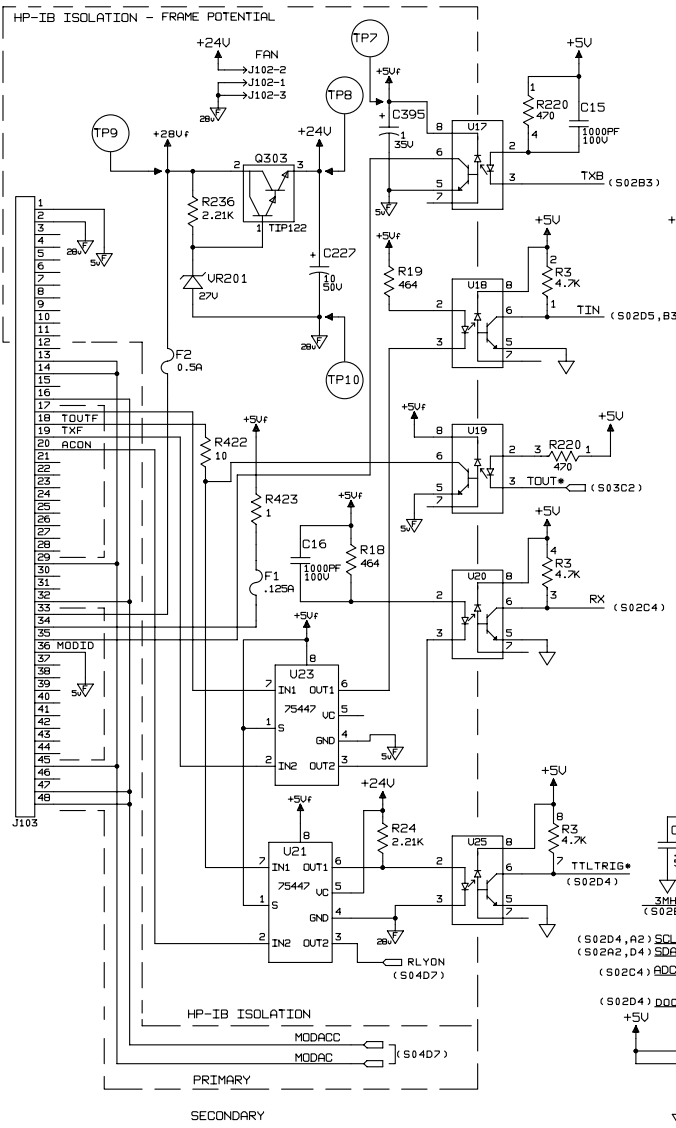
NOTES:  
 1. UNLESS OTHERWISE SPECIFIED:  
 ALL RESISTOR VALUES ARE IN OHMS, +/-1%, 1/BW.  
 ALL CAPACITOR VALUES ARE IN MICROFARADS.



**Agilent 66104A  
 DC Power Module, 60V, 2.5A**



HP-IB ISOLATION CIRCUITS



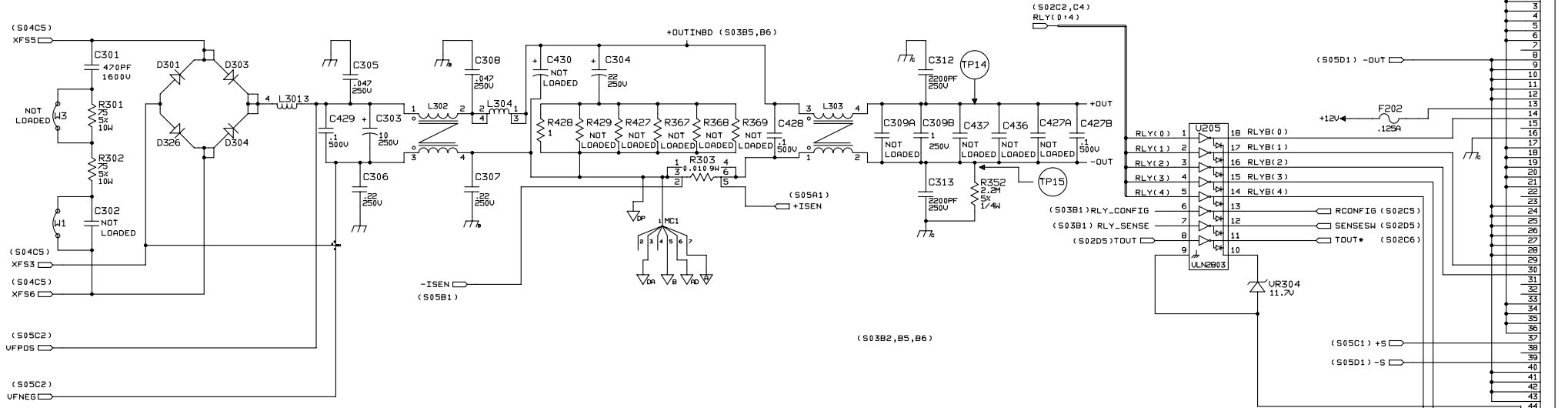
**Agilent 66104A**  
**DC Power Module, 60V, 2.5A**

**66104-60022**  
**Power Board Assembly**  
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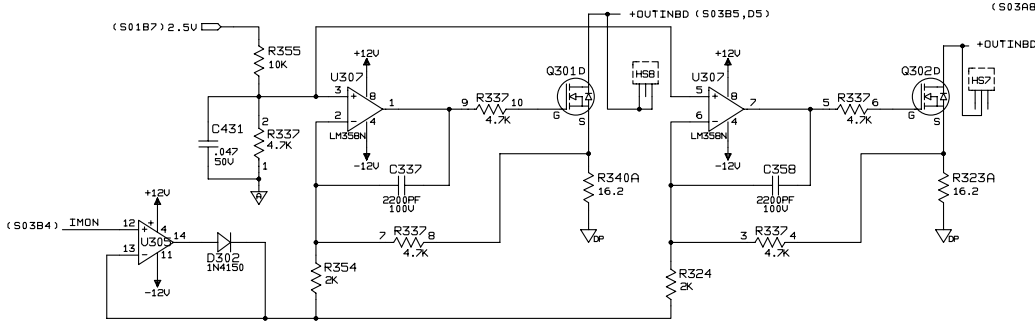
— SECONDARY —

MODULE OUTPUT CONNECTOR

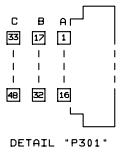
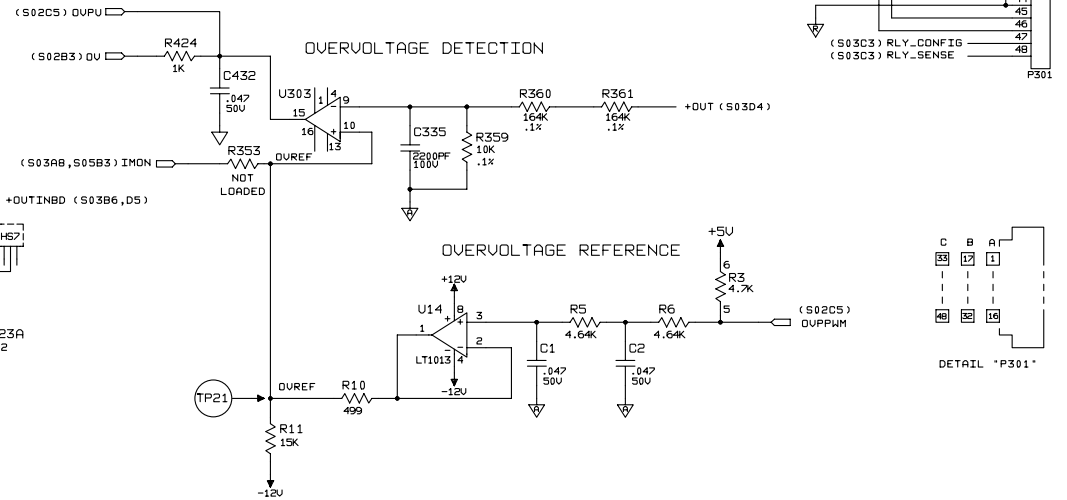
### OUTPUT FILTER



### DOWN PROGRAMMER

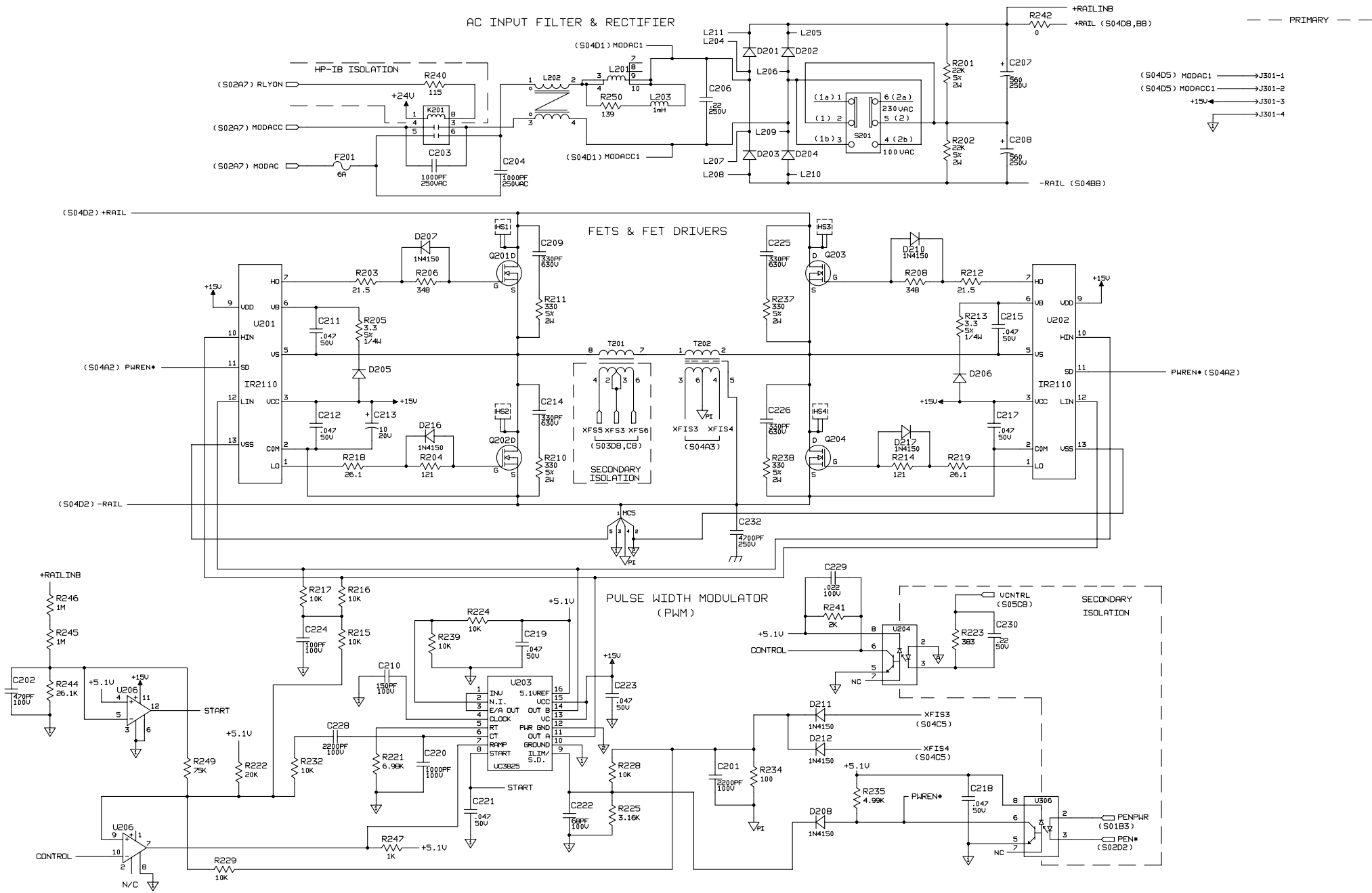


### OVERVOLTAGE DETECTION



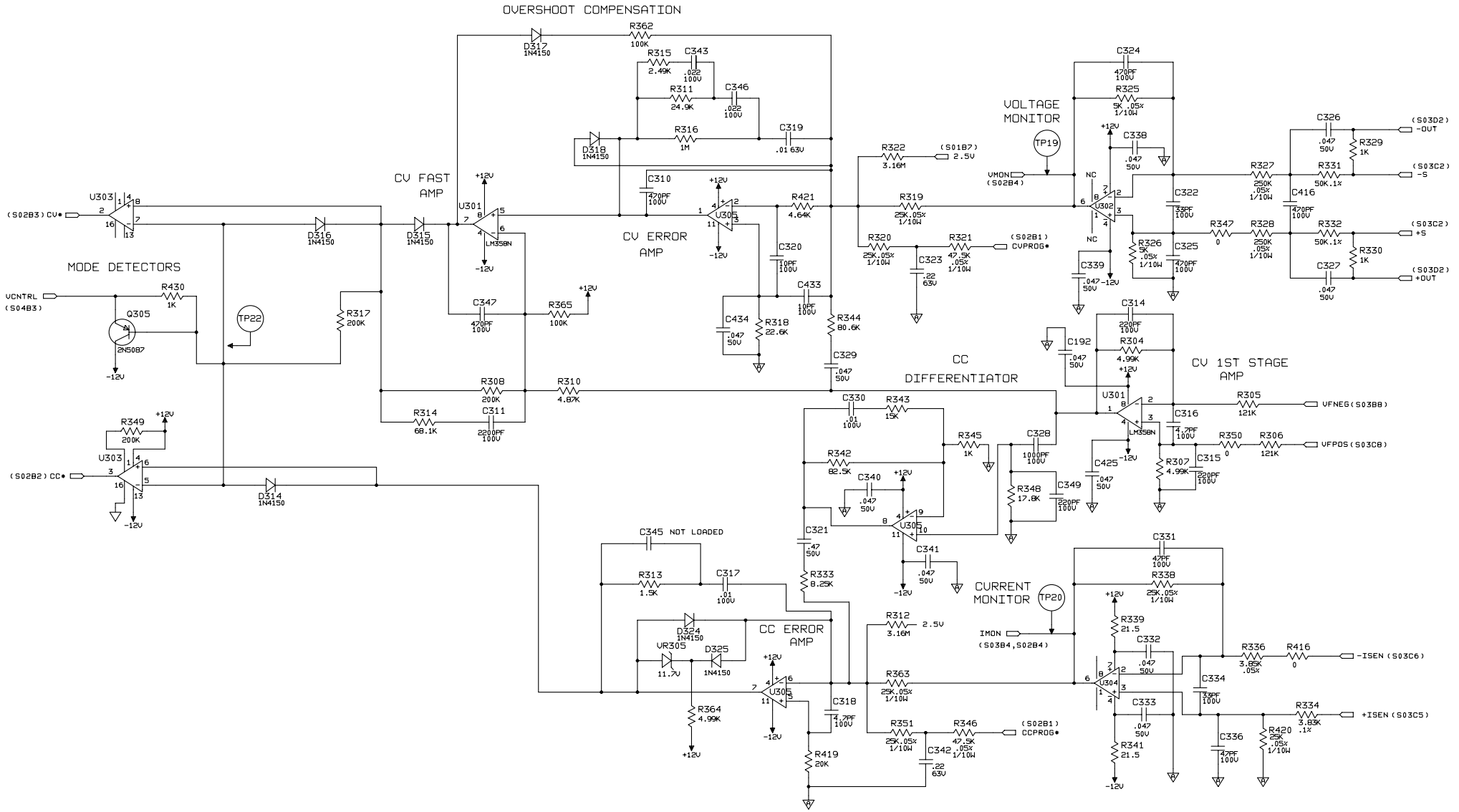
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**DC Power Module, 60V, 2.5A**

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**Power Board Assembly**  
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**Agilent 66104A**  
**DC Power Module, 60V, 2.5A**

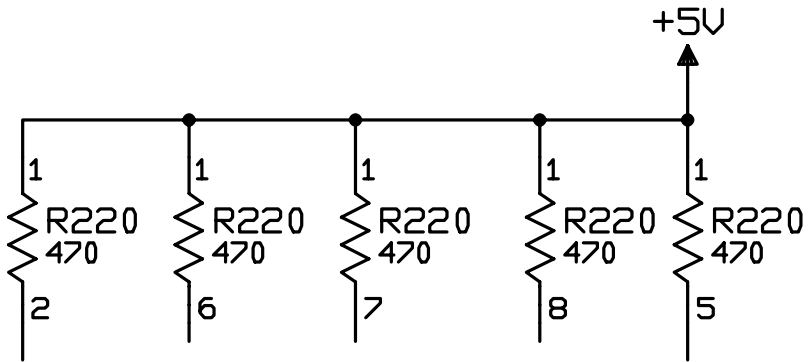
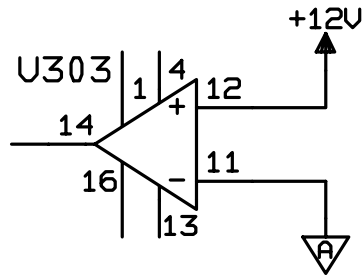
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**Power Board Assembly**  
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**Agilent 66104A  
DC Power Module, 60V, 2.5A**

**66104-60022  
Power Board Assembly  
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UNUSED GATES/SIP 'S



POWER

- VCC ( +5V )
- +5VF
- +12V
- 12V
- +15V
- +28VF

GND

- GND
- GND1
- GND2
- GNDA
- GNDB
- GNDDP
- GND5VF
- CHASSIS
- CHASSISB
- CHASSISC

Agilent 66104A  
DC Power Module, 60V, 2.5A

66104-60022  
Power Board Assembly  
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**66104-60022 Power Board Assembly Parts List**

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
C001, 2, 4-10, 17, 20-24, 27, 192, C211, 212, 215, 217-219, 221, 223, C326, 327, 329, 332, 333, 338-341, C418, 420-422, 425, 431, 432, 434, C435	43	0160-5422	CAP-FXD 0.047uF +-20pct 50 V CER X7R	C420C473M5R5CA DA13X7R1H473M SA205C473MAAH	KEMET ELECTRONICS TDK AVX
C003, 11, 12, 18, 213, 407	6	0180-4136	CAP-FXD 10uF +-10pct 20 V TA	TARS106K020 T322C106K020AS	AVX KEMET ELECTRONICS
C013, 14, 322, 334	4	0160-4807	CAP-FXD 33pF +-5pct 100 V CER C0G	C410C330J1G5CA SA102A330JAAH SA102A330JAAH	KEMET ELECTRONICS AVX KYOCERA
C015, 16, 220, 328, 414, 415	6	0160-4822	CAP-FXD 1000pF +-5pct 100 V CER C0G	C420C102J1G5CA SA201A102JAAH SA201A102JAAH	KEMET ELECTRONICS AVX KYOCERA
C028, 312, 313	3	0160-4281	CAP-FXD 2200pF +-20PCT 250 V PPR-MET	MP3Y2- 2200F/250VAC/20%,4X8.5X 13.5, Pitch10mm PME271Y422MR30	WIMA EVOX/RIFA
C201, 228, 335, 337, 358	5	0160-4830	CAP-FXD 2200pF +-10pct 100 V CER X7R	C410C222K1R5CA SA101C222KAAH SA101C222KAAH	KEMET ELECTRONICS AVX KYOCERA
C202, 310, 324, 325, 416	5	0160-4808	CAP-FXD 470pF +-5pct 100 V CER C0G	C410C471J1G5CA SA101A471JAAH SA101A471JAAH	KEMET ELECTRONICS AVX KYOCERA
C203, 204, 403	3	0160-4183	CAP-FXD 1000pF +-20pct 250 V PPR-MET	PME271Y410MR30	EVOX/RIFA
C206, 306, 307	3	0160-4259	CAP-FXD 0.22uF +-10pct 250 V PPR-MET	PME271M622KR30	EVOX/RIFA
C207, 208	2	0180-4393	CAP-FXD 560uF +-20pct 250 V AL-ELCTLT	380LX561M250K022 LLS2E561MELB SMH250VN561M30X30	CORNELL-DUBILIER ELECTRONICS NICHICON NIPPON CHEMI-CON
C209, 214, 225, 226, 396	5	0160-7578	CAP-FXD 330pF +-5pct 630 V POLYP-FL	FKP3 330PF/5%/630VDC/PC	WIMA
C210	1	0160-4814	CAP-FXD 150pF +-5pct 100 V CER C0G	C410C151J1G5CA SA101A151JAAH SA101A151JAAH	KEMET ELECTRONICS AVX KYOCERA

### 66104-60022 Power Board Assembly Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
C222, 347	2	0160-4803	CAP-FXD 68pF +-5pct 100 V CER C0G	C410C680J1G5CA SA101A680JAA SA101A680JAA	KEMET ELECTRONICS AVX KYOCERA
C224	1	0160-4801	CAP-FXD 100pF +-5pct 100 V CER C0G	C410C101J1G5CA SA102A101JAAH SA102A101JAAH	KEMET ELECTRONICS AVX KYOCERA
C227	1	0180-3680	CAP-FXD 10uF +-20PCT 50V AL-ELCTLT	EKMG500ELL100ME11D	NIPPON CHEMI-CON
C229	1	0160-4833	CAP-FXD 0.022uF +-10pct 100 V CER X7R	C420C223K1R5CA SA201C223KAAH SA201C223KAAH	KEMET ELECTRONICS AVX KYOCERA
C230	1	0160-5098	CAP-FXD 0.22uF +-10pct 50 V CER X7R	C440C224K5R5CA SA405C224KAAH SA405C224KAAH	KEMET ELECTRONICS AVX KYOCERA
C232	1	0160-4439	CAP-FXD 4700pF +-20pct 1 kV PPR-MET	PME271Y447MR30	EVOX/RIFA
C301	1	0160-6838	CAP-FXD 2200pF +-20pct 1 kV POLYP-FL	FKP 1 2200/1250/20	WIMA
C303, 430	2	0180-3649	CAP-FXD 47uF +-20PCT 100 V AL-ELCTLT	UVZ2A470PD EKMG101ELL470MJC5S	NICHICON NIPPON CHEMI-CON
C305, 308	2	0160-4323	CAP-FXD 0.047uF +-20PCT 275V PPR-MET	PME271M547MR30 MP3-X2- 0.047uF/275Vac/20%,7X15X 19, Pitch15mm	EVOX/RIFA WIMA
C309B	1	0160-5050	CAP-FXD 1uF +-10pct 250 V POLYE-MET	M1B10203B MKS41.0UF10%250V MKT 1822-510/255 MMK22.510K250 PMT2R1.0K250	ASHCROFT ELECTRONIC WIMA VISHAY EVOX/RIFA STC
C311, 343	2	0160-4831	CAP-FXD 4700pF +-10pct 100 V CER X7R	C410C472K1R5CA SA101C472KAAH SA101C472KAAH	KEMET ELECTRONICS AVX KYOCERA
C314, 315, 349	3	0160-4812	CAP-FXD 220pF +-5pct 100 V CER C0G	C410C221J1G5CA SA101A221JAAH SA101A221JAAH	KEMET ELECTRONICS AVX KYOCERA

### 66104-60022 Power Board Assembly Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
C316, 318	2	0160-4795	CAP-FXD 4.7pF +-10.64pct 100 V CER C0G	C410C479D1G5CA SA102A4R7DAAH SA102A4R7DAAH	KEMET ELECTRONICS AVX KYOCERA
C317	1	0160-6616	CAP-FXD 6800pF +-5pct 100 V CER X7R	C410C682J1R5CA SA101C682JAAH	KEMET ELECTRONICS AVX
C319	1	0160-5467	CAP-FXD 0.01uF +-10PCT 100V POLYE-MET	MKS 2 MMK5103K100J01L	WIMA EVOX/RIFA
C320, 433	2	0160-4791	CAP-FXD 10pF +-5PCT 100V CER C0G	C410C100J1G5CA SA102A100JAA SA102A100JAA	KEMET ELECTRONICS AVX KYOCERA
C321	1	0160-5468	CAP-FXD 0.47uF +-10pct 50 V POLYE-MET	MMK5474K50J01L6	EVOX/RIFA
C323, 342	2	0160-5892	CAP-FXD 0.22uF +-10PCT 63V POLYE-MET	MKT 1817 422 065 MMK5224K63J01L4 BULK	VISHAY EVOX/RIFA
C330, 346	2	0160-4832	CAP-FXD 0.01uF +-10pct 100 V CER X7R	C410C103K1R5CA SA101C103KAAH SA101C103KAAH	KEMET ELECTRONICS AVX KYOCERA
C331, 336	2	0160-4805	CAP-FXD 47pF +-5pct 100 V CER C0G	C410C470J1G5CA SA102A470JAAH SA102A470JAAH	KEMET ELECTRONICS AVX KYOCERA
C395, 409	2	0180-4129	CAP-FXD 1uF +-10pct 35 V TA	TARR105K035 T322B105K035AS	AVX KEMET ELECTRONICS
C397, 412, 413	3	0160-4835	CAP-FXD 0.1uF +-10pct 50 V CER X7R	C420C104K5R5CA SA105C104KAAH SA105C104KAAH	KEMET ELECTRONICS AVX KYOCERA
C427A, 427B	2	0160-4834	CAP-FXD 0.047uF +-10pct 100 V CER X7R	C430C473K1R5CA DA13X7R2A473K SA301C473KAAH SA301C473KAAH	KEMET ELECTRONICS TDK AVX KYOCERA
D201-204	4	1901-1087	DIODE-PWR RECT 600V 3A 200NS	GI856 MR856RLG	VISHAY ON SEMICONDUCTOR
D205, 206, 216, 217	4	1901-1214	DIODE-PWR RECT 600V 1A 50NS	MUR160RLG	ON SEMICONDUCTOR



### 66104-60022 Power Board Assembly Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
D207, 208, 210-212, 215, 302, D314-316	10	1901-1098	DIODE-SWITCHING 1N4150 50V 200MA 4NS	1N4150 1N4150	FAIRCHILD SEMICONDUCTOR ROHM
D301, 303, 304, 326	4	1901-1383	DIODE-ULT-FST-RCRY 200V 15A 35NS	MUR1520	ON SEMICONDUCTOR
D317, 318, 324, 325	4	1901-0880	DIODE-GEN PRP 200MA DO-35	FDH300	FAIRCHILD SEMICONDUCTOR
F001	1	2110-0671	FUSE-SUBMINIATURE .125A 125V NTD AX	025101.5 L	LITTELFUSE
F002, 202	2	2110-0716	FUSE-SUBMINIATURE .5A 125V NTD AX UL-LST	0251.500 ___L	LITTELFUSE
F201	1	2110-0056	FUSE (INCH) 6A 250V NTD FE UL-LST	0312006. AGC-6 SS6-6A	LITTELFUSE COOPER INDUSTRIES SAN-O INDUSTRIAL
J003	1	1252-1152	CONN-POST TYPE .100-PIN-SPCG-MTG-END	68794-118	FCI FRAMATOME BERG
J102	1	1252-0063	CONN-POST TYPE .100-PIN-SPCG-MTG-END	1100-8-103-01 22-27-2031	METHODE ELECTRONICS MOLEX
J103	1	1251-8410	CONN-POST TYPE 2.54-PIN-SPCG-MTG-END	10-8457-048-002-025 254-63-04-802 413.865 650478-5 86093487313765E1LF	KYOCERA LABINAL COMPONENTS & SYSTEMS ERNI-ELEKTRO-APPARATE TYCO ELECTRONICS AMP FCI FRAMATOME BERG
J301	1	1252-0056	CONN-POST TYPE .156-PIN-SPCG-MTG-END	26-60-4040	MOLEX
J302	1	1251-8676	CONN-POST TYPE .100-PIN-SPCG-MTG-END	1107-8-105-01	METHODE ELECTRONICS
K201	1	0490-1781	RELAY 2C 24VDC-COIL 5A 250VAC	AZ2732-053-052 FBR621D024 RKS-11DX-24	AMERICAN ZETTLER FUJITSU SIEMENS
L001	1	9100-1610	INDUCTOR RF-CH-MLD 150nH +-20pct	1537-00 15M150M IM-4 .15UH 20%	AMERICAN PRECISION INDUSTRIES GOWANDA ELECTRONICS VISHAY
L201	1	5080-2179	CHOKE-LINE		
L202	1	5080-2180	CHOKE-CM INPUT		
L203	1	9140-0137	INDUCTOR RF-CH-MLD 1mH +-5pct	19M104J 2500-28 9220-28 IM6-1000UH 5%	GOWANDA ELECTRONICS AMERICAN PRECISION INDUSTRIES ARROW ELECTRONICS VISHAY
L301	1	66104-80001	CHOKE-OUTPUT		
L302, 303	2	5080-2219	CHOKE-OUTPUT CM		

### 66104-60022 Power Board Assembly Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
L304	1	5080-2252	CHOKE-OUTPUT		
P301	1	1252-0167	CONN-POST TYPE 2.54-PIN-SPCG-MTG-END	5650868-5 20-8477-048-002-025	TYCO ELECTRONICS AMP KYOCERA
Q201-204	4	5060-3457	ASSY-HS IRF830		
Q201-204a	1	0361-1641	EYELET-RLD-FLG .121-OD .187-LG .0095-THK	GS 4-6 STEEL-TIN PLATE	STIMPSON EDWIN B
Q201-204b	1	1205-0282	HEAT SINK PLSTC-PWR-CS	6025D	AAVID THERMALLOY
Q201-204c	1	1855-0510	TRANSISTOR MOSFET N-CHAN E-MODE TO-220	IRF830	VISHAY
Q208	1	1854-0087	TRANSISTOR NPN 2N3417 SI PD=360MW	CEN897	CENTRAL SEMICONDUCTOR
Q301, 302	2	5060-3382	ASSY-FET HS		
Q301, 302a	1	0515-0104	SCREW-MACH M3 X 0.5 8MM-LG PAN-HD ; SCREW-MACHINE ; M3.0 X 0.50; 8 MM LONG	0515-0104 0515-0104 0515-0104 0515-0104	HOUSE OF METRICS ILLINOIS TOOL WORKS MID-CONTINENT SCREW PROD TEXTRON
Q301, 302b	1	1855-0670	TRANSISTOR MOSFET N-CHAN E-MODE TO-220AB	IRF540	VISHAY
Q301, 302c	1	3050-0891	WASHER-FL MTLC 3.0 3.3-MM-ID 6.85-MM-OD; WASHER-FLAT; FITS SCREW SIZE: 3.0 MM	3050-0891	HOUSE OF METRICS
Q301, 302d	1	1205-0298	HEAT SINK PLSTC-PWR-CS	6030D	AAVID THERMALLOY
Q301, 302e	1	0535-0031	NUT-HEX; W/LOCKWASHER M3 X 0.5 2.4MM-THK; M3 X 0.5 THREAD; 5	0535-0031	HOUSE OF METRICS
Q303	1	1854-0828	TRANSISTOR NPN SI DARL TO-220AB PD=65W	NTD560 TIP122G	NEC ELECTRONICS ON SEMICONDUCTOR
Q305	1	1853-0569	TRANSISTOR PNP SI TO-92 PD 310MW	2N5087RLRAG	ON SEMICONDUCTOR
Q401	1	5060-2942	ASSY-HS 317T		
Q401a	1	1826-0393	IC PWR MGT-V-REG-ADJ-POS 1.2/37V 3 PINS	LM317T-NOPB	NATIONAL SEMICONDUCTOR
Q401b	1	1205-0282	HEAT SINK PLSTC-PWR-CS	6025D	AAVID THERMALLOY
Q401c	1	0361-1641	EYELET-RLD-FLG .121-OD .187-LG .0095-THK	GS 4-6 STEEL-TIN PLATE	STIMPSON EDWIN B
Q403	1	5060-2948	ASSY 7805/340T-5		
Q403a	1	1826-0122	IC PWR MGT-V-REG-FXD-POS 4.8/5.2V TO-220	LM340T-5 MC7805CTG	NATIONAL SEMICONDUCTOR ON SEMICONDUCTOR
Q403b	1	1205-0282	HEAT SINK PLSTC-PWR-CS	6025D	AAVID THERMALLOY
Q403c	1	0361-1641	EYELET-RLD-FLG .121-OD .187-LG .0095-THK	GS 4-6 STEEL-TIN PLATE	STIMPSON EDWIN B
R001, 343	2	0757-0447	RESISTOR 16.2K +-1pct .125W TF TC=0+-100	5053HD16K20F CMF-551622FT-1 NK4H.125W1%+/- 100PPM1622	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

**66104-60022 Power Board Assembly Parts List**

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R002, 319, 320, 331, 332, 351, 363	7	0699-2246	RESISTOR 25K +-0.05pct .125W TF TC=0+-5	PR1/10T525K0.05% PTF-5625K00AT-16 UXBA25K000A	PRECISION RESISTIVE PRODUCTS VISHAY VISHAY BC COMPONENTS
R003, 337	2	1810-0483	NET-RES 5 4.7K OHM 10-PIN	4310R-4B4-472 MSP10A03-472G 750-103-R4.7K	BOURNS VISHAY TT ELECTRONICS
R004	1	0699-3414	RESISTOR 45K +-0.05pct .1W TF TC=0+-5	PTF-5645K0AT-16 UXBA45K000A	VISHAY VISHAY BC COMPONENTS
R005, 6, 21, 23, 421	5	0698-3155	RESISTOR 4.64K +-1pct .125W TF TC=0+-100	5053HD4K640F CMF-554641FT-1 NK4H.125W1%+/- 100PPM4641	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R007	1	1810-0355	NET-RES 5 47.0K OHM 10-PIN	4310R-7F1-473 MSP10A03-473G 750-103-R47K SR547KOHMS +-2%	BOURNS VISHAY TT ELECTRONICS STC
R008, 9, 12, 422	4	0757-0346	RESISTOR 10 +-1pct .125W TF TC=0+-100	5053HD10R00F CMF-5510R0FT-1 NK4H.125W1%+/- 100PPM10R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R010	1	0698-4123	RESISTOR 499 +-1pct .125W TF TC=0+-100	5053HD499R0F CMF-554990FT-1 NK4H.125W1%+/- 100PPM499R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R011	1	0698-6619	RES-FXD 15K +-0.1PCT 0.125W TC 0+-25 0207	CMF-551502BT-9 MBB0207-25 0.1%__15K	VISHAY VISHAY BC COMPONENTS
R013, 215-217, 224, 228, 229, 232, R239, 335	10	0757-0442	RESISTOR 10K +-1pct .125W TF TC=0+-100	5053HD10K00F CMF-551002FT-1 NK4H.125W1%+/- 100PPM1002	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R015	1	1810-0206	NET-RES 7 10.0K OHM 8-PIN	750-81 MSP08A01-103G 4308R-94Y-103LF	TT ELECTRONICS VISHAY BOURNS

**66104-60022 Power Board Assembly Parts List**

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R016, 247, 329, 330, 345, 409-411, R424, 430	10	0757-0280	RESISTOR 1K +-1pct .125W TF TC=0+-100	5053HD1K000F CMF-551001FT-1 NK4H.125W1%+/- 100PPM1001	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R018, 19	2	0698-0082	RESISTOR 464 +-1pct .125W TF TC=0+-100	5053HD464R0F CMF-554640FT-1 NK4H.125W1%+/- 100PPM464R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R020	1	0698-4202	RESISTOR 8.87K +-1pct .125W TF TC=0+-100	5053HD8K870F CMF-558871FT-1 NK4H.125W1%+/- 100PPM8871	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R022, 347, 350, 360, 416	5	8159-0005	RESISTOR 0 CWM	106 L-2007-1 YZO 1/4 Z-25 Z25C	MICRO-OHM GETTIG ENGRG & MFG TT ELECTRONICS ASJ KOA
R024, 236	2	0757-0430	RESISTOR 2.21K +-1pct .125W TF TC=0+-100	5053HD2K210F CMF-552211FT-1 NK4H.125W1%+/- 100PPM2211	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R025	1	1810-0279	NET-RES 9 4.7K OHM 10-PIN	750-101 MSP10A01-472G 4310R-6F4-472LF	TT ELECTRONICS VISHAY BOURNS
R026	1	1810-0280	NET-RES 9 10.0K OHM 10-PIN	750-101 MSP10A01-103G 4310R-94Y-103LF	TT ELECTRONICS VISHAY BOURNS
R027, 402	2	0699-0486	RESISTOR 2K +-0.1pct .1W TF TC=0+-10	PR1/10TC102K0.1% PTF-562K0BT-13 UXBB2K0000B	PRECISION RESISTIVE PRODUCTS VISHAY VISHAY BC COMPONENTS
R028	1	0698-3445	RESISTOR 348 +-1pct .125W TF TC=0+-100	5053HD348R0F CMF-553480FT-1 NK4H.125W1%+/- 100PPM348R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

### 66104-60022 Power Board Assembly Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R201, 202	2	0764-0045	RESISTOR 22K +-5pct 2W MO TC=0+-200	FP69 22K0 5% GS-3-2202J MO2C__223J	VISHAY TT ELECTRONICS KOA
R203, 212, 218, 219, 339, 341	6	0698-3430	RESISTOR 21.5 +-1pct .125W TF TC=0+-100	5053HD21R50F CMF-5521R5FT-1 NK4H.125W1%+/- 100PPM21R5	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R204, 214	2	0757-0403	RESISTOR 121 +-1pct .125W TF TC=0+-100	5053HD121R0F CMF-551210FT-1	VISHAY BC COMPONENTS VISHAY
R205, 213	2	0683-0335	RESISTOR 3.3 +-5PCT .25W CF TC=0-400	CF 14 3R 5% CF1/4C____3R3J	ASJ KOA
R206, 208, 407, 408	4	0757-0407	RESISTOR 200 +-1pct .125W TF TC=0+-100	5053HD200R0F CMF-552000FT-1 NK4H.125W1%+/- 100PPM200R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R210, 211, 237, 238	4	0698-3631	RESISTOR 330 +-5pct 2W MO TC=0+-200	FP69 330R 5% GS-33300	VISHAY TT ELECTRONICS
R220	1	1810-0203	NET-RES 7 470.0 OHM 8-PIN	4308R-94Y-471 750-81 MSP08A01-471G	BOURNS TT ELECTRONICS VISHAY
R221	1	0757-0290	RESISTOR 6.19K +-1pct .125W TF TC=0+-100	5053HD6K190F CMF-556191FT-1	VISHAY BC COMPONENTS VISHAY
R222, 314, 419	3	0757-0449	RESISTOR 20K +-1pct .125W TF TC=0+-100	5053HD20K00F CMF-552002FT-1 NK4H.125W1%+/- 100PPM2002	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R223	1	0698-3446	RESISTOR 383 +-1pct .125W TF TC=0+-100	5053HD383R0F CMF-553830FT-1 NK4H.125W1%+/- 100PPM383R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

**66104-60022 Power Board Assembly Parts List**

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R225	1	0757-0279	RESISTOR 3.16K +-1pct .125W TF TC=0+-100	5053HD3K160F CMF-553161FT-1 NK4H.125W1%+/- 100PPM3161	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R234	1	0757-0401	RESISTOR 100 +-1pct .125W TF TC=0+-100	5053HD100R0F CMF-551000FT-1	VISHAY BC COMPONENTS VISHAY
R235, 304, 307, 364	4	0698-3279	RESISTOR 4.99K +-1pct .125W TF TC=0+-100	5053HD4K990F CMF-554991FT-1 NK4H.125W1%+/- 100PPM4991	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R240	1	0698-4406	RESISTOR 115 +-1pct .125W TF TC=0+-100	CMF-551150FT-1 5053HD115R0F NK4H.125W1%+/- 100PPM115R0	VISHAY VISHAY BC COMPONENTS E-SIL COMPONENTS
R241, 324, 354	3	0757-0283	RESISTOR 2K +-1pct .125W TF TC=0+-100	5053HD2K000F CMF-552001FT-1 NK4H.125W1%+/- 100PPM2001	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R242, W001	2	7175-0057	RESISTOR 0 CWM	5020CX0R000S12AAZ 5020CX0R000S12AAZ 7175-0057 V-10-22	VISHAY BC COMPONENTS VISHAY DOVER VESTAL ELECTRONIC DEVICES
R244	1	0698-3159	RESISTOR 26.1K +-1pct .25W TF TC=0+-100	MFS 1/4 D C ___ 2612 F 5053HD26K10F CMF-552612FT-1 NK4H.125W1%+/- 100PPM2612	KOA VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R245, 246, 316	3	0698-8827	RESISTOR 1M +-1pct .125W TF TC=0+-100	5053HD1M000F CMF-551004FT-1	VISHAY BC COMPONENTS VISHAY
R249	1	0757-0462	RESISTOR 75K +-1pct .125W TF TC=0+-100	5053HD75K00F CMF-557502FT-1 NK4H.125W1%+/- 100PPM7502	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

### 66104-60022 Power Board Assembly Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R250	1	0698-4099	RESISTOR 139 +-1pct .125W TF TC=0+-100	CMF-551390FT-1 230618681391 NK4H.125W1%+/- 100PPM139R0	VISHAY VISHAY BC COMPONENTS E-SIL COMPONENTS
R301, 302	2	0811-3896	RES 20 5pct 10W	CPCP-10 20 5% PV10SX-20 OHMS 5% PWRN10-2R-5%	VISHAY RCD COMPONENTS TT ELECTRONICS
R303	1	5080-2224	SHUNT .035 OHMS		
R305, 306	2	0698-3572	RESISTOR 60.4K +-1pct .125W TF TC=0+-100	5053HD60K40F CMF-556042FT-1 NK4H.125W1%+/- 100PPM6042	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R308, 317, 349	3	0757-0472	RESISTOR 200K +-1pct .125W TF TC=0+-100	5053HD200K0F CMF-552003FT-1 NK4H.125W1%+/- 100PPM2003	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R310	1	0757-0946	RESISTOR 8.2K +-2pct .125W TF TC=0+-100	B0207C8K200F CMF-55822GT-1	VISHAY BC COMPONENTS VISHAY
R311, 318	2	0757-0349	RESISTOR 22.6K +-1pct .125W TF TC=0+-100	5053HD22K60F CMF-552262FT-1 NK4H.125W1%+/- 100PPM2262	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R312, 322	2	0699-0070	RESISTOR 3.16M +-1pct .125W TF TC=0+-100	B0207C3M160F CMF-553164FT-1	VISHAY BC COMPONENTS VISHAY
R313	1	0698-3493	RESISTOR 4.12K +-1pct .125W TF TC=0+-100	5053HD4K120F CMF-554121FT-1 NK4H.125W1%+/- 100PPM4121	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R313	1	0757-0427	RESISTOR 1.5K +-1pct .125W TF TC=0+-100	5053HD1K500F CMF-551501FT-1 NK4H.125W1%+/- 100PPM1501	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

**66104-60022 Power Board Assembly Parts List**

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R315	1	0698-4435	RESISTOR 2.49K +-1pct .125W TF TC=0+-100	5053HD2K490F CMF-552491FT-1 NK4H.125W1%+/- 100PPM2491	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R321, 346	2	0699-2248	RESISTOR 47.5K +-0.05pct .125W TF TC=0+-5	PR1/10T547K5.05% PTF-5647K50AT-16 UXBA47K500A	PRECISION RESISTIVE PRODUCTS VISHAY VISHAY BC COMPONENTS
R323A, 323B, 340A, 340B	4	0698-4356	RESISTOR 12.7 +-1pct .125W TF TC=0+-100	CMF-5512R7FT-1 5053HD12R70F NK4H.125W1%+/- 100PPM12R7	VISHAY VISHAY BC COMPONENTS E-SIL COMPONENTS
R325, 326	2	0699-3415	RES-FXD 5K +-0.05PCT .1W TF TC=0+-5	PTF-565K0AT-16 UXBA5K0000A	VISHAY VISHAY BC COMPONENTS
R327, 328	2	0699-3446	RESISTOR 125K +-0.05pct .1W TF TC=0+-5	MAR5-T16-125K-0.05% PTF-56-7-125KAT-16 UXBA125K00A	TT ELECTRONICS VISHAY VISHAY BC COMPONENTS
R333	1	0757-0443	RESISTOR 11K +-1pct .125W TF TC=0+-100	5053HD11K00F CMF-551102FT-1 NK4H.125W1%+/- 100PPM1102	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R334	1	0698-8607	RES-FXD 4.5K +-0.1PCT 0.6W TC 0+-25	CMF-554501BT-9 MBB0207-25 0.1%__4.5K	VISHAY VISHAY BC COMPONENTS
R336	1	0699-3449	RESISTOR 4.5K +-0.05pct .1W TF TC=0+-5	MAR5-T16-4K5-0.05% PTF-56-7-4K5AT-16 UXBA4K5000A	TT ELECTRONICS VISHAY VISHAY BC COMPONENTS
R338	1	0699-3416	RES-FXD 100K +-0.05PCT .25W TC 0+-5 0207	PTF-56100K0AT-16 UXB02070G1003A__00	VISHAY VISHAY BC COMPONENTS
R342	1	0757-0463	RESISTOR 82.5K +-1pct .125W TF TC=0+-100	5053HD82K50F CMF-558252FT-1 NK4H.125W1%+/- 100PPM8252	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS



**66104-60022 Power Board Assembly Parts List**

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R342	1	0757-0470	RESISTOR 162K +-1pct .125W TF TC=0+-100	5053HD162K0F CMF-551623FT-1 NK4H.125W1%+/- 100PPM1623	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R343	1	0757-0446	RESISTOR 15K +-1pct .125W TF TC=0+-100	5053HD15K00F CMF-551502FT-1 NK4H.125W1%+/- 100PPM1502	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R344	1	0698-4509	RESISTOR 80.6K +-1pct .125W TF TC=0+-100	5053HD80K60F CMF-558062FT-1 NK4H.125W1%+/- 100PPM8062	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R348	1	0757-0444	RESISTOR 12.1K +-1pct .125W TF TC=0+-100	5053HD12K10F CMF-551212FT-1	VISHAY BC COMPONENTS VISHAY
R352	1	0683-2255	RESISTOR 2.2M +-5pct .25W CF TC=0-830	CF 14 2M 5% CF1/4C__225J	ASJ KOA
R353	1	0698-6376	RESISTOR 200K +-0.1pct .125W TF TC=0+-25	B0207E200K0B CMF-552003BT-9	VISHAY BC COMPONENTS VISHAY
R359	1	0698-6320	RES-FXD 5K +-0.1PCT 0.125W TC 0+-25 0207	CMF-555001BT-9 MBB0207-25 0.1%__5K	VISHAY VISHAY BC COMPONENTS
R361	1	0698-6359	RESISTOR 80K +-0.1pct .125W TF TC=0+-25	B0207E80K00B CMF-558002BT-9	VISHAY BC COMPONENTS VISHAY
R362	1	0757-0465	RESISTOR 100K +-1pct .125W TF TC=0+-100	5053HD100K0F CMF-551003FT-1 NK4H.125W1%+/- 100PPM1003	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R364, 420	2	0698-6358	RES-FXD 100K +-0.1PCT 0.125W TC 0+-25 0207	RNS 1/8 E C __ 1003 B CMF-551003BT-9 MBB0207-25 0.1%__100K	KOA VISHAY VISHAY BC COMPONENTS
R401	1	0699-1069	RESISTOR 229 +-0.1pct .125W TF TC=0+-25	B0207E229R0B CMF-552290BT-9	VISHAY BC COMPONENTS VISHAY

### 66104-60022 Power Board Assembly Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R423, 428	2	0698-8812	RESISTOR 1 +-1pct .125W TF TC=0+-100	5053HD1R000F CMF-551R0FT-1	VISHAY BC COMPONENTS VISHAY
REF F201	2	2110-1107	FUHLR-CLP-TYP	1A1907-03	COOPER INDUSTRIES
REF J103, P301	4	0361-1372	RIVET-SPCLY UNIV-HD .094DIA .392LG	1189-2512	TEXTRON
REF L204-211	8	5080-2251	BEAD-FERRITE		
REF L304	1	5080-2253	PIN-ESCUTCHEON		
REF T202	1	5060-3549	ASSY-WIRE KIT		
REF U1	1	1200-1274	SOCKET-IC-PLCC 68-CONT SQUARE DIP-SLDR	1-822473-6 PLCC68PT2	TYCO ELECTRONICS AMP FCI FRAMATOME BERG
REF U2	1	1200-0567	SOCKET-IC-DIP 28-CONT DIP DIP-SLDR	1-390262-2 DILB28P223TLF	TYCO ELECTRONICS AMP FCI FRAMATOME BERG
REF U5, 6	2	1200-0639	SOCKET-IC-DIP 20-CONT DIP DIP-SLDR	1-390261-6 DILB20P-223TLF	TYCO ELECTRONICS AMP FCI FRAMATOME BERG
RT301	1	0837-0397	THERMISTOR CYL CHIP 10K-OHM	135-103LFW-J01	HONEYWELL
S003	1	3101-2243	SWITCH-DIP RKR 8-1A 0.05A 30VDC	76YY22318ST	GRAYHILL
S201	1	3101-2966	SWITCH-SL DPDT STD 5A 250VAC PC	4021.4922	MARQUARDT
T201	1	9100-5001	XFMR-POWER	9100-5001	AGILENT TECHNOLOGIES
T202	1	9140-0974	INDUCTOR-FIXED CURRENT SENSE INDUCTOR:	PE-51718	TECHNITROL
U001	1	1821-1479	IC 16-BIT MCU 16-MHZ CMOS 68-PLCC	C	INTEL
U002	1	5080-2529	ROM-PRGMD 1818-2529		
U002a		1818-4855	IC 512K-BIT OTP 90-NS CMOS	M27C512-90B6	STMICROELECTRONICS
U003	1	1818-4134	IC 64K BIT SRAM 20-NS CMOS 28-DIP	CY7C185-20PXC	CYPRESS SEMICONDUCTOR
U004	1	1820-2724	IC LCH TTL/ALS TRANSPARENT OCTL	DM74ALS573BN SN74ALS573CN	FAIRCHILD SEMICONDUCTOR TEXAS INSTRUMENTS
U005	1	5080-2236	PRGMD-GAL,DECODE 1820-5398		
U005a		1820-5398	IC PLD EEPLD UNPRGMD CMOS GAL16V8	GAL16V8D-25QP	LATTICE SEMICONDUCTOR
U006	1	5080-2530	GAL-PRGMD 1820-5398		
U006a	1	1820-5398	IC PLD EEPLD UNPRGMD CMOS GAL16V8	GAL16V8D-25QP	LATTICE SEMICONDUCTOR
U007	1	1826-2402	D/A 12-BIT 24-PLASTIC CMOS	MX7837KN+ AD7837BNZ	MAXIM INTEGRATED PRODUCTS ANALOG DEVICES
U011	1	1826-2284	IC PWR MGT-V-REF-FXD 2.4/2.6V 8 PINS	LT1019ACN8-2.5	LINEAR TECHNOLOGY
U012	1	1826-2484	A/D 16-BIT 20-PLASTIC CMOS	CS5501-BP	CIRRUS LOGIC
U013	1	1820-3399	IC FF CMOS/HC D-TYPE POS-EDGE-TRIG COM	MM74HC273N SN74HC273N MC74HC273ANG	FAIRCHILD SEMICONDUCTOR TEXAS INSTRUMENTS ON SEMICONDUCTOR
U014	1	1826-1409	IC OP AMP LOW-NOISE DUAL 8 PIN DIP-P	LT1013CN8	LINEAR TECHNOLOGY

**66104-60022 Power Board Assembly Parts List**

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
U015	1	1826-1021	ANALOG MULTIPLEXER CHNL 16 -DIP-P	DG508ACJ ADG508AKNZ	VISHAY ANALOG DEVICES
U017, 19, U018, 20, 204, 306	7	1990-1502	OPTO-ISOLATOR LED-PDIO IF=8MA-MAX BVR=5V	HCPL-4503-000E	AVAGO TECHNOLOGIES
U021, 23	2	1820-2110	IC INTERFACE DRVR BIPOLAR NAND DUAL	SN75477P	TEXAS INSTRUMENTS
U024, 302	2	1826-1896	IC OP AMP PRCN 8 PIN DIP-P	LT1001CN8 LT1001CN8	LINEAR TECHNOLOGY MAXIM INTEGRATED PRODUCTS
U026	1	1826-2341	IC PWR MGT-V-REG-SWG 8 PINS DIP-P PKG	TL7702BCP	TEXAS INSTRUMENTS
U201, 202	2	1820-8433	IC INTERFACE DRVR MOS GATED HIGH VOLTAGE	IR2110	INTERNATIONAL RECTIFIER
U203	1	1826-2075	IC PWR MGT-V-REG-SWG 0/13.5V 16 PINS	UC3825N	TEXAS INSTRUMENTS
U205	1	1858-0069	TRANSISTOR ARRAY 18-LEAD PLSTC DIP	ULN2803A	STMICROELECTRONICS
U206	1	1826-0175	IC COMPARATOR GP DUAL 14 PIN DIP-P	LM319NNOPB	NATIONAL SEMICONDUCTOR
U22	1	1819-0161	IC 2K-BIT EEPROM 10-MS CMOS 8-PDIP	AT93C56A-10PU-2.7	ATMEL
U301	1	1826-0962	IC OP AMP LOW-BIAS-H-IMPED DUAL 8 PIN	LF412CNNOPB	NATIONAL SEMICONDUCTOR
U303	1	1826-1370	IC COMPARATOR QUAD 16 PIN DIP-P		
U304	1	1826-1895	IC OP AMP PRCN 8 PIN DIP-P	LT1001ACN8	LINEAR TECHNOLOGY
U305	1	1826-1553	IC OP AMP PRCN QUAD 14 PIN DIP-P	LT1014DN	LINEAR TECHNOLOGY
U307	1	1826-0346	IC OP AMP GP DUAL 8 PIN DIP-P	LM358NNOPB	NATIONAL SEMICONDUCTOR
VR201	1	1902-0968	DIODE-ZNR 27V 5pct DO-35 PD=.4W TC=+.095pct	1N971B	MICROSEMI
VR302	1	1902-0951	DIODE-ZNR 5.1V 5pct DO-35 PD=.4W TC=+.035pct	SZ30035-9RL 1N5231B	TAK CHEONG ELECTRONICS MICRO COMMERCIAL COMPONENTS
VR304, 305	2	1902-0018	DIODE-ZNR 1N941 11.7V 5pct DO-7 PD=.5W	1N941	MICROSEMI
Y001	1	0410-2109	CRYSTAL-QUARTZ 12.000 MHZ	AT-51-12.000MHZ HC49S-12MHZ KD2109	NIHON DEMP KOGYO FOX ELECTRONICS KYUSHU DENTSU

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