

**Agilent 66102A
Component Level
Information**

Agilent 66102A

DC Power Module 20V, 7.5A

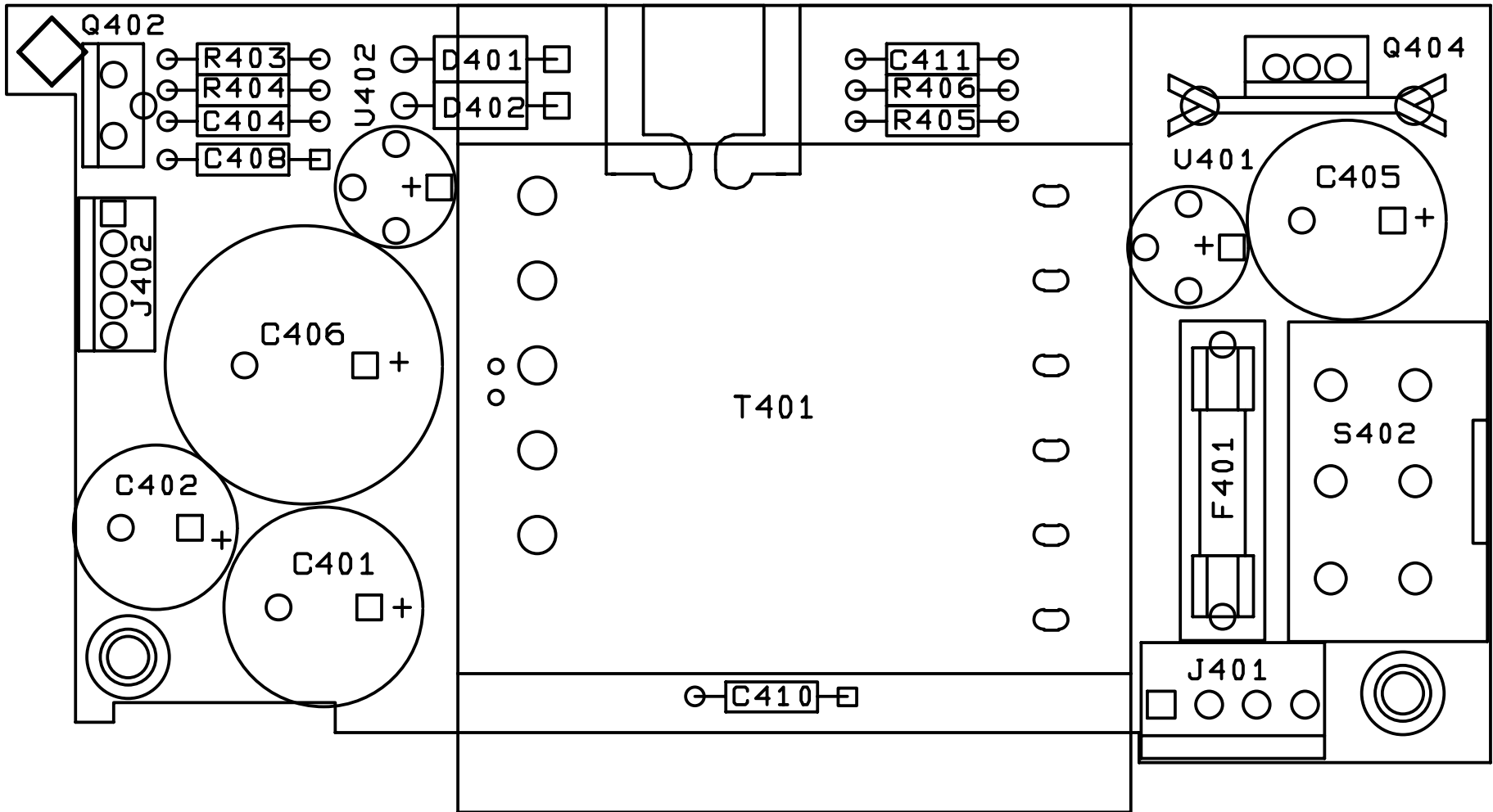
Component Level Information

Information in this packet applies to the following assemblies:

- 1. 5060-3352 Bias Board Assembly**
- 2. 66102-60022 Power Board Assembly**

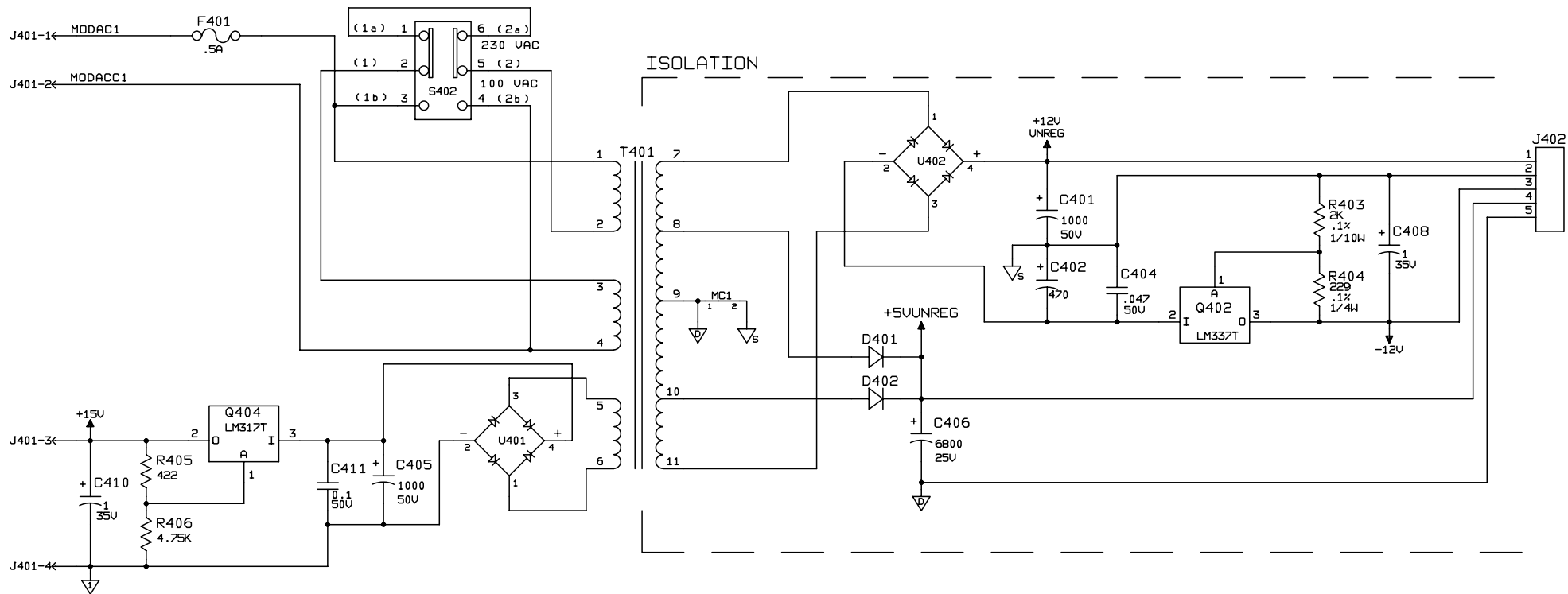
The following is included in this packet:

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



Agilent 66102A
DC Power Module, 20V, 7.5A

5060-3352
Bias Board Assembly
Component Locator



**Agilent 66102A
DC Power Module, 20V, 7.5A**

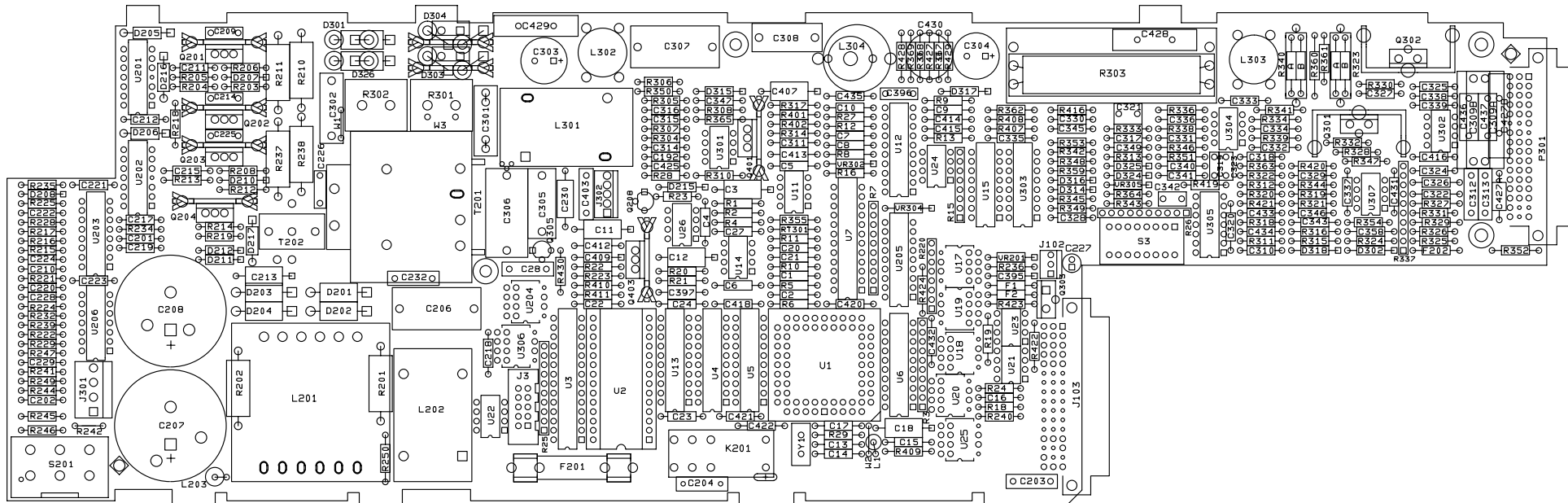
**5060-3352
Bias Board Assembly
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5060-3352 Bias Board Parts List

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

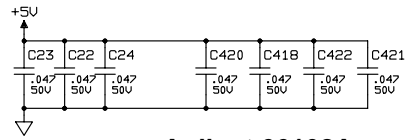
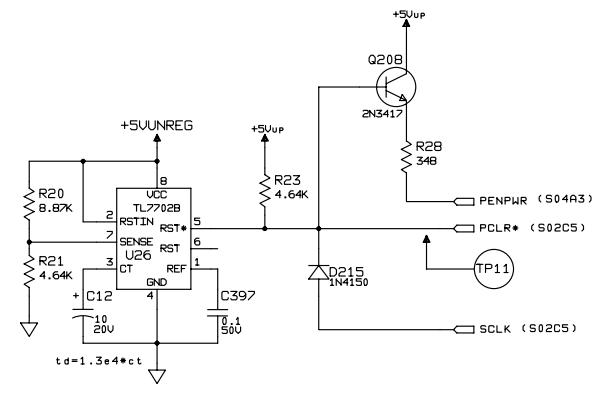
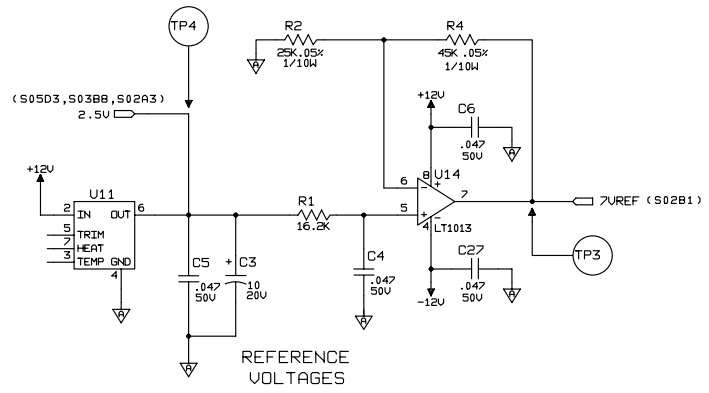
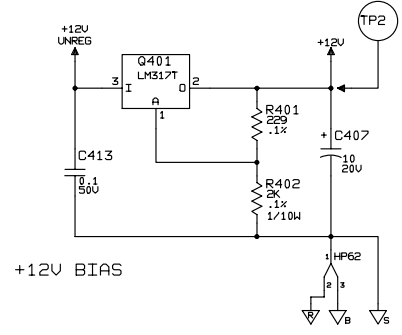
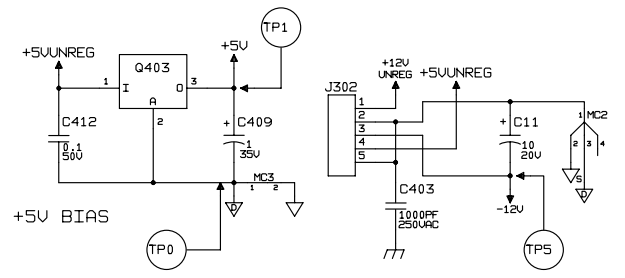
This assembly is used on the 66101A - 66106A. Not all components are loaded for every model. Each model is loaded with the unique parts for the specified output of that model.

Please refer to the Parts List that follows the schematics for the parts that are specific to the Agilent 66102A. The schematics indicate the parts loaded for the 66105A.

**Agilent 66102A
DC Power Module, 20V, 7.5A**

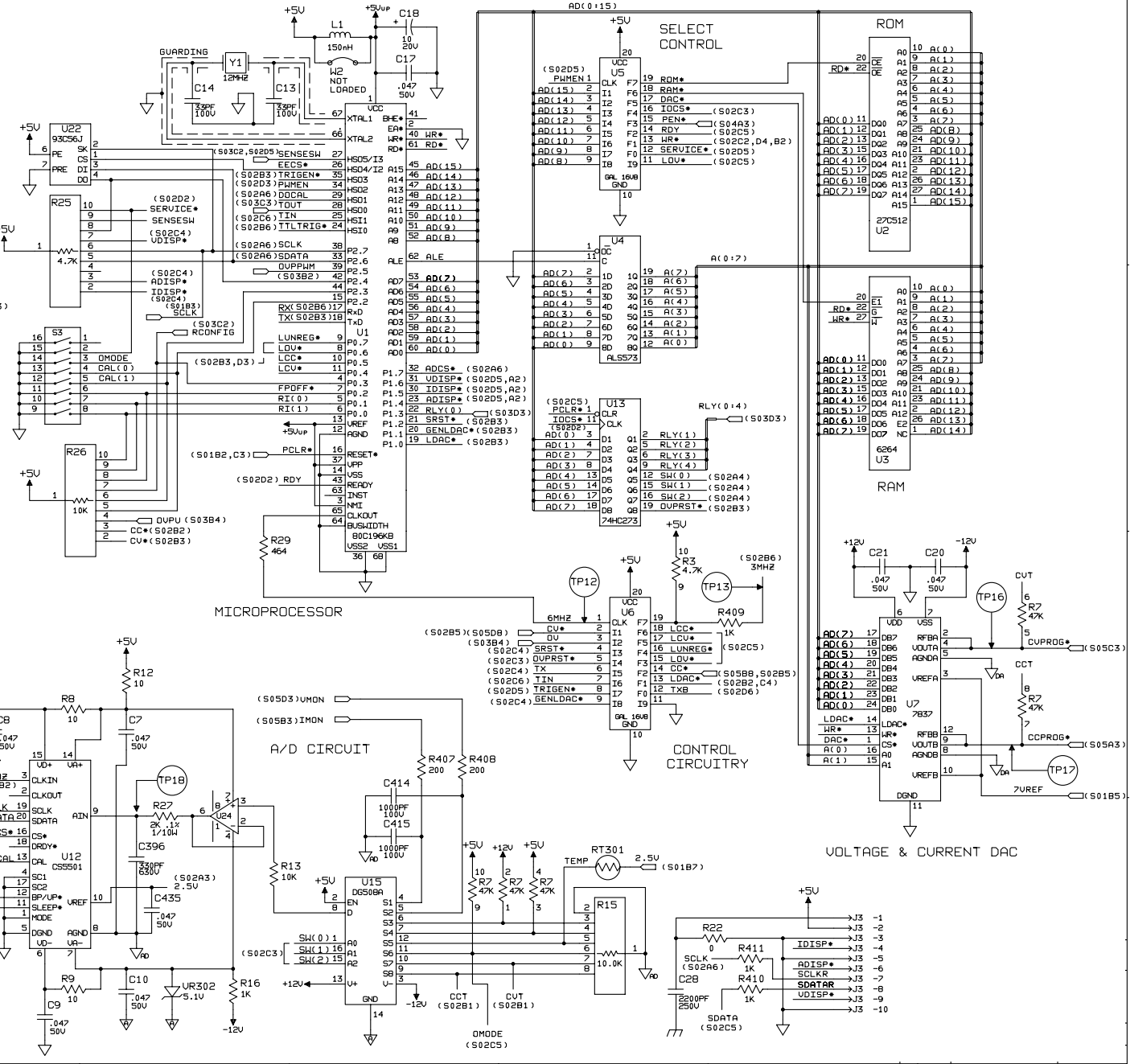
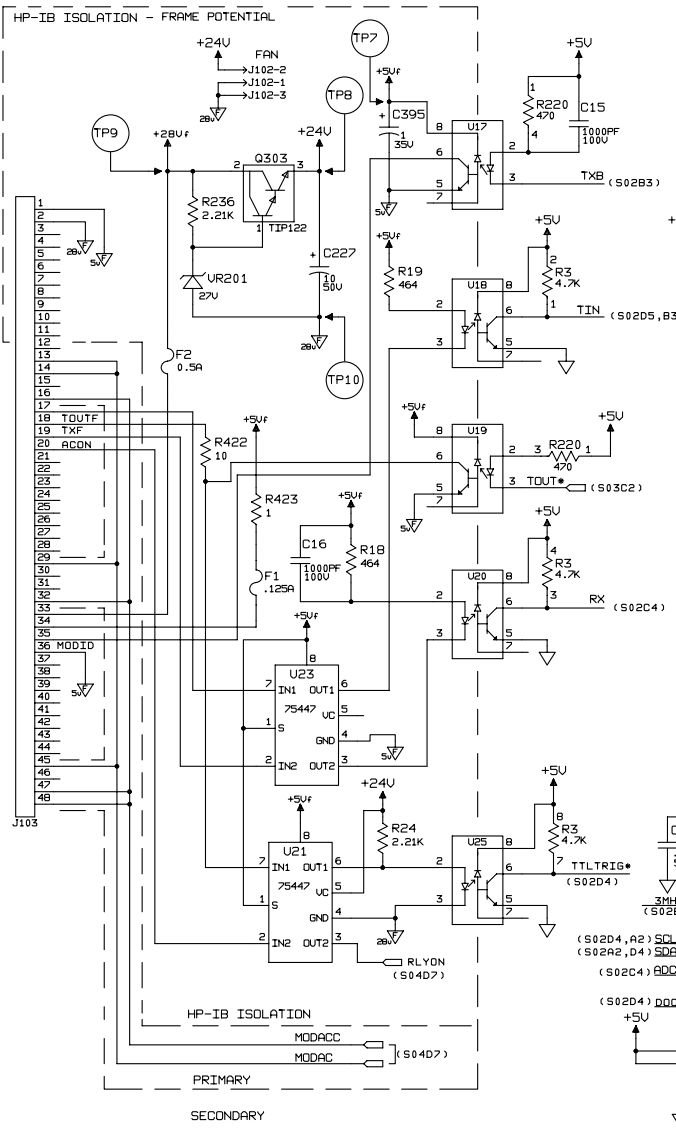
**66102-60022
Power Board Assembly
Component Locator**

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



**Agilent 66102A
 DC Power Module, 20V, 7.5A**

HP-IB ISOLATION CIRCUITS

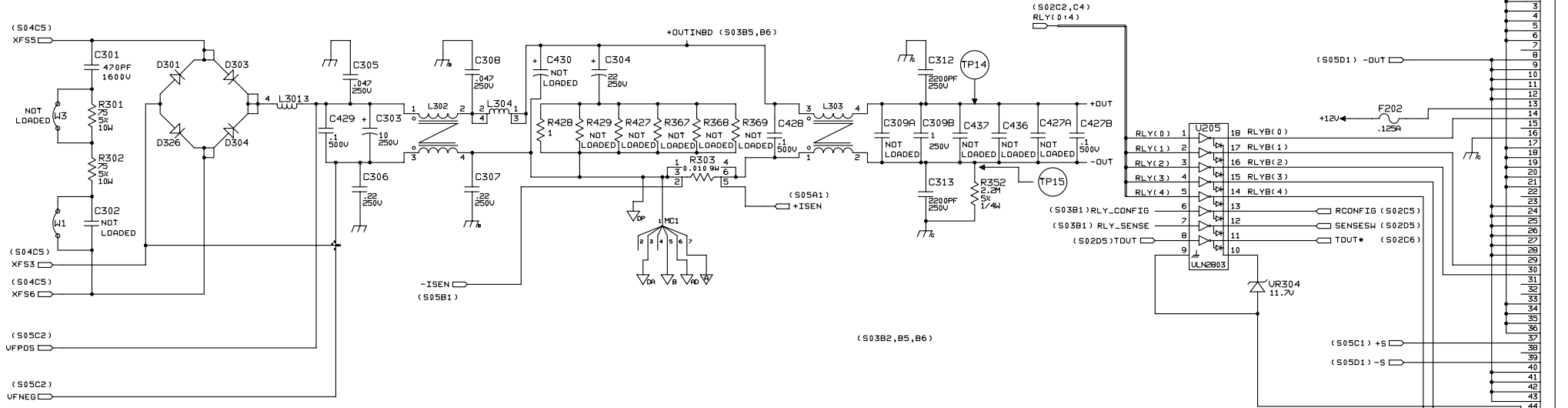


Agilent 66102A
 DC Power Module, 20V, 7.5A
 66102-60022
 Power Board Assembly
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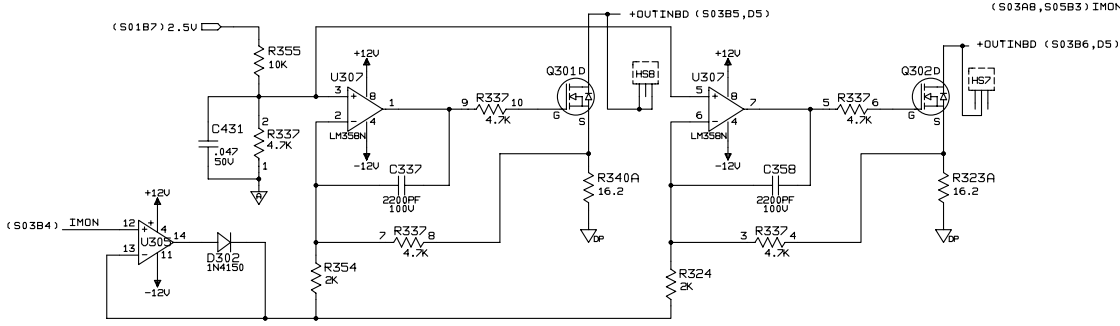
— SECONDARY —

MODULE OUTPUT CONNECTOR

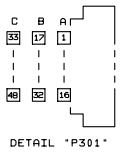
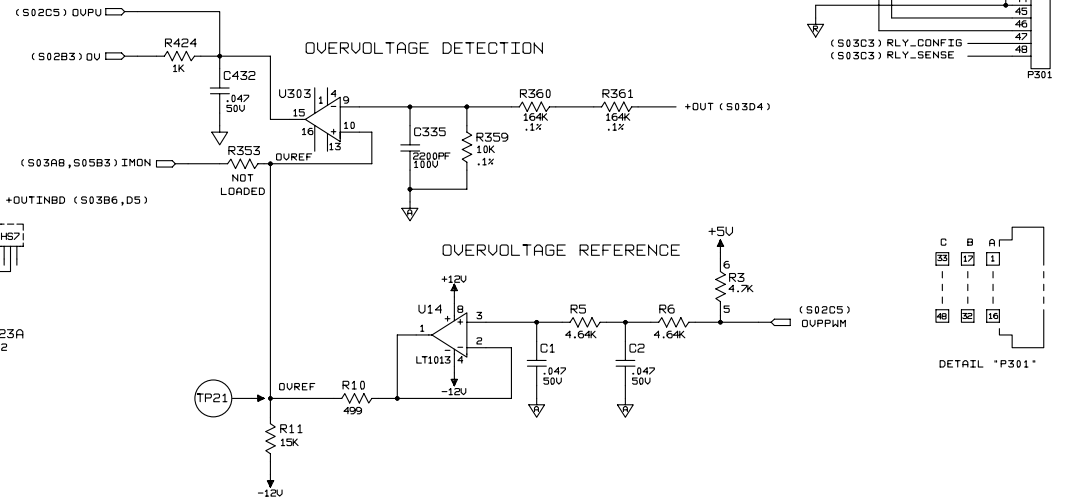
OUTPUT FILTER



DOWN PROGRAMMER

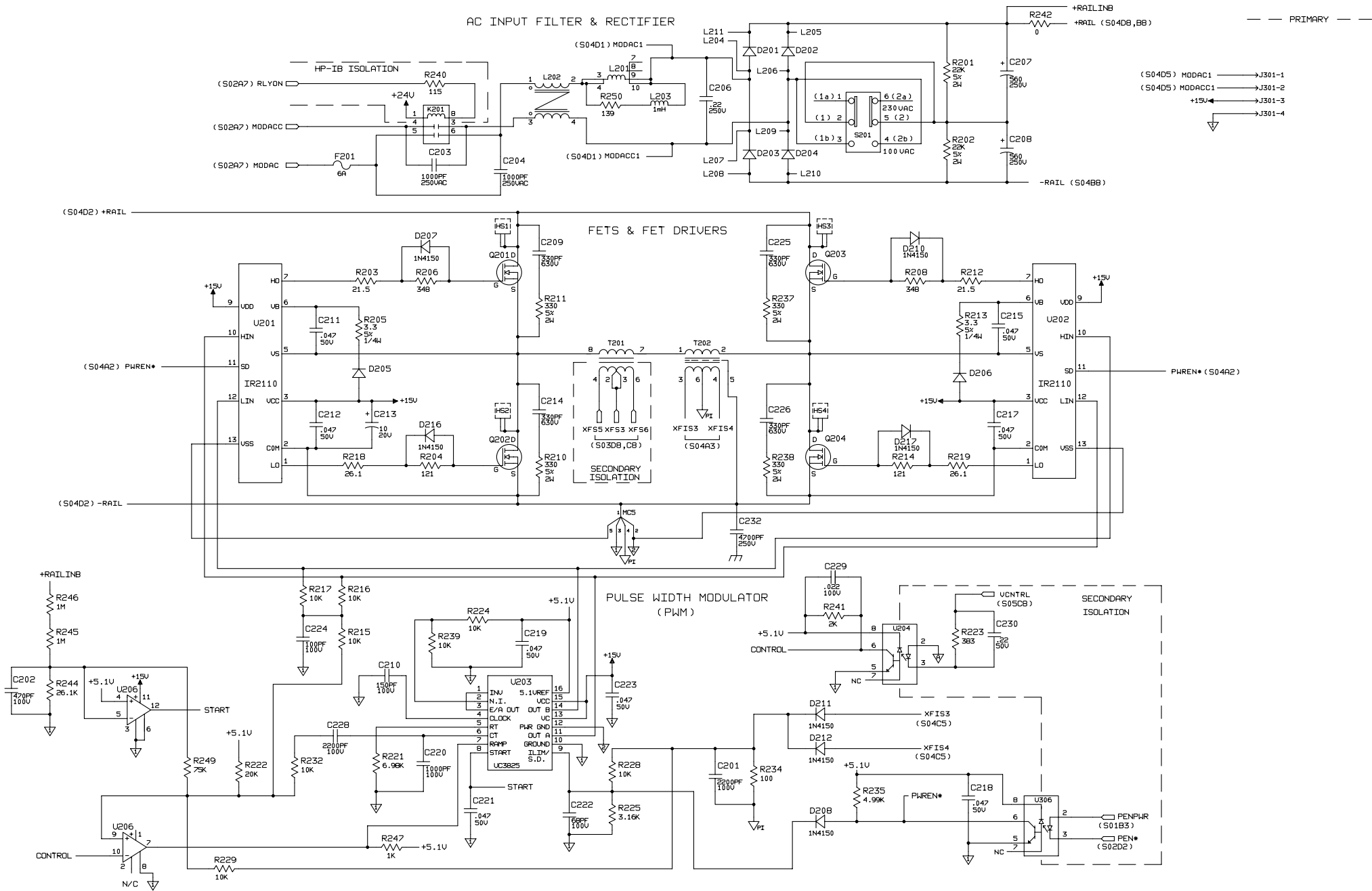


OVERVOLTAGE DETECTION



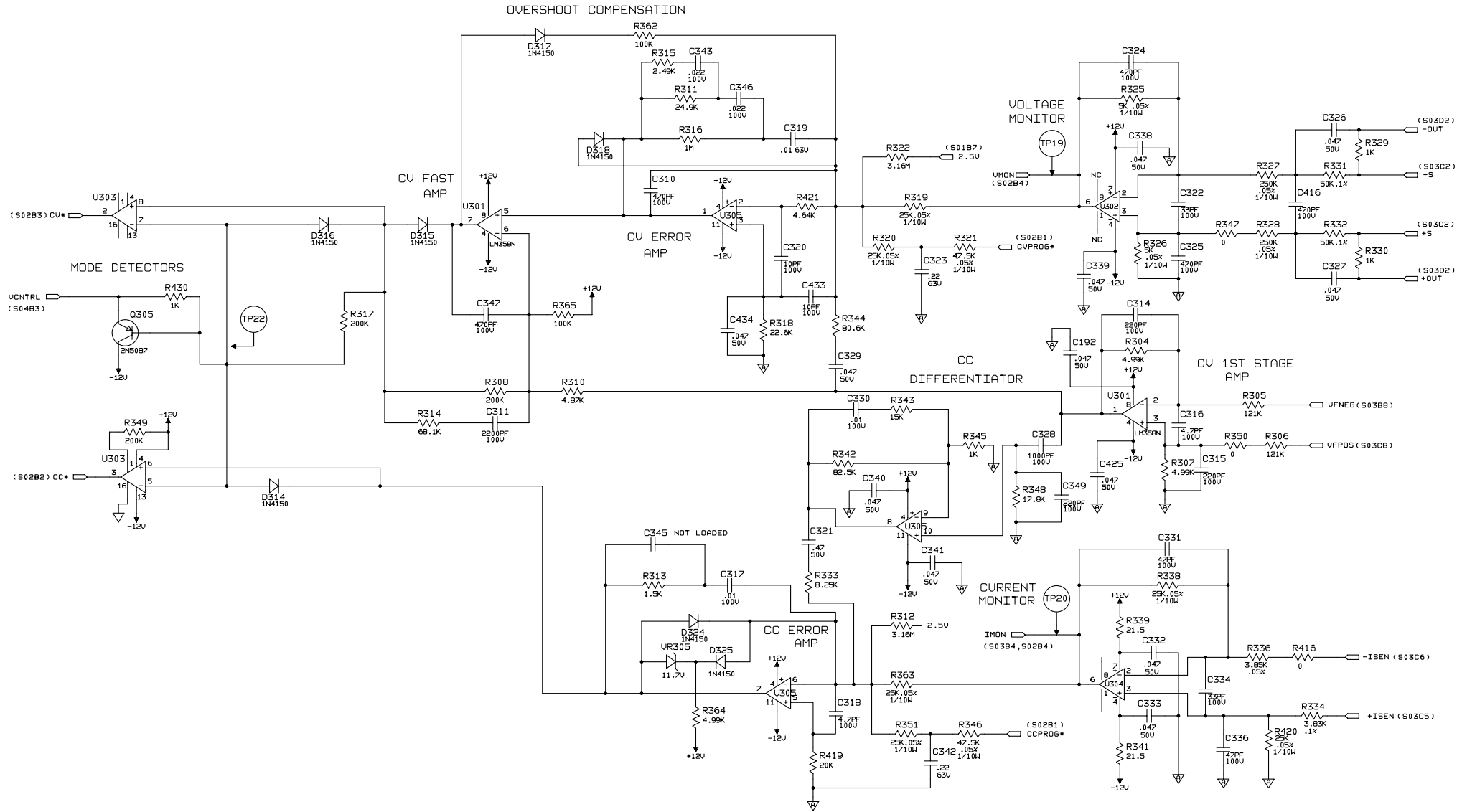
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DC Power Module, 20V, 7.5A

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Power Board Assembly
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DC Power Module, 20V, 7.5A

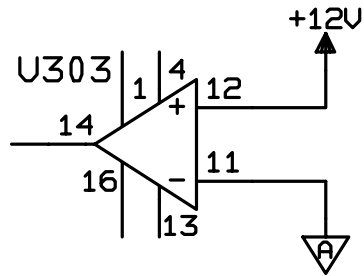
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**Agilent 66102A
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Power Board Assembly
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UNUSED GATES/SIP 'S

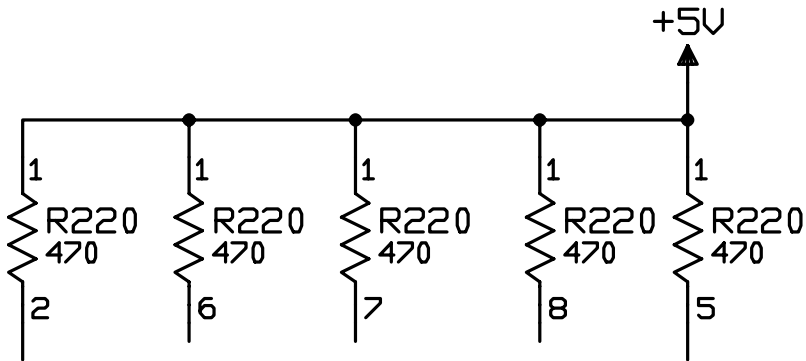


POWER

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

GND

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



Agilent 66102A
DC Power Module, 20V, 7.5A

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Power Board Assembly
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66102-60022 Power Board 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, C343, 404, 418, 420-422, 425, 431, C432, 435	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%,4X8.5X1 3.5, 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/PCN	WIMA
C210	1	0160-4814	CAP-FXD 150pF +-5pct 100 V CER C0G	C410C151J1G5CA SA101A151JAAH SA101A151JAAH	KEMET ELECTRONICS AVX KYOCERA

66102-60022 Power Board 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
C301	1	0161-1632	CAP-FXD 1000pF +-5PCT 630V MIXED-FL	FKM 3 PCM10 1000PF/5/630	WIMA
C303, 304	2	0180-4400	CAP-FXD 220uF +-20PCT 63V AL-ELCTLT	UPM1J221MHD	NICHICON
C305, 308	2	0160-4323	CAP-FXD 0.047uF +-20PCT 275V PPR-MET	PME271M547MR30 MP3-X2- 0.047uF/275Vac/20%,7X15X1 9, Pitch15mm	EVOX/RIFA WIMA
C309A	1	0160-7562	CAP-FXD 6.8uF +-10pct 63 V POLYE-MET	MKS4 6.8UF/+/-10%/63VDC MKT 1822 568 06 5 MMK22.5685K63L4	WIMA VISHAY EVOX/RIFA
C311	1	0160-7001	CAP-FXD 3300pF +-10pct 100 V CER X7R	C410C332K1R5CA DA12X7R2A332K SA101C332KAAH	KEMET ELECTRONICS TDK AVX
C314, 315, 349	3	0160-4812	CAP-FXD 220pF +-5pct 100 V CER C0G	C410C221J1G5CA SA101A221JAAH SA101A221JAAH	KEMET ELECTRONICS AVX KYOCERA
C316, 318	2	0160-4795	CAP-FXD 4.7pF +-10.64pct 100 V CER C0G	C410C479D1G5CA SA102A4R7DAAH SA102A4R7DAAH	KEMET ELECTRONICS AVX KYOCERA
C317, 343	2	0160-4831	CAP-FXD 4700pF +-10pct 100 V CER X7R	C410C472K1R5CA SA101C472KAAH SA101C472KAAH	KEMET ELECTRONICS AVX KYOCERA
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

66102-60022 Power Board Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
C323, 342	2	0160-5892	CAP-FXD 0.22uF +-10PCT 63V POLYE-MET	MKT 1817 422 065 MMK5224K63J01L4 BULK	VISHAY EVOX/RIFA
C330	2	0160-4833	CAP-FXD 0.022uF +-10pct 100 V CER X7R	C420C223K1R5CA SA201C223KAAH SA201C223KAAH	KEMET ELECTRONICS AVX KYOCERA
C331, 336	2	0160-4787	CAP-FXD 22pF +-5pct 100 V CER C0G	C410C220J1G5CA SA101A220JAA SA101A220JAA	KEMET ELECTRONICS AVX KYOCERA
C346	1	0160-6616	CAP-FXD 6800pF +-5pct 100 V CER X7R	C410C682J1R5CA SA101C682JAAH	KEMET ELECTRONICS AVX
C395, 408-410	2	0180-4129	CAP-FXD 1uF +-10pct 35 V TA	TARR105K035 T322B105K035AS	AVX KEMET ELECTRONICS
C397, 411-413, 427A	4	0160-4835	CAP-FXD 0.1uF +-10pct 50 V CER X7R	C420C104K5R5CA SA105C104KAAH SA105C104KAAH	KEMET ELECTRONICS AVX KYOCERA
D201-204	4	1901-1087	DIODE-PWR RECT 600V 3A 200NS	GI856 MR856RLG	VISHAY ON SEMICONDUCTOR
D205, 206	2	1901-1214	DIODE-PWR RECT 600V 1A 50NS	MUR160RLG	ON SEMICONDUCTOR
D207, 208, 210-212, 215-217, 302, D314-316	12	1901-1098	DIODE-SWITCHING 1N4150 50V 200MA 4NS	1N4150 1N4150	FAIRCHILD SEMICONDUCTOR ROHM
D303, 304	2	5060-3479	ASSY 860/29-500		
D303, 304a	1	1901-1130	DIODE-GEN PRP 600V 8A 50NS TO-220AC	BYV29-500 MUR860G BYV29-500	PHILIPS ON SEMICONDUCTOR NXP
D303, 304b	1	0361-1641	EYELET-RLD-FLG .121-OD .187-LG .0095-THK	GS 4-6 STEEL-TIN PLATE	STIMPSON EDWIN B
D303, 304c	1	1205-0282	HEAT SINK PLSTC-PWR-CS	6025D	AAVID THERMALLOY
D303, 304d	2	7175-0057	RESISTOR 0 CWM	5020CX0R000S12AAZ 5020CX0R000S12AAZ 7175-0057 V-10-22	VISHAY BC COMPONENTS VISHAY DOVER VESTAL ELECTRONIC DEVICES
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-LS	0251.500 L	LITTELFUSE

66102-60022 Power Board Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
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
L204-211	8	5080-2251	BEAD-FERRITE		
L301	1	66102-80001	CHOKE-OUTPUT		
L302, 303	2	5080-2219	CHOKE-OUTPUT CM		
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-RDL-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-2	IRF830	VISHAY
Q208	1	1854-0087	TRANSISTOR NPN 2N3417 SI PD=360MW	CEN897	CENTRAL SEMICONDUCTOR
Q301, 302	2	5060-3382	ASSY-FET HS		

66102-60022 Power Board Parts List

Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
Q301, 302a	1	0515-0104	SCREW-MACH M3 X 0.5 8MM-LG PAN-HD ; SC	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-2	IRF540	VISHAY
Q301, 302c	1	3050-0891	WASHER-FL MTLC 3.0 3.3-MM-ID 6.85-MM-OD	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-T	0535-0031	HOUSE OF METRICS
Q303	1	1854-0828	TRANSISTOR NPN SI DARL TO-220AB PD=65V	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		
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-RDL-FLG .121-OD .187-LG .0095-THK	GS 4-6 STEEL-TIN PLATE	STIMPSON EDWIN B
R001	1	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
R002, 319, 320, 351, 363	5	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

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
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, 22, 422	5	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, 333, 355	11	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
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, 29	3	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

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
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, 206, 208	3	0698-3445	RESISTOR 348 +-1pct .125W TF TC=0+-100	5053HD348R0F CMF-553480FT-1 NK4H.125W1%+/- 100PPM348R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
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, 339, 341	4	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
R210, 211, 237, 238	4	0698-3631	RESISTOR 330 +-5pct 2W MO TC=0+-200	FP69 330R 5% GS-33300	VISHAY TT ELECTRONICS

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R218, 219	2	0698-3432	RESISTOR 26.1 +-1pct .125W TF TC=0+-100	5053HD26R10F CMF-5526R1FT-1 NK4H.125W1%+/- 100PPM26R1	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
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	0698-4470	RESISTOR 6.98K +-1pct .125W TF TC=0+-100	5053HD6K980F CMF-55698FT-1 NK4H.125W1%+/- 100PPM6981	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R222, 305, 306, 419	4	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
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

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
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, 311	2	0757-0462	RESISTOR 75K +-1pct .125W TF TC=0+-100	5053HD75K00F CMF-557502FT-1 NK4H.125W1%+/- 100PPM7502	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
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	5080-2218	SHUNT .01 OHMS		
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	0757-0446	RESISTOR 15K +-1pct .125W TF TC=0+-100	5053HD15K00F CMF-551502FT-1 NK4H.125W1%+/- 100PPM1502	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	0698-0084	RESISTOR 2.15K +-1pct .125W TF TC=0+-100	5053HD2K150F CMF-552151FT-1 NK4H.125W1%+/- 100PPM2151	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R314	1	0698-3162	RESISTOR 46.4K +-1pct .125W TF TC=0+-100	5053HD46K40F CMF-554642FT-1 NK4H.125W1%+/- 100PPM4642	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R315	1	0757-0439	RESISTOR 6.81K +-1pct .125W TF TC=0+-100	5053HD6K810F CMF-556811FT-1 NK4H.125W1%+/- 100PPM6811	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R318, 353	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
R321, 327, 328, 346, 361	5	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
R324, 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
R325, 326	2	0699-3415	RES-FXD 5K +-0.05PCT .1W TF TC=0+-5	PTF-565K0AT-16 UXBA5K0000A	VISHAY VISHAY BC COMPONENTS
R331, 332	2	0698-6631	RES-FXD 2.5K +-0.1PCT 0.125W TC 0+-25 0207	CMF-552501BT-9 MBB0207-25 0.1%__2.5K	VISHAY VISHAY BC COMPONENTS
R334	1	0698-7933	RESISTOR 3.83K +-0.1pct .125W TF TC=0+-25	B0207E3K830B CMF-553831BT-9	VISHAY BC COMPONENTS VISHAY
R336	1	0699-3417	RESISTOR 3.85K +-0.05pct .1W TF TC=0+-5	PTF-563K850AT-16 UXBA3K8500A	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

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R342	1	0698-3450	RESISTOR 42.2K +-1pct .125W TF TC=0+-100	5053HD42K20F CMF-554222FT-1 NK4H.125W1%+/- 100PPM4222	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R343	1	0757-0288	RESISTOR 9.09K +-1pct .125W TF TC=0+-100	5053HD9K090F CMF-559091FT-1 NK4H.125W1%+/- 100PPM9091	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	0757-0441	RESISTOR 8.25K +-1pct .125W TF TC=0+-100	5053HD8K250F CMF-558251FT-1 NK4H.125W1%+/- 100PPM8251	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R352	1	0683-2255	RESISTOR 2.2M +-5pct .25W CF TC=0-830	CF 14 2M 5% CF1/4C__225J	ASJ KOA
R359	1	0698-6360	RES-FXD 10K +-0.1PCT 0.125W TC 0+-25 0207	CMF-551002BT-9 MBB0207-25 0.1%__10K	VISHAY VISHAY BC COMPONENTS
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
R365, 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
R367-369, 423, 427-429	7	0698-8812	RESISTOR 1 +-1pct .125W TF TC=0+-100	5053HD1R000F CMF-551R0FT-1	VISHAY BC COMPONENTS VISHAY
R401	1	0699-1069	RESISTOR 229 +-0.1pct .125W TF TC=0+-25	B0207E229R0B CMF-552290BT-9	VISHAY BC COMPONENTS VISHAY

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
R407, 408	2	0757-0407	RESISTOR 200 +-1pct .125W TF TC=0+-100	5053HD200R0F CMF-552000FT-1 NK4H.125W1%+/- 100PPM200R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
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 U001	1	1200-1274	SOCKET-IC-PLCC 68-CONT SQUARE DIP-SLDR	1-822473-6 PLCC68PT2	TYCO ELECTRONICS AMP FCI FRAMATOME BERG
REF U002	1	1200-0567	SOCKET-IC-DIP 28-CONT DIP DIP-SLDR	1-390262-2 DILB28P223TLF	TYCO ELECTRONICS AMP FCI FRAMATOME BERG
REF U005	1	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	9100-5021	XFMR-SWITCHING	9100-5021	AGILENT TECHNOLOGIES
U001	1	1821-1479	IC 16-BIT MCU 16-MHZ CMOS 68-PLCC	C	INTEL
U002	1	5080-2529	ROM-PRGMD		
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		
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

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
U015	1	1826-1021	ANALOG MULTIPLEXER CHNL 16 -DIP-P	DG508ACJ ADG508AKNZ	VISHAY ANALOG DEVICES
U017-20, 25, 204, 306	7	1990-1502	OPTO-ISOLATOR LED-PDIO IF=8MA-MAX BVR	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 VOLT	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	LM319NNOBP	NATIONAL SEMICONDUCTOR
U22	1	1819-0161	IC 2K-BIT EEPROM 10-MS CMOS 8-PDIP	AT93C56A-10PU-2.7	ATMEL
U301, 307	2	1826-0346	IC OP AMP GP DUAL 8 PIN DIP-P	LM358NNOBP	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
VR201	1	1902-0968	DIODE-ZNR 27V 5pct DO-35 PD=.4W TC=+.095	1N971B	MICROSEMI
VR302	1	1902-0951	DIODE-ZNR 5.1V 5pct DO-35 PD=.4W TC=+.035	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 DEMPYA KOGYO FOX ELECTRONICS KYUSHU DENTSU
	4	8159-0005	RESISTOR 0 CWM	106 L-2007-1 YZO 1/4 Z-25 Z25C	MICRO-OHM GETTIG ENGRG & MFG TT ELECTRONICS ASJ KOA
	1	9140-0974	INDUCTOR-FIXED CURRENT SENSE INDUCTO	PE-51718	TECHNITROL
	1	1826-0393	IC PWR MGT-V-REG-ADJ-POS 1.2/37V 3 PINS	LM317T-NOPB	NATIONAL SEMICONDUCTOR
	1	1205-0282	HEAT SINK PLSTC-PWR-CS	6025D	AAVID THERMALLOY
	1	0361-1641	EYELET-RLD-FLG .121-OD .187-LG .0095-THK	GS 4-6 STEEL-TIN PLATE	STIMPSON EDWIN B
	1	9140-1064	INDUCTOR-FIXED L:4.5 UH MIN at 1	IH-14-01 3.8UH	VISHAY
	1	2110-0056	FUSE (INCH) 6A 250V NTD FE UL-LST	0312006. AGC-6 SS6-6A	LITTELFUSE COOPER INDUSTRIES SAN-O INDUSTRIAL

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Reference Designator	QTY	Agilent P/N	Description	MPN	Manufacturer
	1	0160-4439	CAP-FXD 4700pF +-20pct 1 kV PPR-MET	PME271Y447MR30	EVOX/RIFA
	1	0160-5098	CAP-FXD 0.22uF +-10pct 50 V CER X7R	C440C224K5R5CA SA405C224KAAH SA405C224KAAH	KEMET ELECTRONICS AVX KYOCERA
	2	0811-2568	RESISTOR 1 +-1pct 3W PWI TC=0+-50	RS-2B 1 1% T2B-9-1R1%	VISHAY TT ELECTRONICS

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