

**Agilent E1411B  
Component Level  
Information**

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# E1411B 5 1/2 Digit DMM Component Level Information

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

- 1. E1411-66521 PC Assembly**
- 2. E1411-66522 PC Assembly**

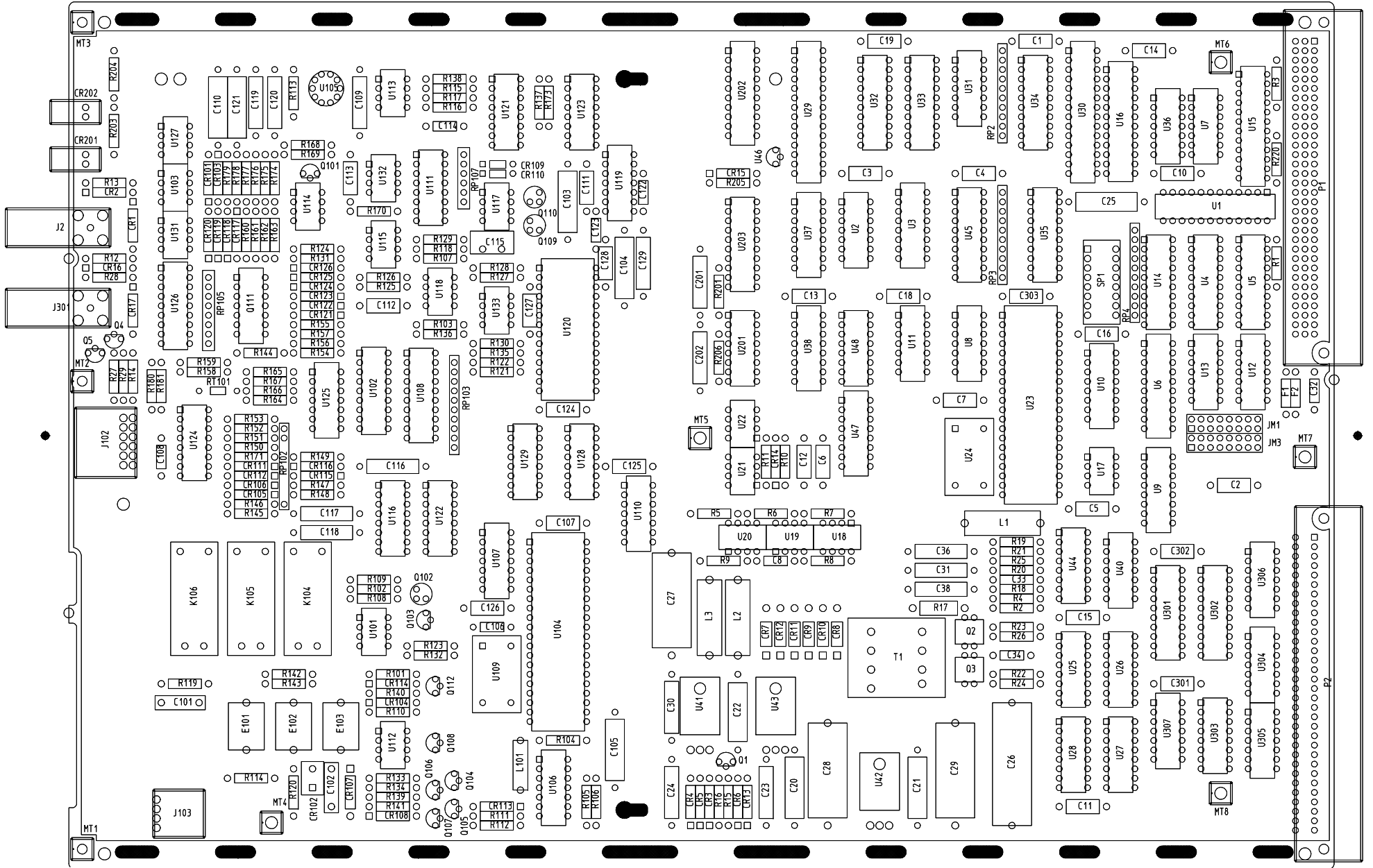
**The following is included in this packet:**

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

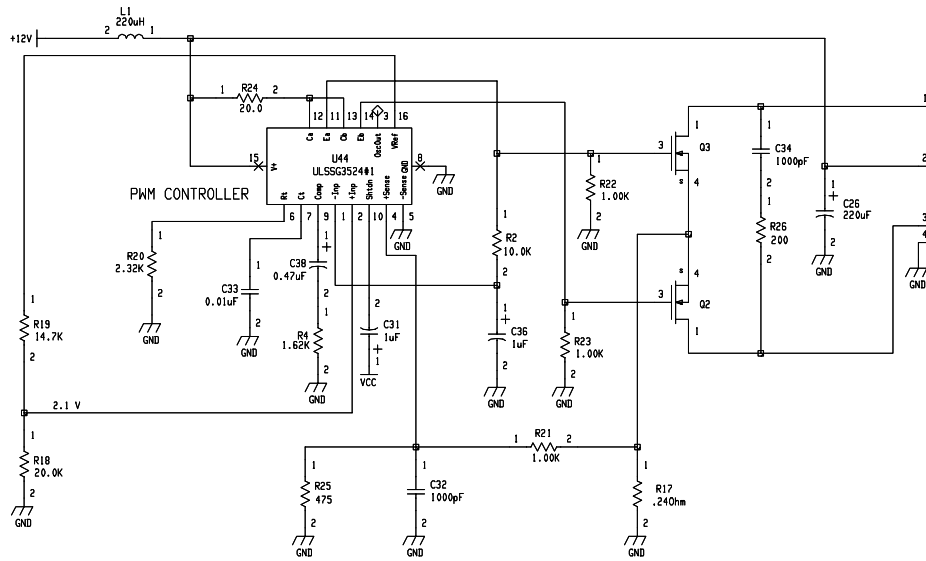


**Agilent Technologies**

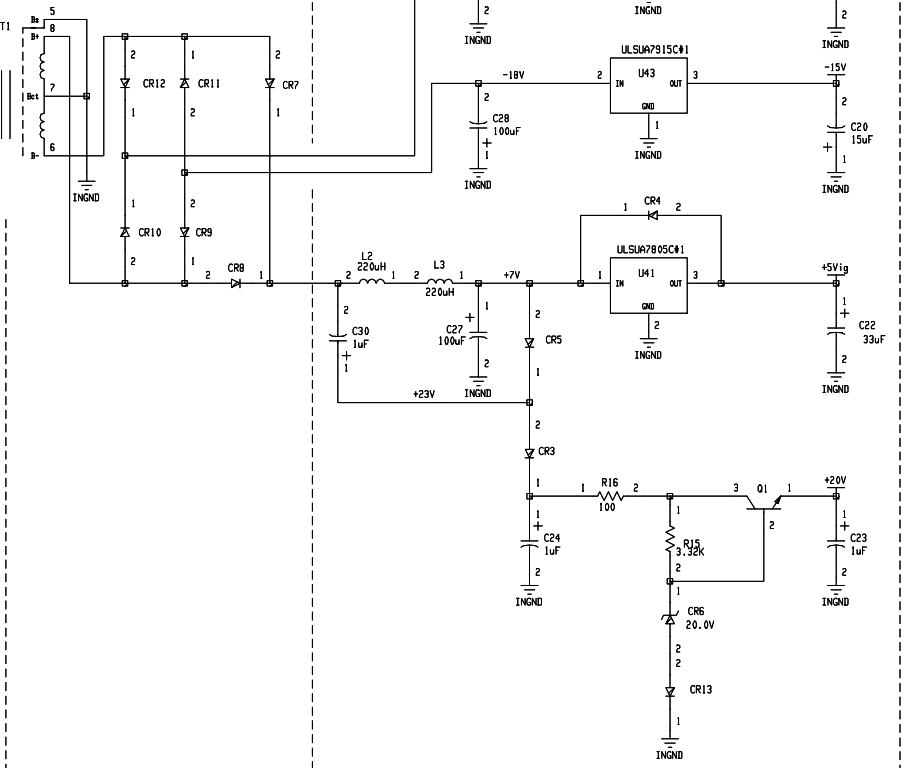
E1411-66521 REV A



OUTGUARD POWER SUPPLY

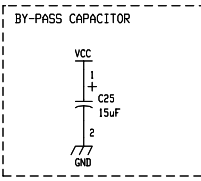


INGUARD POWER SUPPLY

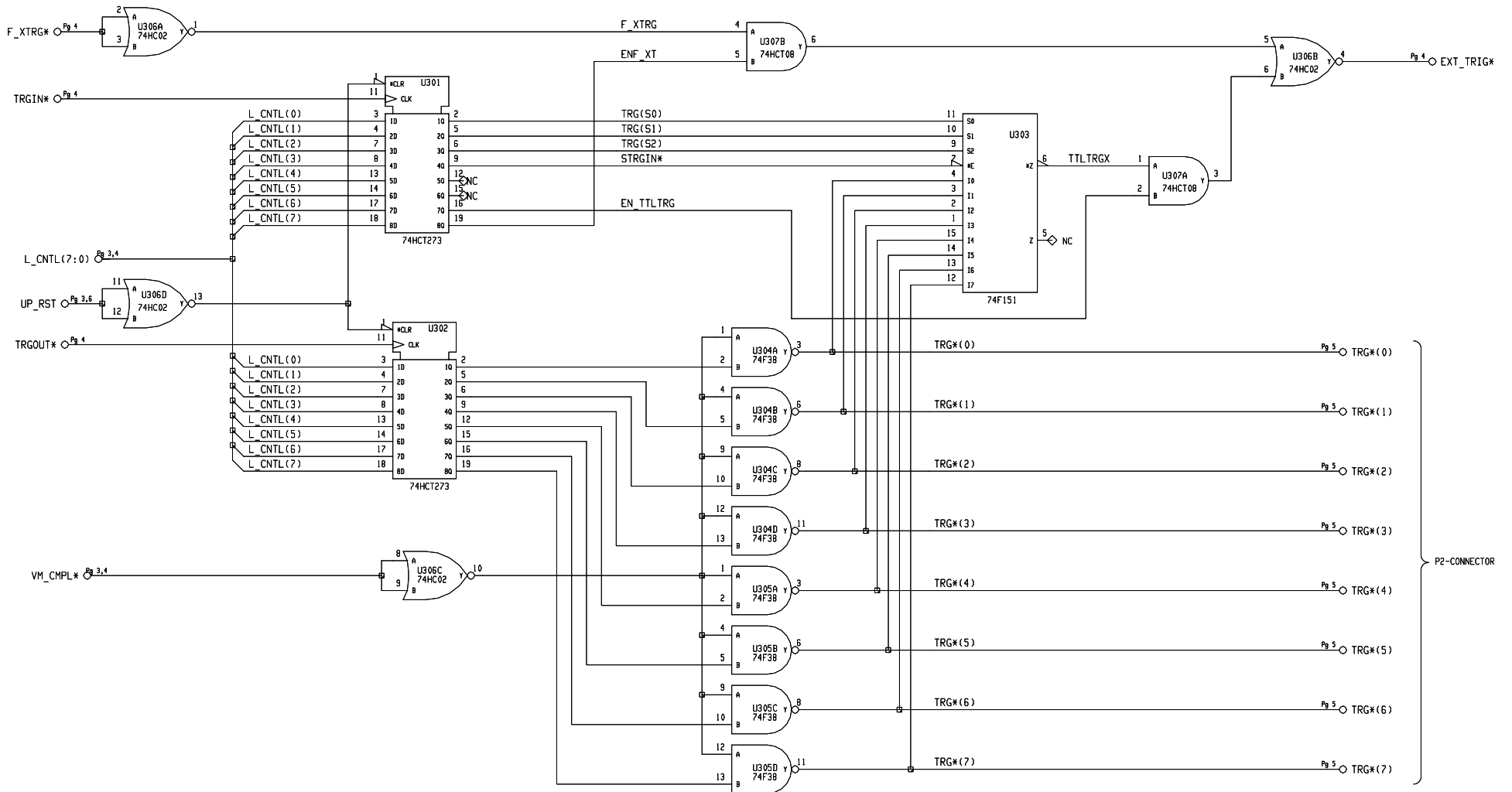


MNEMONIC DEFINITIONS

ALE*	Address Latch Enable	RAM_CLK	Non-Volatile RAM Clock
ALE_KILL	Address Latch Enable Inhibit	RAM_DATA	Non-Volatile RAM Data
CMD_STB	Command register Strobe	RESET	uP Reset Control Line (Inguard)
CP_EN*	Command/Parameter Register Enable	SERDAT_AV	Cross-guard Serial Data Available
CP_RDY*	Command/Parameter Register Ready	SER_LO_EN*	Cross-guard Serial Data Lo-Byte Enable
CP_STB	Command/Parameter Register Strobe	SER_HI_EN*	Cross-guard Serial Data Hi-Byte Enable
DEV_TY*	Device Type Register Enable	ST_CNTL*	Status/control Register Enable
DONE*	Command "DONE" Flag	TRIGGER	Inguard Trigger Line
DYACK*	Data Transfer Acknowledge	TXD	Serial Data Transmit
ERROR	Error Flag	UI_INT_EN*	Upper Interrupt Vector Register Enable
EXT_TRIG*	External Trigger	uP_RST	uP Reset Control Line (Outguard)
EXT_TRG_EN	External Trigger Enable	uP_SYSFAIL	System Fail Line from Outguard uP
ID_EM	Input Data Register "EMPTY" Flag	WRITE	Write
ID_FL*	Input Data Register "FULL" Flag	XGCLK*	Cross-guard Clock Line
ID_HF*	Input Data Register "HALF-FULL" Flag	XGDATA*	Cross-guard Data Line
IDH_STB*	Input Data Register Strobe (Hi-Byte)	XGD_TRIG*	Cross-guard Trigger
IDL_STB*	Input Data Register Strobe (Lo-Byte)		
ID_RST*	Input Data Register Reset (CLEAR)		
INGD_RST	Inguard Reset Line		
INGD_CNTL*	Inguard Control Line		
INTBUS(15:0)	Internal Data Bus		
INT_VEC_STB	Interrupt Vector Register Strobe		
IRQ	Interrupt Request - PAL		
LCL_CNTL(7:0)	Local Outguard Controller Bus		
NTRGLTCHCLR	Trigger Latch Clear (Lo-True)		
NTRGLTCHSET	Trigger Latch Set (Lo-True)		
NVRAM_EN	Non-Volatile RAM Enable		
PARAM_STB	Parameter Register Strobe (not qualified by write line)		
PASSED	Passed Self-test Flag		
PR_FULL	Parameter Register Full Flag		
QRY_EN*	Query Register Enable		
QR_STB*	Query Register Strobe		
QR_RDY*	Query Register Ready		

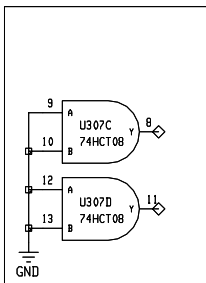


Agilent E1411B  
VXI C-Size 5 1/2 Digit DMM  
Cross-Guard Power Supply

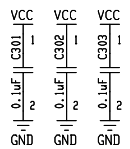


U303,U304 & U305 MUST BE LOCATED WITHIN 1in OF P2.

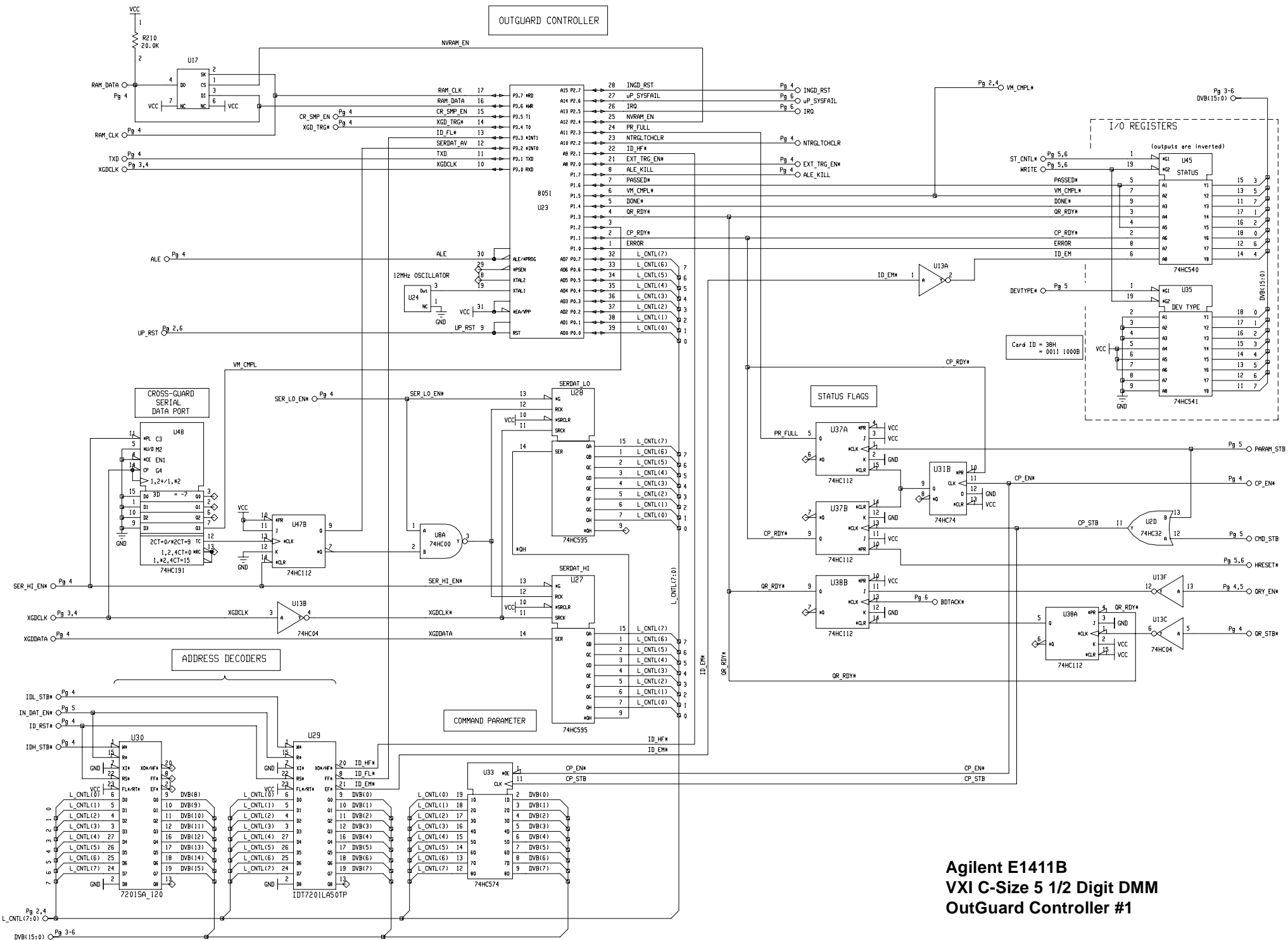
UNUSED PARTS



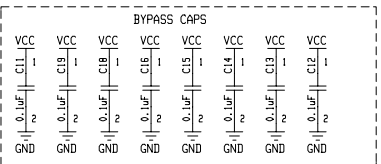
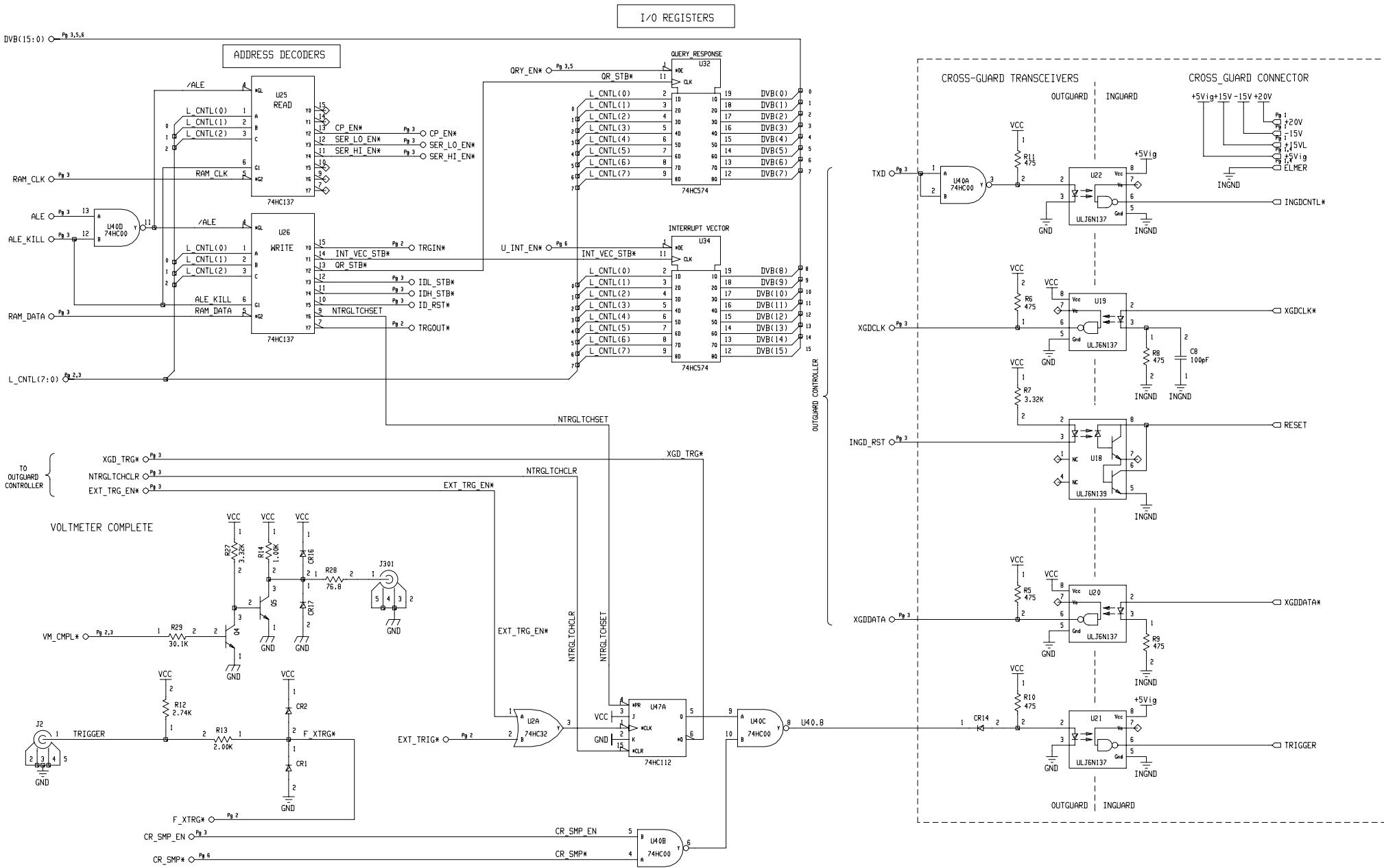
BYPASS CAPS



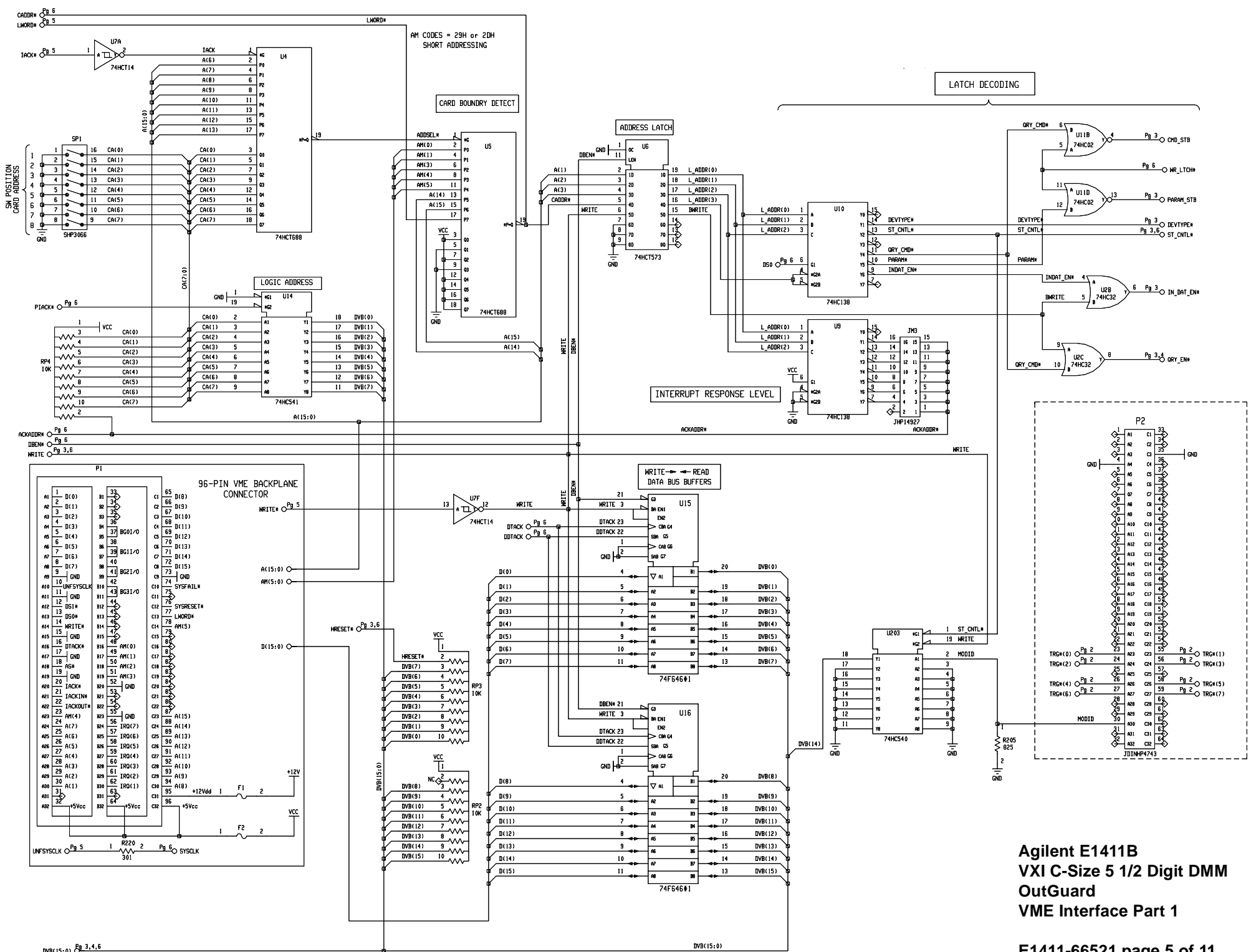
**Agilent E1411B**  
**VXI C-Size 5 1/2 Digit DMM**  
**OutGuard**  
**TTLTRG\* (SYNC & ASYNCH)**



**Agilent E1411B  
 VXI C-Size 5 1/2 Digit DMM  
 OutGuard Controller #1**

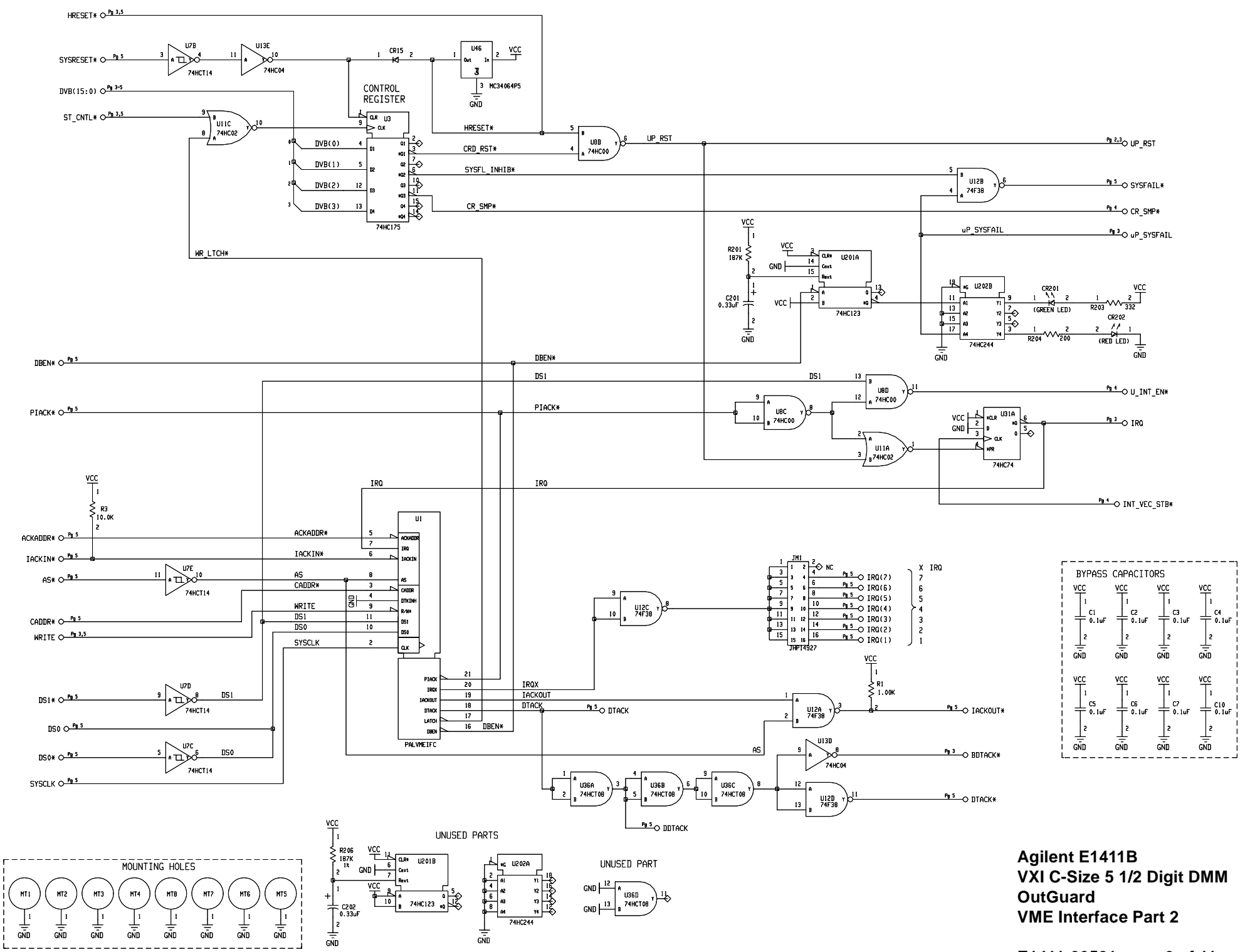


**Agilent E1411B  
VXI C-Size 5 1/2 Digit DMM  
OutGuard Controller #2**



**Agilent E1411B  
VXI C-Size 5 1/2 Digit DMM  
OutGuard  
VME Interface Part 1**

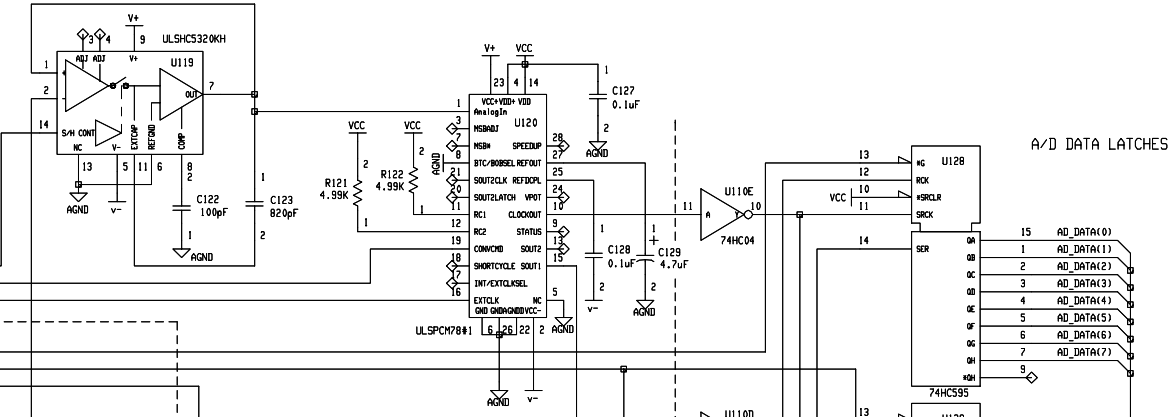




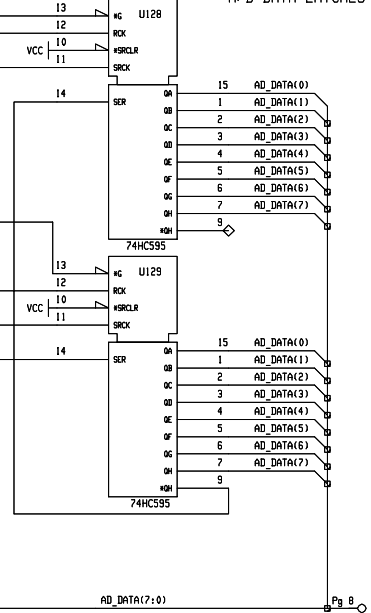
**Agilent E1411B  
 VXI C-Size 5 1/2 Digit DMM  
 OutGuard  
 VME Interface Part 2**

MNEMONIC DEFINITIONS			
AD_CLK	Address Clock	SA_ST	Successive Approximation Start Signal
AD_DATA(7:0)	A/D Data Bus	SB	Slope-Select Line "b"
CHP_LTCH#	Comparator Latch	SUM_JCT	Integrator Summing Junction
CHP_OUT#	Comparator Output	+Vref	+5 Volt A/D Reference Voltage
DC/AC	DC/AC Function Select	-Vref	-5 Volt A/D Reference Voltage
HBEN#	High Byte Enable -A/D Data		
HLD/SMP#	Hold/Sample Control Line		
INT_ZERO	Integrator Zero Control Line		
LBEN#	Low Byte Enable -A/D Data		
PRE_OUT	Pre-amplifier Output		
RU/RD	Run-up/Run-down Control Line		
SA	Slope-Select Line "a"		
SA_CAL#	Successive Approximation Calibration DAC Strobe		
SA/INT	Successive Approximation/Integrating A/D Select Line		

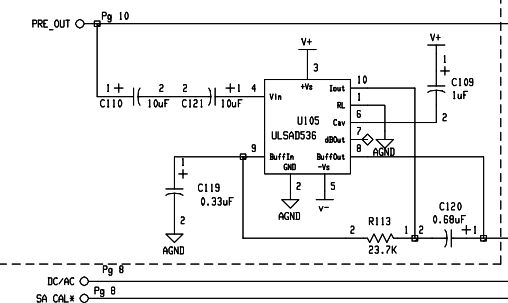
SUCCESSIVE APPROXIMATION A/D



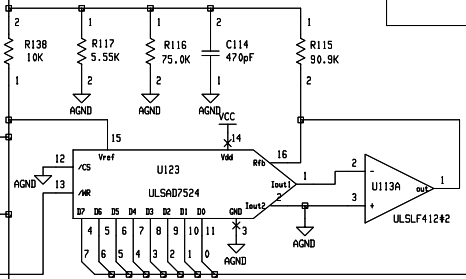
A/D DATA LATCHES



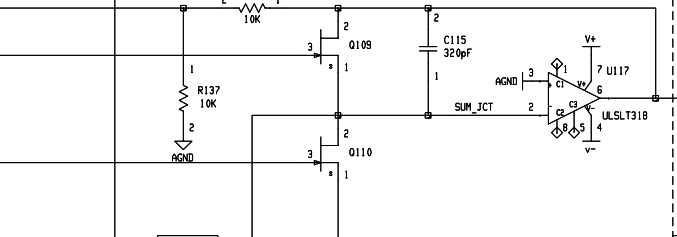
AC-DC CONVERTER



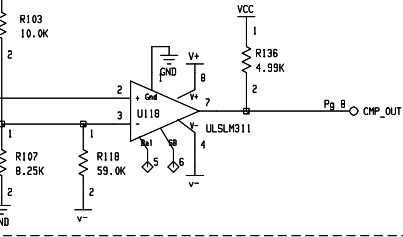
S/A CALIBRATION DAC



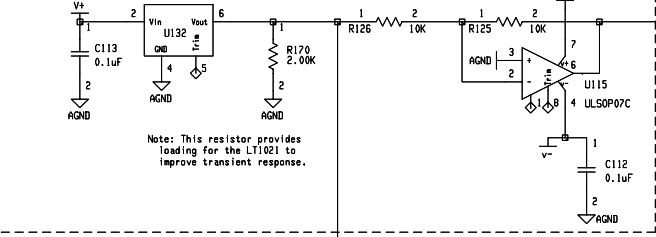
INTEGRATOR



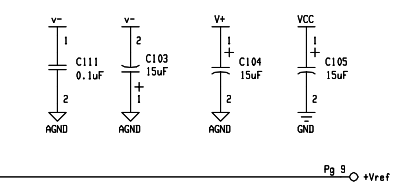
COMPARATOR



REFERENCE

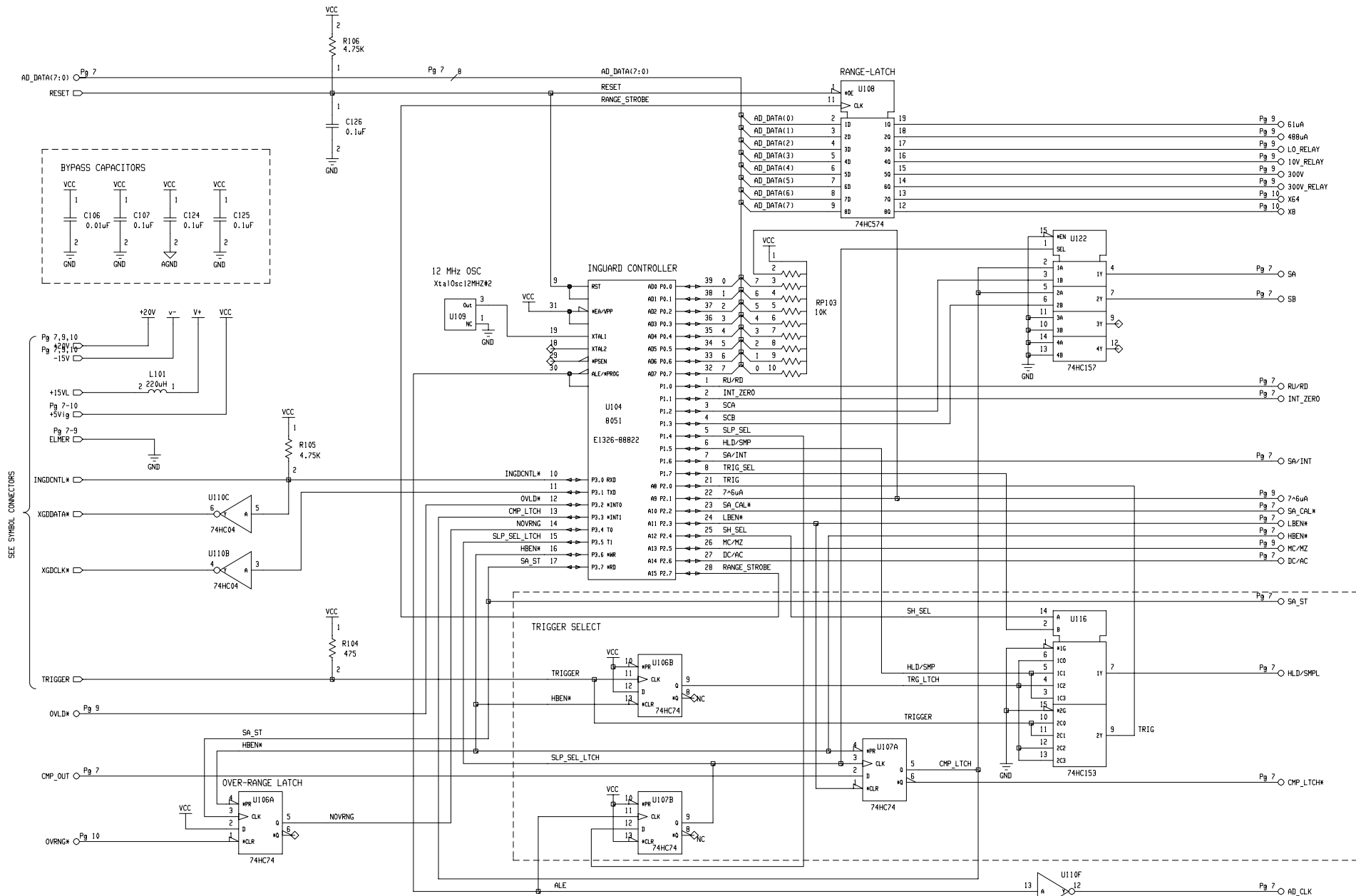


BY-PASS CAPACITORS

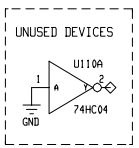


SB Pg 8  
SA Pg 8

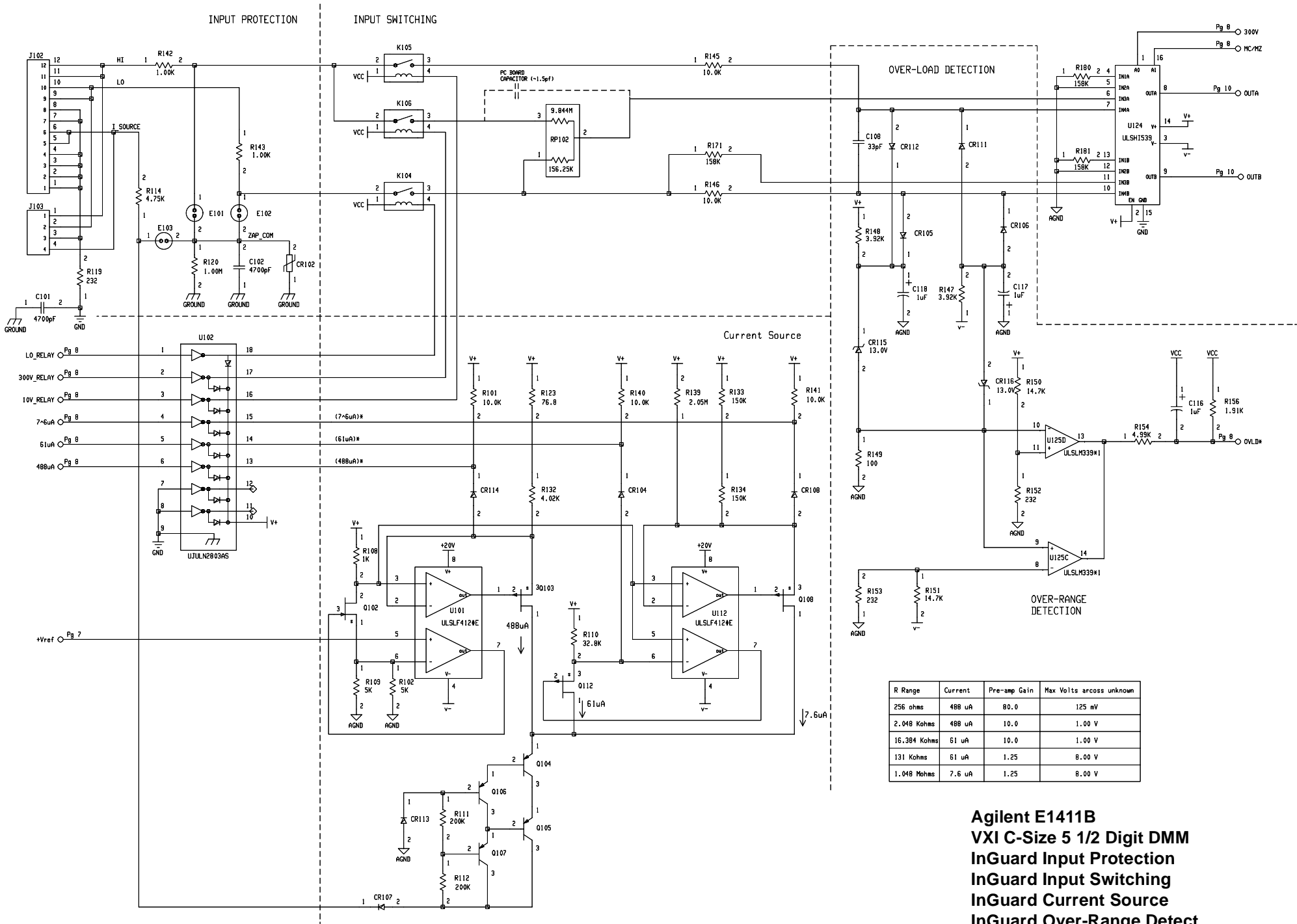
Agilent E1411B  
VXI C-Size 5 1/2 Digit DMM  
InGuard A/D Converter



MNEMONIC DEFINITIONS	
AD_CLK	A/D Clock
AD_DATA(7:0)	A/D Data Bus
ALE	Address Latch Enable
CMP_LTCH*	Comparator Latch
DC/AC	DC/AC Function Select
HBEN*	High Byte Enable - A/D Data
HLD/SMPL	Hold/Sample Control Line
IngdCntl*	Inguard Control
INT_ZERO	Integrator Zero Control Line
LBEN*	Low Byte Enable - A/D Data
Lo_relay	Select Line for LO (-input) Relay
MC/MZ	Measure Customer/Measurement Zero Control Line
NOVRNG	Over-range Load (Lo-true)
OVLd*	Overload
OVRRNG	Over-range
RANGE_STROBE	Range Latch Strobe
RESET	uP Reset Control Line (Inguard)
RU/RD	Run-up/Run-down Control Line
Sa	Slope-Select Line "a"
SA_CAL*	Successive Approximation Calibration DAC Strobe
SA/INT	Successive Approximation /Integrating A/D Select Line
SA_ST	Successive Approximation Start Single
Sb	Slope-Select Line "b"
SCA	A/D Slope Control Signal "A"
SCB	A/D Slope Control Signal "B"
SH_SEL	Sample-Hold Select
SLP_SEL	Slope Select
SLP_SEL_LATCH	Slope Select Latch
TRG_LTCH	Trigger Latch (Inguard)
TRIG	Inguard Trigger
TRIGGER	Inguard Trigger Line
TRIG_SEL	Inguard Trigger Select
XgdClk*	Cross-guard Clock Line
XgdData*	Cross-guard Data Line
X10	Control line to select low-voltage (<10 volt) input relay
X100	Control line to select high-voltage (>10 volt) input relay
X6uA	Select line for 6uA current source
X7.6uA	Select line for 7.6 uA current source
X10V	Select line for 10 volt range
X125	Select line for .125 volt range

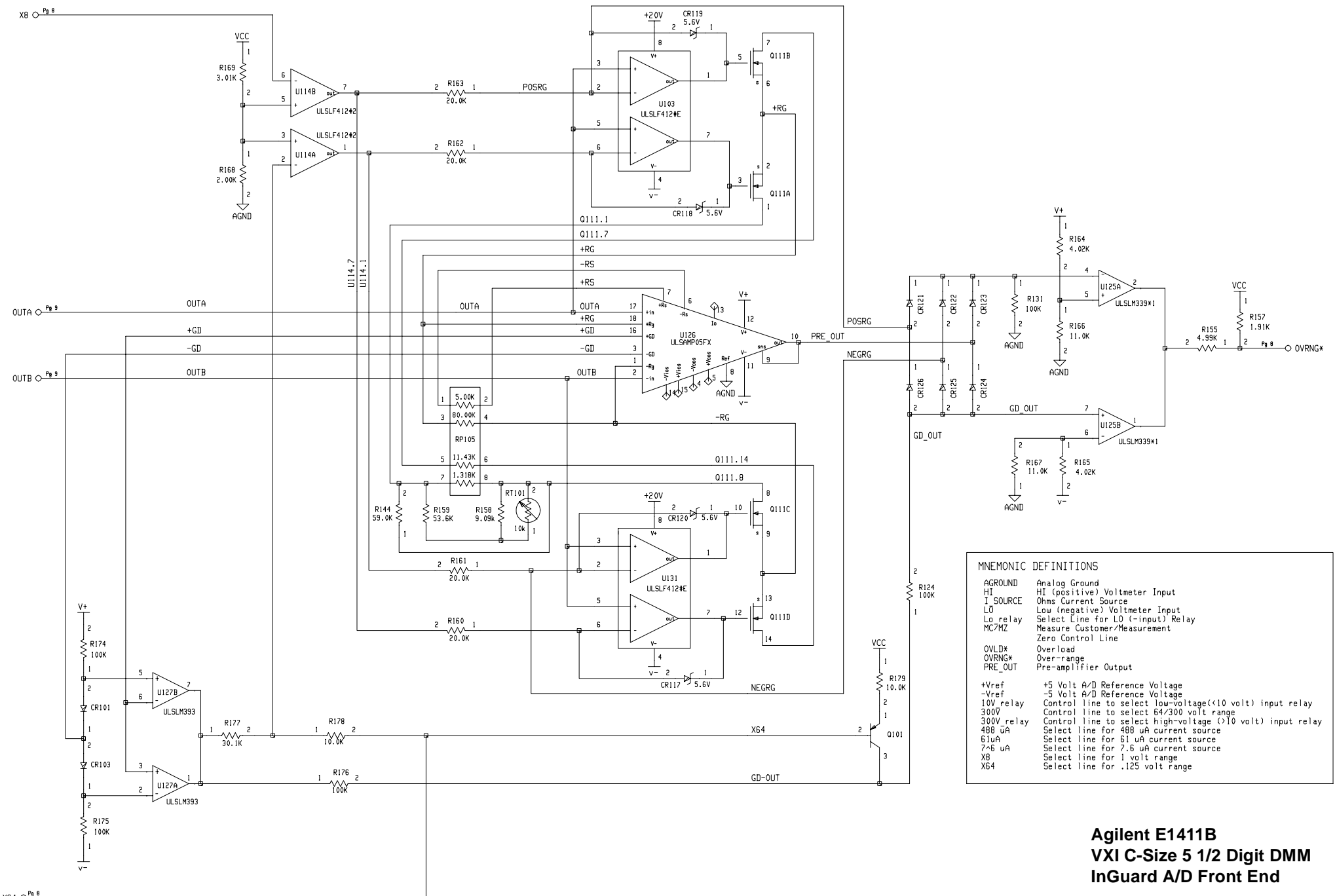


**Agilent E1411B  
VXI C-Size 5 1/2 Digit DMM  
InGuard A/D Controller**



R Range	Current	Pre-amp Gain	Max Volts across unknown
256 ohms	488 uA	80.0	125 mV
2.048 Kohms	488 uA	10.0	1.00 V
16.384 Kohms	61 uA	10.0	1.00 V
131 Kohms	61 uA	1.25	8.00 V
1.048 Mohms	7.6 uA	1.25	8.00 V

**Agilent E1411B**  
**VXI C-Size 5 1/2 Digit DMM**  
**InGuard Input Protection**  
**InGuard Input Switching**  
**InGuard Current Source**  
**InGuard Over-Range Detect**



**MNEMONIC DEFINITIONS**

AGROUND	Analog Ground
HI	HI (positive) Voltmeter Input
I SOURCE	Ohms Current Source
LO	Low (negative) Voltmeter Input
Lo relay	Select Line for LO (-input) Relay
MC7MZ	Measure Customer/Measurement
	Zero Control Line
OVL D*	Overload
OVRNG*	Over-range
PRE_OUT	Pre-amplifier Output
+Vref	+5 Volt A/D Reference Voltage
-Vref	-5 Volt A/D Reference Voltage
10V relay	Control line to select 10v-voltage (<10 volt) input relay
300V	Control line to select 64/300 volt range
300V relay	Control line to select high-voltage (>10 volt) input relay
488 uA	Select line for 488 uA current source
61uA	Select line for 61 uA current source
7.5 uA	Select line for 7.5 uA current source
X8	Select line for 1 volt range
X64	Select line for .125 volt range

**Agilent E1411B  
VXI C-Size 5 1/2 Digit DMM  
InGuard A/D Front End**

INGRD

U133 B	Pg 07	R156	Pg 09	L101	Pg 08
U133 A	Pg 07	R155	Pg 10	K106	Pg 09
U132	Pg 07	R154	Pg 09	K105	Pg 09
U131	Pg 10	R153	Pg 09	J104	Pg 09
U129	Pg 07	R152	Pg 09	J103	Pg 09
U128	Pg 07	R151	Pg 09	J102	Pg 09
U126	Pg 10	R150	Pg 09	E103	Pg 09
U125 D	Pg 09	R149	Pg 09	E102	Pg 09
U125 C	Pg 09	R148	Pg 09	E101	Pg 09
U125 B	Pg 10	R147	Pg 09		
U125 A	Pg 10	R146	Pg 09		
U124	Pg 09	R145	Pg 09	CR132	Pg 10
U123	Pg 07	R144	Pg 10	CR126	Pg 10
U122	Pg 08	R143	Pg 09	CR125	Pg 10
U121	Pg 07	R142	Pg 09	CR124	Pg 10
U120	Pg 07	R141	Pg 09	CR123	Pg 10
U118	Pg 07	R140	Pg 09	CR121	Pg 10
U116	Pg 08	R139	Pg 09	CR120	Pg 10
U115	Pg 07	R138	Pg 07	CR119	Pg 10
U114 B	Pg 10	R137	Pg 07	CR118	Pg 10
U114 A	Pg 10	R136	Pg 07	CR117	Pg 10
U113 B	Pg 07	R135	Pg 07	CR116	Pg 09
U113 A	Pg 07	R134	Pg 09	CR115	Pg 09
U112	Pg 09	R133	Pg 09	CR114	Pg 09
U111	Pg 07	R132	Pg 09	CR109	Pg 09
U110 F	Pg 08	R131	Pg 10	CR112	Pg 09
U110 C	Pg 08	R130	Pg 07	CR111	Pg 09
U110 B	Pg 08	R129	Pg 07	CR110	Pg 07
U110 A	Pg 08	R128	Pg 07	CR109	Pg 07
U109	Pg 08	R127	Pg 07	CR108	Pg 09
U108	Pg 08	R126	Pg 07	CR107	Pg 09
U107 B	Pg 08	R125	Pg 07	CR106	Pg 09
U107 A	Pg 08	R124	Pg 10	CR105	Pg 09
U106 B	Pg 08	R123	Pg 09	CR104	Pg 07
U106 A	Pg 08	R122	Pg 07	CR103	Pg 10
U105	Pg 07	R121	Pg 07	CR102	Pg 09
U104	Pg 08	R120	Pg 09	CR101	Pg 10
U103	Pg 10	R118	Pg 07		
U102	Pg 09	R117	Pg 07		
U101	Pg 09	R116	Pg 07	C129	Pg 07
U27 B	Pg 10	R115	Pg 07	C128	Pg 07
U27 A	Pg 10	R114	Pg 09	C127	Pg 07
U10 E	Pg 07	R113	Pg 07	C126	Pg 08
U10 D	Pg 07	R112	Pg 09	C125	Pg 08
U10	Pg 07	R111	Pg 09	C124	Pg 08
U2	Pg 07	R110	Pg 09	C123	Pg 07
U1	Pg 07	R109	Pg 09	C122	Pg 07
		R108	Pg 09	C121	Pg 07
		R107	Pg 07	C120	Pg 07
RT101	Pg 10	R106	Pg 08	C119	Pg 07
RP107	Pg 07	R105	Pg 08	C117	Pg 09
RP105	Pg 10	R104	Pg 08	C116	Pg 09
RP103	Pg 08	R103	Pg 07	C115	Pg 07
RP102	Pg 09	R102	Pg 09	C114	Pg 07
		R101	Pg 09	C113	Pg 07
R188	Pg 10	R4	Pg 09	C112	Pg 07
R179	Pg 10	R3	Pg 09	C111	Pg 07
R178	Pg 10	R2	Pg 09	C110	Pg 07
R177	Pg 10	R1	Pg 09	C109	Pg 07
R176	Pg 10			C108	Pg 09
R175	Pg 10			C107	Pg 09
R174	Pg 10	Q112	Pg 09	C106	Pg 08
R173	Pg 07	Q111 D	Pg 10	C105	Pg 08
R170	Pg 07	Q111 C	Pg 10	C104	Pg 07
R169	Pg 10	Q111 B	Pg 10	C103	Pg 07
R167	Pg 10	Q111 A	Pg 10	C102	Pg 09
R166	Pg 10	Q110	Pg 07	C101	Pg 09
R165	Pg 10	Q109	Pg 07	C26	Pg 09
R164	Pg 10	Q108	Pg 09		
R163	Pg 10	Q107	Pg 09		
R162	Pg 10	Q106	Pg 09		
R161	Pg 10	Q105	Pg 09		
R160	Pg 10	Q104	Pg 09		
R159	Pg 10	Q103	Pg 09		
R158	Pg 10	Q102	Pg 09		
R157	Pg 10	Q101	Pg 10		

OUTGRD

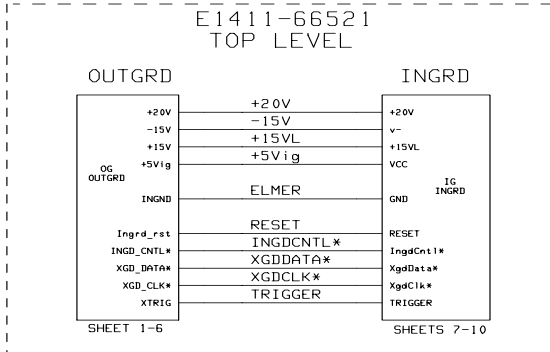
U307 D	Pg 02	U20	Pg 04	R18	Pg 01	C303	Pg 02
U307 C	Pg 02	U19	Pg 04	R17	Pg 01	C302	Pg 02
U307 B	Pg 02	U18	Pg 04	R16	Pg 01	C301	Pg 02
U307 A	Pg 02	U17	Pg 03	R15	Pg 01	C202	Pg 06
U306 D	Pg 02	U14	Pg 05	R14	Pg 05	C201	Pg 06
U306 C	Pg 02	U13 F	Pg 03	R13	Pg 04	C38	Pg 01
U306 B	Pg 02	U13 E	Pg 06	R12	Pg 04	C36	Pg 01
U306 A	Pg 02	U13 D	Pg 06	R11	Pg 04	C34	Pg 01
U305 D	Pg 02	U13 C	Pg 03	R10	Pg 04	C33	Pg 01
U305 C	Pg 02	U13 B	Pg 03	R9	Pg 04	C32	Pg 01
U305 B	Pg 02	U13 A	Pg 03	R8	Pg 04	C31	Pg 01
U305 A	Pg 02	U12 D	Pg 06	R7	Pg 04	C30	Pg 01
U304 D	Pg 02	U12 C	Pg 06	R6	Pg 04	C29	Pg 01
U304 C	Pg 02	U12 B	Pg 06	R5	Pg 04	C28	Pg 01
U304 B	Pg 02	U12 A	Pg 06	R4	Pg 01	C27	Pg 01
U304 A	Pg 02	U11 D	Pg 05	R3	Pg 06	C26	Pg 01
U303 A	Pg 02	U11 C	Pg 05	R2	Pg 01	C25	Pg 01
U303	Pg 02	U11 B	Pg 05	R1	Pg 06	C24	Pg 01
U302	Pg 02	U11 A	Pg 05			C23	Pg 01
U301	Pg 02	U10	Pg 05	Q399	Pg 04	C21	Pg 01
U203	Pg 05		Pg 05	Q398	Pg 04	C20	Pg 01
U202 B	Pg 06	U9	Pg 05	Q3	Pg 01	C19	Pg 04
U202 A	Pg 06	U8 D	Pg 06	Q2	Pg 01	C18	Pg 04
U201 B	Pg 06	U8 C	Pg 06	Q1	Pg 01	C16	Pg 04
U201 A	Pg 06	U8 B	Pg 06	P1	Pg 05	C15	Pg 04
U52	Pg 01	U8 A	Pg 06	MT8	Pg 06	C14	Pg 04
U51	Pg 05	U7 F	Pg 05	MT7	Pg 06	C13	Pg 04
U50	Pg 05	U7 E	Pg 06	MT6	Pg 06	C12	Pg 04
U49	Pg 03	U7 D	Pg 06	MT5	Pg 06	C11	Pg 04
U48	Pg 03	U7 C	Pg 06	MT4	Pg 06	C10	Pg 06
U47 B	Pg 03	U7 B	Pg 06	MT3	Pg 06	C9	Pg 01
U47 A	Pg 04	U7 A	Pg 05	MT2	Pg 06	C8	Pg 04
U46	Pg 06	U6	Pg 05	MT1	Pg 06	C7	Pg 06
U45	Pg 03	U5	Pg 05	L3	Pg 01	C6	Pg 06
U43	Pg 01	U4	Pg 05	L2	Pg 01	C5	Pg 06
U42	Pg 01	U3	Pg 05	L1	Pg 01	C4	Pg 06
U41	Pg 01	U2	Pg 05	J301	Pg 04	C3	Pg 06
U40 D	Pg 04	U2 C	Pg 05	J4	Pg 05	C2	Pg 06
U40 C	Pg 04	U2 B	Pg 05	J3	Pg 05	C1	Pg 06
U40 B	Pg 04	U2 A	Pg 04	J2	Pg 04		
U40 A	Pg 04	U1	Pg 06	J1	Pg 06		
U38 B	Pg 03	T1	Pg 01	F2	Pg 05		
U38 A	Pg 03	SP1	Pg 05	F1	Pg 05		
U37 B	Pg 03	RP4	Pg 05				
U37 A	Pg 03	RP3	Pg 05				
U36 D	Pg 06	RP2	Pg 05	CR399	Pg 04		
U36 C	Pg 06	R399	Pg 04	CR398	Pg 06		
U36 B	Pg 06	R398	Pg 04	CR202	Pg 06		
U36 A	Pg 06	R397	Pg 04	CR201	Pg 06		
U35	Pg 03	R396	Pg 04	CR15	Pg 06		
U34	Pg 04	R210	Pg 03	CR14	Pg 04		
U33	Pg 03	R206	Pg 06	CR13	Pg 01		
U32	Pg 04	R205	Pg 05	CR12	Pg 01		
U31 B	Pg 03	R204	Pg 06	CR11	Pg 01		
U31 A	Pg 06	R203	Pg 06	CR10	Pg 01		
U29	Pg 03	R201	Pg 06	CR9	Pg 01		
U28	Pg 03	R20	Pg 01	CR8	Pg 01		
U27	Pg 03	R26	Pg 01	CR7	Pg 01		
U26	Pg 04	R24	Pg 01	CR6	Pg 01		
U25	Pg 04	R23	Pg 01	CR5	Pg 01		
U24	Pg 03	R22	Pg 01	CR4	Pg 01		
U23	Pg 03	R21	Pg 01	CR3	Pg 01		
U22	Pg 04	R20	Pg 01	CR2	Pg 04		
U21	Pg 04	R19	Pg 01	CR1	Pg 04		

OUTGRD

INGRD

Pg 1 - INGRD/OUTGRD-PWR SUPPLIES	Pg 7 - AD_CONV/AC_CONV/REFERENCE
Pg 2 - SYNC & ASYNC (TTL TRG*)	Pg 8 - INGUARD-CONTROL
Pg 3 - OUTGUARD-CONTROL PART1	Pg 9 - INPUT PROT/SWITCHING/CURRENT SOURCE
Pg 4 - OUTGUARD-CONTROL PART2	Pg 10 - INPUTAMP/OVER-RANGE
Pg 5 - VME INTERFACE PART1	Pg 11 - TOP LEVEL REF PAGE BLANK SEE TOP
Pg 6 - VME INTERFACE PART2	

HIERARCHICAL DESIGN



Agilent E1411B  
VXI C-Size 5 1/2 Digit DMM  
Top Level Heirachaial Design  
Component-to-Page Cross Ref

Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
C1	1	0160-5975	CAP-FXD 10pF +-5pct 50 V CER C0G	08055A100JAT A C0805C100J5GAC GRM2165C1H100JD01D	AVX KEMET ELECTRONICS MURATA MANUFACTURING
C101, 102	2	0160-4439	CAP-FXD 4700pF +-20pct 1 kV PPR-MET	PME271Y447MR30	EVOX/RIFA
C106	1	0160-3334	CAP-FXD 0.01uF +-10pct 50 V CER X7R	C410C103K5R5CA DA12X7R1H103K SA105C103KAAH	KEMET ELECTRONICS TDK AVX
C108	1	0160-4807	CAP-FXD 33pF +-5pct 100 V CER C0G	C410C330J1G5CA SA102A330JAAH SA102A330JAAH	KEMET ELECTRONICS AVX KYOCERA
C110,C121	2	0180-0374	CAP-FXD 10uF +-10pct 20 V TA	TAAB106K020 T110B106K020AS TAAB10K20RX	AVX KEMET ELECTRONICS STC
C114	1	0160-4808	CAP-FXD 470pF +-5pct 100 V CER C0G	C410C471J1G5CA SA101A471JAAH SA101A471JAAH	KEMET ELECTRONICS AVX KYOCERA
C115	1	0140-0226	CAP-FXD 320pF +-1pct 300 V MICA	0140-0226 CD15FC321F03	SHINNITOKU ELECTRIC CORNELL-DUBILIER ELECTRONICS
C119,C201,C202	3	0180-2205	CAP-FXD 0.33uF +-10pct 35 V TA	T110A334K035AS	KEMET ELECTRONICS
C120	1	0180-0373	CAP-FXD 0.68uF +-10pct 35 V TA	T110A684K035AS	KEMET ELECTRONICS
C123	1	0160-4823	CAP-FXD 820pF +-5pct 100 V CER C0G	C420C821J1G5CA DA13C0G2A821J SA101A821JAAH SA101A821JAAH	KEMET ELECTRONICS TDK AVX KYOCERA
C129	1	0180-0309	CAP-FXD 4.7uF +-20pct 10 V TA	T110A475M010AS	KEMET ELECTRONICS
C1-7,C10-16,C18,C19, C107,C111-113,C124-128, C301-303	28	0160-4835	CAP-FXD 0.1uF +-10pct 50 V CER X7R	C420C104K5R5CA SA105C104KAAH SA105C104KAAH	KEMET ELECTRONICS AVX KYOCERA
C20,C21,C25,C103-105	6	0180-1746	CAP-FXD 15uF +-10pct 20 V TA	TAAB156K020 T110B156K020AS TAAB15K20RX	AVX KEMET ELECTRONICS STC
C22	1	0180-0229	CAP-FXD 33uF +-10pct 10 V TA	TAAB336K010 T110B336K010AS TAAB33K10RX	AVX KEMET ELECTRONICS STC
C23,C24,C30,C31,C36, C109,C116-118	9	0180-0291	CAP-FXD 1uF +-10pct 35 V TA	TAAA105K035 T110A105K035AS TAAA1R0K35RX	AVX KEMET ELECTRONICS STC
C26	1	0180-3899	CAP-FXD 220uF +-20pct 50 V AL-ELCTLT	TVX1H221MCD	NICHICON
C27-29	3	0180-3906	CAP-FXD 100uF +-20pct 50 V AL-ELCTLT	TVX1H101MAD	NICHICON
C3, C4	2	0160-7798	CAP-FXD 0.1uF +-10PCT 50V CER X7R	08055C104KAT_A C0805C104K5RAC C2012X7R1H104K GRM21BR71H104KA11L NMC0805X7R104K50TRP VJ0805Y104KXAMT	AVX KEMET ELECTRONICS TDK MURATA MANUFACTURING NIC COMPONENTS VISHAY

Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
C32,C34	2	0160-4822	CAP-FXD 1000pF +-5pct 100 V CER C0G	C420C102J1G5CA SA201A102JAAH SA201A102JAAH	KEMET ELECTRONICS AVX KYOCERA
C33	1	0160-4832	CAP-FXD 0.01uF +-10pct 100 V CER X7R	C410C103K1R5CA SA101C103KAAH SA101C103KAAH	KEMET ELECTRONICS AVX KYOCERA
C38	1	0180-0376	CAP-FXD 0.47uF +-10pct 35 V TA	T110A474K035AS TAAA0R47K35RX	KEMET ELECTRONICS STC
C8,C122	2	0160-4801	CAP-FXD 100pF +-5pct 100 V CER C0G	C410C101J1G5CA SA102A101JAAH SA102A101JAAH	KEMET ELECTRONICS AVX KYOCERA
CR102	1	0837-0268	VOLTAGE SUPPRESSOR RMS VOLTAGE=300V,DC	V300LA4	WAVECOM
CR104,CR108,CR113,CR114	4	1901-0880	DIODE-GEN PRP 200MA DO-35	FDH300	FAIRCHILD SEMICONDUCTOR
CR105,CR106,CR111,CR112	4	E1326-62501	DIODE		
	1	1901-0880	DIODE-GEN PRP 200MA DO-35	FDH300	FAIRCHILD SEMICONDUCTOR
CR107	1	1901-0849	DIODE-PWR RECT 1N4007 1KV 1A DO-41	1N4007 1N4007	SOLID STATE DEVICES VISHAY
CR109-110	2	1901-0535	DIODE-SCHOTTKY SM SIG	5082-2811 A2X356	AVAGO TECHNOLOGIES FEI MICROWAVE
CR115,116	2	1902-0961	DIODE-ZNR 13V 5pct DO-35 PD=.4W TC=+.082pct	1N964B	MICROSEMI
CR1-5,CR46-17,CR101, CR103,CR121-126	18	1901-1098	DIODE-SWITCHING 1N4150 50V 200MA 4NS	1N4150 1N4150	FAIRCHILD SEMICONDUCTOR ROHM
CR201	1	1990-0966	LED-LAMP LUM-INT=3MCD IF=20MA-MAX BVR=5V	HLMP-3507-D00B2	AVAGO TECHNOLOGIES
CR202	1	1990-1022	LED-LAMP LUM-INT=5.4MCD IF=30MA-MAX	HLMP-3301-F00B2	AVAGO TECHNOLOGIES
CR6	1	1902-0965	DIODE-ZNR 20V 5pct DO-35 PD=.4W TC=+.092pct	1N968B	MICROSEMI
CR7-12	6	1901-1065	DIODE-PWR RECT 1N4936 400V 1A 200NS	1N4936RLG 1N4936 1N4936	ON SEMICONDUCTOR ALL AMERICAN PRODUCTS VISHAY
E101-103	3	5185-6741	LTB OF 1970-0100		
	1	1970-0100	SURGE VOLTAGE PROTECTOR		
F1,F2	2	2110-0712	FUSE-SUBMINIATURE 4A 125V NTD AX	0251004.	LITTELFUSE
J102	1	1252-3712	CONN-POST TYPE .100-PIN-SPCG-MTG-END	68668-004	FCI FRAMATOME BERG
J103	1	1252-3416	CONN-POST TYPE .100-PIN-SPCG-MTG-END	70553-0108	MOLEX
J2, 301	2	1250-1846	CONNECTOR-RF BNC FEMALE PC-W-STDFS	5413631-2 28JR342-1 31-5507	TYCO ELECTRONICS AMP FCI FRAMATOME BERG AMPHENOL
JM1, 3	2	1251-4927	CONN-HDR VERT 16-PIN 2.54 MM 2 ROW	67997-116HLF	FCI FRAMATOME BERG
K104, 105	2	0490-1556	RELAY-REED	3500-0050	COTO WABASH
K106	1	0490-1555	RELAY-REED	3500-0051	COTO WABASH
L101	1	9140-0129	INDUCTOR RF-CH-MLD 220uH +-5pct	1537-92 15M223J 9210-92 IM-4 220UH 5%	AMERICAN PRECISION INDUSTRIES GOWANDA ELECTRONICS ARROW ELECTRONICS VISHAY
L1-3	3	9140-1389	IDCTR-FXD 220uH +-15PCT 0.27W-INX0.7L-IN	RL-1284-220 IHD-1 220UH 15%	RENCO ELECTRONICS VISHAY
MP1	1	0050-2183	CASTING-ZN P.C. BOARD HOLDER	20827-074	PENTAIR
MP1	1	E1411-26522	PC Board		



Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
MP2	1	0361-1295	RIVET-SEMITUB OVH .095DIA .406LG ; RIVET-SEMITUB	0361-1295 0361-1295	CHICAGO RIVET & MACHINE NATIONAL RIVET & MFG
MP7-9	3	0590-1076	THREADED INSERT-NUT M3 X 0.5 1.5-MM-LG	HCN-M3-2-STAINLESS STEEL KFS2-M3	TR FASTENINGS PENN ENGINEERING & MFG
P1	1	1252-1596	CONN-POST TYPE 2.54-PIN-SPCG-MTG-END	10-8557-096-002-025 536010-5 DIN-96CPC-SRI-TR	KYOCERA TYCO ELECTRONICS AMP 3M
P1, P2, P3	3	1253-5003	CONN-ADAPTOR PLUG 2-ROW 8-PINS .300-SP	142-90-308-00-591100	MILL-MAX
P2	1	1252-4743	CONN-POST TYPE 2.54-PIN-SPCG-MTG-END	5536011-5 10-8557-096-002-026	TYCO ELECTRONICS AMP KYOCERA
P3	1	1258-0247	JUMPER 4 POSITIONS; HOUSING MATERIAL	69146-204LF	FCI FRAMATOME BERG
PCB1	1	E1411-26521	PC BOARD, ETCHED (PWB)	E1411-26521	AGILENT TECHNOLOGIES
Q1, 4, 5	3	1854-1028	TRANSISTOR NPN SI TO-92 PD=625MW	2N3904	ROHM
Q101	1	5188-2519	LTB FOR 1853-0563		
	1	1853-0563	TRANSISTOR PNP SI TO-92 PD=625MW		
Q102, 109, 110	3	1855-0414	TRANSISTOR J-FET 2N4393 N-CHAN D-MODE	1855-0414 2N4393	SOLITRON VISHAY
Q103, 108, 112	3	1855-0437	TRANSISTOR J-FET P-CHAN D-MODE TO-92	1855-0437 J270	VISHAY FAIRCHILD SEMICONDUCTOR
Q104-107	4	1853-0510	TRANSISTOR PNP SI TO-92 PD 625MW FT 200MHZ	CEN1122 SPS8342	CENTRAL SEMICONDUCTOR ON SEMICONDUCTOR
Q2, 3	2	1855-0518	TRANSISTOR MOSFET N-CHAN E-MODE SI	IRFD110	INTERNATIONAL RECTIFIER
R1,R14,R21-23,R142,R143	7	0757-0280	RESISTOR 1K +-1pct .125W TF TC=0+-100	5053HD1K000F CMF-551001FT-1 NK4H.125W1%+/-100PPM1001	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R102,109	2	0699-0059	RESISTOR 5K +-0.1pct .1W TF TC=0+-5	PR1/10TC55K0.1% PTF-565K0BT-16 UXBA5K0000B	PRECISION RESISTIVE PRODUCTS VISHAY VISHAY BC COMPONENTS
R105,R106,R114	3	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
R107	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
R108	1	0698-6414	RESISTOR 1K +-0.1pct .1W TF TC=0+-5	PR 1/10T51K0.1% PTF-561K0BT-16 UXB0207-05 0,1% RP 1K	PRECISION RESISTIVE PRODUCTS VISHAY VISHAY BC COMPONENTS

Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
R110	1	0698-6407	RESISTOR 32.8K +-0.1pct .1W TF TC=0+4	232214191517 PR1/10TC432K8.1% PTF-5632K8B	VISHAY BC COMPONENTS PRECISION RESISTIVE PRODUCTS VISHAY
R113	1	0698-3158	RESISTOR 23.7K +-1pct .125W TF TC=0+-100	5053HD23K70F CMF-552372FT-1 NK4H.125W1%+/-100PPM2372	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R115	1	0757-0464	RESISTOR 90.9K +-1pct .125W TF TC=0+-100	5053HD90K90F CMF-559092FT-1 NK4H.125W1%+/-100PPM9092	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R116	1	0757-0462	RESISTOR 75K +-1pct .125W TF TC=0+-100	5053HD75K00F CMF-557502FT-1 CRB25-FX-7502 NK4H.125W1%+/-100PPM7502	VISHAY BC COMPONENTS VISHAY ROHM E-SIL COMPONENTS
R117	1	0698-6963	RESISTOR 5.55K +-0.1pct .125W TF TC=0+-25	B0207E5K550B CMF-555551BT-9	VISHAY BC COMPONENTS VISHAY
R118	1	0698-4501	RESISTOR 59K +-1pct .125W TF TC=0+-100	5053HD59K00F CMF-555902FT-1 NK4H.125W1%+/-100PPM5902	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R119	1	0698-6364	RES-FXD 50 OHM +-0.1PCT 0.125W TC 0+-25 0207	CMF-5550R0BT-9 MBB0207-25 0.1%_50R	VISHAY VISHAY BC COMPONENTS
R12	1	0757-0281	RESISTOR 2.74K +-1pct .125W TF TC=0+-100	5053HD2K740F CMF-552741FT-1 NK4H.125W1%+/-100PPM2741	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R120	1	0698-8827	RESISTOR 1M +-1pct .125W TF TC=0+-100	5053HD1M000F CMF-551004FT-1	VISHAY BC COMPONENTS VISHAY
R121,R122,R136,R154,R155	5	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
R124,R131,R174-176	5	0757-0465	RESISTOR 100K +-1pct .125W TF TC=0+-100	5053HD100K0F CMF-551003FT-1 NK4H.125W1%+/-100PPM1003	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
R125,R126,R137,R138,R173	5	0698-6360	RES-FXD 10K +-0.1PCT 0.125W TC 0+-25 0207	CMF-551002BT-9 MBO0207-25 0.1%__10K	VISHAY VISHAY BC COMPONENTS
R128,R164,R165	3	0698-3558	RESISTOR 4.02K +-1pct .125W TF TC=0+-100	5053HD4K020F CMF-554021FT-1 CRB25-FX-4021 NK4H.125W1%+/-100PPM4021	VISHAY BC COMPONENTS VISHAY ROHM E-SIL COMPONENTS
R129	1	0757-0291	RESISTOR 24.9 +-1pct .125W TF TC=0+-100	5053HD24R90F CMF-5524R9FT-1 NK4H.125W1%+/-100PPM24R9	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R13,R135,R170	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
R130	1	0757-0273	RESISTOR 3.01K +-1pct .125W TF TC=0+-100	5053HD3K010F CMF-553011FT-1 NK4H.125W1%+/-100PPM3011	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R132	1	0699-0448	RESISTOR 4.02K +-0.1pct .1W TF TC=0+-5	PR1/10T54K02.1% PTF-564K02BT-16 UXB0207-05 0.1% RP 4.02K	PRECISION RESISTIVE PRODUCTS VISHAY VISHAY BC COMPONENTS
R133,R134	2	0698-6620	RESISTOR 150K +-0.1pct .125W TF TC=0+-25	B0207E150K0B CMF-551503BT-9	VISHAY BC COMPONENTS VISHAY
R139	1	0699-0121	RESISTOR 2.05M +-1pct .125W TF TC=0+-100	CMF-552054FT-1	VISHAY
R147,R148	2	0757-0435	RESISTOR 3.92K +-1pct .125W TF TC=0+-100	5053HD3K920F CMF-553921FT-1 CRB25-FX-3921 NK4H.125W1%+/-100PPM3921	VISHAY BC COMPONENTS VISHAY ROHM E-SIL COMPONENTS
R152,153	2	0698-3486	RESISTOR 232 +-1pct .125W TF TC=0+-100	5053HD232R0F CMF-552320FT-1 NK4H.125W1%+/-100PPM232R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R156,R157	2	0698-4430	RESISTOR 1.91K +-1pct .125W TF TC=0+-100	5053HD1K910F CMF-551911FT-1 NK4H.125W1%+/-100PPM1911	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
R16,R149	2	0757-0401	RESISTOR 100 +-1pct .125W TF TC=0+-100	5053HD100R0F CMF-551000FT-1	VISHAY BC COMPONENTS VISHAY
R161, R163, R169	3	8159-0005	RESISTOR 0 CWM	106 L-2007-1 YZO 1/4 Z-25	MICRO-OHM GETTIG ENGRG & MFG TT ELECTRONICS ASJ
R166,R167	2	0757-0443	RESISTOR 11K +-1pct .125W TF TC=0+-100	5053HD11K00F CMF-551102FT-1 NK4H.125W1%+/-100PPM1102	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R17	1	0811-3056	RESISTOR .24 +-5pct .5W PWI TC=0+-300	SP-2-0R2-5%	TT ELECTRONICS
R171,R180,R181	3	0698-4211	RESISTOR 158K +-1pct .125W TF TC=0+-100	5053HD158K0F CMF-551583FT-1 NK4H.125W1%+/-100PPM1583	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R18	1	0757-0449	RESISTOR 20K +-1pct .125W TF TC=0+-100	5053HD20K00F CMF-552002FT-1 CRB25-FX-2002 NK4H.125W1%+/-100PPM2002	VISHAY BC COMPONENTS VISHAY ROHM E-SIL COMPONENTS
R19,R150,R151	3	0698-3156	RESISTOR 14.7K +-1pct .125W TF TC=0+-100	5053HD14K70F CMF-551472FT-1 NK4H.125W1%+/-100PPM1472	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R2,R3,R101,R103,R127, R140,R141,R145,R146, R178,R179	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
R20	1	0698-4434	RESISTOR 2.32K +-1pct .125W TF TC=0+-100	5053HD2K320F CMF-552321FT-1 NK4H.125W1%+/-100PPM2321	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R201,R206	2	0698-4525	RESISTOR 187K +-1pct .125W TF TC=0+-100	5053HD187K0F CMF-551873FT-1 NK4H.125W1%+/-100PPM1873	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
R203	1	0757-0411	RESISTOR 332 +-1pct .125W TF TC=0+-100	5053HD332R0F CMF-553320FT-1 CRB25-FX-3320 NK4H.125W1%+/-100PPM332R0	VISHAY BC COMPONENTS VISHAY ROHM E-SIL COMPONENTS
R205	1	0757-0421	RESISTOR 825 +-1pct .125W TF TC=0+-100	5053HD825R0F CMF-558250FT-1	VISHAY BC COMPONENTS VISHAY
R220	1	0757-0410	RESISTOR 301 +-1pct .125W TF TC=0+-100	5053HD301R0F CMF-553010FT-1 NK4H.125W1%+/-100PPM301R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R24	1	0757-0384	RESISTOR 20 +-1pct .125W TF TC=0+-100	5053HD20R00F CMF-5520R0FT-1 NK4H.125W1%+/-100PPM20R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R26,R204	2	0757-0407	RESISTOR 200 +-1pct .125W TF TC=0+-100	5053HD200R0F CMF-552000FT-1 CRB25-FX-2000 NK4H.125W1%+/-100PPM200R0	VISHAY BC COMPONENTS VISHAY ROHM E-SIL COMPONENTS
R28,123	2	0698-4394	RESISTOR 76.8 +-1pct .125W TF TC=0+-100	5053HD76R80F CMF-5576R8FT-1 NK4H.125W1%+/-100PPM76R8	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R29,R177	2	0757-0453	RESISTOR 30.1K +-1pct .125W TF TC=0+-100	5053HD30K10F CMF-553012FT-1 CRB25-FX-3012 NK4H.125W1%+/-100PPM3012	VISHAY BC COMPONENTS VISHAY ROHM E-SIL COMPONENTS
R4	1	0757-0428	RESISTOR 1.62K +-1pct .125W TF TC=0+-100	5053HD1K620F CMF-551621FT-1 NK4H.125W1%+/-100PPM1621	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
R5,R6,R8-11,R25,R104	8	0757-0415	RESISTOR 475 +-1pct .125W TF TC=0+-100	5053HD475R0F CMF-554750FT-1 NK4H.125W1%+/-100PPM475R0	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS

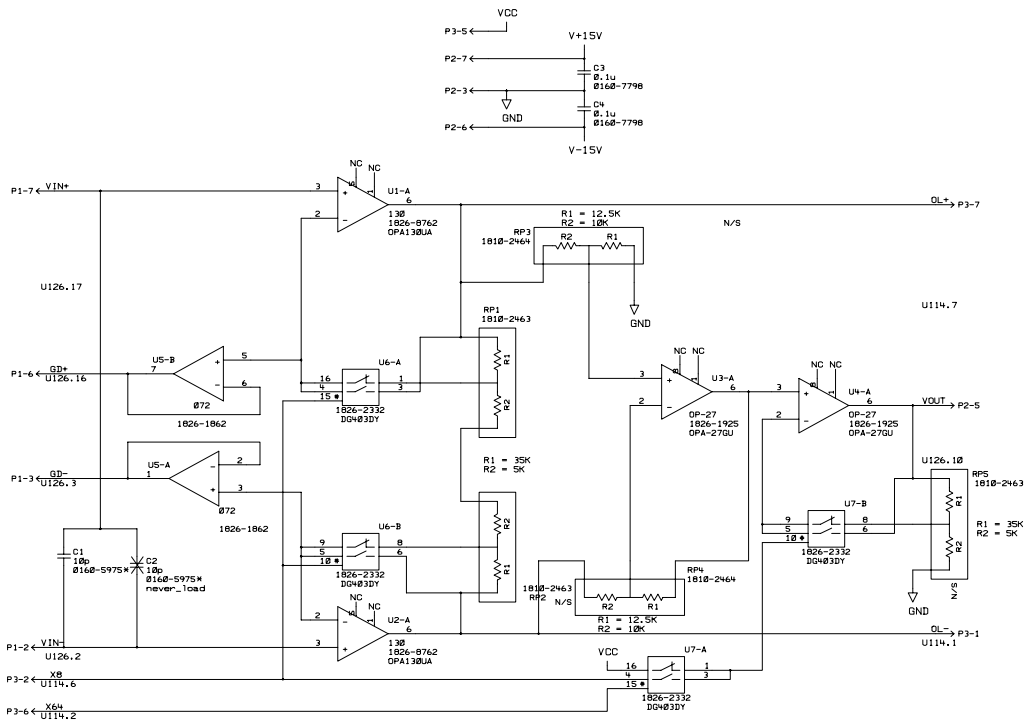
Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
R7,R15,R27	3	0757-0433	RESISTOR 3.32K +-1pct .125W TF TC=0+-100	5053HD3K320F CMF-553321FT-1 NK4H.125W1%+/-100PPM3321	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
RP1, RP2, RP5	3	1810-2463	NET-RES 2 35.0K / 5.0K +-1PCT TC 0+-25 1206	PFC-D1206-03-3502-5001-FB	T T GROUP
RP102	1	1810-1346	NET-RES 2 156.25K OHM 9-PIN MULTI-VAL	VTF340	VISHAY
RP107	1	1810-1348	NET-RES 4 50.0K OHM 6-PIN MULTI-VAL	VTF157	VISHAY
RP2-4, 103	4	1810-0280	NET-RES 9 10.0K OHM 10-PIN	750-101 MSP10A01-103G 4310R-94Y-103LF	TT ELECTRONICS VISHAY BOURNS
RP3, RP4	2	1810-2464	NET-RES 2 12.5K / 10K +-1PCT TC 0+-25	PFC-UD1206-03-1252-1002-F-T-2	T T GROUP
RVT3-6	4	0361-1294	RIVET-SEMITUB OVH .098DIA .328LG ; RIVET-SEMITUB	0361-1294 0361-1294	CHICAGO RIVET & MACHINE NATIONAL RIVET & MFG
SCR1-3	3	0515-0430	SCREW-MACHINE ASSEMBLY M3 X 0.5 6MM-LG	0515-0430 0515-0430 0515-0430	ILLINOIS TOOL WORKS PIONEER SCREW & NUT TEXTRON
SP1	1	3101-3066	SWITCH-DIP RKR 8-1A 0.15A 30VDC	76Y22968ST	GRAYHILL
T1	1	9100-4798	TRANSFORMER-SWITCHING	9100-4798	DT MAGNETICS
U1	1	5188-2505	LTB FOR 1820-6731		
	1	1820-6731	IC-ASIC		
U1, U2	2	1826-8762	IC OP AMP LP SINGLE 8 PIN PLSTC-SOIC	OPA130UA	TEXAS INSTRUMENTS
U101,U112,U113	3	1826-0962	IC OP AMP LOW-BIAS-H-IMPED DUAL 8 PIN	LF412CN	NATIONAL SEMICONDUCTOR
U102	1	1858-0069	TRANSISTOR ARRAY 18-LEAD PLSTC DIP	ULN2803A	STMICROELECTRONICS
U104	1	E1326-85532	PRG PRT 80C51 (R	E1326-85532	INTEL
U105	1	1826-0893	RMS/DC 10-METAL BPLR	AD536AJH (BURNED-IN)	ANALOG DEVICES
U106,U107	2	1820-3081	IC FF CMOS/HC D-TYPE POS-EDGE-TRIG	MM74HC74AN SN74HC74N MC74HC74ANG	FAIRCHILD SEMICONDUCTOR TEXAS INSTRUMENTS ON SEMICONDUCTOR
U11,U306	2	1820-2924	IC GATE CMOS/HC NOR QUAD 2-INP	MM74HC02N SN74HC02N MC74HC02ANG	FAIRCHILD SEMICONDUCTOR TEXAS INSTRUMENTS ON SEMICONDUCTOR
U111	1	1820-3692	IC ANLG-MUXR/DEMURX CMOS/HC 2-CHANNEL	74HC4053N MC74HC4053N 74HC4053N	PHILIPS ON SEMICONDUCTOR NXP
U111,U112	2	0757-0472	RESISTOR 200K +-1pct .125W TF TC=0+-100	5053HD200K0F CMF-552003FT-1 NK4H.125W1%+/-100PPM2003	VISHAY BC COMPONENTS VISHAY E-SIL COMPONENTS
U115	1	1826-0635	IC OP AMP LOW-OFS 8 PIN DIP-P	OP-07CN8 OP-07CP	LINEAR TECHNOLOGY ANALOG DEVICES
U116	1	1820-3350	IC MUXR/DATA-SEL CMOS/HC 4-TO-1-LINE	SN74HC153N	TEXAS INSTRUMENTS

Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
U117	1	1826-1265	IC OP AMP WB 8 PIN DIP-P	LT318AN8 (SELECTED)	LINEAR TECHNOLOGY
U118	1	1826-0065	IC COMPARATOR PRCN 8 PIN DIP-P	LM311N LM311P	NATIONAL SEMICONDUCTOR TEXAS INSTRUMENTS
U119	1	1826-1178	IC OP AMP HS DIP-C	HA1-5320-5	INTERSIL
U12,U304,U305	3	1820-4057	IC BFR TTL/F NAND QUAD 2-INP	74F38N N74F38N	PHILIPS NXP
U120	1	5188-2514	LTB FOR 1826-1951		
	1	1826-1951	A/D 16-BIT BPLR 28-PDIP		
U121	1	1826-1086	ANALOG SWITCH 4 SPST 16 -DIP-P	SW-06GP	ANALOG DEVICES
U122	1	1820-3177	IC MUXR/DATA-SEL CMOS/HC 2-TO-1-LINE	MM74HC157N MC74HC157ANG	FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR
U123	1	1826-0639	D/A 8-BIT 16-PLASTIC CMOS	AD7524JN	ANALOG DEVICES
U124	1	1826-1366	ANALOG MULTIPLEXER 4 CHNL 16 -CERDIP	HI1-0539-5	INTERSIL
U125	1	1826-0138	IC COMPARATOR GP QUAD 14 PIN DIP-P	LM339N LM339N	NATIONAL SEMICONDUCTOR TEXAS INSTRUMENTS
U126	1	E1411-66522	PCA, daughter board	E1411-66522 E1411-66522	AGILENT TECHNOLOGIES EXT VIEW CELESTICA
U127,133	2	1826-0412	IC COMPARATOR PRCN DUAL 8 PIN DIP-P	LM393N	NATIONAL SEMICONDUCTOR
U13,U110	2	1820-2921	IC INV CMOS/HC HEX	MM74HC04N MC74HC04ANG	FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR
U132	1	1826-1431	IC PWR MGT-V-REF-FXD 4.9975/5.0025V 8	LT1021CCN8-5	LINEAR TECHNOLOGY
U14,U35	2	1820-3975	IC DRVR CMOS/HC LINE OCTL	SN74HC541N	TEXAS INSTRUMENTS
U15,U16	2	5041-6300	LTB OF 1820-5789		
	1	1820-5789	IC TRANSCEIVER TTL/F BUS OCTL		
U17	1	5188-2533	LTB FOR 1818-3938		
	1	1818-3938	IC 1K-BIT EEPROM 4-US NMOS		
U18	1	1990-0545	OPTO-ISOLATOR LED-PDIO/XSTR IF=40MA-MAX	6N139-000E	AVAGO TECHNOLOGIES
U19,U20	2	1990-0429	OPTO-ISOLATOR LED-IC GATE IF 10MA-MAX	6N137	AVAGO TECHNOLOGIES
U2	1	1820-3298	IC GATE CMOS/HC OR QUAD 2-INP	MM74HC32N MC74HC32ANG	FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR
U201	1	1820-3673	IC MV CMOS/HC MONOSTBL RETRIG DUAL	MM74HC123AN TC74HC123P	FAIRCHILD SEMICONDUCTOR TOSHIBA
U202	1	1820-3297	IC DRVR CMOS/HC BUS OCTL	74HC244N MM74HC244N MC74HC244ANG 74HC244N	PHILIPS FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR NXP
U23	1	E1411-85511	PRG PRT 80C51 (R	P87C51 (L/L 1820-5996)	INTEL
U24, 109	2	5969-5413	LTB OF 1813-0661		
	1	1813-0661	CRYSTAL OSC 12.0000MHZ 0.01pct		

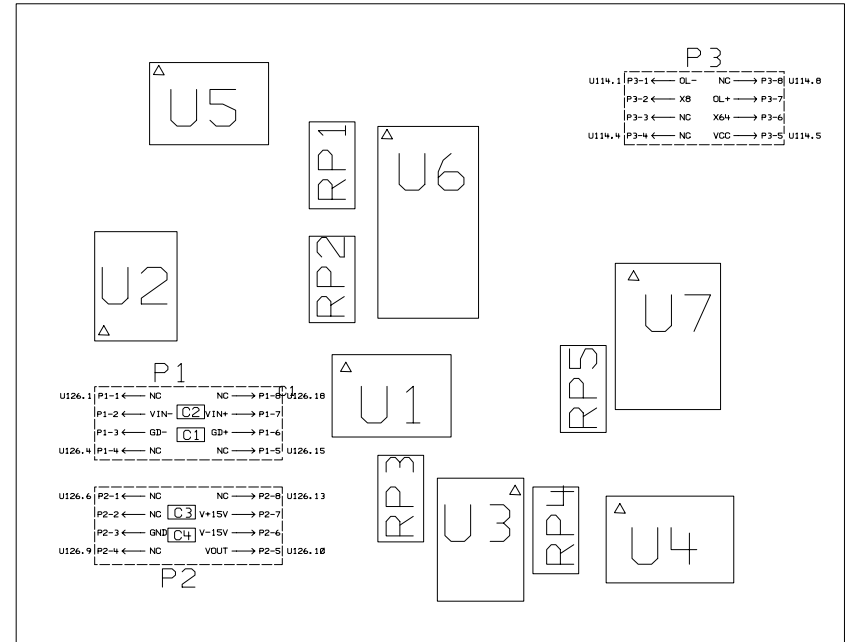
Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
U25,U26	2	5063-1434	LTB OF 1820-4084		
	1	1820-4084	IC DCDR-DEMUXR CMOS/HC BIN 1-TO-8-LINE		
U27,U28,U128,U129	4	1820-3344	IC SHF-RGTR CMOS/HC SYNC/ASYNCHRO SERIAL-IN	MC74HC595ANG	ON SEMICONDUCTOR
U29	1	1820-6254	IC FIFO CMOS ASYNCHRO 4608-BIT	IDT7201LA50TP	IDT
U3	1	1820-3146	IC FF CMOS/HC D-TYPE POS-EDGE-TRIG COM	MC74HC175ANG	ON SEMICONDUCTOR
U3, U4	2	1826-1925	IC OP AMP LOW-NOISE SINGLE 8 PIN	OP-27GS OPA27GU/ _E4	ANALOG DEVICES TEXAS INSTRUMENTS
U30	1	1820-6475	IC FIFO CMOS ASYNCHRO 4608-BIT		
U301,U302	2	1820-4086	IC FF CMOS/HCT D-TYPE POS-EDGE-TRIG COM	74HCT273N 74HCT273N	PHILIPS NXP
U303	1	1820-2936	IC MUXR/DATA-SEL TTL/F 8-TO-1-LINE	74F151APC	FAIRCHILD SEMICONDUCTOR
U32-34,U108	4	1820-3789	IC FF CMOS/HC D-TYPE POS-EDGE-TRIG COM	MM74HC574N MC74HC574ANG	FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR
U36,U307	2	1820-4583	IC GATE CMOS/HCT AND QUAD 2-INP	SN74HCT08	TEXAS INSTRUMENTS
U37,U38,U47	3	1820-3173	IC FF CMOS/HC J-K NEG-EDGE-TRIG	74HC112N SN74HC112N 74HC112N	PHILIPS TEXAS INSTRUMENTS NXP
U4,U5	2	1820-3631	IC COMPTN CMOS/HCT MAGTD 8-BIT	74HCT688N MM74HCT688N 74HCT688N	PHILIPS FAIRCHILD SEMICONDUCTOR NXP
U41	1	1826-0122	IC PWR MGT-V-REG-FXD-POS 4.8/5.2V TO-220	LM340T-5 MC7805CTG	NATIONAL SEMICONDUCTOR ON SEMICONDUCTOR
U42	1	1826-0106	IC PWR MGT-V-REG-FXD-POS 14.4/15.6V	LM340T-15	NATIONAL SEMICONDUCTOR
U43	1	1826-0214	IC PWR MGT-V-REG-FXD-NEG -14.4/-15.6V	MC7915CTG	ON SEMICONDUCTOR
U44	1	5188-2512	LTB FOR 1826-0428		
	1	1826-0428	IC PWR MGT-V-REG-SWG 1/40V 16 PINS DIP-C	SG3524J	MICROSEMI
U45,203	2	1820-4569	IC DRVR CMOS/HC LINE OCTL	MM74HC540N MC74HC540ANG	FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR
U46	1	1826-1973	IC MISC 3 PIN TO-226AA	MC34064P-5RAG	ON SEMICONDUCTOR
U48	1	1820-3794	IC CNTR CMOS/HC BIN UP/DOWN SYNCHRO	74HC191N MM74HC191N SN74HC191N 74HC191N	PHILIPS FAIRCHILD SEMICONDUCTOR TEXAS INSTRUMENTS NXP
U5	1	1826-1862	IC OP AMP LOW-BIAS-H-IMPED DUAL 8-SOIC	TL072CD TL072CD	STMICROELECTRONICS TEXAS INSTRUMENTS
U6	1	1820-4147	IC LCH CMOS/HCT TRANSPARENT OCTL	CD74HCT573E MM74HCT573N MC74HCT573ANG	TEXAS INSTRUMENTS FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR
U6, U7	2	1826-2332	ANALOG SWITCH 2 SPDT 16 -P-SOIC	DG403DY-E3	VISHAY



Reference Designator	Quantity	Agilent Part Number	Description	MPN	Manufacturer
U7	1	1820-4242	IC SCHMITT-TRIG CMOS/HCT INV HEX	CD74HCT14E	TEXAS INSTRUMENTS
U8,U40	2	1820-2922	IC GATE CMOS/HC NAND QUAD 2-INP	74HC00N MM74HC00N MC74HC00ANG 74HC00N	PHILIPS FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR NXP
U9,U10	2	1820-3079	IC DCDR-DEMUXR CMOS/HC BIN 3-TO-8-LINE 16-PDIP	MM74HC138N MC74HC138ANG	FAIRCHILD SEMICONDUCTOR ON SEMICONDUCTOR
XU124	1	1200-0607	SOCKET-IC-DIP 16-CONT DIP DIP-SLDR	1-390261-4 DILB16P-223T 1200-0607	TYCO ELECTRONICS AMP FCI FRAMATOME BERG AGILENT TECHNOLOGIES
	1	7121-5729	LBL-LNE-PTR; 1.5-IN-WD X .25-IN-LG	THT-45-457-10	BRADY



Power Supplies				
	V+	V-	VL	COM
U1	V+15V	V-15V		
U2	V+15V	V-15V		
U3	V+15V	V-15V		
U4	V+15V	V-15V		
U5	V+15V	V-15V		
U6	V+15V	V-15V	VCC	GND
U7	V+15V	V-15V	VCC	GND



Note: P1, P2, and P3 are loaded on the backside, but the pins are numbered like top side components. P1 & P2 plug into location U126 on the base board. P3 plugs into location U114 on the base board.

**Agilent E1411B  
VXI C-Size 5 1/2 Digit DMM  
PWA Daughter Board**

**E1411-66522 PC Assembly Parts List**

Reference Designator	Quantity	Part Number	Description	MPN	Manufacturer
C1	1	0160-5975	CAP-FXD 10pF +-5pct 50 V CER C0G	08055A100JAT A C0805C100J5GAC GRM2165C1H100JD01D	AVX KEMET ELECTRONICS MURATA MANUFACTURING
C3, C4	2	0160-7798	CAP-FXD 0.1uF +-10PCT 50V CER X7R	08055C104KAT_A C0805C104K5RAC C2012X7R1H104K GRM21BR71H104KA11L NMC0805X7R104K50TRP VJ0805Y104KXAMT	AVX KEMET ELECTRONICS TDK MURATA MANUFACTURING NIC COMPONENTS VISHAY
MP1	1	E1411-26522	PC Board		
P1, P2, P3	3	1253-5003	CONN-ADAPTOR PLUG 2-ROW 8-PINS .300-SP	142-90-308-00-591100	MILL-MAX
RP1, RP2, RP5	3	1810-2463	NET-RES 2 35.0K / 5.0K +-1PCT TC 0+-25 1206	PFC-D1206-03-3502-5001-FB	T T GROUP
RP3, RP4	2	1810-2464	NET-RES 2 12.5K / 10K +-1PCT TC 0+-25	PFC-UD1206-03-1252-1002-F-T-2	T T GROUP
U1, U2	2	1826-8762	IC OP AMP LP SINGLE 8 PIN PLSTC-SOIC	OPA130UA	TEXAS INSTRUMENTS
U3, U4	2	1826-1925	IC OP AMP LOW-NOISE SINGLE 8 PIN	OP-27GS OPA27GU/ E4	ANALOG DEVICES TEXAS INSTRUMENTS
U5	1	1826-1862	IC OP AMP LOW-BIAS-H-IMPED DUAL 8-SOIC	TL072CD TL072CD	STMICROELECTRONICS TEXAS INSTRUMENTS
U6, U7	2	1826-2332	ANALOG SWITCH 2 SPDT 16 -P-SOIC	DG403DY-E3	VISHAY

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