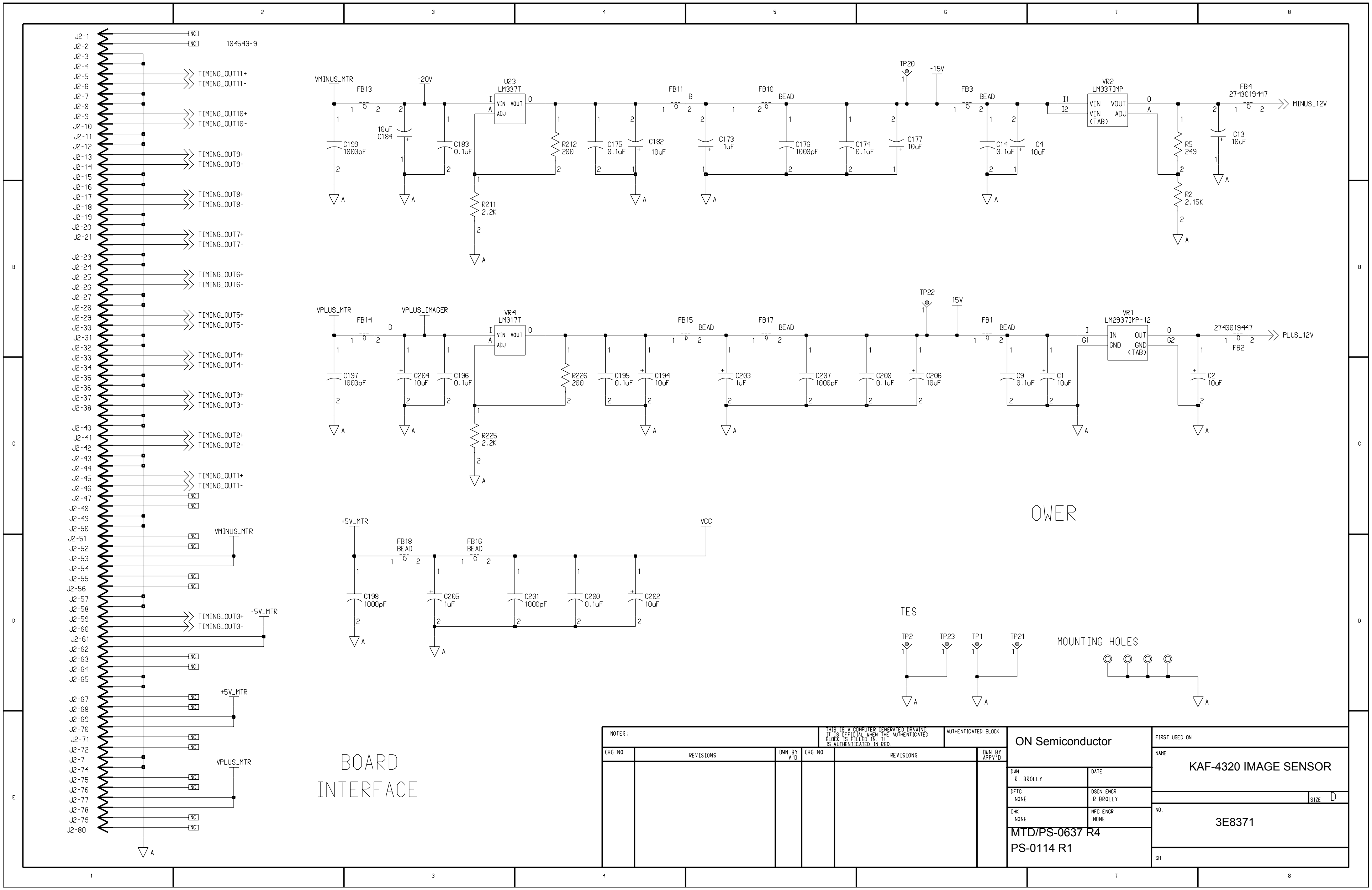

NOTES:

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AUTHENTICATED BLOCK

CHG NO	REVISIONS	DWN BY V'D	CHG NO	REVISIONS	DWN BY APPV'D

ON Semiconductor

DWN R. BROLLY	DATE
DFTG NONE	DSGN ENGR R BROLLY
CHK NONE	MFG ENGR NONE

MTD/PS-0637 R4
PS-0114 R1

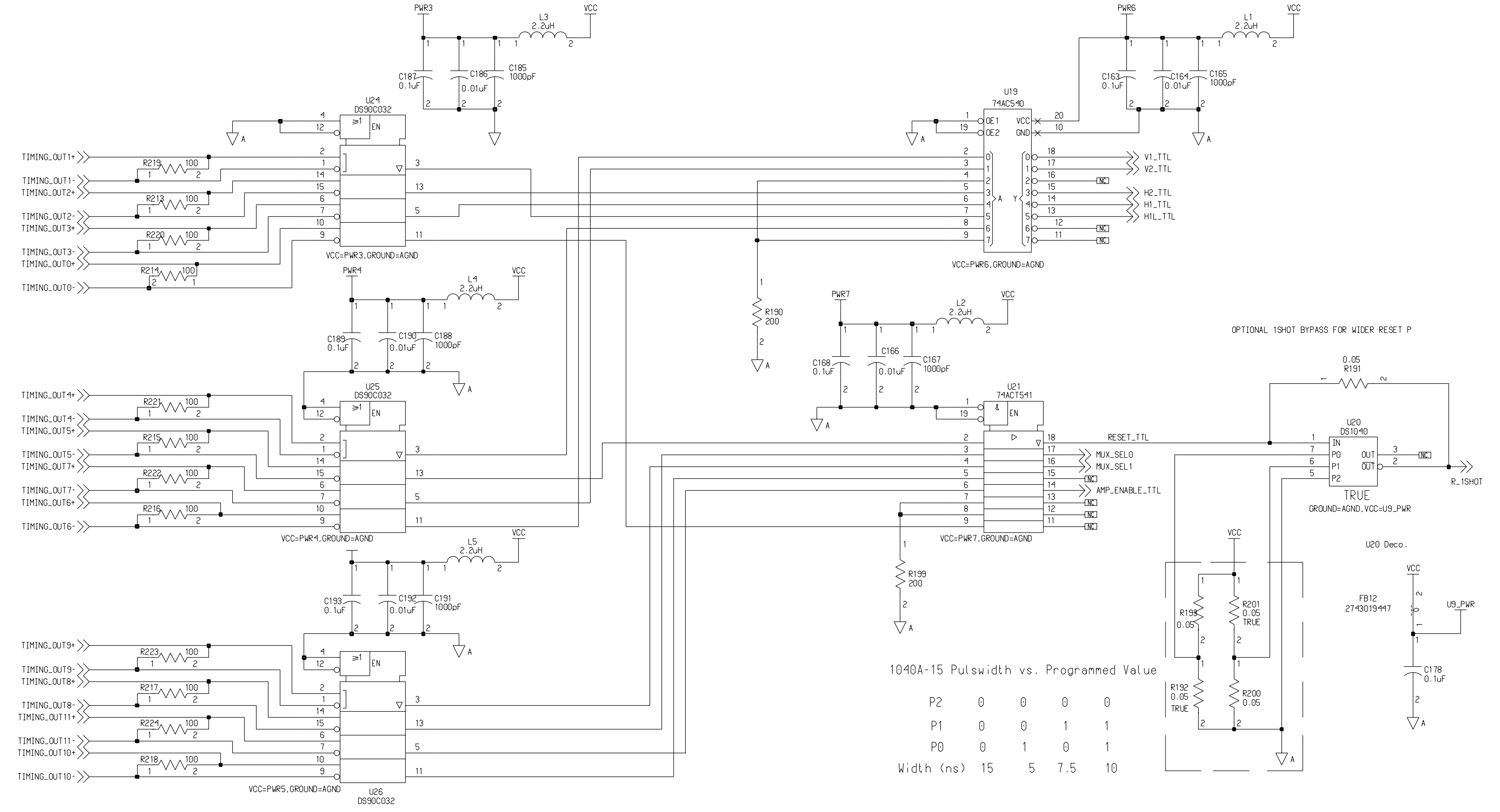
FIRST USED ON

NAME KAF-4320 IMAGE SENSOR

SIZE D

NO. 3E8371

SH



1040A-15 Pulswidth vs. Programmed Value

P2	0	0	0	0
P1	0	0	1	1
P0	0	1	0	1
Width (ns)	15	5	7.5	10

NOTES:

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AUTHENTICATED BLOCK

DATE RLSE	REVISIONS	DWN BY APPV'D	CHG NO DATE RLSE	REVISIONS	DWN BY APPV'D

ON Semiconductor

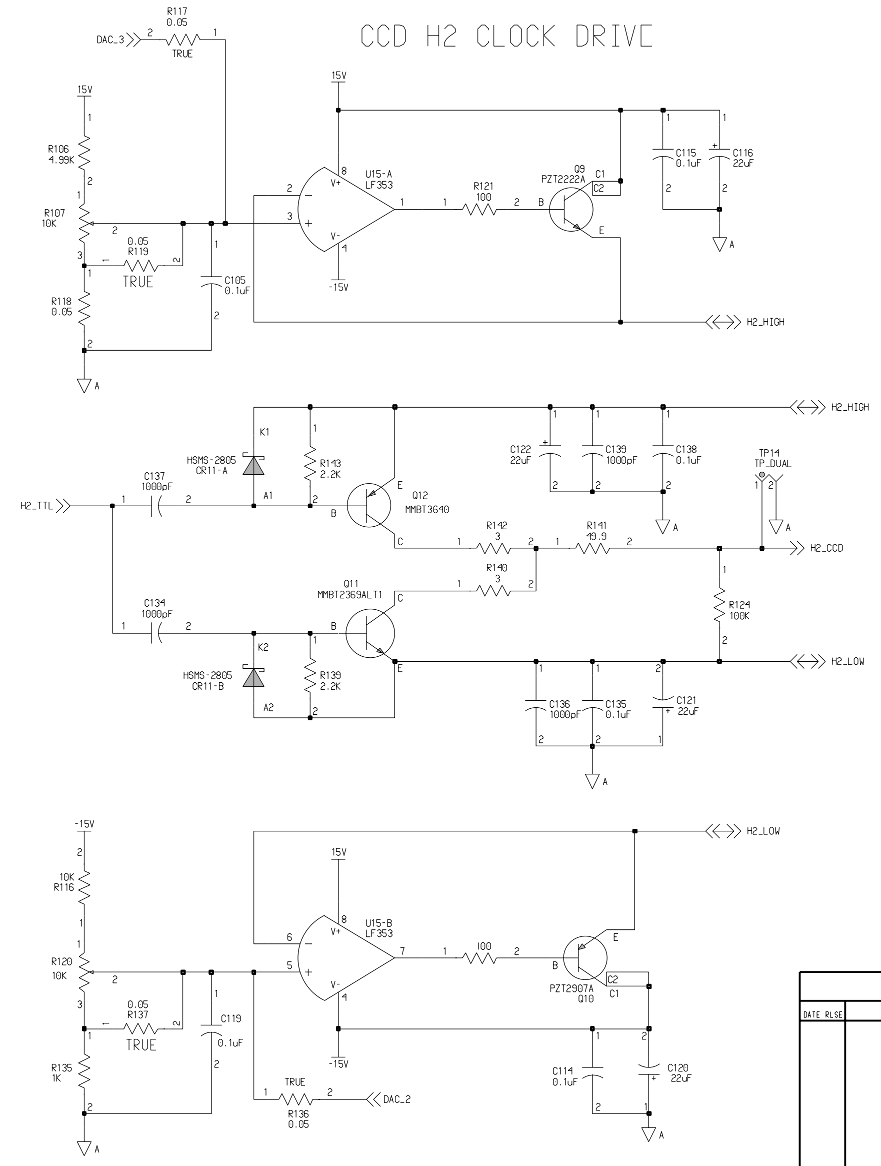
DWN R. BROLLY
DATE 05.06.2004 at 11:40
DFTG
R. BROLLY
MFG ENGR

KAF-4320 IMAGER BD

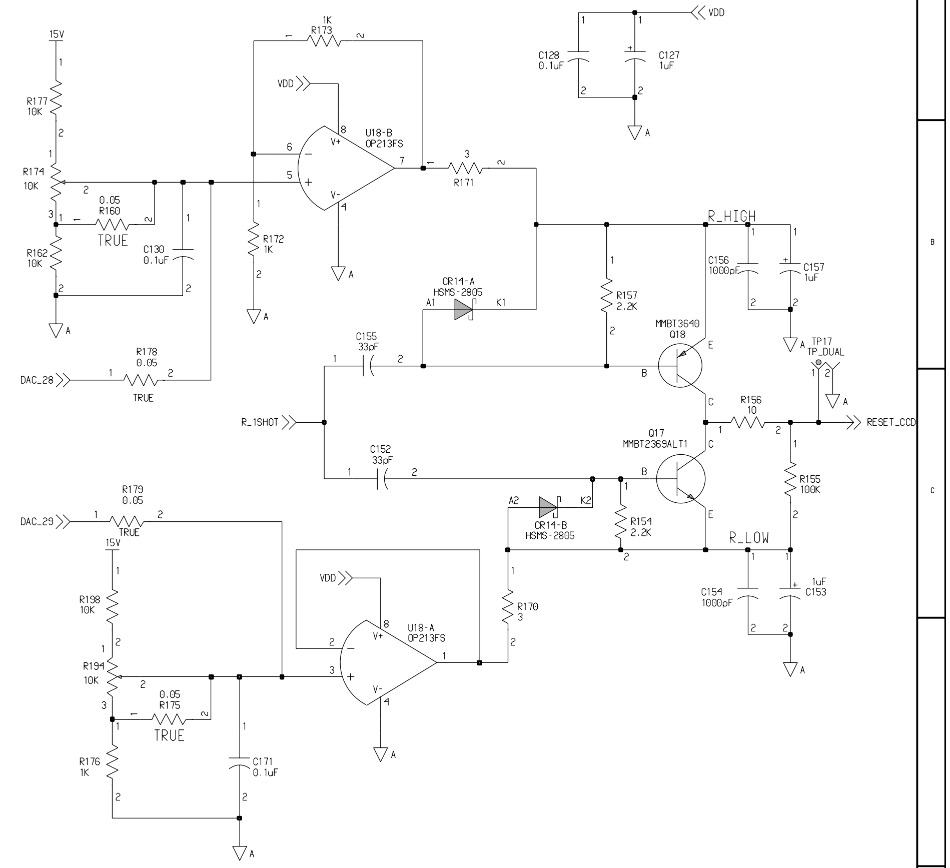
DWG
NO. 3E8371

HEET 2 OF '

CCD H2 CLOCK DRIVE



CCD RESET CLOCK DRIVER



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DATE RLSE	REVISIONS	DWN BY APPV'D	CHG NO DATE RLSE	REVISIONS	PV'D

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KAF-4320 IMAGER BD

R. BROLLY 05.06.2004 at 11:40

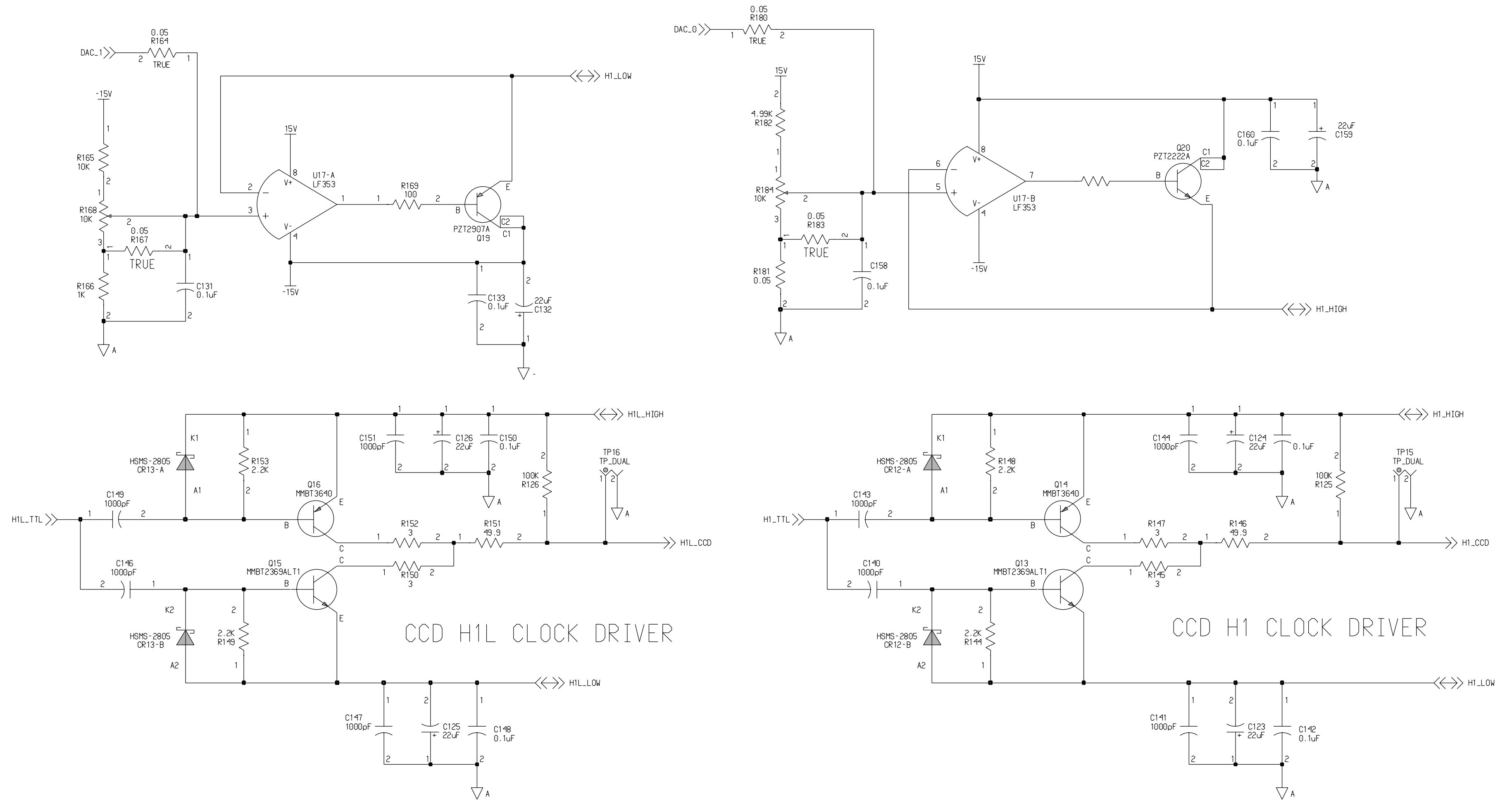
DSGN E I
R. BROLLY

MFG ENGR

DWG SIZE

3E8371

HEET 3 OF



NOTES:

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BLOCK

ON Semiconductor

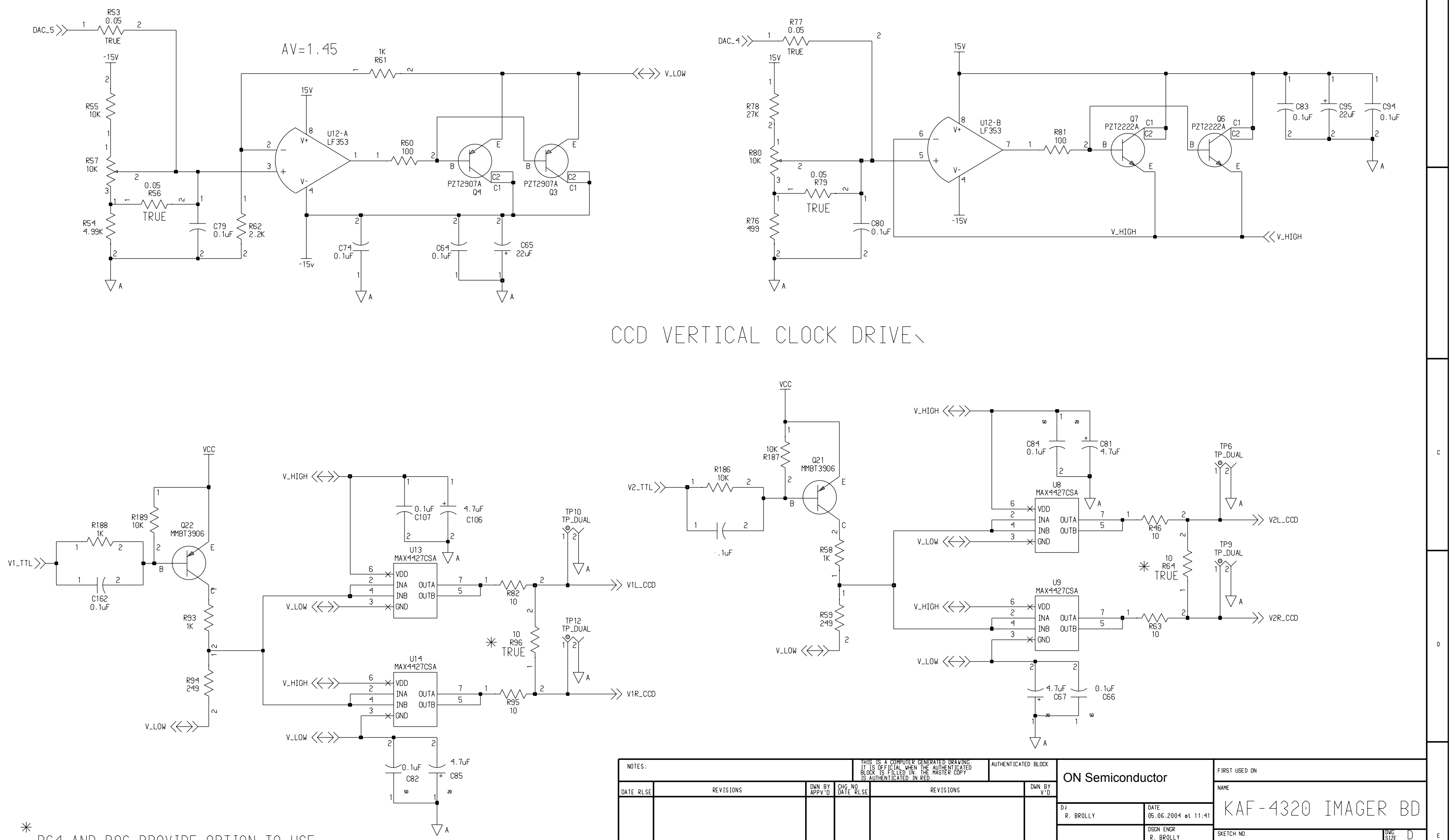
CHG NO DATE RLSE	REVISIONS	APPV'D	CH DATE RLSE	REVISIONS	DWN BY APPV'D

DWN R. BROLLY
DATE 05.06
DSGN ENGR R. BROLLY
CHK
MFG ENGR

KAF-4320 IMAGER BD

SKETCH NO.
DWG SIZE
NO. 3E8371
OF

CCD VERTICAL CLOCK DRIVE



* R64 AND R96 PROVIDE OPTION TO USE
1 OR 2 VDRIVERS IN PARALLEL

NOTES:		THIS IS A COMPUTER GENERATED DRAWING. IT IS OFFICIAL WHEN THE AUTHENTICATED BLOCK IS FILLED IN. THE MASTER COPY IS AUTHENTICATED IN RED		AUTHENTICATED BLOCK
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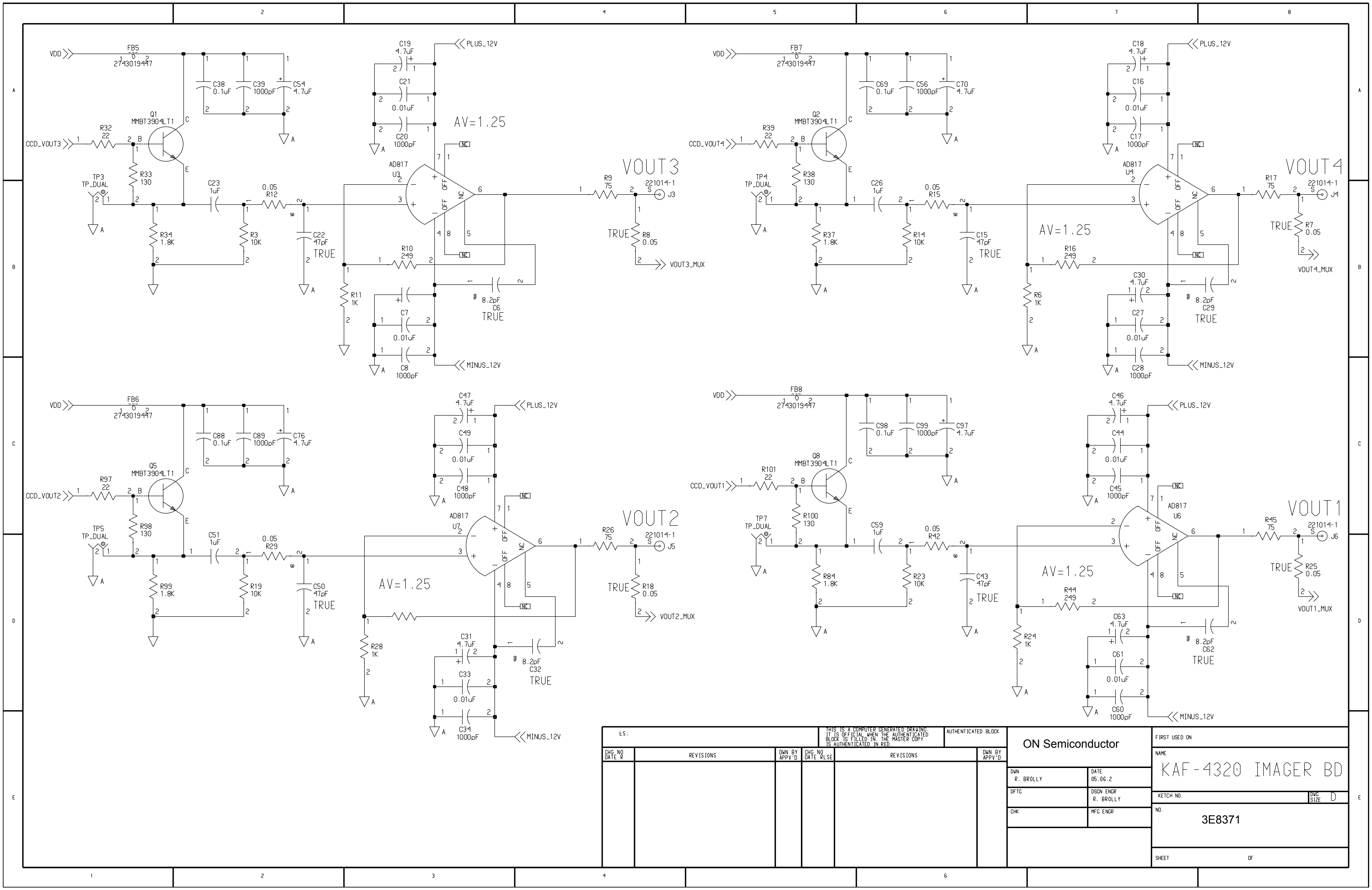
KAF-4320 IMAGER BD

DJ R. BROLLY
DATE 05.06.2004 at 11:41
DSGN ENGR R. BROLLY
MFG ENGR

SKETCH NO.
DWG SIZE D
3E8371

SHEET 5 OF 10



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AUTHENTICATED BLOCK

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DWN R. BROLLY	DATE 05.06.2
DFTG	DSGN ENGR R. BROLLY
CHK	MFG ENGR

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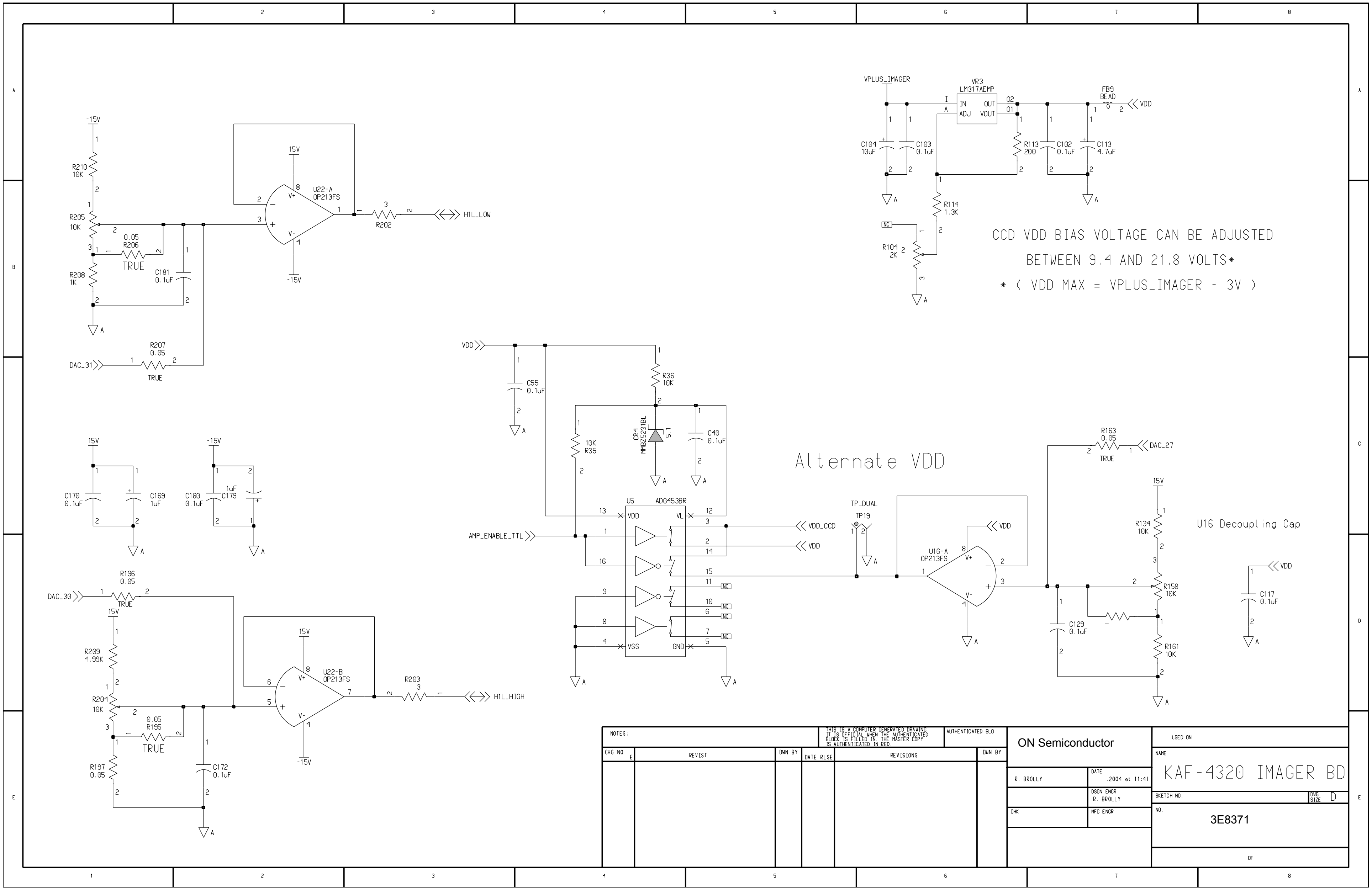
KAF-4320 IMAGER BD

KETCH NO.

DWG SIZE D

NO. 3E8371

SHEET OF



CCD VDD BIAS VOLTAGE CAN BE ADJUSTED

BETWEEN 9.4 AND 21.8 VOLTS*

* (VDD MAX = VPLUS_IMAGER - 3V)

NOTES:

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R. BROLLY

DATE .2004 at 11:41

DSGN ENGR R. BROLLY

CHK

MFG ENGR

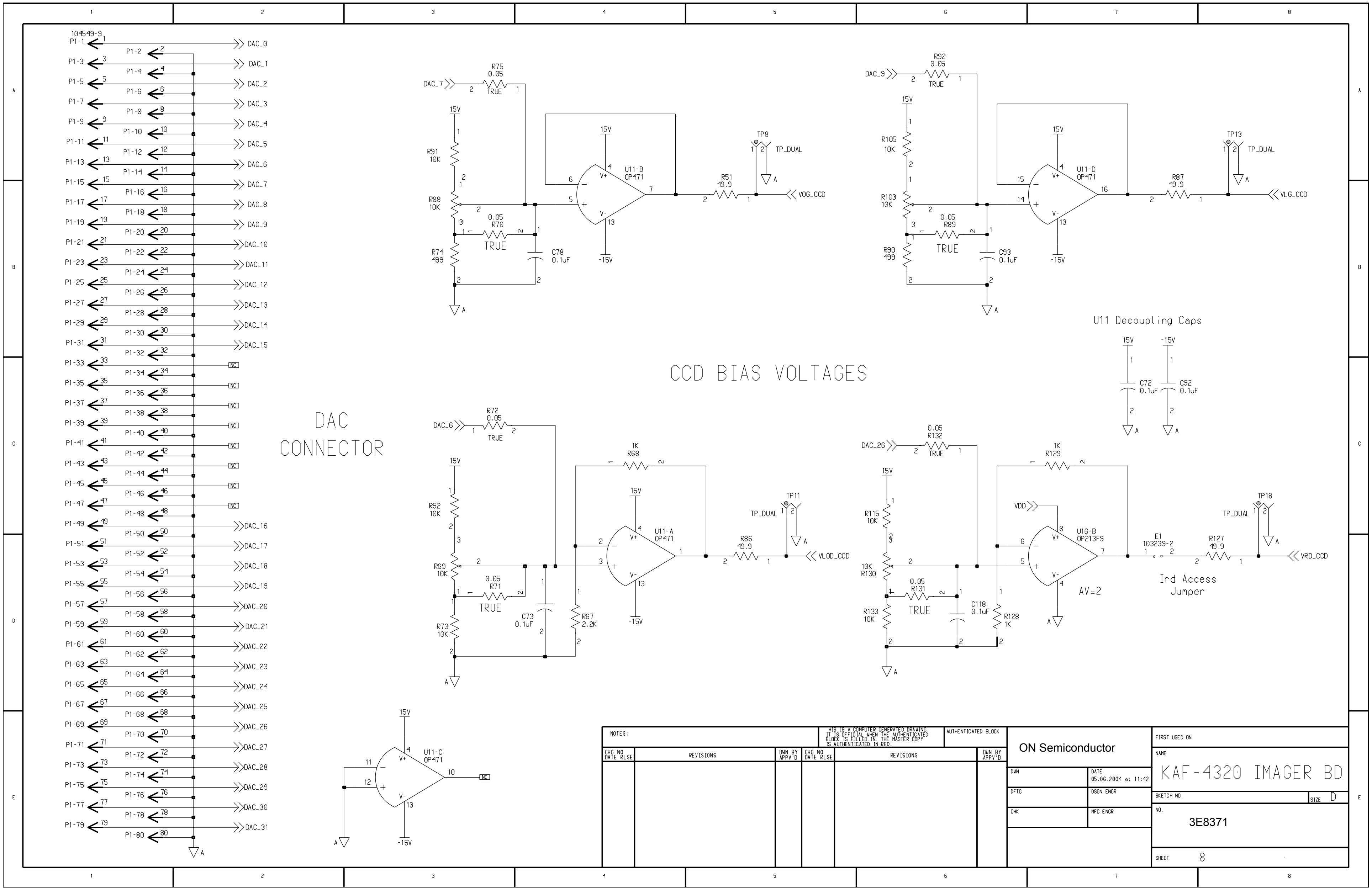
NAME KAF-4320 IMAGER BD

SKETCH NO.

DWG SIZE D

NO. 3E8371

OF



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DWN

DATE 05.06.2004 at 11:42

DFTG

DSGN ENGR

CHK

MFG ENGR

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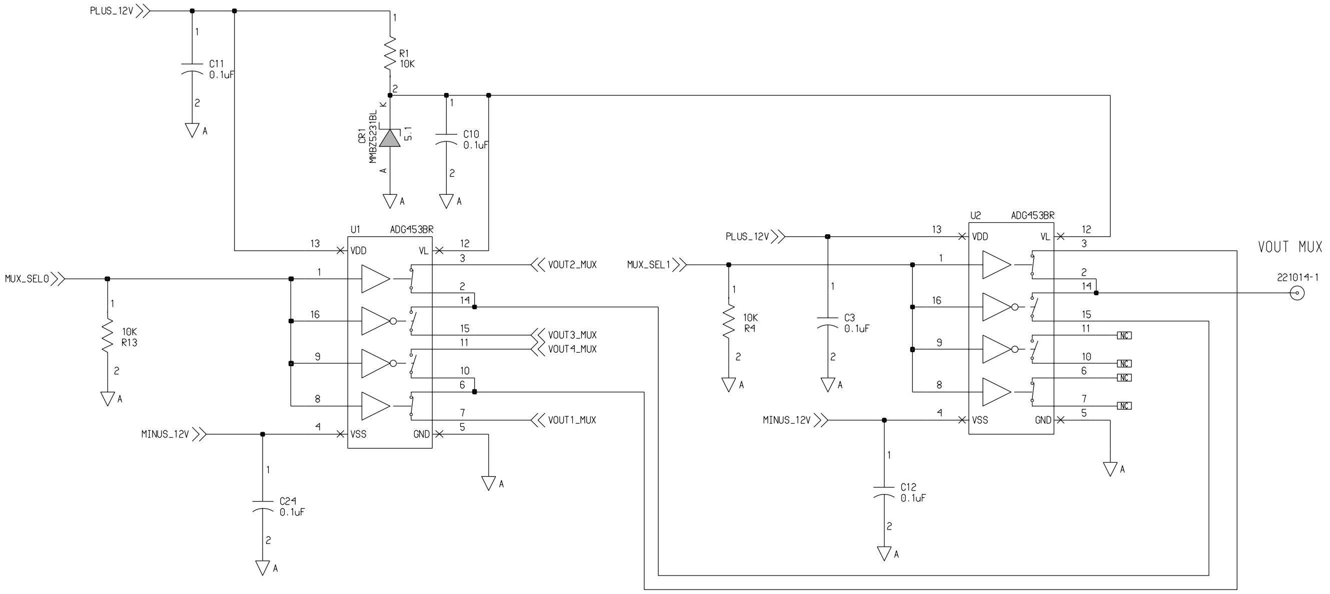
NAME KAF-4320 IMAGER BD

SKETCH NO.

SIZE D

NO. 3E8371

SHEET 8



MUX0	MUX1	VOUT MUX
0	0	VOUT3
1	0	VOUT2
0	1	VOUT4
1	1	VOUT1

NOTES:

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DFTG	DSGN ENGR R. BROLLY
CHK	MFG ENGR

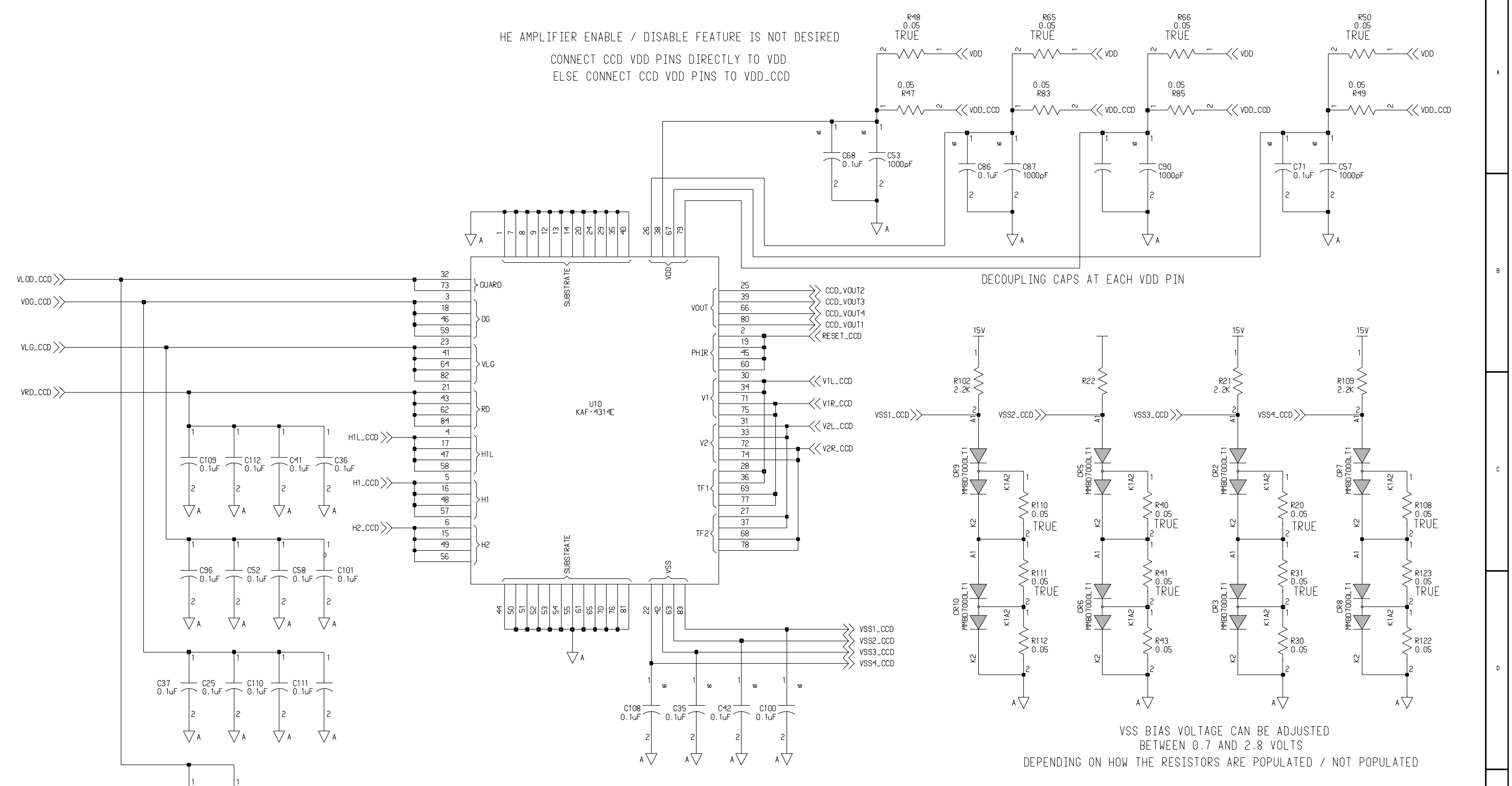
FIRST USED ON

NAME
KAF-4320 IMAGER BOARD

SKETCH NO.
DWG SIZE D

NO.
3E8371

SHEET
OF



VSS BIAS VOLTAGE CAN BE ADJUSTED
BETWEEN 0.7 AND 2.8 VOLTS
DEPENDING ON HOW THE RESISTORS ARE POPULATED / NOT POPULATED

DECOUPLING CAPS AT EACH CCD BIAS PIN

NOTES:

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AUTHENTICATED BLOCK

CHG NO DATE RLSE	REVISIONS	CHG NO DATE RLSE	REVISIONS	DWN BY APPV'D

ON Semiconductor

DWN R. BROLLY
DATE at 11:42
DF
DSGN ENGR R. BROLLY
CHK
MFG ENGR

FIRST USED ON

NAME KAF-4320 IMAGER BOARD

SKETCH NO.
DWG SIZE D

NO. 3E8371

SHEET OF

NO. 8371

SHEET 1 NEXT SHEET 2

Components
For Circuit Board Assembly

Item No	Part no	Assy. Side	Item Reference Designators	Qty	Package style	Notes/Comp Description
1	3E8370	HW-T-1	BRD1	1		BARE BOARD REV 2
2	258541	TOP-5 BOT-4	C1 C2 C4 C13 C202 C177 C182 C194 C206	9	case_c_h.110	10uF_20V_.20 ELECTROLYTIC TANTALUM CHIP
3	770251	TOP-3	C104 C184 C204	3	case_d_h.130	10uF_35V_.10 ELECTROLYTIC, TANTALUM
4	785076	TOP-4 BOT-4	C127 C169 C179 C205 C153 C157 C173 C203	8	case_a_h.075	1uF_25V_.20 ELECTROLYTIC, TANTALUM
5	4B3897	TOP-2	C152 C155	2	0805_h.055	33pF_50V_.05 CAPACITOR-CERAMIC MONOLITHIC CHIP (PF)
6	7B9655	TOP-4	C23 C26 C51 C59	4	1206_h.060	1uF_16V_.20 MONOLITHIC, CERAMIC CHIP
7	4B4495	TOP-8 BOT-4	C5 C18 C19 C30 C31 C46 C47 C63 C67 C81 C85 C106	12	case_b_h.085	4.7uF_20V_.20 ELECTROLYTIC TANTALUM CHIP
8	1C3731	TOP-5	C54 C70 C76 C97 C113	5	pcap_6032_c_	4.7uF_35V_.10 ELECTROLYTIC, TANTALUM, CHIP
9	8B0987	TOP-4 BOT-8	C65 C95 C116 C120 C121 C122 C123 C124 C125 C126 C132 C159	12	case_c_h.110	22uF_20V_.20 ELECTROLYTIC TANTALUM CHIP
10	980646	TOP-10 BOT-3	C7 C16 C21 C27 C33 C44 C49 C61 C164 C166 C186 C190 C192	13	0805_h.055	0.01uF_50V_.10 MONOLITHIC, CERAMIC CHIP
11	254471	TOP-35 BOT-6	C8 C17 C20 C28 C34 C39 C45 C48 C53 C56 C57 C60 C87 C89 C90 C99 C134 C136 C137 C139 C140 C141 C143 C144 C146 C147 C149 C151 C154 C156 C165 C167 C197 C198 C201 C176 C185 C188 C191	41	0805_h.055	1000pF_50V_.05 MONOLITHIC, CERAMIC CHIP

CHG.NO DATE	REVISIONS	DR. BY APPS.
REV 1	PRELIMINARY DESIGN	RBB
REV 2	INITIAL RELEASE	RBB
REV 3	MODIFY DESIGN	RBB
	UPDATE TO P	RBB

SEE SHEET FOR ADD'L REV

Notes: 1. REFER TO CIRCUIT DIAGRAM 3E8371 REV4

ON Semiconductor

FIRST USED ON

NAME CIRCUIT BOARD ASSEMBLY
KAF-4320 CCD IMAGER BOARD

XXXX

PKG. MATL.

SKETCH NO.

DWG. SIZE B

CK. RBB DFTG.

MFG. ENG.

3E8371

ORIG. CHG. NO. RELEASED

SHEET 1 NEXT SHEET 2

NO. 371

SHEET 2 NEXT SHEET 3

Components
For Circuit Board Assembly

Item No	Part no	Assy. Side	Item Reference Designators	Qty	Package style	Notes/Comp Description
			C199 C207			
12	7B9716	TOP-61	C9 C14 C24 C25 C36 C37 C38 C40 C41 C52 C55 C58 C64 C68 C69 C71 C72 C73 C74 C75 C77 C78 C79 C80 C83 C86 C88 C91 C92 C93 C94 C96 C98 C101 C102 C103 C105 C109 C110 C111 C112 C117 C118 C119 C128 C129 C130 C131 C158 C161 C162 C163 C168 C170 C171 C172 C180 C181 C183 C196 C200	91	0805_h.055	0.1uF_50V_.10 Ceramic Monolithic Chip
		BOT-30	C3 C10 C11 C12 C35 C42 C66 C82 C84 C100 C107 C108 C114 C115 C133 C135 C138 C142 C145 C148 C150 C160 C174 C175 C178 C187 C189 C193 C195 C208			
13	902510	TOP-4	CR11 CR12 CR13 CR14	4	sot143_kkaa_	HSMS-2805 DIODE, SCHOTTKY BARRIER, DUAL, 70V, 15mA
14	586506	BOT-8	CR2 CR3 CR5 CR6 CR7 CR8 CR9 CR10	8	sot23_akak_s	MMBD7000LT1 DIODE, SWITCHING, DUAL, SERIES, 100V, 100mA
15	254359	TOP-1 BOT-1	CR4 CR1	2	sot23_akn_sp	MMBZ5231BL DIODE, ZENER, 5.1V, 225mW
16	323040	TOP-1	E1	1	p02s_103239-	103239-2 2 PIN SQ. POST HDR. CONNECTOR/JUMPER
17	233152	TOP-13	FB1 FB2 FB3 FB4 FB5 FB6 FB7 FB8 FB9 FB13 FB14 FB16 FB18	18	fb_274301944	2743019447 - FERRITE, SMT BEADS
		BOT-5	FB10 FB11 FB12 FB15 FB17			

Notes: 1. REFER TO CIRCUIT DIAGRAM 3E8371 REV4

CHG.NO DATE	REVISIONS	DR. BY APPS.
REV 1	PRELIMINARY DESIGN	RBB
REV 2	INITIAL RELEASE	RBB
REV 3	MODIFY DESIGN	RBB
	UPDATE TO P	RBB

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FIRST USED ON

NAME CIRCUIT BOARD ASSEMBLY

KAF-4320 CCD IMAGER BOARD

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. ENG.

PKG. MATL.

SKETCH NO.

DWG. SIZE B

CK. RBB DFTG.

MFG. ENG.

3E8371

ORIG. CHG. NO. RELEASED

SHEET 2 NEXT SHEET 3

Components
For Circuit Board Assembly

NO.

SHEET 3 NEXT SHEET 4

Item No	Part no	Assy. Side	Item Reference Designators	Qty	Package style	Notes/Comp Description
18	911244	TOP-5	J1 J3 J4 J5 J6	5	j01ra_221014	221014-1 SMB, R/A RF COAXIAL JACK, 75 OHM
19	999979	TOP-1	J2	1	p80s_104549-	104549-9 SMT, AMPMODU, SHROUDED HEADER CONNECTOR
20	1E1112	TOP-2 BOT-3	L1 L2 L3 L4 L5	5	ind_1008cs_h	2.2uH SMT WIREWOUND ENCAPSULATED
21	616292	TOP-4	Q1 Q2 Q5 Q8	4	sot23_bce_sp	MMBT3904LT1 TRANSISTOR, NPN, 40V, GENERAL PURPOSE
22	4B4317	TOP-4	Q11 Q13 Q15 Q17	4	sot23_bce_sp	MMBT2369ALT1 TRANSISTOR, NPN, 15V, SWITCHING
23	236307	TOP-4	Q12 Q14 Q16 Q18	4	sot23_bce_sp	MMBT3640 TRANSISTOR, PNP, 12V, SWITCHING
24	233838	TOP-2	Q21 Q22	2	sot23_bce_sp	MMBT3906 TRANSISTOR, PNP, 40V, GENERAL PURPOSE
25	960471	TOP-4	Q3 Q4 Q10 Q19	4	sot223_bce_s	PZT2907A TRANSISTOR, PNP, 60V, GENERAL PURPOSE
26	960472	TOP-4	Q6 Q7 Q9 Q20	4	sot223_bce_s	PZT2222A TRANSISTOR, NPN, 40V, GENERAL PURPOSE
27	4B4531	TOP-1	R104	1	pot_3296w_h.	2K 3/8 INCH SQ; MULTITURN; SEALED
28	783957	TOP-3 BOT-2	R113 R190 R199 R212 R226	5	0805_h.030	200 Ohms_.100W_.01 FLAT, THICK METAL FILM, CHIP
29	783953	TOP-1	R114	1	0805_h.030	1.3K Ohms_.100W_.01 SMT CHIP FLAT THICK METAL FILM
30	257516	TOP-11 BOT-7	R12 R15 R29 R42 R47 R49 R83 R85 R118 R181 R197 R30 R43 R112 R122 R191 R193 R200	18	0805_h.030	0.05 Ohms_.100W_- ZERO OHM CHIP JUMPER
31	254478	TOP-4	R124 R125 R126 R155	4	0805_h.030	100K Ohms_.100W_.05 FLAT, THICK

Notes: 1. REFER TO CIRCUIT DIAGRAM 3E8371 REV4

CHG.NO DATE	REVISIONS	DR. BY APPS.
REV 1	PRELIMINARY DESIGN	RBB
REV 2	INITIAL RELEASE	RBB
REV 3	MODIFY DESIGN	RBB
	UPDATE TO P	RBB

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FIRST USED ON

NAME CIRCUIT BOARD ASSEMBLY

KAF-4320 CCD IMAGER BOARD

R.XXXX DATE

DES. ENG. PKG. MATL.

SKETCH NO. DWG. SIZE B

CK. RBB DFTG. MFG. ENG.

3E8371

ORIG. CHG. NO. RELEASED

SHEET 3 NEXT SHEET 4

Components For Circuit Board Assembly

Item No	Part no	Assy. Side	Item Reference Designators	Qty	Package style	Notes/Comp Description
						METAL FILM, CHIP
32	903960	TOP-10	R140 R142 R145 R147 R150 R152 R170 R171 R202 R203	10	0805_h.030	3 Ohms_.100W_.05 FLAT, THICK METAL FILM, CHIP
33	232841	TOP-1 BOT-4	R156 R46 R63 R82 R95	5	0805_h.030	10 Ohms_.100W_.05 FLAT, THICK METAL FILM, CHIP
34	999707	TOP-1	R2	1	0805_h.030	2.15K Ohms_.100W_.01 SMT CHIP FLAT THICK METAL FILM
35	233981	TOP-24 BOT-3	R3 R4 R13 R14 R19 R23 R35 R36 R52 R55 R73 R91 R105 R115 R116 R133 R134 R161 R162 R165 R177 R186 R198 R210 R1 R187 R189	27	0805_h.025	10K Ohms_.100W_.01 FLAT, THICK METAL FILM CHIP
36	255345	TOP-4	R32 R39 R97 R101	4	0805_h.030	22 Ohms_.100W_.05 FLAT, THICK METAL FILM, CHIP
37	941226	TOP-4	R33 R38 R98 R100	4	0805_h.030	130 Ohms_.100W_.01 SMT CHIP FLAT THICK METAL FILM
38	755576	TOP-4	R34 R37 R84 R99	4	1210_h.030	1.8K Ohms_.250W_.05 FLAT, THICK METAL FILM, CHIP
39	902504	TOP-1 BOT-6	R5 R10 R16 R27 R44 R59 R94	7	0805_h.030	249 Ohms_.100W_.01 SMT CHIP FLAT THICK METAL FILM
40	901801	TOP-6 BOT-1	R51 R87 R127 R141 R146 R151 R86	7	0805_h.030	49.9 Ohms_.100W_.01 SMT CHIP FLAT THICK METAL FILM
41	255502	TOP-4	R54 R106 R182 R209	4	0805_h.030	4.99K Ohms_.100W_.01 FLAT, THICK METAL FILM, CHIP
42	770026	TOP-15	R57 R69 R80 R88 R103 R107 R120 R130 R158	15	pot_3266w_h.	10K POT, MULTI-TURN

Notes: 1. REFER TO CIRCUIT DIAGRAM 3E8371 REV4

NO.

SHEET 4 NEXT SHEET 5

CHG.NO DATE	REVISIONS	DR. BY APPS.
REV 1	PRELIMINARY DESIGN	RBB
REV 2	INITIAL RELEASE	RBB
REV 3	MODIFY DESIGN	RBB
	UPDATE TO P	RBB

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NAME CIRCUIT BOARD ASSEMBLY

KAF-4320 CCD IMAGER BOARD

R. XXXX DATE

DES. ENG.

PKG. MATL.

SKETCH NO.

DWG. SIZE B

CK. DFTG. RBB

MFG. ENG.

3E8371

ORIG. CHG. NO. RELEASED

SHEET 4 NEXT SHEET 5

Components
For Circuit Board Assembly

NO.

SHEET 5 NEXT SHEET 6

Item No	Part no	Assy. Side	Item Reference Designators	Qty	Package style	Notes/Comp Description
			R168 R174 R184 R194 R204 R205			
43	980690	TOP-18	R60 R81 R121 R138 R169 R185 R213 R214 R215 R216 R217 R218 R219 R220 R221 R222 R223 R224	18	0805_h.030	100 Ohms_.100W_.005 SMT CHIP FLAT THIN METAL FILM
44	902564	TOP-10 BOT-7	R61 R128 R129 R135 R166 R172 R173 R176 R188 R208 R6 R11 R24 R28 R58 R68 R93	17	0805_h.025	1K Ohms_.100W_.01 FLAT, THICK METAL FILM CHIP
45	257083	TOP-1 BOT-15	R62 R21 R22 R67 R102 R109 R139 R143 R144 R148 R149 R153 R154 R157 R211 R225	16	0805_h.030	2.2K Ohms_.100W_.01 FLAT, THICK METAL FILM, CHIP
46	902559	TOP-3	R74 R76 R90	3	0805_h.030	499 Ohms_.100W_.01 SMT CHIP FLAT THICK METAL FILM
47	785079	TOP-1	R78	1	0805_h.030	27K Ohms_.100W_.05 FLAT, THICK METAL FILM, CHIP
48	954554	TOP-4	R9 R17 R26 R45	4	0805_h.030	75 Ohms_.100W_.01 SMT CHIP FLAT THICK METAL FILM
49	901613	TOP-4	TP1 TP2 TP21 TP23	4	tp_tp104_h.2	TP-104-01-00 PRESS MOUNT TERMINAL - BLACK
50	901614	TOP-2	TP20 TP22	2	tp_tp104_h.2	TP-104-01-02 PRESS MOUNT TERMINAL - RED
51	TPDUAL	TOP-17	TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19	17	tpdual_.1_p4	TP_DUAL DUAL TEST PADS (THRU HOLE)
52	7E7954	TOP-3	U1 U2 U5	3	so16_.200_h.	ADG453BR ANALOG SWITCH, QUAD,

Notes: 1. REFER TO CIRCUIT DIAGRAM 3E8371 REV4

CHG.NO DATE	REVISIONS	DR. BY APPS.
EV 1	PRELIMINARY DESIGN	RBB
REV 2	INITIAL RELEASE	RBB
REV 3	MODIFY DESIGN	RBB
	UPDATE TO P	RBB

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DES. ENG.

PKG. MATL.

CK. RBB DFTG.

MFG. ENG.

ORIG. CHG. NO. RELEASED

FIRST USED ON

NAME CIRCUIT BOARD ASSEMBLY

KAF-4320 CCD IMAGER BOARD

SKETCH NO. DWG. SIZE B

3E8371

SHEET 5 NEXT SHEET 6

Components
For Circuit Board Assembly

Item No	Part no	Assy. Side	Item Reference Designators	Qty	Package style	Notes/Comp Description
						SPST, 2 NC, 2 NO
53	4H0398	BOT-1	U10	1	sens_kaf4320	KAF-4320E FULL FRAME CCD IMAGE SENSOR
54	992863	TOP-1	U11	1	sol16_.370_h	OP471 ANALOG IC, LINEAR AMPLIFIER,
55	734408	TOP-3	U12 U15 U17	3	so08_.210_h.	LF353 ANALOG IC, LINEAR AMPLIFIER,
56	7B8486	TOP-3	U16 U18 U22	3	so08_.200_h.	OP213FS DUAL, LOW NOISE, LOW DRIFT, OP AMP
57	5E6841	TOP-1	U19	1	sol20_.375_h	74AC540 BUFFER/DRIVER, OCTAL, W/ 3-STATE OUTPUT, INVERTING
58	903888	TOP-1	U21	1	sol20_.370_h	74ACT541 BUFFER/DRIVER, OCTAL, W/ 3-STATE OUTPUT
59	241054	TOP-1	U23	1	to220_aio_pd	LM337T 1.5A_-40V_-1.2 to -37V VOLTAGE REGULATOR, NEG ADJ, 1.5A,
60	691935	TOP-3	U24 U25 U26	3	so16_.210_h.	DS90C032 DIFFERENTIAL LINE RECEIVER, QUAD
61	2B1945	TOP-4	U3 U4 U6 U7	4	so08_.200_h.	AD817 ANALOG IC, LINEAR AMPLIFIER,
62	4B4249	BOT-4	U8 U9 U13 U14	4	so08_.210_h.	MAX4427CSA DRIVER, DUAL, NON-INVERTING, 1.5A, MOSFET
63	7E7010	TOP-1	VR1	1	sot223_igog_	LM2937IMP-12 500mA_26V_12V VOLTAGE REGULATOR, 12V, 500mA, 3-TERMINAL,
64	6E8813	TOP-1	VR2	1	sot223_aioi_	LM337IMP 1A_3-40V_-1.2 to -37V VOLTAGE REGULATOR, NEG ADJ, 1A, 3-
65	2E5443	TOP-1	VR3	1	sot223_aoi_s	LM317AEMP 1A_4.2-40V_1.2-37V VOLTAGE REGULATOR, ADJ, 1A, 3-TERM
66	498310	TOP-1	VR4	1	to220_aoi_pd	LM317T 1.5A_4.2-40V_1.2-37V

Notes: 1. REFER TO CIRCUIT DIAGRAM 3E8371 REV4

NO.
SHEET NEXT SHEET

CHG.NO DATE	REVISIONS	DR. BY APPS.
REV 1	PRELIMINARY DESIGN	RBB
REV 2	INITIAL RELEASE	RBB
REV 3	MODIFY DESIGN	RBB
	UPDATE TO PC	RBB

SEE SHEET FOR ADD'L R
ON Semiconductor
FIRST USED ON
NAME CIRCUIT BOARD ASSEMBLY
KAF-4320 CCD I
IL.
SKETCH NO.
DWG. SIZE B
CK.
DFTG.
MFG.
ENG.
3E8371
ORIG. CHG. NO.
RELEASED
SHEET NEXT SHEET

Components
For Circuit Board Assembly

NO.
SHEET NEXT SHEET

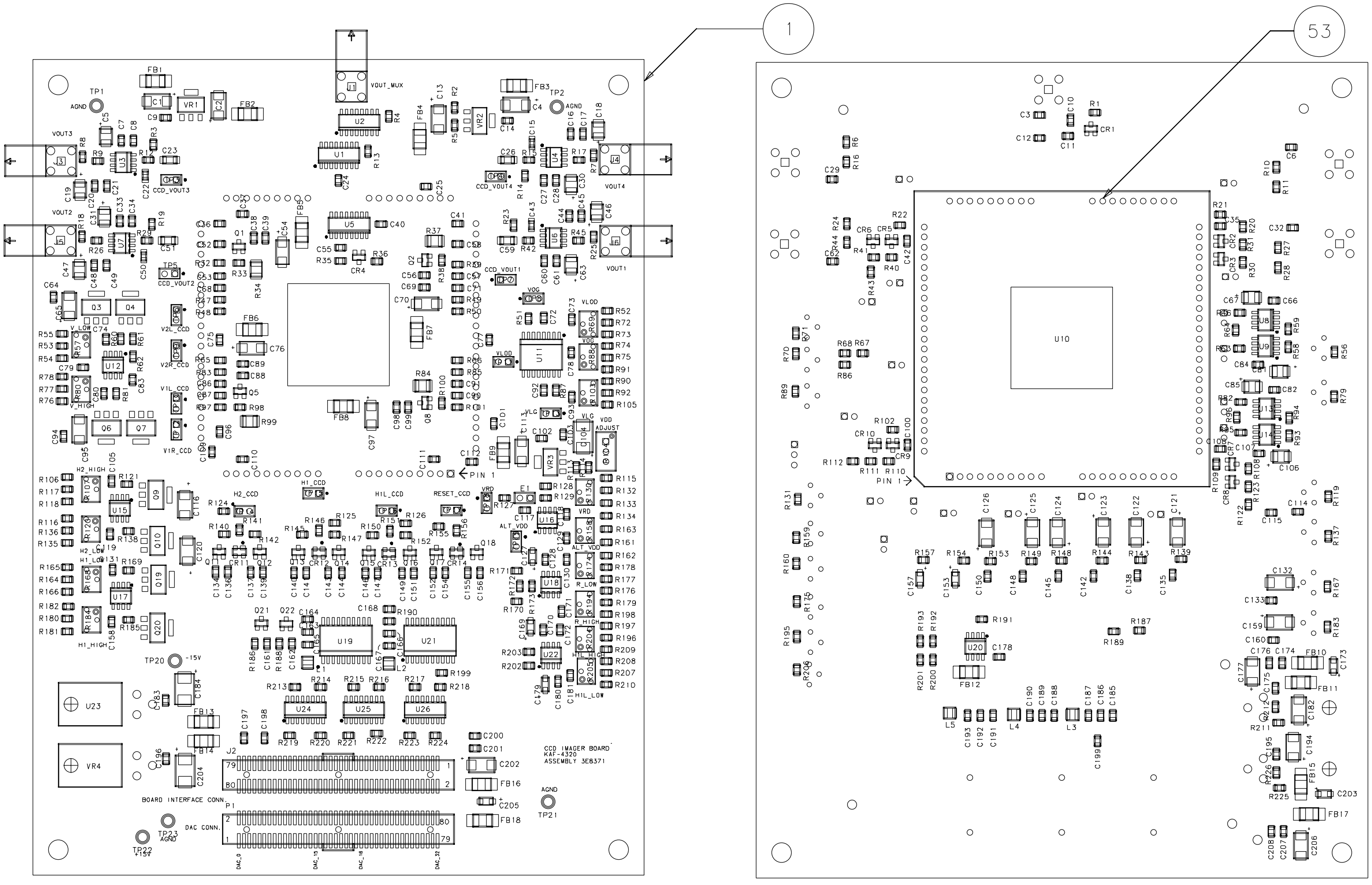
Item No	Part no	Assy. Side	Item Reference Designators	Qty	Package style	Notes/Comp Description
						VOLTAGE REGULATOR, ADJ, 1.5A, 3-TE
67	SEE_DESC1	HW-T-1	XBRD1	1	HDWR	SOCKET PN MILL MAX 7149312031018 For BRD1
68	755551	TOP-4	C15 C22 C43 C50	4NL	0805_h.060	NO LOAD 47pF_50V_.05 CAPACITOR-CERAMIC MONOLITHIC CHIP
69	2B1897	BOT-4	C6 C29 C32 C62	4NL	0805_h.055	NO LOAD 8.2pF_100V_.05 MONOLITHIC CERAMIC CHIP
70	999979	TOP-1	P1	1NL	p80s_104549-	NO LOAD 104549-9 SMT, AMPMODU, SHROUDED HEADER CONNECTOR
71	257516	TOP-23	R7 R8 R18 R25 R48 R50 R53 R65 R66 R72 R75 R77 R92 R117 R132 R136 R163 R164 R178 R179 R180 R196 R207	48NL	0805_h.030	NO LOAD 0.05 Ohms_.100W_- ZERO OHM CHIP JUMPER
		BOT-25	R20 R31 R40 R41 R56 R70 R71 R79 R89 R108 R110 R111 R119 R123 R131 R137 R159 R160 R167 R175 R183 R192 R195 R201 R206			
72	232841	BOT-2	R64 R96	2NL	0805_h.030	NO LOAD 10 Ohms_.100W_.05 FLAT, THICK METAL FILM, CHIP
73	5C2045	BOT-1	U20	1NL	so08_.210_h.	NO LOAD DS1040 PULSE GENERATOR,

CHG.NO DATE	REVISIONS	DR. BY APPS.
REV 1	PRELIMINARY DESIGN	RBB
REV 2	INITIAL RELEASE	RBB
REV 3	MODIFY DESIGN	RBB
	UPDATE TO P	RBB

SEE SHEET FOR ADD'L REVISI

Notes: 1. REFER TO CIRCUIT DIAGRAM 3E8371 REV4

ON Semiconductor		FIRST USED ON
		NAME CIRCUIT BOARD ASSEMBLY KAF-4320 CCD IMAG
	KG. MATL.	SKETCH NO. DWG. SIZE B
CK. DFTG.	MFG. ENG.	3E8371
ORIG. CHG. NO. RELEASED		SHEET NEXT SHEET



PRIMARY SIDE

SECONDARY SIDE

REVISION BLOCK

ZONE REV DESCRIPTION

REF: DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982.

DIMENSIONS APPLY AFTER FINISH WHERE TOTAL TOLERANCE IS .001 INCHES OR LESS AND ON ALL THREADS IN ALL OTHER PLACES DIMENSIONS APPLY BEFORE FINISH

DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS ETC), MUST BE WITHIN STATED IONAL TOLERANCES

NEXT ASSY | USED ON | NEXT ASSY | FINAL ASSY

APPLICATION | QUANTITY REQD

MATERIAL:

UNLESS OTHERWISE SPECIFIED

DATUM PRECEDENCE PRI A SEC B TER C

DIMENSIONS ARE IN INCHES

TOLERANCES

ANGLES ±	5°	1 PL	N/A
2 PL	.010	3 PL	.005

THIRD ANGLE PROJECTION

DWN X XXXX XX-XX-XX
DFTG X XXXX XX-XX-XX
ENGR XX-XX
ENGR X XXXX XX-XX-XX
CHK X XXXX XX-XX-XX
APVD X XXXX XX-XX-XX
APVD X XXXX XX-XX-XX
APVD X XXXX XX-XX-XX
APVD X XXXX XX-XX-XX
CONTRACT #

ON Semiconductor

ITEM NO 3E8371

CODE WT SCALE SH OF

REVISION BLOCK

ZONE	REV.	DESCRIPTION	ECO/DATE	APVD/DWN

NOTES:

1. MANUFACTURE BOARD IN ACCORDANCE WITH IPC-6011 & 6012, CLASS 3.

2. MATERIAL SPECIFICATIONS:
   - 2.1 CORE MATERIAL: FR4, SIZE AND CONSTRUCTION PER DETAIL A.
   - 2.2 PRE-PREG MATERIAL: FR4 B STAGE, SIZE AND CONSTRUCTION PER DETAIL A.
   - 2.3 MODIFICATIONS TO THE LAYER STACKUP AS SHOWN IN DETAIL A ARE PERMISSIBLE WITH THE FOLLOWING CONSTRAINTS:
     - 2.3.1 CONDUCTIVE LAYERS SHALL BE EVENLY SPACED THROUGHOUT.
     - 2.3.2 OVERALL THICKNESS SHALL BE UNCHANGED.

3. COPPER PLATE:
   - 3.1 HOLES: COPPER PLATING ON WALL OF HOLES SHALL BE 0.0015 MIN. UNLESS OTHERWISE SPECIFIED

4. FINISH PLATE:
   - 4.1 SURFACE AND HOLES: EXPOSED LANDS AND LINES, EXCLUDING CONTACT FINGERS, SHALL BE TIN-LEAD COATED IN ACCORDANCE WITH THE SOLDERABILITY REQUIREMENTS OF J-STD-003.

5. CONDUCTOR WIDTH AND SPACING:
   - 5.1 WIDTH: 0.005 MIN
   - 5.2 SPACING: 0.005 MIN
   - 5.3 DESIGN FABRICATION PATTERN ALIGNMENT ALLOWANCE IS 0.015.

6. HOLE REQUIREMENTS:
   - 6.1 ANNULAR RING: 0.002 MIN
   - 6.2 HOLE LOCATIONS TO BE 0.003 (DTP - DIAMETRICAL TRUE POSITION)
   - 6.3 HOLE SIZES APPLY AFTER SOLDER PLATING, REFLOW OR DEPOSITION

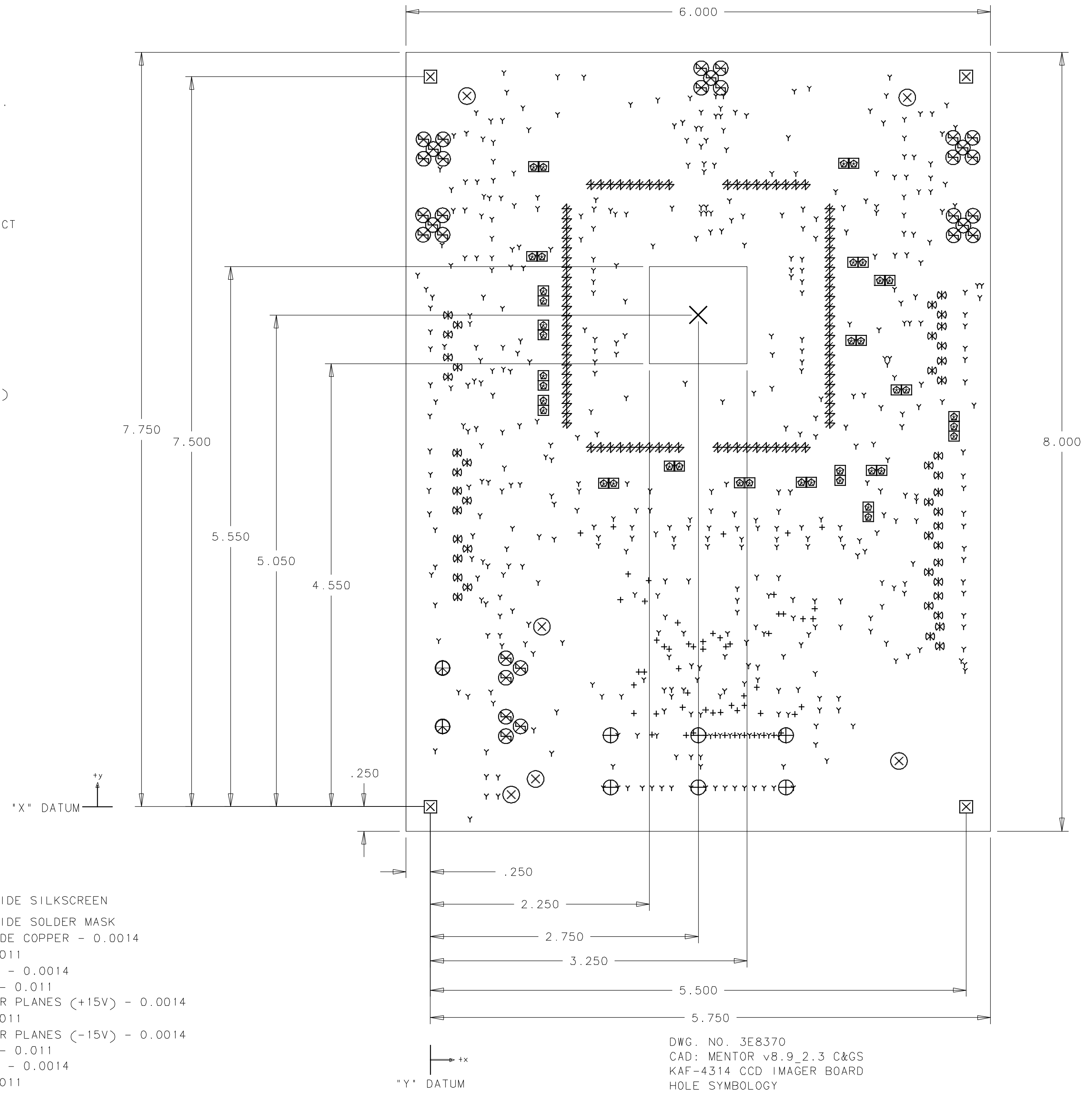
7. SOLDERMASK:
   - 7.1 SOLDERMASKING OF PRIMARY AND SECONDARY SIDES OF THE BOARD SHALL BE PER MASKING ARTWORK OVER BARE COPPER (SMOBC) USING LIQUID PHOTOIMAGEABLE SOLDER MASK MATERIAL PER IPC-SM-840.
   - 7.2 RESIZING FOR MINIMAL LAND TO MASK CLEARANCE PERMISSIBLE.

8. MARKING:
   - 8.1 MARKING OF PRIMARY AND SECONDARY SIDES SHALL BE PER MARKING ARTWORK USING WHITE NON-CONDUCTIVE EPOXY INK.

9. BOARD WARPAGE:
   - 9.1 BOARD WARPAGE 0.75% MAX.

10. TESTING:
    - 10.1 BOARDS SHALL BE TESTED USING CAD SUPPLIED IPC-D-356 FORMAT NET LIST. ELECTRICAL TESTING SHALL FOLLOW GUIDELINES ESTABLISHED BY IPC-9252.

11. MISCELLANEOUS NOTES:
    - 11.1 X,Y DATUMS INDICATE DRILL ORIGIN
    - 11.2 TEST COUPONS TO BE MADE AVAILABLE UPON REQUEST

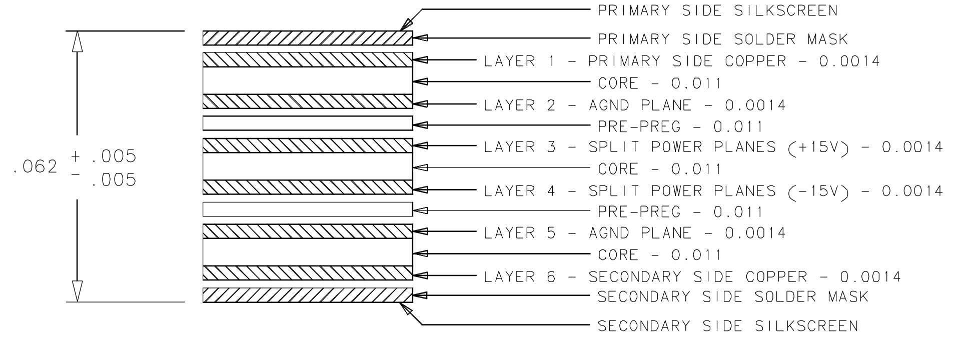


DWG. NO. 3E8370
CAD: MENTOR v8.9_2.3 C&GS
KAF-4314 CCD IMAGER BOARD
HOLE SYMBOLOGY
REV 2
VIEWED FROM PRIMARY SIDE
Dec 4 2003

BOARD's DRILL SCHEDULE

DRILL SIZE	DRILL SYMBOL	PLATED	COUNT	
.013	+	YES	59	VIA
.015	Y	YES	486	VIA
.034	∞	YES	45	
.042	▣	YES	39	
.047	≠	YES	84	
.050	⊕	YES	6	
.054	⊗	YES	31	
.065	⊗	YES	6	
.125	☒	YES	4	
.144	☮	NO	2	

TOTAL DRILL COUNT ON BOARD: 762



DETAIL A

LAYER STACKING CONFIGURATION
SCALE = NONE

REF: DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982.

DIMENSIONS APPLY AFTER FINISH WHERE TOTAL TOLERANCE IS .001 INCHES OR LESS AND ON ALL THREADS. IN ALL OTHER PLACES DIMENSIONS APPLY BEFORE FINISH.

DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS ETC), MUST BE WITHIN STATED DIMENSIONAL TOLERANCES

NEXT ASSY	USED ON	NEXT ASSY	FINAL ASSY
3E8371		1	
APPLICATION		QUANTITY REQD	

MATERIAL:

UNLESS OTHERWISE SPECIFIED
DATUM PRECEDENCE PRI A SEC B TER C
DIMENSIONS ARE IN INCHES
TOLERANCES
ANGLES ± 5°
1 PL ± N/A
2 PL ± .010
3 PL ± .005
THIRD ANGLE PROJECTION

DWN R.SCHAEFER 03/31/03
DFTG XXXXXX XX-XX-XX
ENGR X.XXXXXXX XX-XX-XX
ENGR XXXXXX XX-XX-XX
CHK XXXXXX XX-XX-XX
APVD XXXXXX XX-XX-XX
APVD XXXXXX XX-XX-XX
APVD XXXXXX XX-XX-XX
APVD XXXXXX XX-XX-XX
CONTRACT #

ON Semiconductor

TITLE PCB,
KAF-4320 CCD IMAGER

SIZE D
ITEM NO 3E8370
CODE
WT
SCALE 1.5X
SH 1 OF 1