

ESO CCD Control System

Schematics & Layouts Album

Astronomical Research Cameras Inc.

March 26, 2004

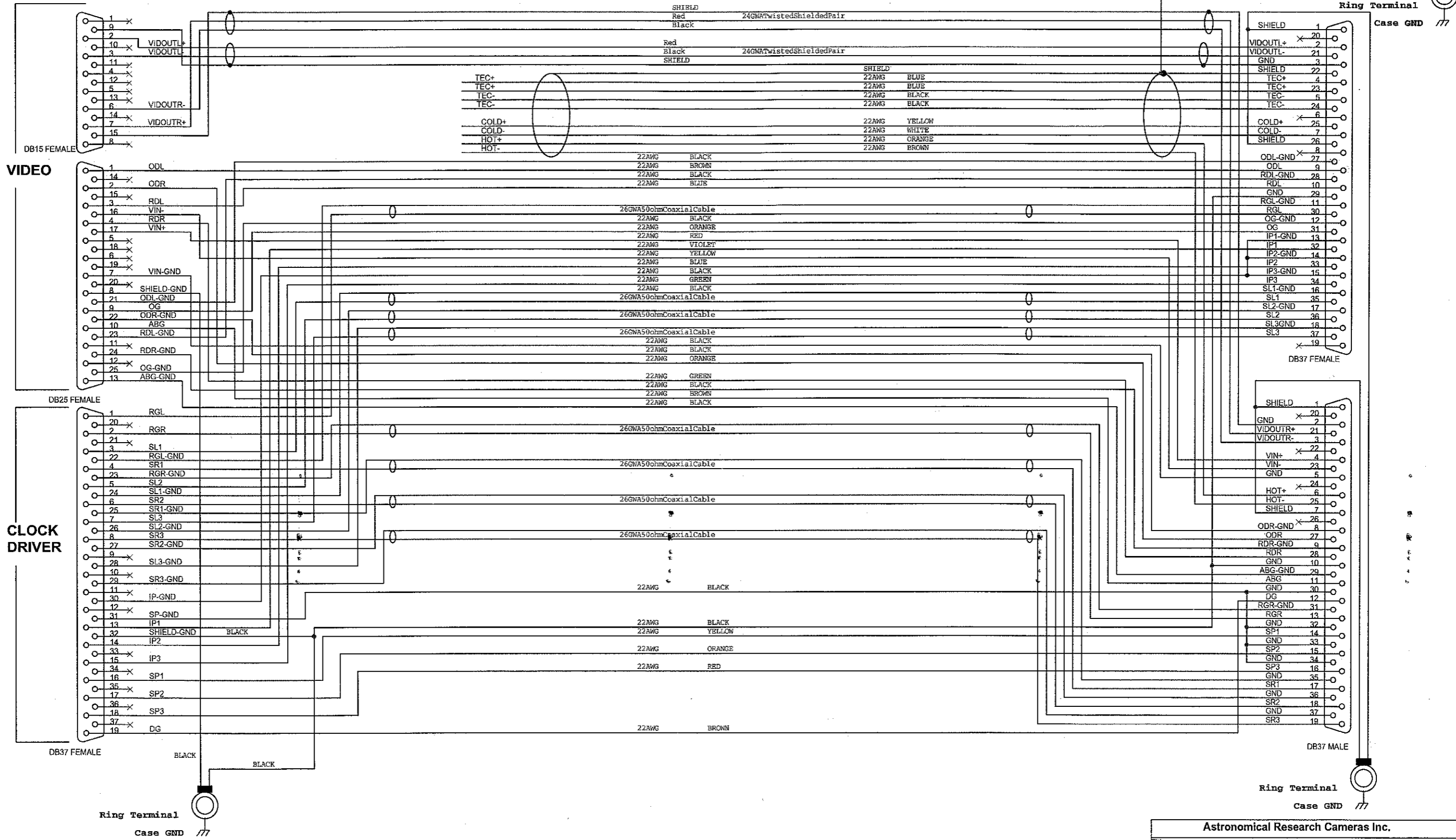
CONTENTS

- **ESO SYSTEM CABLING FILES**
- **ARC32 Universal Clock Driver Board-Schematics**
- **ARC32 Universal Clock Driver Board-Layouts**
- **ARC22 Fiber Optical Timing Board**
- **ARC45 CCD Video Processor Board**
- **ARC78 Compact Power Control Board**

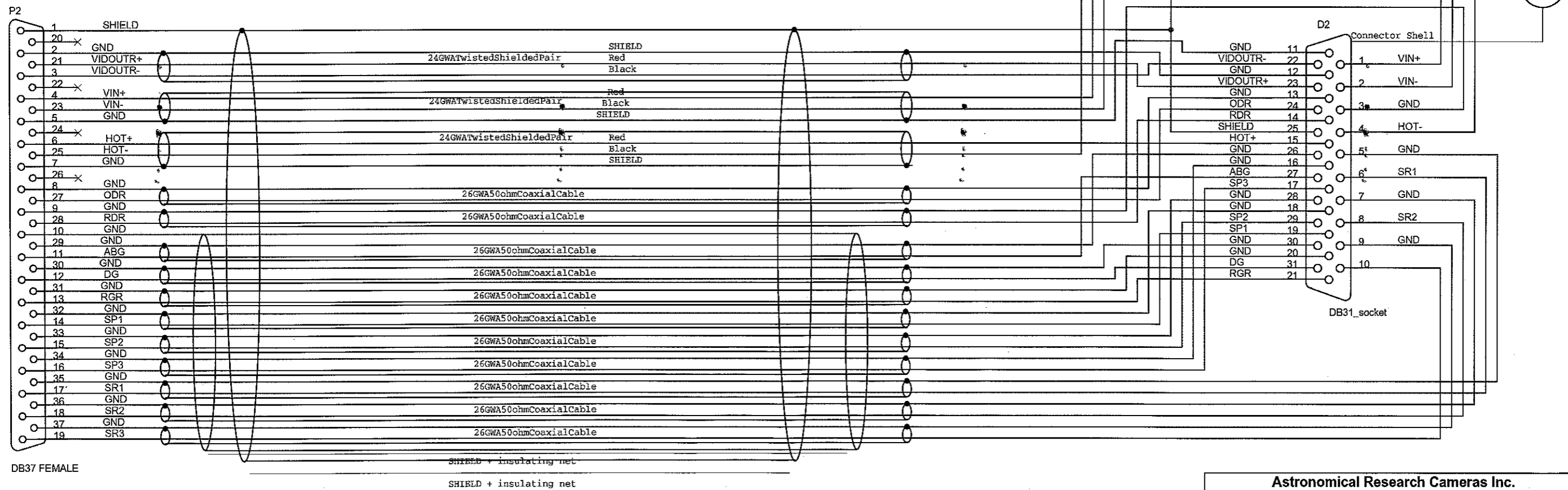
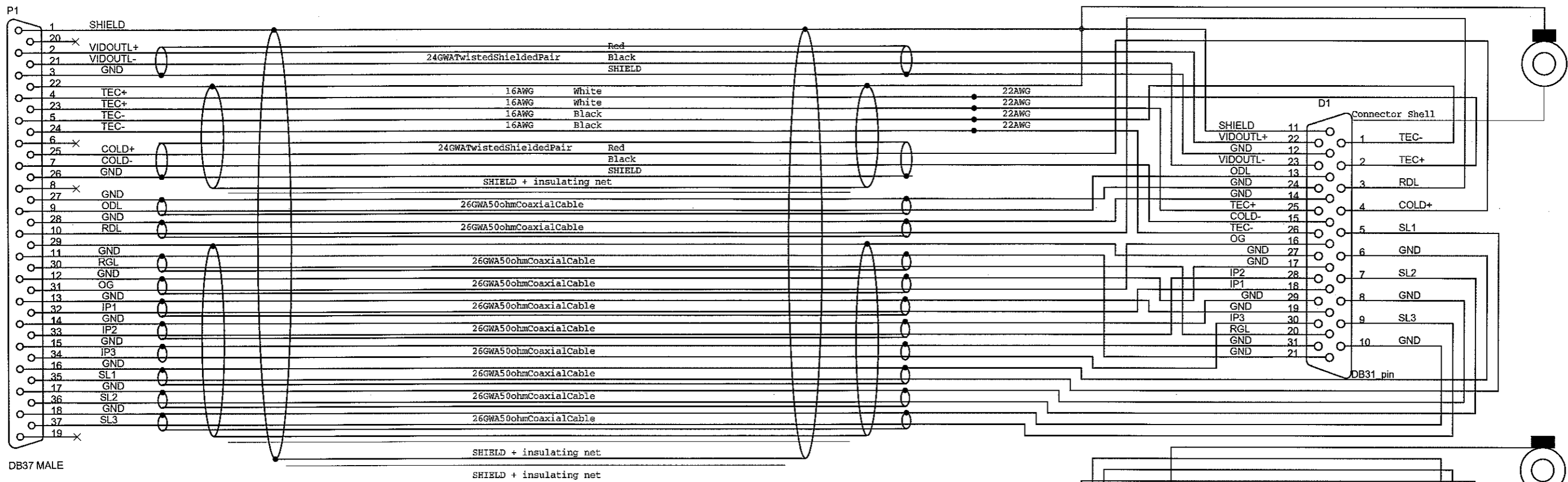
ESO SYSTEM CABLING FILES

Astronomical Research Cameras Inc

March 23, 2004



| | | |
|------------------------------------|----------------------------------|---------|
| Astronomical Research Cameras Inc. | | |
| Title: ESO System Harness | | |
| Size: Custom | Document Number: ESO_Harness_sch | Rev: 1A |
| Date: Thursday, March 25, 2004 | Sheet: 1 | of 1 |



Cable Length: 1.5m

| | | |
|------------------------------------|----------------------------------|-----------|
| Astronomical Research Cameras Inc. | | |
| Title ESO System Cable | | |
| Size B | Document Number ESO_Cable_sch | Rev 1A |
| Date: Tuesday, March 16, 2004 | Sheet 1 | of 1 |

ESO SYSTEM ASSEMBLY SPREAD SHEET

| ITT Cannon (Socket) | Cable | | Harness | | | | Name | Description |
|---------------------|------------------|---------------|-------------|---------------|-------------------------------|------------------------|----------|--------------------------------|
| | ITT Cannon (Pin) | DB37 (Female) | DB37 (Male) | DB37 (Female) | Video DB15(S) DB25(S) DB37(S) | Clock DB37(S) (Socket) | | |
| 1 | | 4 | 4 | 17 | | D | VIN+ | Supply voltage +6.5V |
| 2 | | 23 | 23 | 16 | | U | VIN- | Supply voltage -6.5V |
| 3 | | 9 | 9 | 24 | | t | GND | GND RDR |
| 4 | | 25 | 25 | | | N | HOT- | AD590 hot side neg. |
| 5 | | 35 | 35 | | | t | GND | GND SR1 |
| 6 | | 17 | 17 | | | T | SR1 | Serial Phase 1 right |
| 7 | | 36 | 36 | | | t | GND | GND SR2 |
| 8 | | 18 | 18 | | | S | SR2 | Serial Phase 2 right |
| 9 | | 37 | 37 | | | t | GND | GND SR3 |
| 10 | | 19 | 19 | | | I | SR3 | Serial Phase 3 right |
| 11 | | 5 | 5 | 7 | | L | GND | Shield VIN+ / VIN- |
| 12 | | 2 | 2 | 15 | | k | GND | Shield VIDOUT+ / MIDOUTR |
| 13 | | 8 | 8 | 22 | | L | GND | GND ODR |
| 14 | | 28 | 28 | 4 | | t | RDR | Reset Drain right |
| 15 | | 6 | 6 | | | M | HOT+ | AD590 hot side pos. |
| 16 | | 34 | 34 | | | t | GND | GND SP3 |
| 17 | | 16 | 16 | | | r | SP3 | Storage Phase 3 |
| 18 | | 32 | 32 | | | t | GND | GND SP1 |
| 19 | | 14 | 14 | | | n | SP1 | Storage Phase 1 |
| 20 | | 31 | 31 | | | t | GND | GND RGR |
| 21 | | 13 | 13 | | | R | RGR | Reset Gate right |
| 22 | | 3 | 3 | 6 | | X | VIDOUTR- | Buffered CCD video signal neg. |
| 23 | | 21 | 21 | 7 | | W | VIDOUTR+ | Buffered CCD video signal pos. |
| 24 | | 27 | 27 | 2 | | V | ODR | Output Drain right |
| 25 | | 1 | 1 | | | CASE | SHIELD | Global Shield |
| 26 | | 29 | 29 | 13 | | L | GND | GND ABG |
| 27 | | 11 | 11 | 10 | | m | ABG | Anti Blooming Gate |
| 28 | | 33 | 33 | | | t | GND | GND SP2 |
| 29 | | 15 | 15 | | | n | SP2 | Storage Phase 2 |
| 30 | | 30 | 30 | | | t | GND | GND DG |
| 31 | | 12 | 12 | | | g | DG | Dump Gate |
| 1 | | 5 | 5 | | | e | TEC- | Peltier cooler neg. |
| 2 | | 4 | 4 | | | d | TEC+ | Peltier cooler pos. |
| 3 | | 10 | 10 | 3 | | Y | RDL | Reset Drain left |
| 4 | | 25 | 25 | | | J | COLD+ | AD590 cold side pos. |
| 5 | | 35 | 35 | | | F | SL1 | Serial Phase 1 left |
| 6 | | 16 | 16 | | | t | GND | GND SL1 |
| 7 | | 36 | 36 | | | G | SL2 | Serial Phase 2 left |
| 8 | | 17 | 17 | | | t | GND | GND SL2 |
| 9 | | 37 | 37 | | | a | SL3 | Serial Phase 3 left |
| 10 | | 18 | 18 | | | t | GND | GND SL3 |
| 11 | | 1 | 1 | | | CASE | SHIELD | Global Shield |
| 12 | | 3 | 3 | 9 | | k | GND | Shield VIDOUT+ / VIDOUTL- |
| 13 | | 9 | 9 | 1 | | C | ODL | Output Drain left |
| 14 | | 28 | 28 | 23 | | L | GND | GND RDL |
| 15 | | 7 | 7 | | | K | COLD- | AD590 cold side neg. |
| 16 | | 31 | 31 | 9 | | f | OG | Output Gate |
| 17 | | 12 | 12 | 25 | | L | GND | GND OG |
| 18 | | 32 | 32 | | | b | IP1 | Image Phase 1 |
| 19 | | 13 | 13 | | | t | GND | GND IP1 |
| 20 | | 30 | 30 | | | E | RGL | Reset Gate left |
| 21 | | 11 | 11 | | | t | GND | GND RGL |
| 22 | | 2 | 2 | 2 | | B | VIDOUTL+ | Buffered CCD video signal pos. |
| 23 | | 21 | 21 | 3 | | A | VIDOUTL- | Buffered CCD video signal neg. |
| 24 | | 27 | 27 | 21 | | L | GND | GND ODL |
| 25 | | 23 | 23 | | | p | TEC+ | Peltier Cooler pos. |
| 26 | | 24 | 24 | | | q | TEC- | Peltier Cooler neg. |
| 27 | | 12 | 12 | | | t | GND | GND OG |
| 28 | | 33 | 33 | | | t | IP2 | Image Phase 2 |
| 29 | | 14 | 14 | | | t | GND | GND IP2 |
| 30 | | 34 | 34 | | | Z | IP3 | Image Phase 3 |
| 31 | | 15 | 15 | | | t | GND | GND IP3 |
| | | | | 8 | | GND | GND | Case Ground |
| | | | | | | SHIELD | SHIELD | Global Shield |

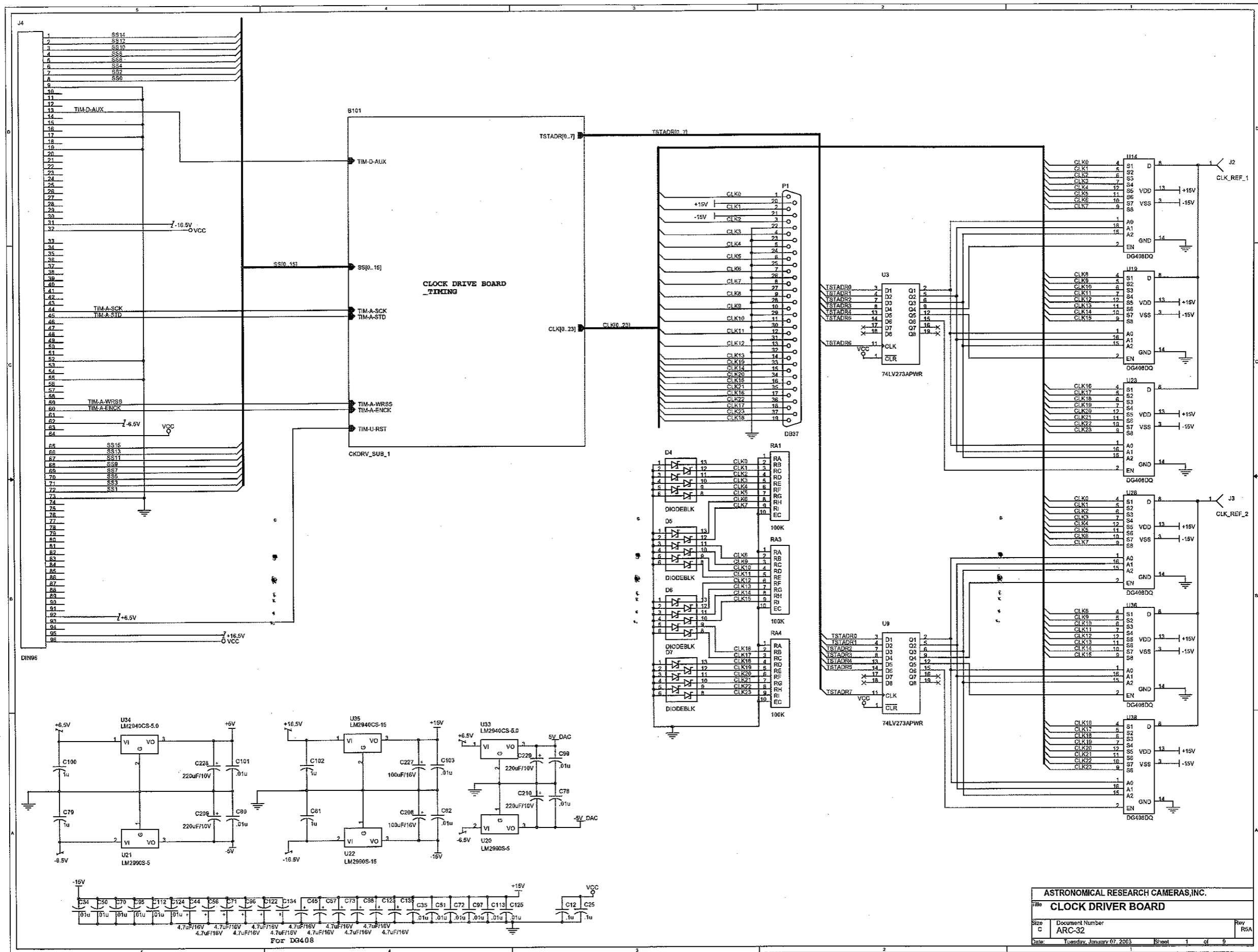
ARC32 Universal Clock Driver Board

Schematics

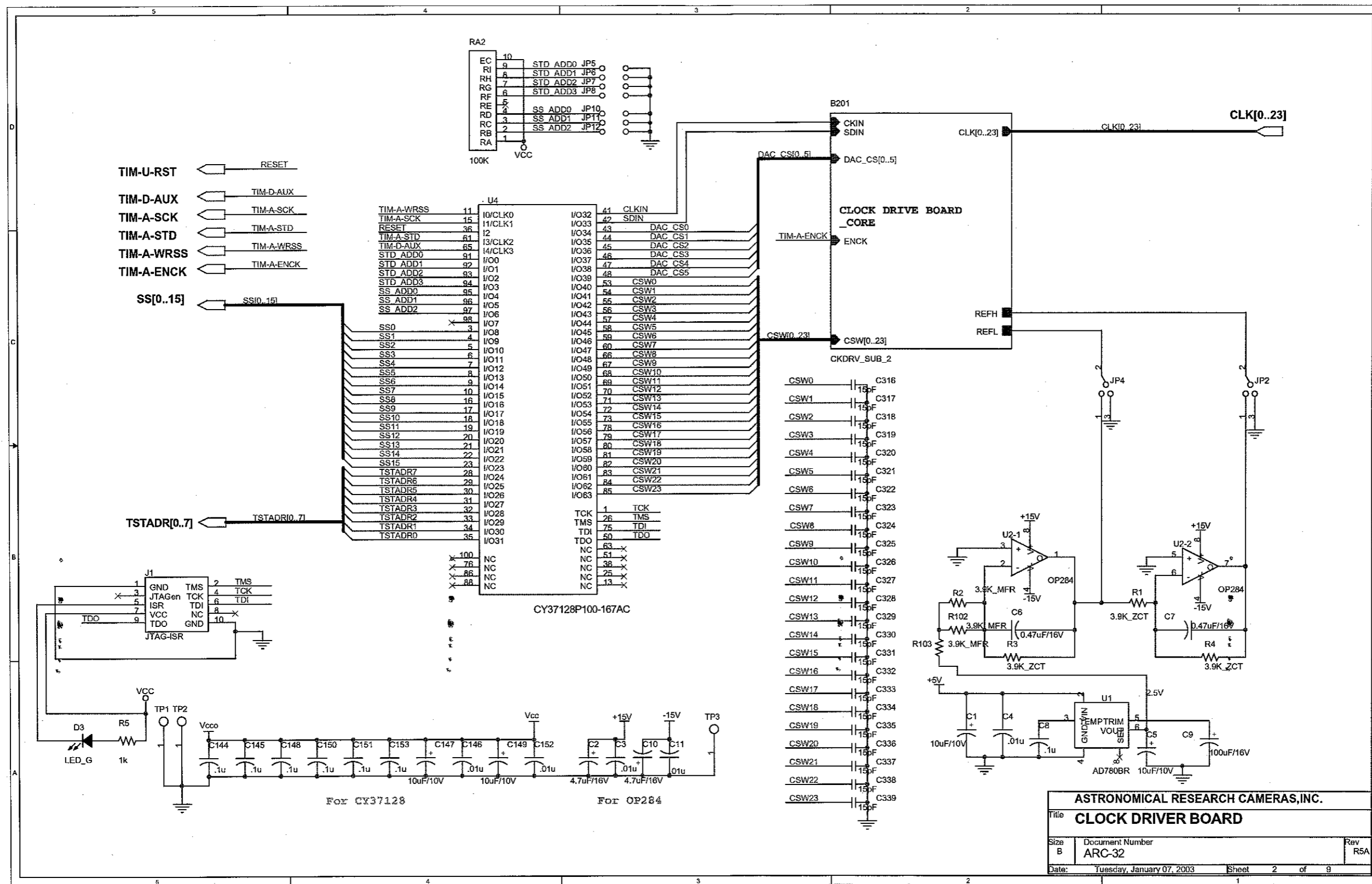
Revision 5A

Astronomical Research Cameras Inc.

Oct 17, 2003



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|-------------------------------------|--------------------------------|----------|
| ASTRONOMICAL RESEARCH CAMERAS, INC. | | |
| File: CLOCK DRIVER BOARD | | |
| Size: c | Document Number: ARC-32 | Rev: RSA |
| Date: Tuesday, January 07, 2003 | Sheet: 1 | of 9 |

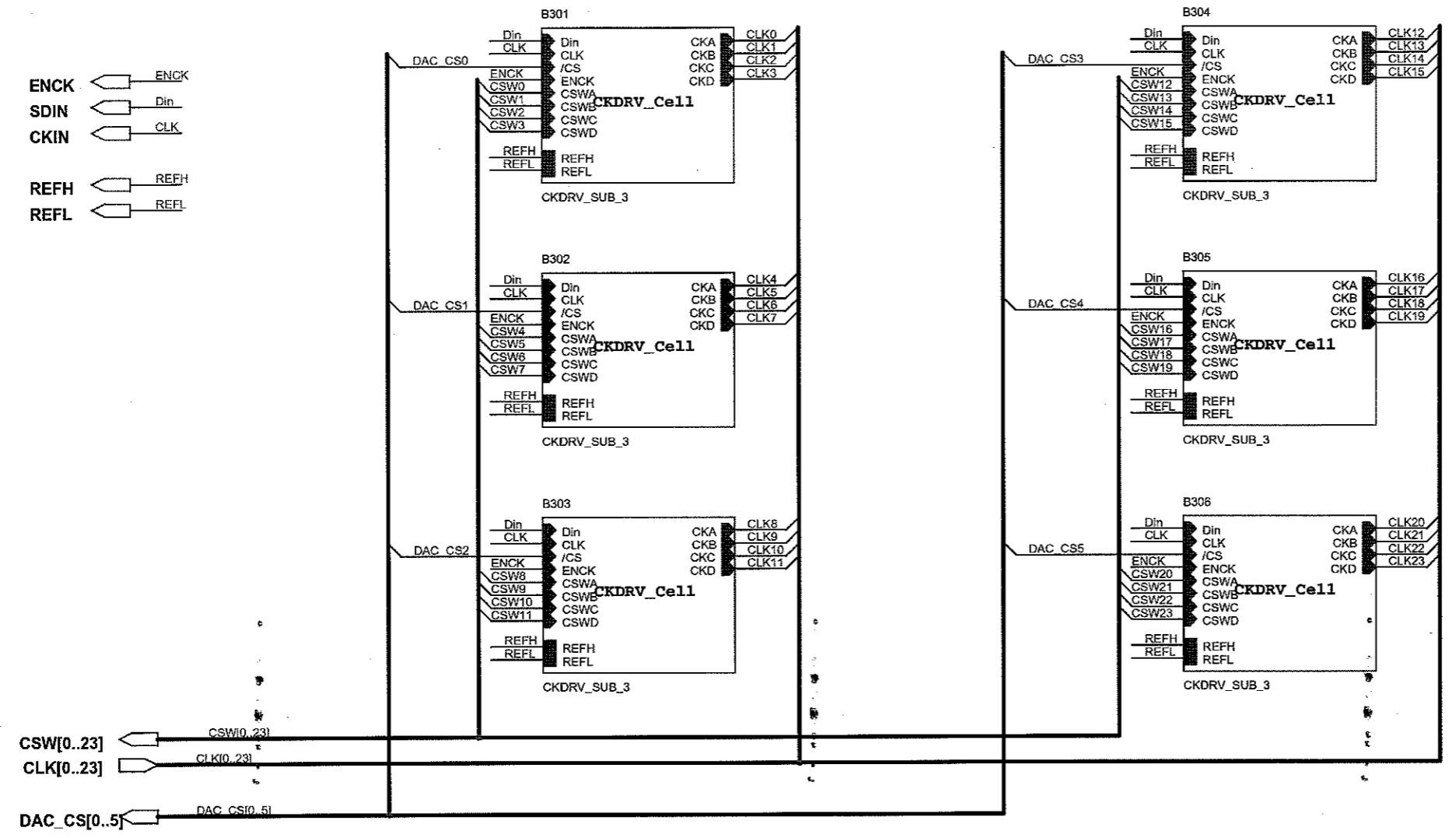
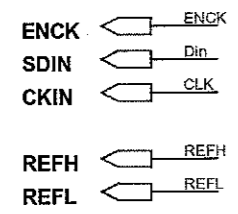


ASTRONOMICAL RESEARCH CAMERAS, INC.

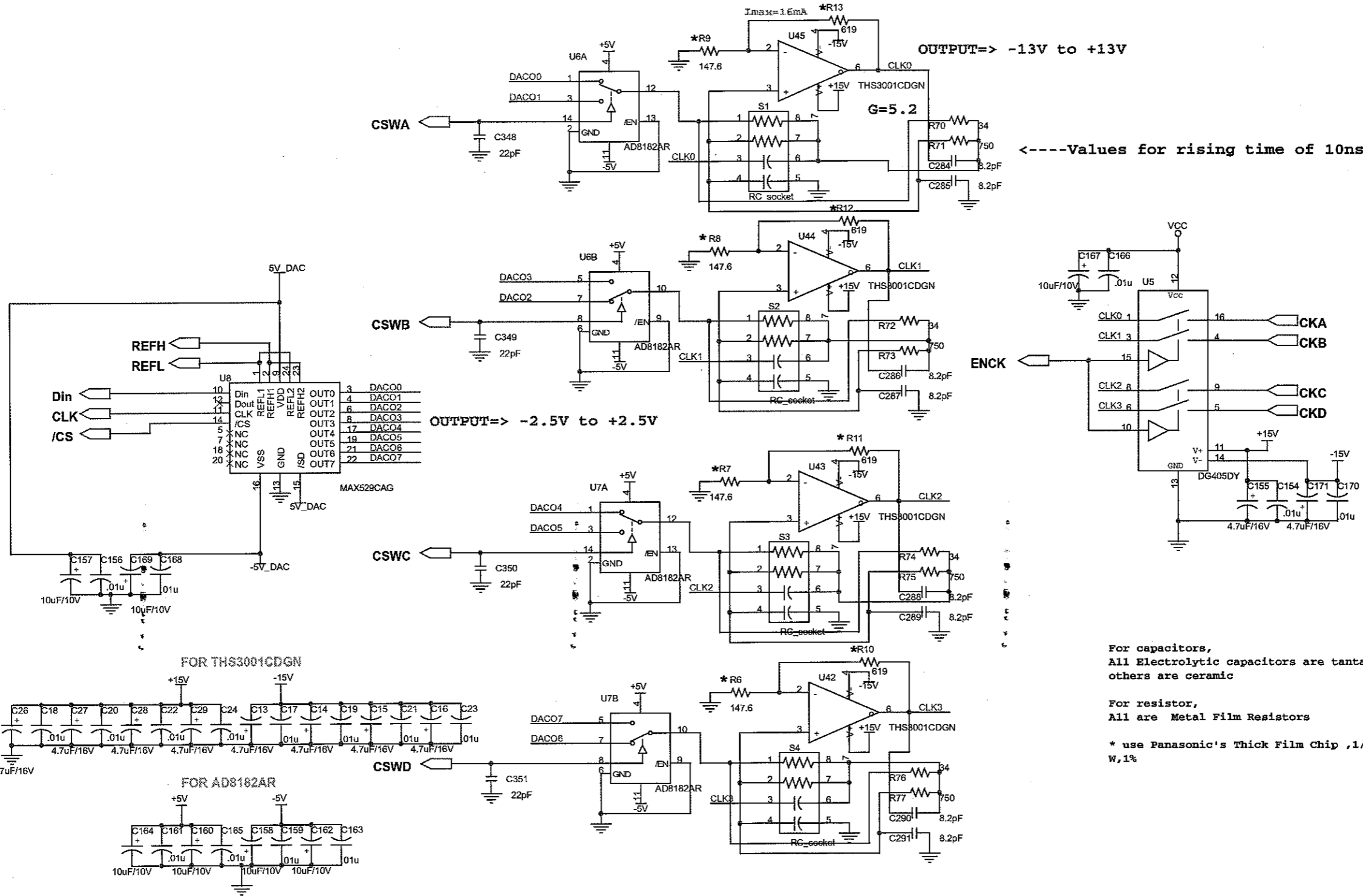
Title: **CLOCK DRIVER BOARD**

Size B Document Number ARC-32 Rev R5A

Date: Tuesday, January 07, 2003 Sheet 2 of 9



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| ASTRONOMICAL RESEARCH CAMERAS, INC. | | |
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| Size: B | Document Number: ARC-32 | Rev: R5A |
| Date: Friday, December 06, 2002 | Sheet: 3 | of 9 |



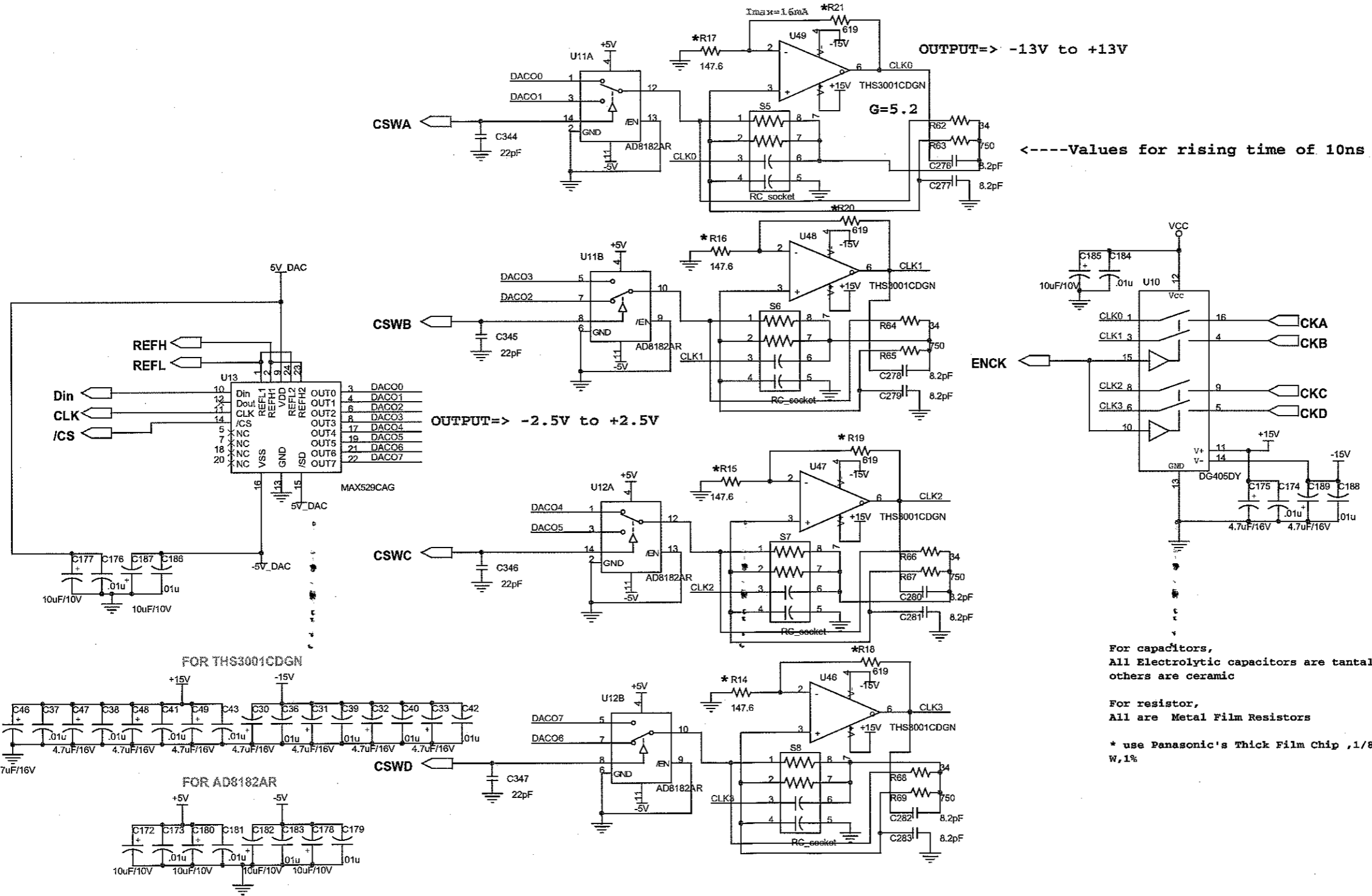
-----Values for rising time of 10ns

For capacitors,
All Electrolytic capacitors are tantalum
others are ceramic

For resistor,
All are Metal Film Resistors

* use Panasonic's Thick Film Chip ,1/8 W,1%

| | | |
|-------------------------------------|---|------------|
| ASTRONOMICAL RESEARCH CAMERAS, INC. | | |
| Title CLOCK DRIVER BOARD | | |
| Size Custom | Document Number ARC-32 /B101/B201/B301 | Rev R5A |
| Date: Friday, October 17, 2003 | Sheet 6 | of 9 |

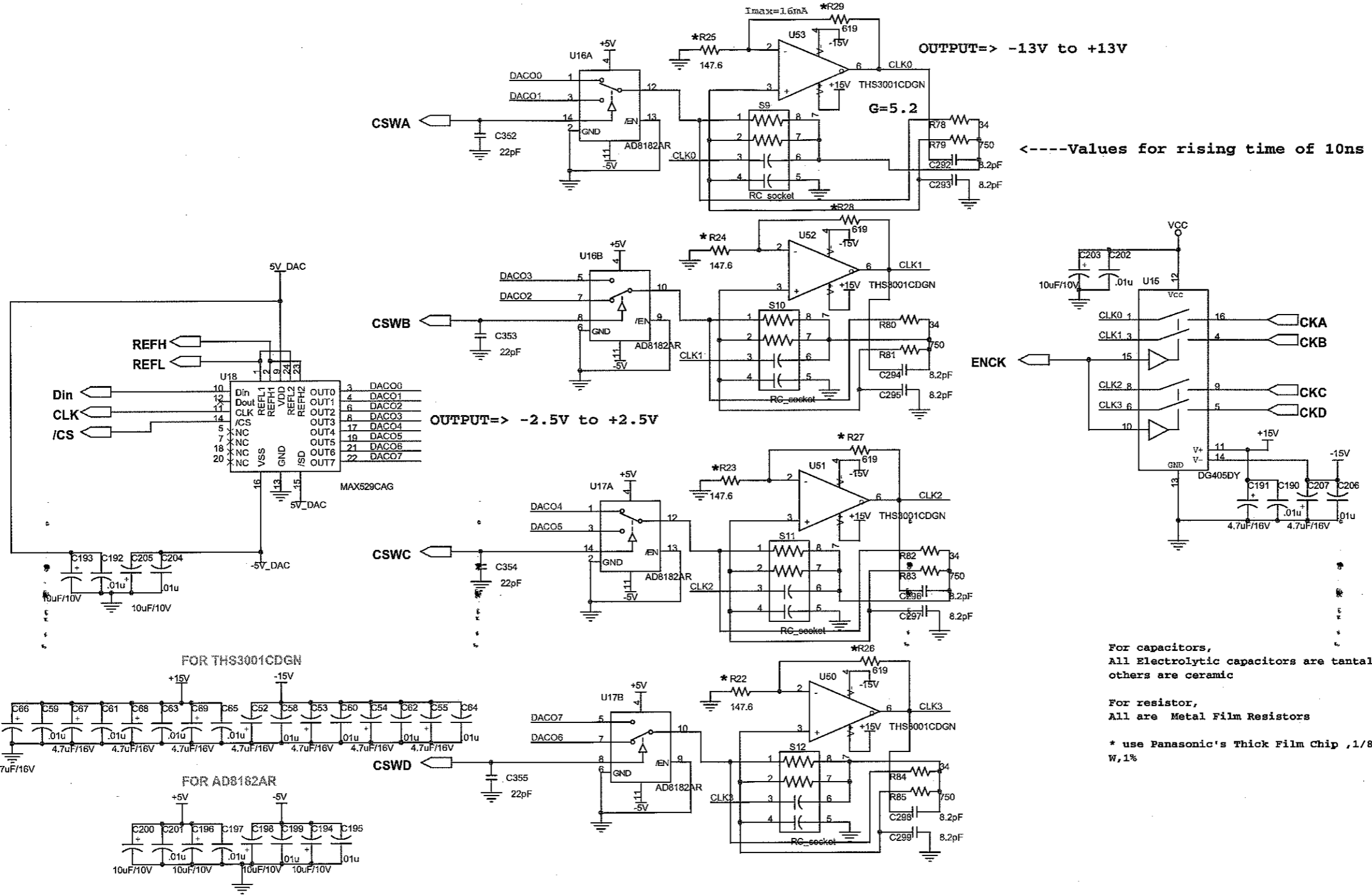


For capacitors,
All Electrolytic capacitors are tantalum
others are ceramic

For resistor,
All are Metal Film Resistors

* use Panasonic's Thick Film Chip ,1/8
W,1%

| | | |
|-------------------------------------|---|------------|
| ASTRONOMICAL RESEARCH CAMERAS, INC. | | |
| Title CLOCK DRIVER BOARD | | |
| Size Custom | Document Number ARC-32 /B101/B201/B302 | Rev R5A |
| Date: Friday, October 17, 2003 | Sheet 5 | of 9 |

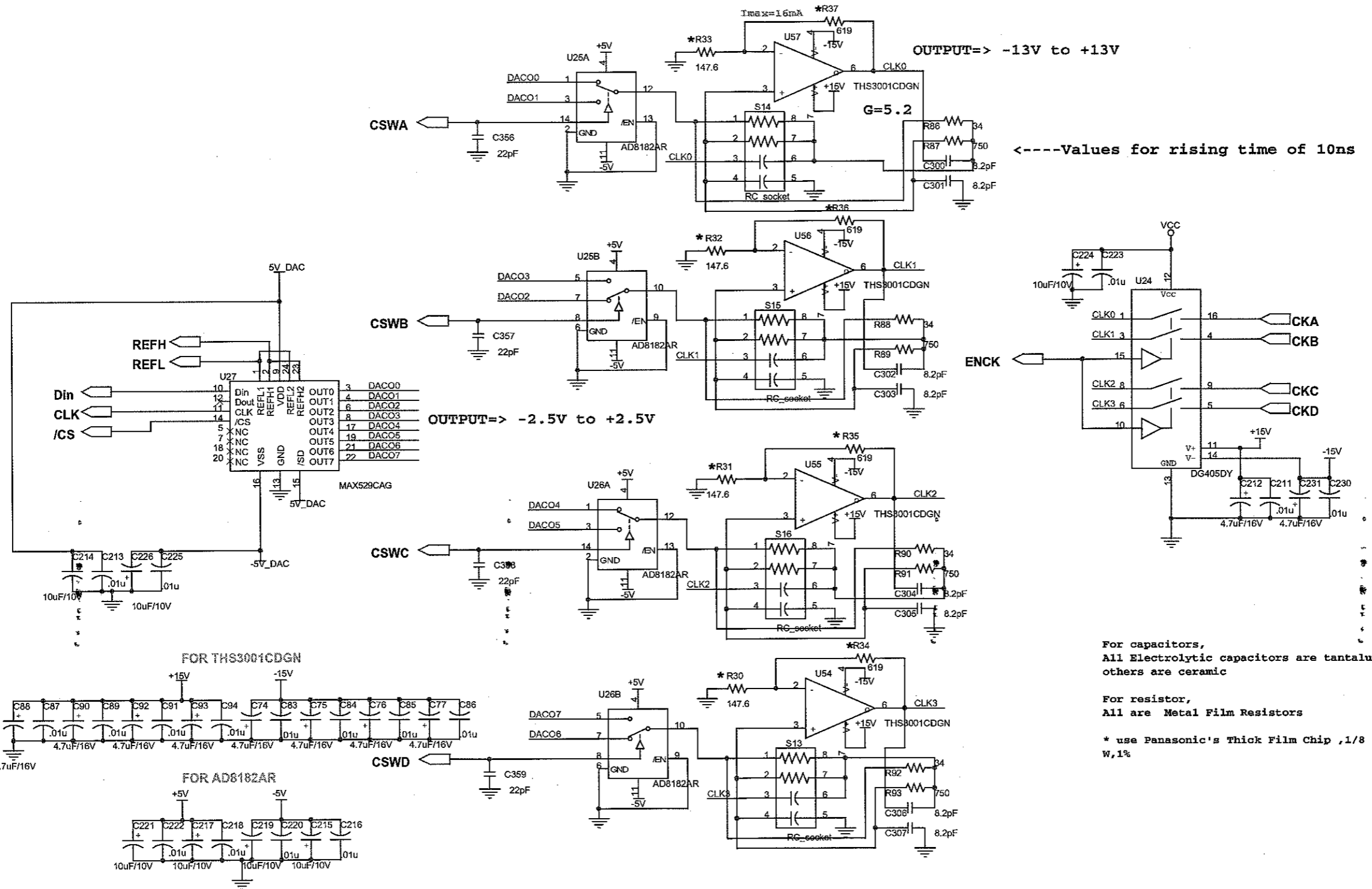


For capacitors,
All Electrolytic capacitors are tantalum
others are ceramic

For resistor,
All are Metal Film Resistors

* use Panasonic's Thick Film Chip ,1/8 W,1%

| | | |
|-------------------------------------|---|------------|
| ASTRONOMICAL RESEARCH CAMERAS, INC. | | |
| Title CLOCK DRIVER BOARD | | |
| Size Custom | Document Number ARC-32 /B101/B201/B303 | Rev R5A |
| Date: Friday, October 17, 2003 | Sheet 7 | of 9 |



OUTPUT=> -13V to +13V

OUTPUT=> -2.5V to +2.5V

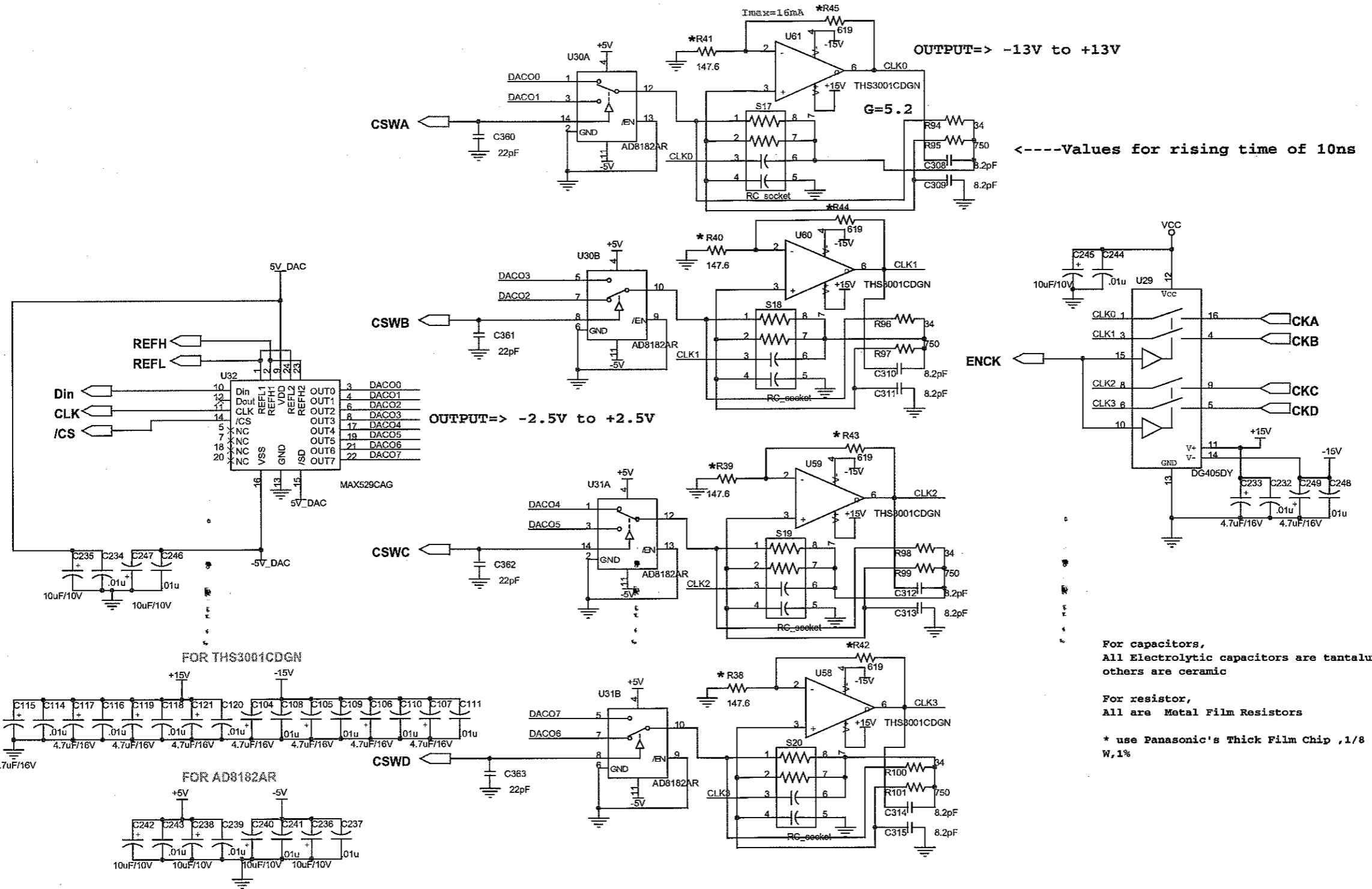
<----Values for rising time of 10ns

For capacitors,
All Electrolytic capacitors are tantalum
others are ceramic

For resistor,
All are Metal Film Resistors

* use Panasonic's Thick Film Chip ,1/8
W,1%

| | | |
|-------------------------------------|---|------------|
| ASTRONOMICAL RESEARCH CAMERAS, INC. | | |
| Title CLOCK DRIVER BOARD | | |
| Size Custom | Document Number ARC-32 /B101/B201/B304 | Rev R5A |
| Date: Friday, October 17, 2003 | Sheet 8 | of 9 |

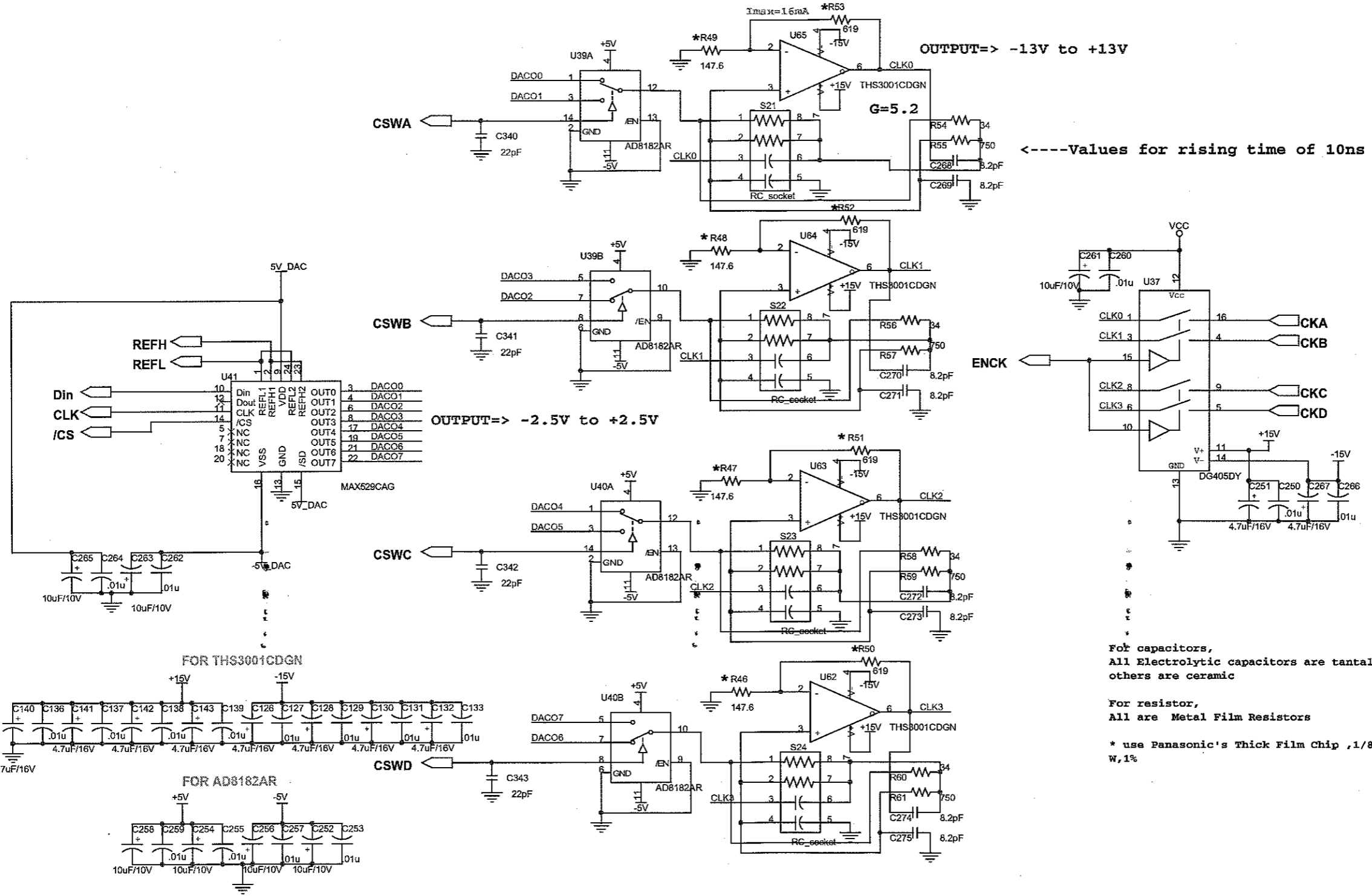


For capacitors,
 All Electrolytic capacitors are tantalum
 others are ceramic

For resistor,
 All are Metal Film Resistors

* use Panasonic's Thick Film Chip ,1/8 W,1%

| | | |
|-------------------------------------|---|------------|
| ASTRONOMICAL RESEARCH CAMERAS, INC. | | |
| Title CLOCK DRIVER BOARD | | |
| Size Custom | Document Number ARC-32 /B101/B201/B305 | Rev R5A |
| Date: Friday, October 17, 2003 | Sheet 9 | of 9 |



<----Values for rising time of 10ns

For capacitors,
All Electrolytic capacitors are tantalum
others are ceramic

For resistor,
All are Metal Film Resistors

* use Panasonic's Thick Film Chip .1/8
W,1%

| | | |
|-------------------------------------|--------------------------|--------------|
| ASTRONOMICAL RESEARCH CAMERAS, INC. | | |
| Title CLOCK DRIVER BOARD | | |
| Size | Document Number | Rev |
| Custom | ARC-32 /B101/B201/B306 | R5A |
| Date: | Friday, October 17, 2003 | Sheet 3 of 9 |

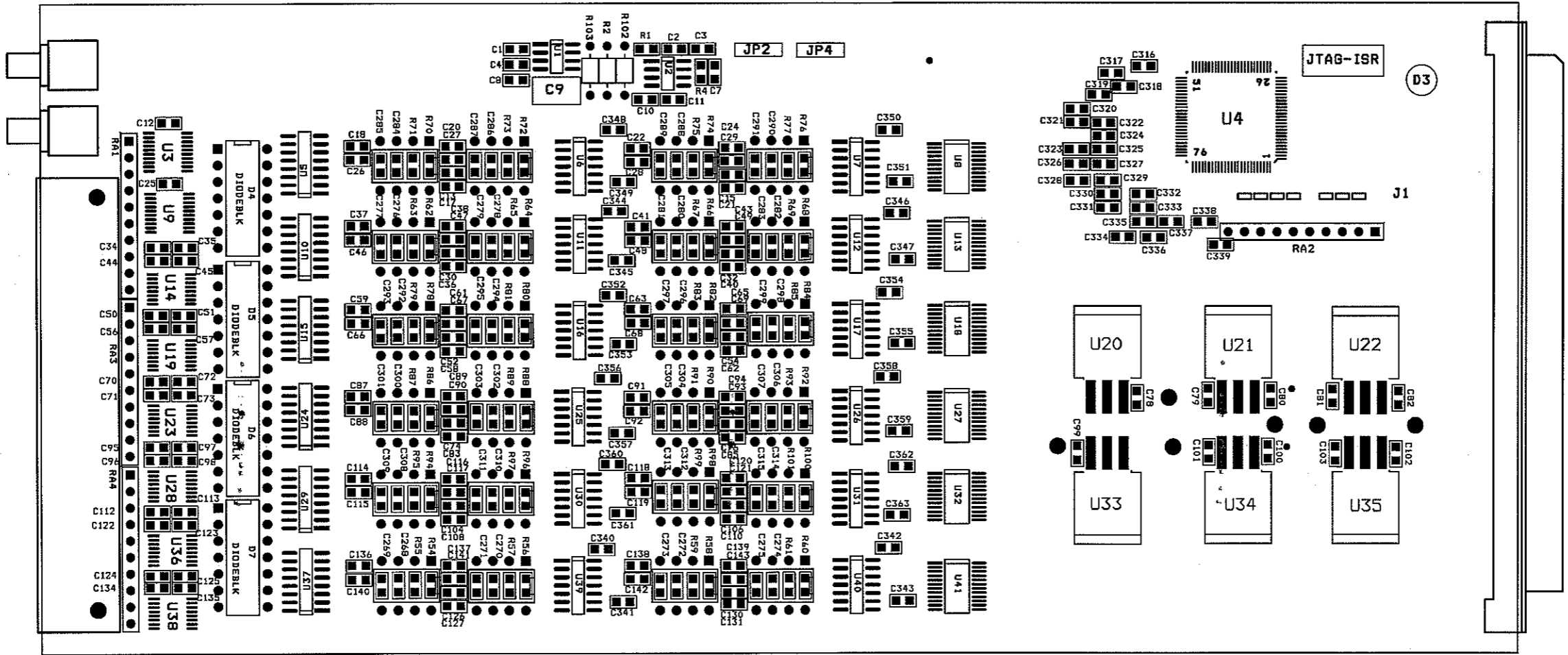
ARC32 Universal Clock Driver Board

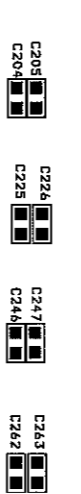
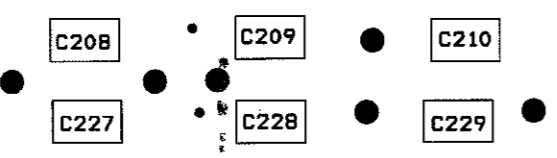
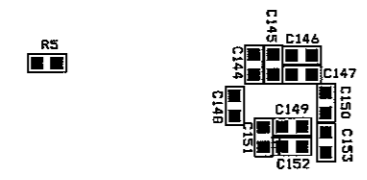
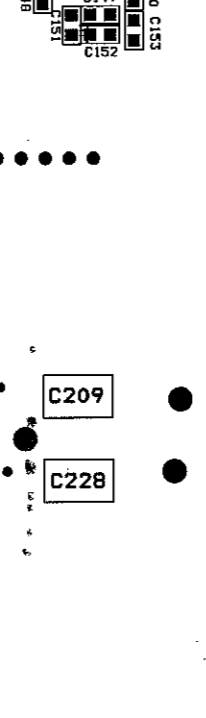
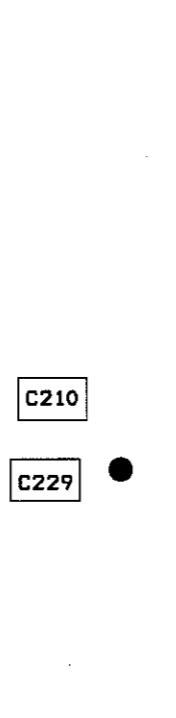
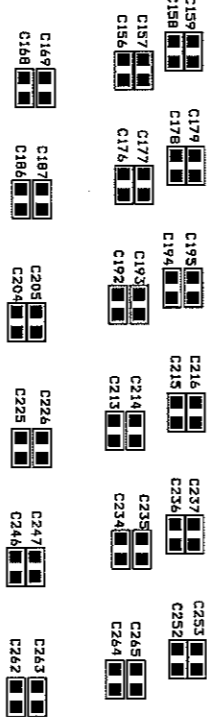
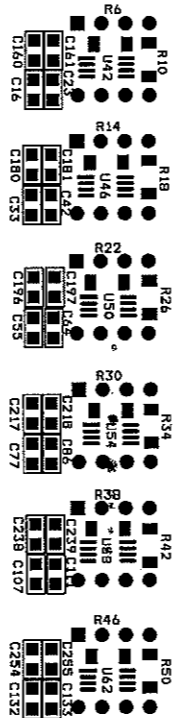
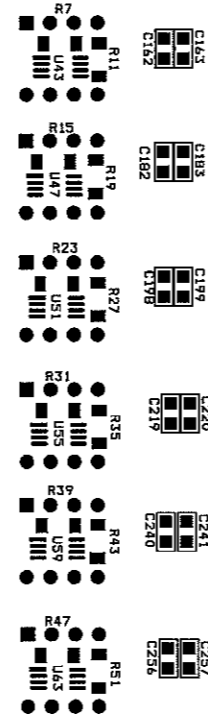
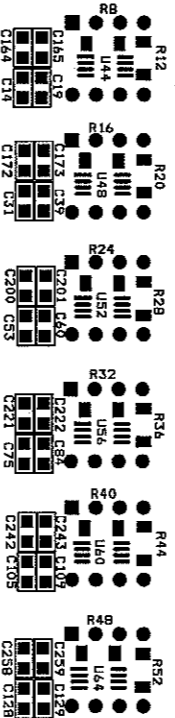
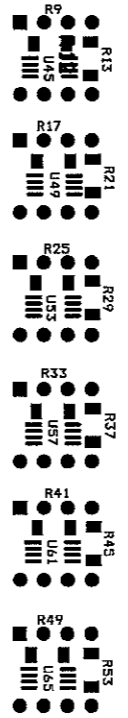
Layout Drawings

Revision 5A

Astronomical Research Cameras Inc.

Oct 17, 2003



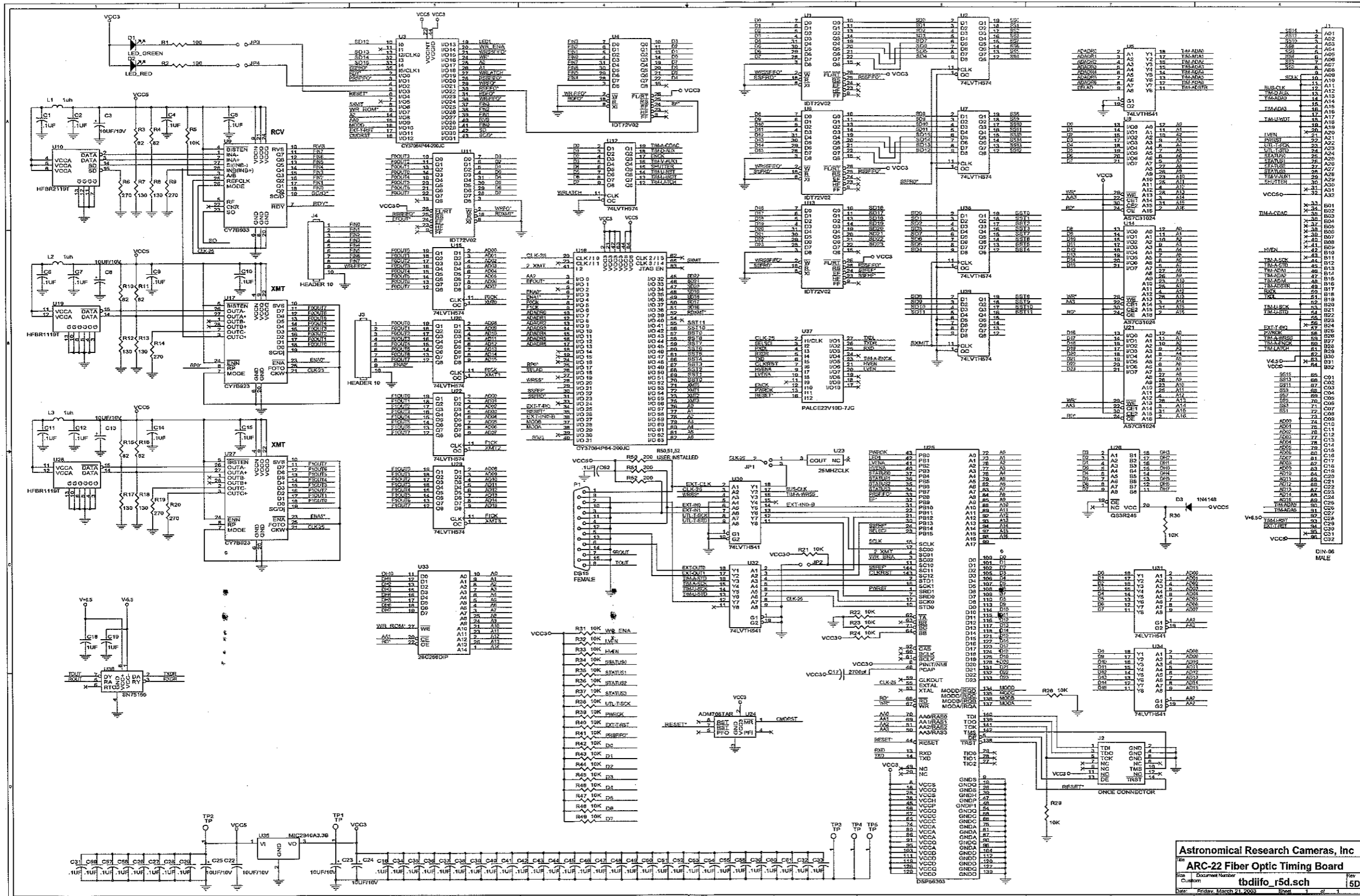


ARC22 Fiber Optical Timing Board

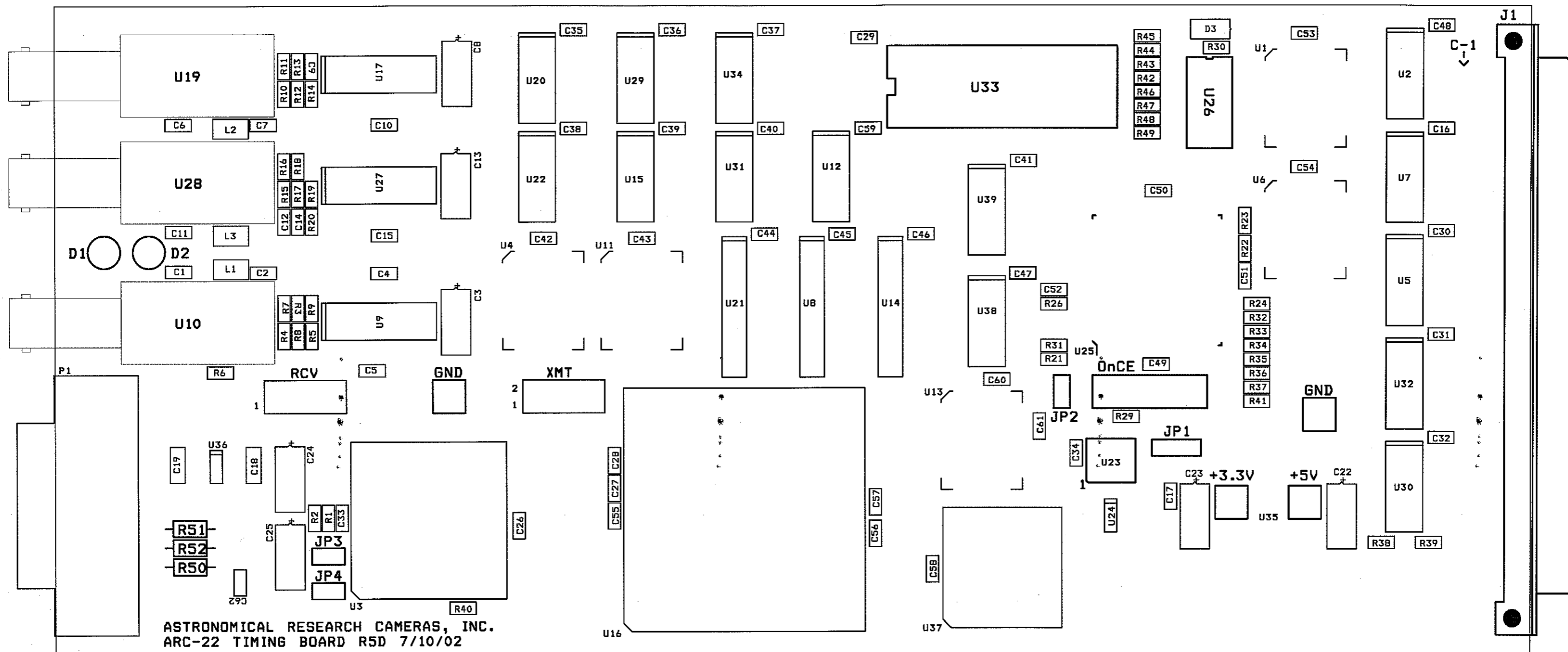
Revision 5D

Astronomical Research Cameras Inc.

March 21, 2003



Astronomical Research Cameras, Inc
ARC-22 Fiber Optic Timing Board
Rev 1.5D
Date: Friday, March 21, 2003



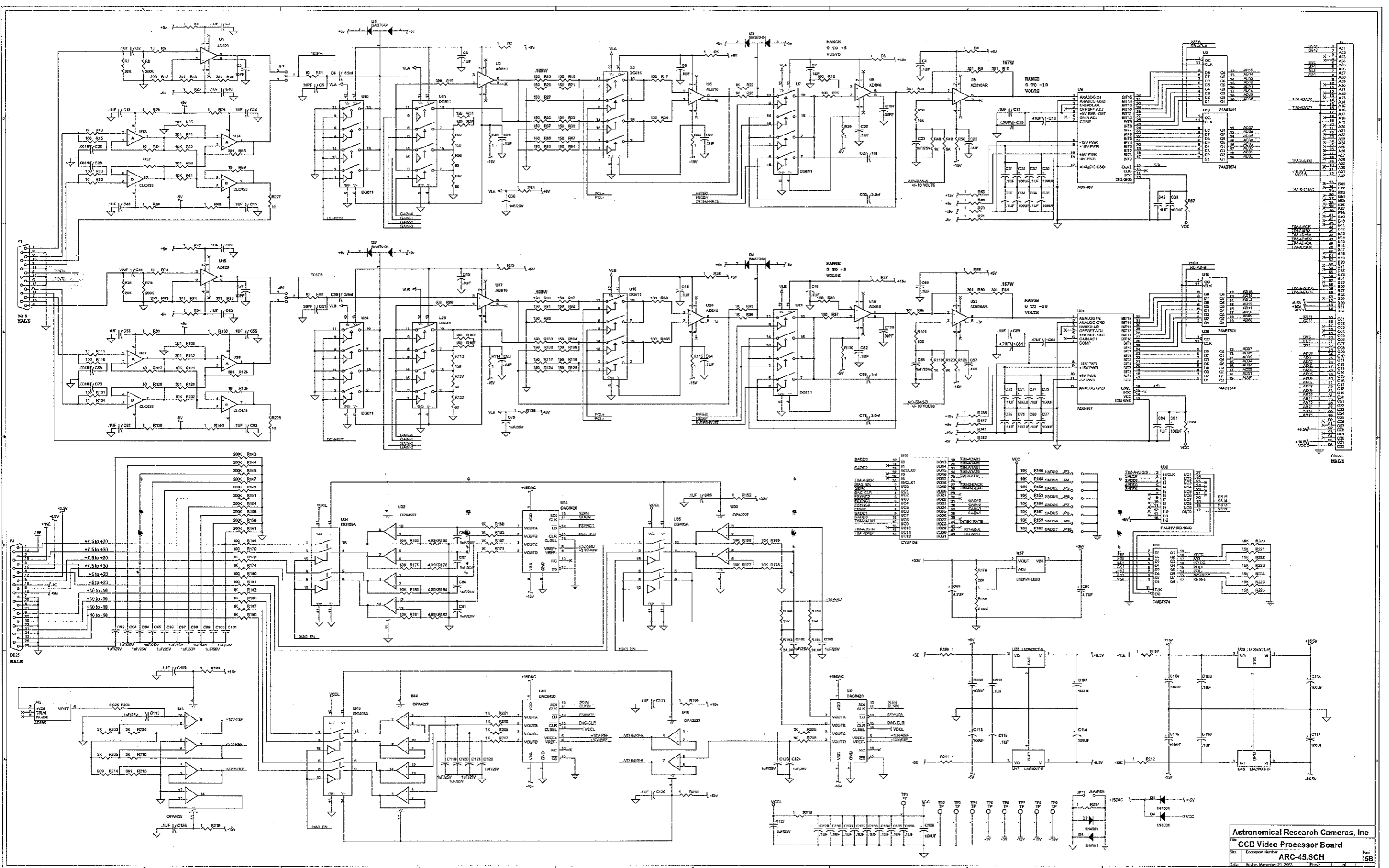
ASTRONOMICAL RESEARCH CAMERAS, INC.
 ARC-22 TIMING BOARD R5D 7/10/02

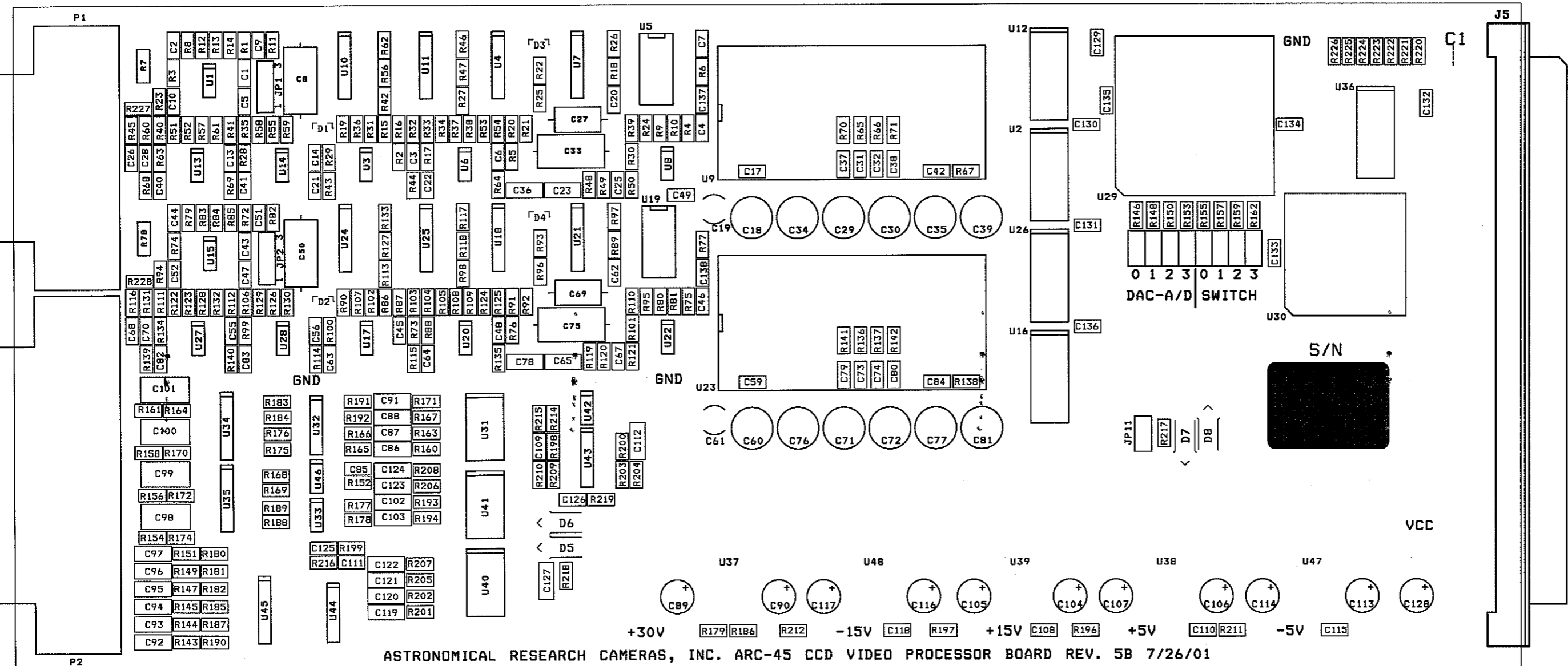
ARC45 CCD Video Processor Board

Revision 5B

Astronomical Research Cameras Inc.

November 21, 2003





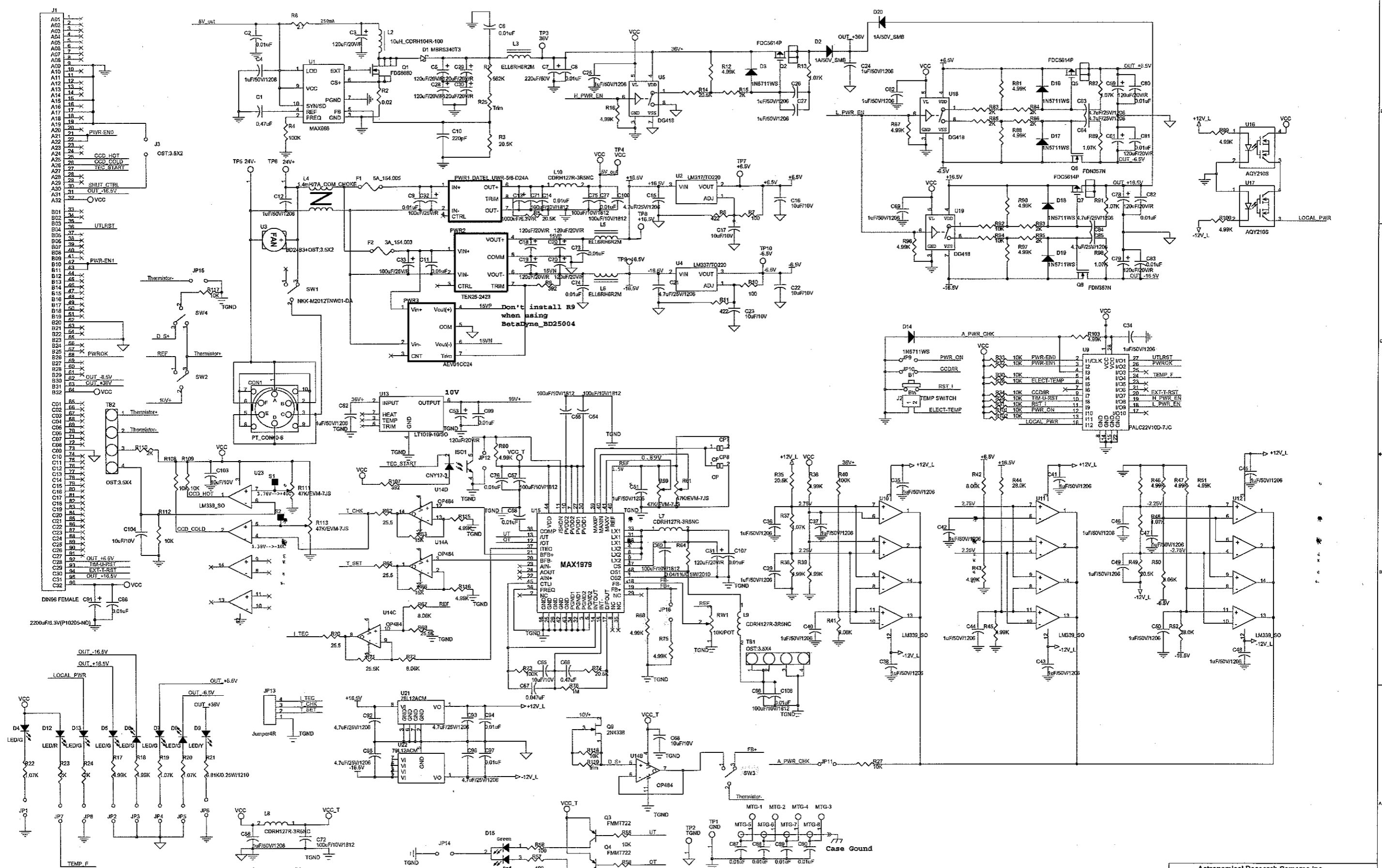
ASTRONOMICAL RESEARCH CAMERAS, INC. ARC-45 CCD VIDEO PROCESSOR BOARD REV. 5B 7/26/01

ARC78 Compact Power Control Board

Revision 1A

Astronomical Research Cameras Inc.

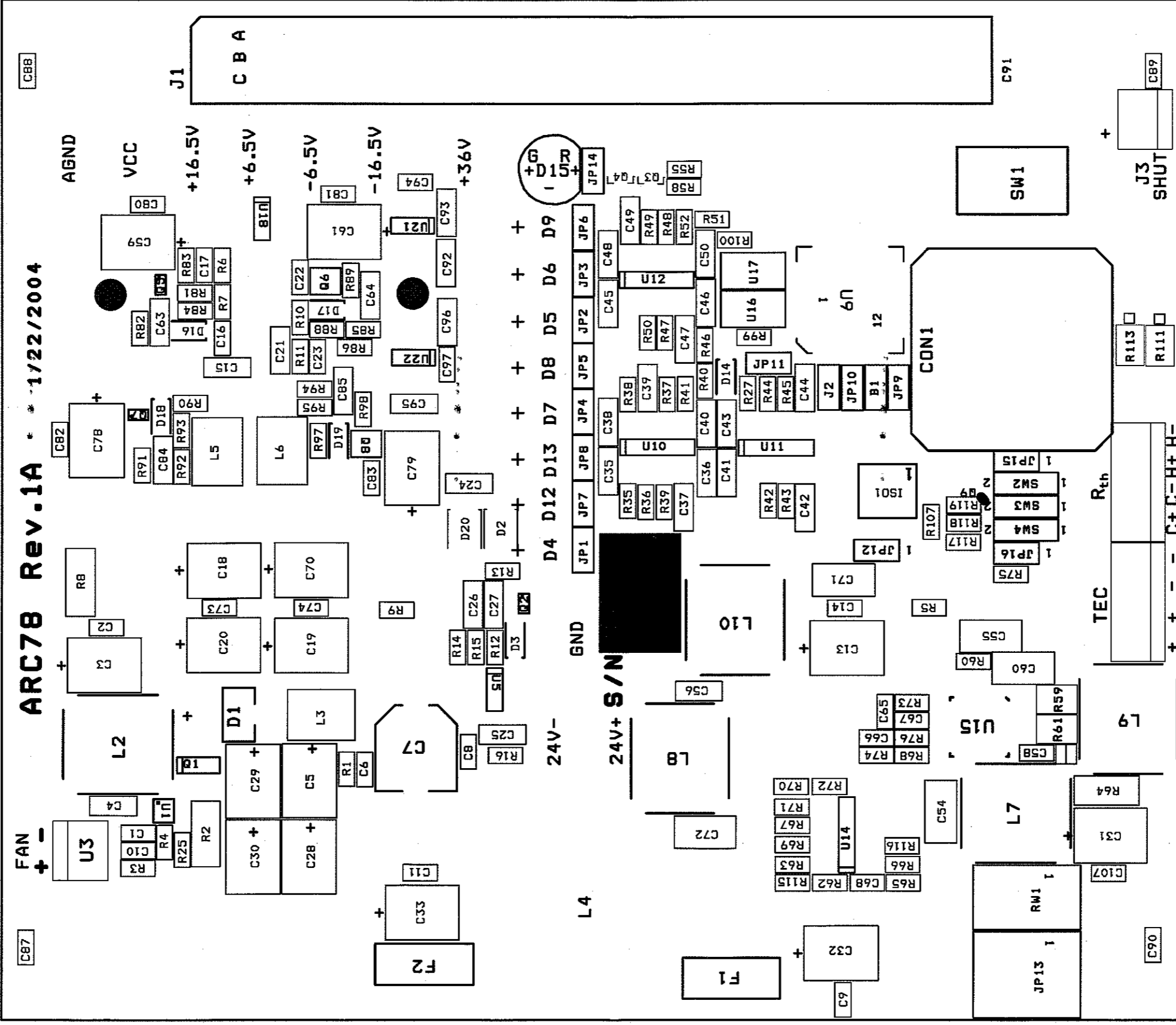
March 21, 2004

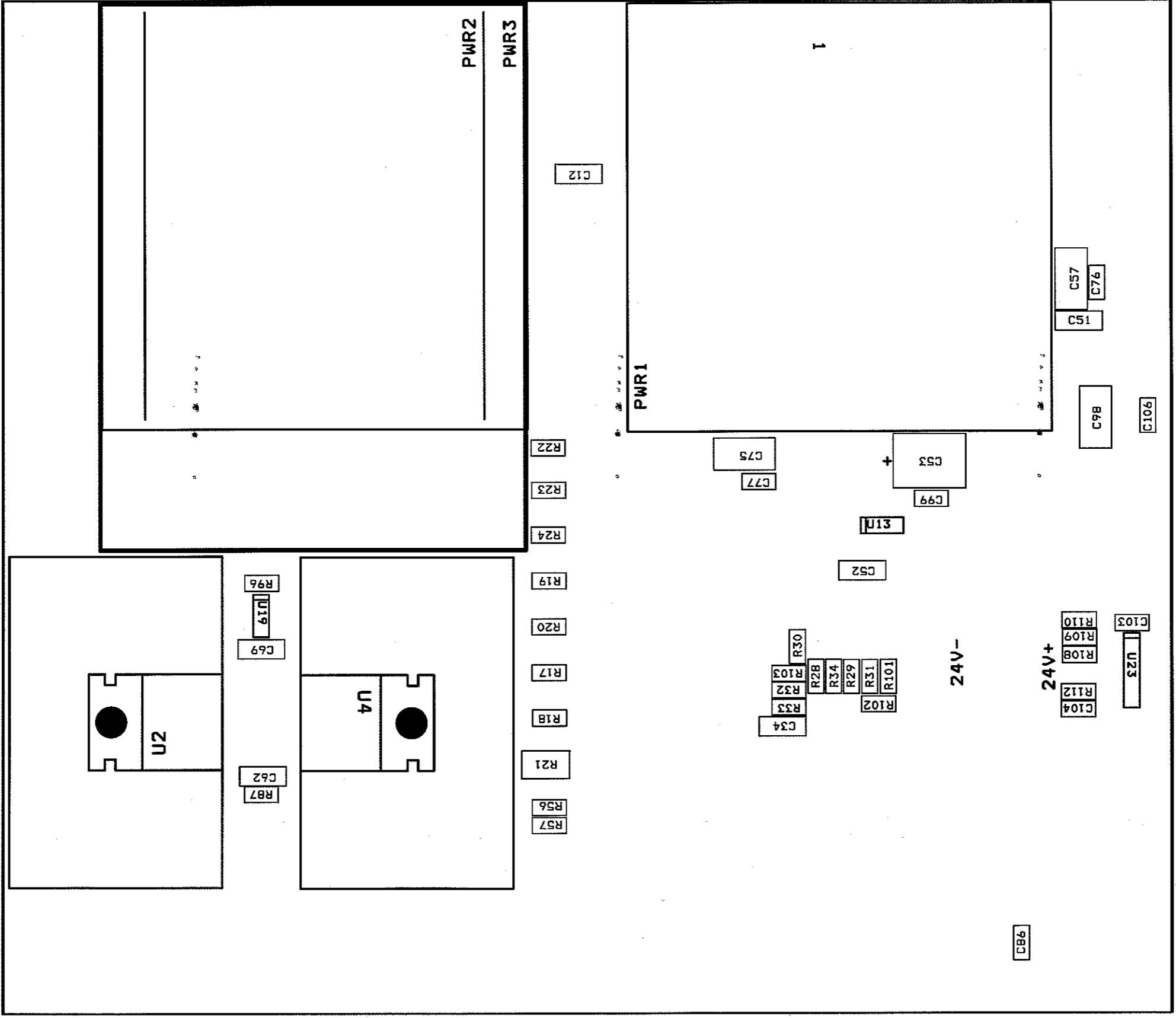


One point grounding!

Case Ground

| | | |
|------------------------------------|---------------------------|--------------|
| Astronomical Research Cameras Inc. | | |
| Compact Power Supply Board | | |
| Size | Document Number | Rev |
| Custom | ARC-78 | 1A |
| Date: | Wednesday, March 24, 2004 | Sheet 1 of 1 |





ARC65 PMC Mezzanine Board

Revision 1C

Astronomical Research Cameras Inc.

March 21, 2003

