

DC Distribution Panel

User Guide # S2-61256-100



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INTRODUCTION

The DC Distribution Panel is an accessory to the MCN Monitoring and Control Network product family. It provides distribution and monitoring for dual redundant power supplies for cases where a power supply failure cannot be tolerated. Features include:

- Independently fused inputs for two hot-standby power supplies.
- 20 independently fused outputs.
- Input and output fuses monitored via Green/Red (OK/Fail) LEDs
- Audible alert is available to indicate any failure.
- Status outputs for Input A, Input B, and Alarm.
- The DC Distribution Panel mounts in an EIA 19" rack and is 2 rack units (3.5") high.

A companion dual supply is available as a separate part number. It also mounts in a single EIA 19" rack and is also 2 rack units high.

<u>Part Number</u>	<u>Description</u>
S2-61160	DC Distribution Panel
81-11812	Dual Power Supply

Figure 1 shows the front view of the DC Distribution Panel.

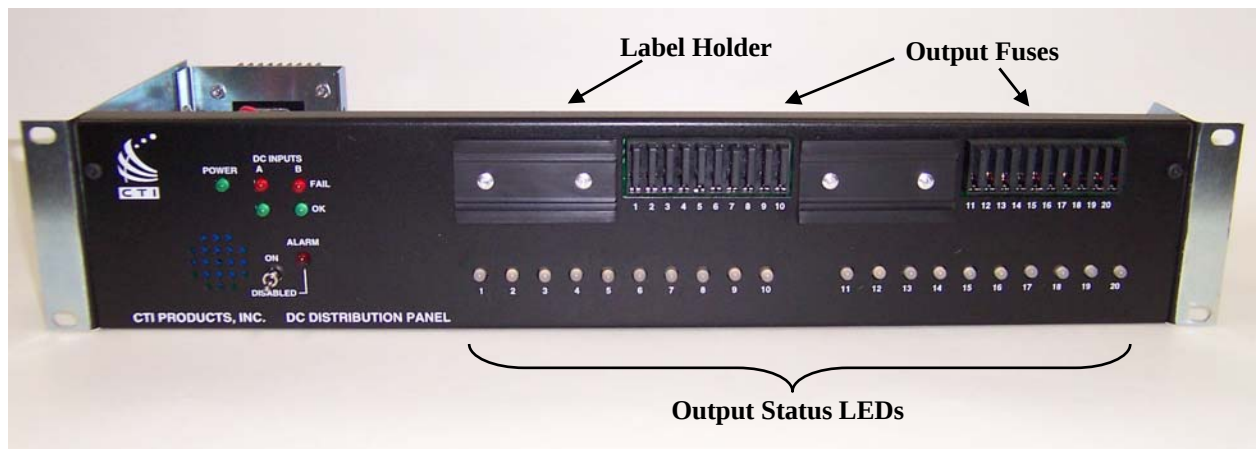


Figure 1 DC Distribution Panel Front View

Figure 2 shows the rear view of the DC Distribution Panel.

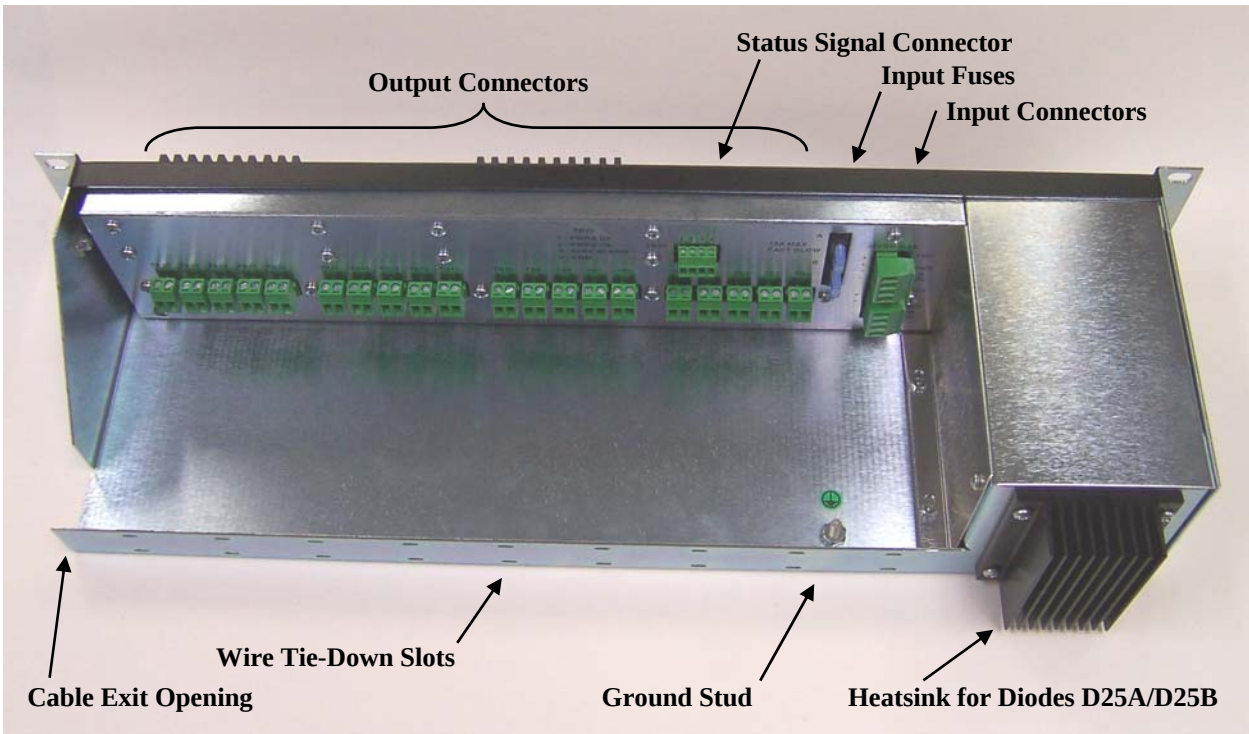
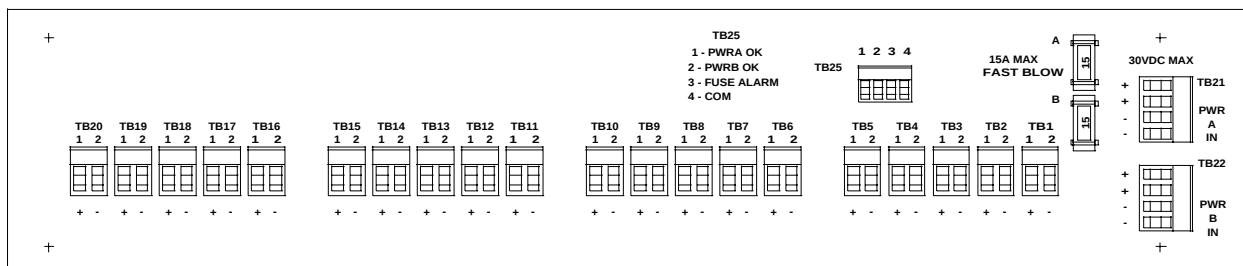


Figure 2 DC Distribution Panel Rear View

INSTALLATION

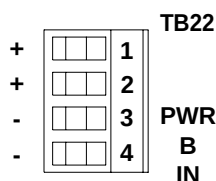
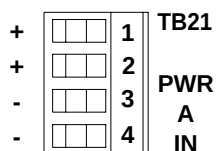
CONNECTORS AND FUSES

Connections to the power distribution panel are made on the back of the unit.



CG-11902-101

Hot-Standby Input Connectors

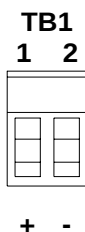


TB21 & TB22 are the power input connectors.
Pinout is the same for both connectors:

Pin	Function
1	+ Supply In
2	+ Supply Sense (for power supplies that use sense leads)
3	- Supply Sense (for power supplies that use sense leads)
4	- Supply In

Table 1 – TB21 & TB22 Input Connections

Output Connectors



TB1 through TB20 are the output connectors.
Pinout is the same for all connectors:

Pin	Function
1	+ Supply Out (Connect to the center pin of the MCN DC Connector)
2	- Supply Out (Connect to the barrel of the MCN DC Connector)

Table 2 – TB1 – TB20 Output Connections

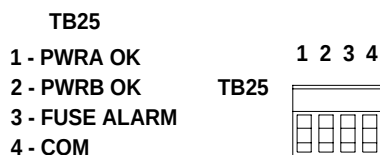
Although the DC inputs of the MCN modules are not polarity sensitive, the (-) side is chassis ground. Connect the outer barrel of the connector to the (-) side of the power to reduce blown fuses due to the barrel accidentally touching the chassis.

Wiring Note:

The standard MCN DC Cables come with pre-tinned leads. Cut the tinned portion off and strip the wires before connecting them. Tinned leads can loosen after the terminal strip is initially tightened.

Status Signals

Three status signals are available to inform monitoring equipment if the redundant power supplies are functioning or if any fuses are blown. The three status signals are driven from solid state relays, with an output rating of 60V, and protected with 0.5A resetable PTC fuses. These signals are referenced to the COM signal. Table 3 lists the terminal connections for these signals.



Signal	TB25 Terminal	Description
PWRA_OK+	1	Relay contact closes if: - Input Supply A is present and Fuse A is OK.
PWRB_OK+	2	Relay contact closes if: - Input Supply B is present and Fuse B is OK.
ALARM+	3	Relay contact closes if: - either Input Supply is not present, - either Input Fuse (A or B) is blown, or - any Output Fuse (1 – 20) is blown. * Note that at least one of the power inputs must be active for this alarm output to be active.
COM	4	Common signal for status signals above.

Table 3 – TB25 Status Signal Connections

Ground Stud

A ground stud is provided on the rear of the unit. Connect a grounding wire with a ring lug to the ground stud and ground it to a suitable ground.

Fuses

Table 4 lists field replaceable fuses for the DC Distribution Panel.

Fuse Designation	CTI Part Number	Description
Input: A, B	65-11823	Fuse 15A 32V Fast Blow Auto Mini
Output: 1 - 20	65-11742	Fuse 0.5A 60V Fast Blow GMT Indicating

Table 4 – Fuses for DC Distribution Panel

Caution: Output fuses can be damaged by removing them from the fuse holder. These fuses are self-indicating, and the corresponding output status LED will change to red if the fuse is not intact.

Standard 500 mA fuses are used when powering HIB-IP units or EXB-IP units. When powering one quad or triple rack mount of MCN modules, use 1A fuses.

LABELING

Two label holders are provided on the front panel. These can be used to document how each output fuse (and connector) is associated with a given load. The dimensions for inserts for these label holders should be 2.4" x 1.2". A sample label is shown in Figure 3. The shaded area in the sample below should not be used for text, since it will be covered by the holder.

Panel A – Southern Region			
1	Abner	6	Farley
2	Bolton	7	Gaston
3	Cheverly	8	Hampton
4	Denton	9	Spare
5	Eastlake	10	Spare

Figure 3 Label Sample

A sample Excel spreadsheet for labels is available on request from CTI Products, Inc.

OPERATION

The outputs from redundant power supplies are independently connected to inputs (A and B) on the DC Distribution Panel (TB21 and TB22). Each supply input is separately fused with an automotive style fuse, and has an “OK” and “FAIL” LED indicator on the front panel. When an input supply is present (and the input fuse is intact), the corresponding green “OK” LED is lit. If an input supply is not present, or the fuse is blown, the green “OK” LED for that input is turned off, and the red “FAIL” LED is lit. In addition, an on-board buzzer sounds when either supply input is not present, or if any of the input (A, B or output (1 – 20) fuses are blown. The buzzer may be disabled by setting the front panel switch to the “DISABLED” position.

The POWER LED is lit whenever either input supply is present and its fuse is intact.

The DC Distribution Panel passes the supply current from the input supplies to 20 outputs. Each supply output (TB1 – TB20) is separately fused, and has a bi-color LED indicator. When the output supply is present (and the output fuse is intact), the corresponding LED for that output is green. If an output supply is not present, or the fuse is blown, the corresponding LED for that output is red.

Caution: *Even though input and output connectors are polarized, they can be inserted backwards if forced. Carefully observe polarity whenever reconnecting these devices.*

INDICATORS AND SWITCHES

The indicators and switch that relate to the overall operation of the unit are shown below.

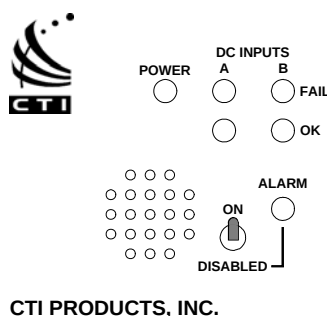


Figure 4 Common LEDs and Switch

LED or Switch	Function
Power LED	On when either Power Input is active (and the input fuse is good)
A Fail LED	On when Input A is failed (or its fuse is blown) *
A OK LED	On when Input A is active (and its fuse is OK)
B Fail LED	On when Input B is failed (or its fuse is blown) *
B OK LED	On when Input B is active (and its fuse is OK)
On/Disabled Switch	On: Enables Audible Alert Disable: Disables Audible Alert
Alarm LED	Flashes when Audible Alert is Disabled.

* The A and B Fail LED will only be active if the other supply is active.

Audible Alert

An audible alert is available to indicate the absence of either input supply, or any of the output supplies. The audible alert and the status signal “ALARM+” in Table 2 above are driven from the same signal, and therefore will indicate the same types of failures. The audible alert can be disabled by setting the “ALARM” switch on the front panel to the “DISABLED” position. In this position the “ALARM” LED will flash to indicate the disabled condition.

Output Indicators

Each of the 20 outputs has its own a bi-color LED indicator.

Color	Output Status
Green	Power Present
Red	Output Fuse Failed



Figure 5 Output Indicators

SPECIFICATIONS

Inputs

Quantity: 2
Voltage: 20 – 30 Vdc
Current: 15A maximum each

Outputs

Quantity: 20
Current: 500 mA maximum each (with standard 500 mA GMT output fuses)
1 A Maximum each, 15A total (with 1A GMT output fuses)

Physical

Size: 19" W x 3.5" H (2 Rack Units) x 6.75" D

SCHEMATIC AND LAYOUT

The schematic layout diagrams of the printed circuit board can be found towards the end of this manual. Note that a diode assembly consisting of D25A/D25B and a heat sink are mounted to the rear of the DC Distribution Panel, and wired to the printed circuit board using connector TB23. This diode assembly is shown in Figure 6.

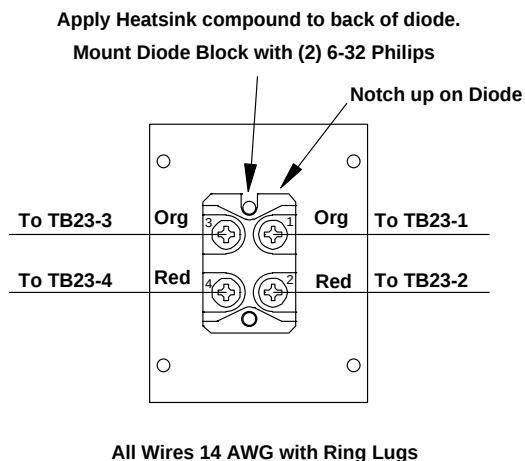
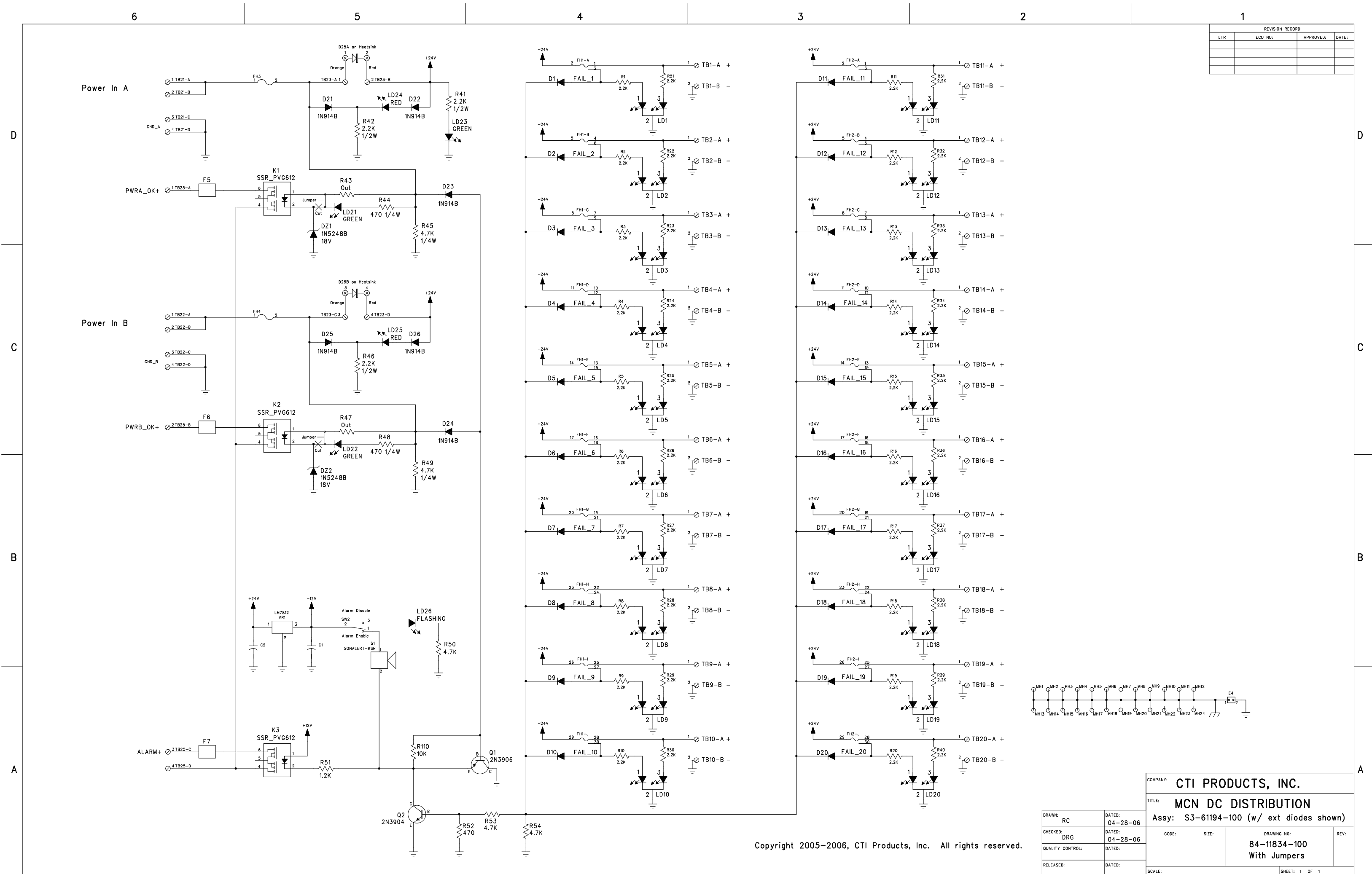
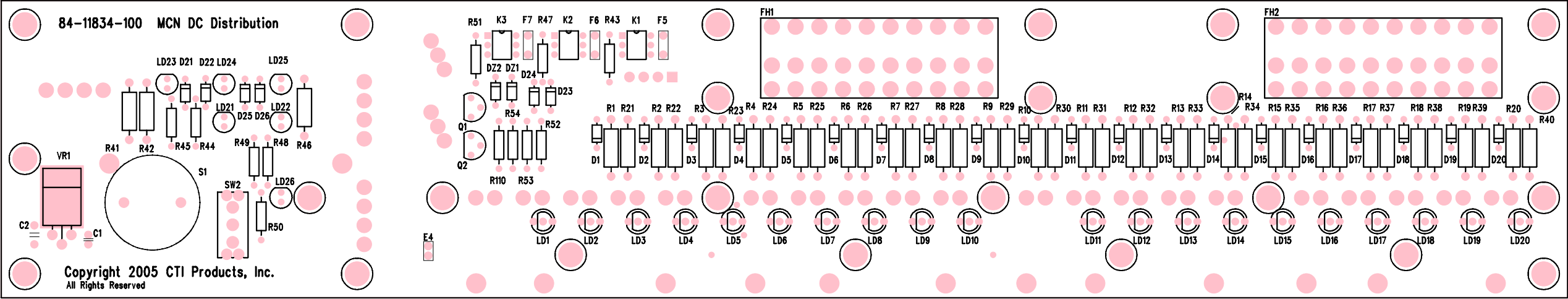


Figure 6 Diode Assembly



MCN DC Distribution Board Front View



MCN DC Distribution Board Back View

