9.6 Power supply, MOSFET failure (BOP)

The most common PSU failure is a failed Q13 or Q14 MOSFET. The failure can cascade down further to gate-drive components. In some cases, the PSU will not start due to a PWM controller U15 failure.

Symptoms:

- no power
- The PSU attempts to start but does not succeed.

Failure verification:

• Q13 or Q14 shorted between any two pins of gate, source, or drain.

Repair notes:

- Use the highlighted schematic in Figure 9.9 as a component check guide. Replace components in red and check components in blue.
- Q13 and Q14 don't always fail in pairs, but they should both be replaced in the event of a failure.
- A failure of Q14 can put a huge current pulse through C112 and C113 while Q14 is failing; check for the proper rectified AC voltage across the primary caps if the power supply appears to be dead.
- Check gate drive components (resistors and diodes) tied to gate signals QCL-DR and QM-DR.
- If the LEDs blink but the module won't start, suspect a failure to the power supply controller, U15.
- AC current draw at idle should be 0.1—0.3A at 120Vac and 0.1—0.2A at 230Vac. If the idle current is not in this range, there is a problem.

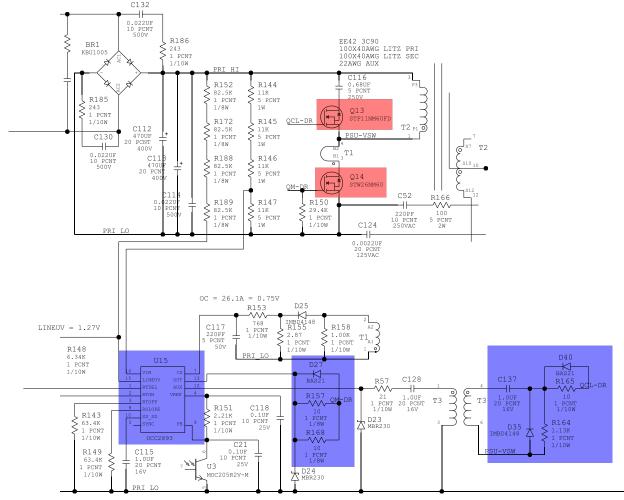


Figure 9.9 - Components to replace and/or check in the event of a power supply MOSFET failure.

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