CAMPTECH II CIRCUITS INC

PCB Footprint Design Checklist

A perfect footprint is your PCB foundation. Fixing errors in production costs 20 times more than catching them in design. Use this checklist to ensure accuracy from the start.

1. Initial Setup

- [ ] Latest component datasheet
- [ ] Package style and dimensions
- [ ] Recommended land pattern
- [ ] IPC standards (IPC-7351B)
- [ ] Creation date and revision

2. Basic Dimensions

- [ ] Pad dimensions (length, width)
- [ ] Pad spacing and pitch
- [ ] Component outline dimensions
- [ ] Mounting hole sizes
- [ ] Pin 1 location and marking

3. Clearances and Tolerances

- [ ] Solder mask clearance
- [ ] Paste mask dimensions
- [ ] Component placement tolerances
- [ ] Copper to edge clearance
- [ ] Pad to pad spacing

4. Special Considerations

- [ ] Thermal relief for power connections
- [ ] Polarization marks
- [ ] Keepout areas
- [ ] Assembly notes and markings
- [ ] Pad stack definitions
- [ ] ESD protection zones
- [ ] Environmental factors

5. Manufacturing Requirements

- [ ] Trace width compatibility
- [ ] Drill size requirements
- [ ] Pad aspect ratios
- [ ] Paste mask ratios
- [ ] Reflow/wave soldering compatibility
- [ ] RoHS compliance

6. Fine-Pitch Components

- [ ] Pad-to-trace transitions
- [ ] Fanout spacing
- [ ] Via placement rules
- [ ] Paste mask specifications

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7. BGA/QFN Specific

- [ ] Ball/pad matrix definition
- [ ] Via-in-pad requirements
- [ ] Thermal pad dimensions
- [ ] Paste mask patterns
- [ ] Escape routing

8. High-Speed and RF

- [ ] Controlled impedance requirements
- [ ] Signal integrity trace geometry
- [ ] Ground plane strategies
- [ ] RF material compatibility
- [ ] High-speed trace spacing

9. Documentation

- [ ] Footprint naming standards
- [ ] Critical dimensions documented
- [ ] Industry standards listed
- [ ] Special requirements noted
- [ ] Verification status recorded

10. Library Management

- [ ] Correct library category
- [ ] Component properties set
- [ ] Datasheet reference included
- [ ] Standard practice deviations
- [ ] Version control updated

11. Final Verification

- [ ] Datasheet comparison
- [ ] Physical component check
- [ ] IPC standards compliance
- [ ] DRC verification
- [ ] 3D model alignment
- [ ] Pin numbering verification
- [ ] Assembly documentation
- [ ] Peer review completed
- [ ] Library backup confirmed