1 Scope   This test method specifies techniques for the
determination of machineability of a solder mask.

2 Applicable Documents
IPCSM-840 Qualification and Performance of Permanent Solder Mask
IPCA-25A-G-KIT1 Multipurpose One-Sided Test Pattern

3 Test Specimens   Six (6) IPC-B-25A boards coated with
solder mask on the top side. Three are to be tested
as-received and three are to be tested after solder float expo-
sure.

The IPC-A-25A-G-KIT artwork package provides the Gerber
information necessary for the fabrication of the standard IPC-
B-25A test board.

4 Apparatus and Reagents
4.1 Drill
4.1.1 Drill speed of 1500 ± 250 rpm
4.1.2 Drill bit size of 6.35 mm [0.25 in]

4.2 Router
4.2.1 Speed of 20,000 ± 5,000 rpm
4.2.2 Router bit to be standard for printed board fabrication
and operation at recommended speed. Bit must be sharp and
in good working order.

4.3 Band Saw
4.3.1 Speed of (442 ± 76) m/min [(1450 ± 250) ft/min]
4.3.2 Blade of 1.2 cm [0.5 in] width, 0.89 mm [0.035 in]
gauge, and 10-14 pitch

4.4 Punch
4.4.1 2.5 cm [1 in] square die
4.4.2 Clearance range between punch and die to be [0.001
to 0.003 in]

4.5 Permanent Marker and/or Vibrating Scribe

4.6 Hammer or Mechanical Punching Apparatus

5 Procedures
5.1 Preconditioning
5.1.1 Process three of the IPC-B-25A coupons per IPC-SM-
840, Resistance to Tin-Lead Solder - Solder Float

5.2 Drilling
5.2.1 Drill three holes in each coupon directly below the
label “B” on the test specimen.

5.3 Routing
5.3.1 Route a straight edge along the top side of each cou-
pon.
5.3.2 Use a permanent marker or vibrating scribe to serial-
ize each resulting piece.

5.4 Sawing
5.4.1 Make a single cut along the bottom edge of each cou-
pon removing the finger tab area.
5.4.2 Use a permanent marker or vibrating scribe to serial-
ize each resulting piece.

5.5 Punching
5.5.1 Place the punch over the fiducial above the comb pat-
tern labeled “F” on the test specimen.

---

1. www.ipc.org/onlinestore
5.5.2 Apply sufficient force to the punch using the apparatus in 4.6 to remove the section from the test specimen.

5.5.3 Use a permanent marker or vibrating scribe to serialize each resulting piece.

5.6 Visual Examination

5.6.1 Visually examine each coupon and the extracted pieces for evidence of tears or cracks of the solder mask.

6 Notes

6.1 Safety Operator should be trained and familiar with the hazards inherent to the chemicals being used and analyzed. Proper personal safety equipment, such as safety glasses, gloves and splash apron, and adequate ventilation shall be used.