PROCESSING RECOMMENDATIONS

For Samtec's AcceleRate® HP (APF6/APM6) High-Performance Array Sockets

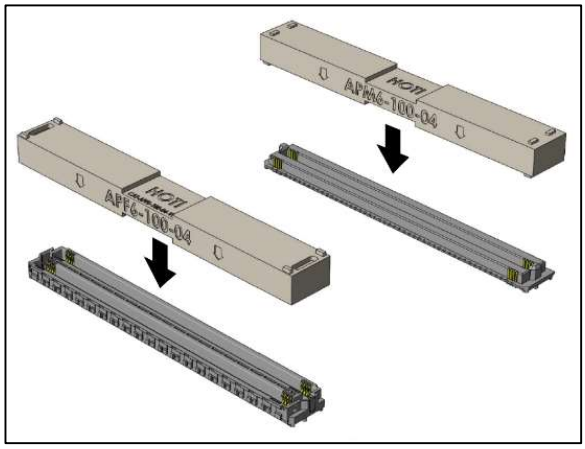
For some configurations of the AcceleRate® HP (APF6/APM6) series, a fixture tool is **required** to maintain part coplanarity through the reflow process. While manual fixture placement is feasible, automated SMT placement equipment reduces labor required compared to hand placement and maintains the connector's initial placement accuracy.

1. Basic Recommendations

- Stencil thickness to be .005" (0.13mm)
- Follow Samtec's recommended footprints and stencil designs (available online)
- Follow proper profiling guidelines per the solder paste manufacturer's datasheet.
- **NOTE: The large thermal mass of the fixture tool may cause a larger temperature difference between the center of the connector and the PCB. Profiling should be performed with the fixture tool installed to ensure an adequate profile is developed.**

2. Fixture Overview

- Fixtures are a two-sided design for either AP**F**6 (female/socket) or AP**M**6 (male/terminal) configurations.
- Both sides of the fixture include protrusion features that fit onto the corresponding connector.
- The APM6 side of the fixture includes a slot cut out to allow clearance for the APM6 mating guidance features.



APF6, 100-position, 4-row, Shown on Left
APM6, 100-position, 4-row, Shown on Right

3. Capability Requirements for Machine Fixture Placement

- SMT Automated Placement Machine
- Tray Feeder System
- Placement Head and Nozzle set capable of fixture size and mass.

4. Fixture Details

Part Number	CAT-APF6-100-04-VT
Gender	Male/Female
Connector Position Count	100
Connector Row Count	4
Length	2.701" [68.620 mm]
Width	0.354" [8.99 mm]
Height	0.217" [5.51 mm]
Material	H13 46-48 RC Tool Steel
Mass	25 g

*The information provided is subject to change. Refer to the drawing for the most up-to-date dimensions and additional details

- Trays can be designed at the user's discretion to meet equipment capabilities. JEDEC is a widely accepted packaging standard supported by most pick-and-place equipment.
- A tray is needed for each gender connector used in a production run (e.g., 1 tray for AP**F**6, 1 tray for AP**M**6).

5. Automatic Placement Steps

1. Closely follow Samtec's recommended footprint and stencil designs.
2. Load the fixture tool into the appropriate tray.
    a. Note: Ensure the fixtures are oriented correctly in the tray.
3. Use SMT equipment to place the APx6 Connector
4. Use SMT equipment to place the appropriate fixture tool on top of the connector already on the PCB.
    a. Ensure machine vision can adequately locate the fixture centroid (e.g., using edge/corner detection)

b. Ensure the appropriate Z-height is set. Refer to Section 4 or the connector drawings.

5. Use an optimized oven profile developed with a fixture tool in place to ensure proper solder joint formation.
6. After the reflow process is completed, remove the fixtures and allow them to cool.
7. **CAUTION SHOULD BE USED WHEN HANDLING THE FIXTURES AFTER THEY HAVE EXITED THE OVEN. THE FIXTURE WILL BE HOT.**
    a. A cooling fan (e.g., ESD-safe ionizer fan) can be implemented to reduce the cooling time.
8. Once fixtures cool to ambient temperature, they can be reloaded into the tray and SMT equipment.

6. Fixture Quantity Recommendation

- Depending on the number of APX6 connectors used and the target production rate, multiple fixtures may be required.
- Samtec recommends 2-3 times the number of fixture tools than the number of fixtures that are needed to fill the oven at a given target production rate.
- For example:
    - 12 PCBAs are in the oven at a target production rate. 1 APF6 connector per PCBA.
    - 6-12 Fixtures are in the placement equipment.
    - 6-12 Fixtures in Cooldown.
    - 24-36 Total fixtures needed.

For further information or questions about anything in this document or processing questions about any Samtec connectors, please contact the Interconnect Processing Group at:

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