

ELECTRICAL CONNECTOR USING COMPOSITE BEAM WITH LOW INITIAL DEFLECTION RATE

ABSTRACT

An electrical connector assembly according to the current invention comprises a receptacle and a composite action beam for electrically connecting a pin to a printed circuit board. The composite action beam is located in the receptacle and has a movable end and a fixed end. During an initial phase of the pin insertion cycle, the movable end of the composite action beam deflects so as to minimize the force necessary to insert the pin into the connector housing. During an intermediate phase of the insertion cycle, the movable end contacts an inside wall of the connector and the composite action beam functions as a two-end supported beam. The composite action beam supported at both ends exerts sufficiently high normal force against the inserted pin so as to retain the pin in the inserted position. Thus, the composite action beam reduces insertion force without compromising normal retention force once the pin is inserted.

Figure 1A