



Spring probe pins for one piece housing design

Samuel Pak
IWIN Co., Ltd

Introduction

Housing thickness needs to be thinner by using one piece housing;

- The shorter pin demonstrates high performance in general, but in order to accommodate shorter pin, thin housing is required.
- As compared with a two piece housing, one piece housing is a better solution because the total thickness of socket is more manufacturable.

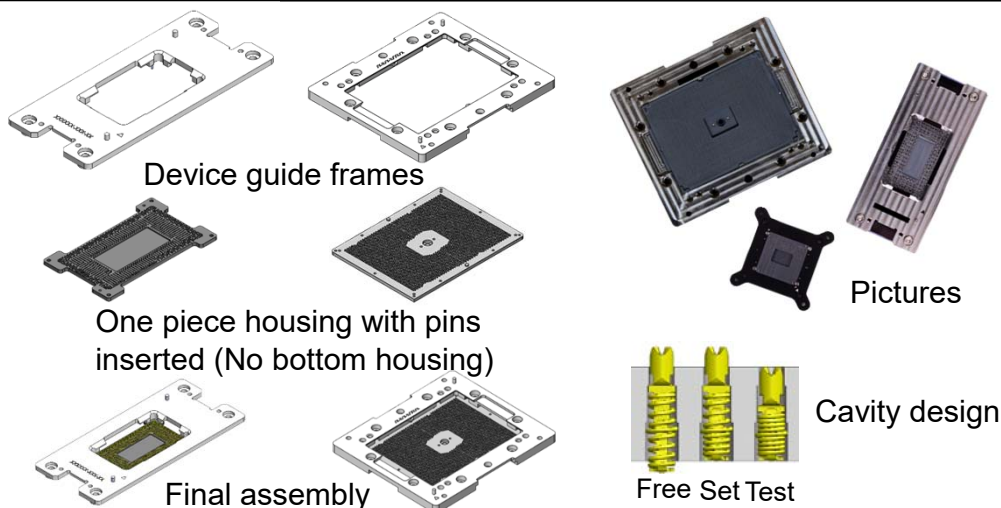
Cost management and automation:

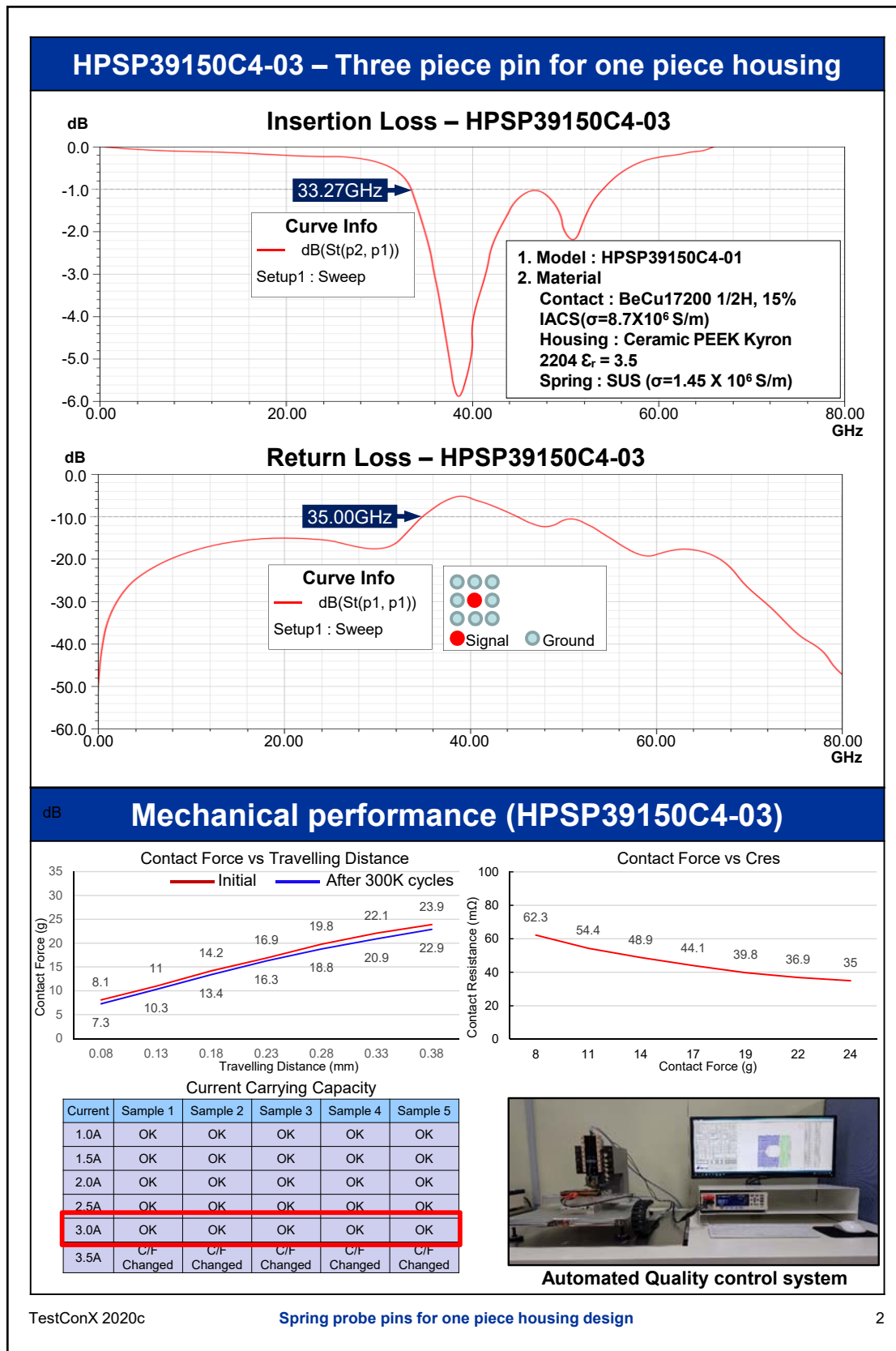
- Automation of pin insertion into one piece housing is much easier
- Make housing in one piece -- by reducing number of housing parts, the part cost is reduced by 50%.

How to keep the pins in One piece housing ?

- Design allows free movement of the pin inside the hole but still ensuring the pin will stay in the housing >>> Already qualified by major semiconductor companies.

Socket features in one piece housing

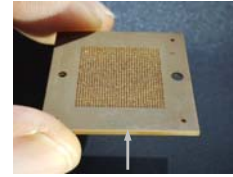




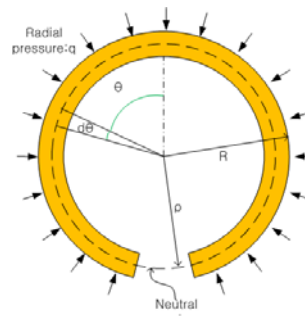
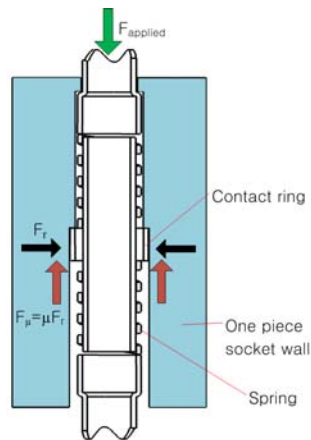
One piece pin in one piece housing

Advantage of one piece socket

- Low cost due to only one piece housing
- Simpler and thinner socket
- Ability to accommodate shorter pins
- Easy pin insertion and automation



One piece housing
(No bottom housing)



Friction force can be estimated by both radius of socket hole and outer diameter of contact ring.

Auto pin insertion & assembly



Auto pin insertion machine

Scale of housing : up to 43,000 pins
360mm in max size
Speed : 2,100pins/hr for now

Summary and the next plan

- One piece housing for the socket with pin count up to 6,000 is possible.
- One piece housing for finer pitch down to 0.3mm pitch is possible in case of a three piece pin
- One piece pin for one piece housing is possible, but only for the pitch wider than 0.65mm for now.
- Auto pin insertion machine for 43,000 pin count housing already under operation for two piece housing, but not yet for one piece housing.

COPYRIGHT NOTICE

This multimedia file is copyright © 2020 by TestConX. All rights reserved. It may not be duplicated or distributed in any form without prior written approval.

The content of this presentation is the work and opinion of the author(s) and is reproduced here as presented at the 2020 TestConX Virtual Event.

The TestConX logo and 'TestConX' are trademarks of TestConX.

www.testconx.org