Quick Reference Guide

Spring Fingers

Spring fingers (also known as shield fingers, grounding springs or universal ground contacts) are used in almost every small printed circuit board application. A spring finger is a single contact, surface mountable, internal connector. It provides an electrical connection and grounding from EMI noise and static between a PCB and other electronic components, such as a secondary PCB, shield cam, antenna, or speaker. TE Connectivity offers a wide selection of spring fingers in varying styles and sizes depending on the type of application.

FEATURES
- Used for grounding between device and PCB
- Provides shielding from vibration from motors, antennas, speakers and microphones
- Used as a connection for stacking applications between primary and secondary PCBs
- Available in effective heights of 0.3mm – 6.5mm
- Requires limited space on a PCB
- Accommodates soldering and pick-and-place using standard equipment

BENEFITS
- Prevents EMI noise and static
- Provides a highly reliable connection
- Provides an easy and inexpensive method for connecting multiple PCBs
- Allows for versatility in design of the PCB
- Can be designed in at the last minute
- No expensive specialized equipment needed

APPLICATIONS
- Cell phones, smart phones
- MP3 players
- Digital cameras, camcorders
- GPS units
- eReaders
- Tablets
- PCs and laptops
- Home electronic devices
- Automotive
- Industrial equipment
Applications

Mobile Devices
- Digital cameras and videos
- Handheld games
- Payment terminals
- Cell phones
- Smart phones
- MP3 players
- GPS
- eReaders

Home Entertainment
- Set top boxes
- Game consoles
- DVD players
- Blu-Ray disc drives

Industrial Equipment
- Security systems
- POS scanners

Personal Computing
- Desktop computers
- Notebooks
- Tablets
- Netbooks
Types of Spring Fingers

Standard-flat contact

- **Box**
  - Standard Box or C type spring fingers both have simple geometry for easy application.

- **C**
  - Pre-loaded Round or Flat Contact
  - Pre-loaded spring fingers are recommended when a stable electrical contact with minimal deflection is needed. The force change is minimized over working range of the spring finger.

Ultra low profile

- **Y**
  - Ultra low profile Y type spring fingers are used in applications where low effective heights are needed.

Pre-loaded Scalable

- **Pre-loaded Scalable**
  - The scalable family of spring fingers offers the same benefits as pre-loaded spring fingers, but with a common footprint.

Scalable Spring Finger Key Features

- **Spring finger family with a common footprint in scalable heights.**

- Dimple on the contact to enhance the contact force
- Locking for prevention of overstretching due to sideways force
- Holes provide increased soldering strength and reduce solder wicking
- Pick and place area for Φ 0.75mm nozzle pre-load function
- Tip bent backwards to prevent hooking
- Contact can deflect to the bottom of spring finger without permanent deformation
- Radius on both sides of tip to remove sharp edges

[te.com/products/Spring-Fingers]
### Standard and Ultra Low Profile Spring Fingers

<table>
<thead>
<tr>
<th>P/N</th>
<th>Type</th>
<th>Contact Finish</th>
<th>Uncompressed Height (mm)</th>
<th>Width (mm)</th>
<th>Working Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1447009-5</td>
<td>Y</td>
<td>Nickel</td>
<td>0.8</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1447009-9</td>
<td>Y</td>
<td>Gold over Nickel</td>
<td>0.8</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1447360-9</td>
<td>C</td>
<td>Gold over Nickel</td>
<td>1.7</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>1447360-8</td>
<td>C</td>
<td>Gold over Nickel</td>
<td>1.3</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>1746136-1</td>
<td>Box</td>
<td>Gold over Nickel</td>
<td>1.5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1871058-1</td>
<td>C</td>
<td>Gold over Nickel</td>
<td>1.7</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>1674954-1</td>
<td>Box</td>
<td>Gold Flash</td>
<td>2.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1743300-1</td>
<td>C</td>
<td>Gold over Nickel</td>
<td>3.0</td>
<td>2.49</td>
<td></td>
</tr>
<tr>
<td>1743305-1</td>
<td>C</td>
<td>Tin-Copper over Nickel</td>
<td>2.5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1447009-7</td>
<td>C</td>
<td>Gold over Nickel</td>
<td>3.5</td>
<td>2.49</td>
<td></td>
</tr>
<tr>
<td>1447009-8</td>
<td>C</td>
<td>Gold over Nickel</td>
<td>3.5</td>
<td>2.49</td>
<td></td>
</tr>
<tr>
<td>1743303-1</td>
<td>Box</td>
<td>Tin-Copper over Nickel</td>
<td>4.0</td>
<td>2.49</td>
<td></td>
</tr>
<tr>
<td>1720028-2</td>
<td>Box</td>
<td>Tin-Copper over Nickel</td>
<td>4.0</td>
<td>2.49</td>
<td></td>
</tr>
<tr>
<td>1437259-6</td>
<td>C</td>
<td>Nickel</td>
<td>4.0</td>
<td>2.49</td>
<td></td>
</tr>
<tr>
<td>1775073-1</td>
<td>Box</td>
<td>Gold over Nickel</td>
<td>4.3</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>1717222-1</td>
<td>C</td>
<td>Gold over Nickel</td>
<td>4.15</td>
<td>3.0</td>
<td></td>
</tr>
</tbody>
</table>
## Pre-Loaded Spring

<table>
<thead>
<tr>
<th>P/N</th>
<th>Type</th>
<th>Contact Finish</th>
<th>Uncompressed Height (mm)</th>
<th>Width (mm)</th>
<th>Working Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1553631-5</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.24</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>1556158-1</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.5</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>1554825-1</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.3</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>1-1447360-1</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.4</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>1857724-4</td>
<td>Pre-Loaded</td>
<td>Gold Flash over Nickel</td>
<td>1.8</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>155281-4</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.8</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>1551401-4</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.8</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>1555322-1</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.6</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>2040761-1</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.99</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1554901-1</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>2.0</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>1745654-1</td>
<td>Pre-Loaded</td>
<td>Nickel</td>
<td>2.4</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>1827625-1</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>3.0</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>1903346-1</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>3.0</td>
<td>1.4</td>
<td></td>
</tr>
</tbody>
</table>

## Scalable Spring Finger Family

<table>
<thead>
<tr>
<th>P/N</th>
<th>Type</th>
<th>Contact Finish</th>
<th>Uncompressed Height (mm)</th>
<th>Width (mm)</th>
<th>Working Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1551572-5</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>1.80</td>
<td>1.15</td>
<td></td>
</tr>
<tr>
<td>1551573-5</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>2.15</td>
<td>1.15</td>
<td></td>
</tr>
<tr>
<td>1551574-5</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>2.60</td>
<td>1.15</td>
<td></td>
</tr>
<tr>
<td>1551575-5</td>
<td>Pre-Loaded</td>
<td>Gold Flash over Nickel</td>
<td>3.00</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>1551576-5</td>
<td>Pre-Loaded</td>
<td>Gold over Nickel</td>
<td>3.40</td>
<td>1.4</td>
<td></td>
</tr>
</tbody>
</table>

[te.com/products/Spring-Fingers]
Frequently asked questions

**Question1**
Why would I use a pre-loaded spring finger in an application?

**Answer1**
A pre-loaded spring finger allows you to get the same amount of force, but with a smaller compression. A pre-loaded spring finger provides a stable electrical contact with minimal deflection. Sometimes these are preferred when there is limited height available in an application.

**Question2**
What style of spring finger is best for my application?

**Answer2**
Spring fingers are typically one of the last pieces added to a board. The type to be used is dependent upon the height and space left on the board. The decision of what type of spring finger to use is typically based on personal preference.

**Question3**
Can the types of spring fingers be mixed in an application?

**Answer3**
Yes, an application can have multiple spring fingers and more than one type. For example, there can be simple C types used for grounding between the device and the PCB and then multiple pre-loaded spring fingers on the board for shielding or other simple connections.

---

**For More Information**

**TE Connectivity Technical Support Center**

Internet: te.com/help

USA: +1 (800) 522-6752
Canada: +1 (905) 475-6222
Mexico: +52 (0) 55-1106-0800
Latin/South America: +54 (0) 11-4733-2200
Germany: +49 (0) 6251-133-1999
UK: +44 (0) 800-267666
France: +33 (0) 1-3420-8686
Netherlands: +31 (0) 73-6246-999
China: +86 (0) 400-820-6015

For other country number go to te.com/supportcenter

Part numbers in this brochure are RoHS Compliant*, unless marked otherwise.

*as defined www.te.com/leadfree

---

**te.com**

© 2017 Tyco Electronics Corporation, a TE Connectivity Ltd. Company. All Rights Reserved.

6-1773450-6 CIS PDF 08/2011

Blu-ray™ is a trademark of the Blu-ray Disc Association.

TE Connectivity, TE connectivity (logo) and TE (logo) are trademarks. Other logos, product and/or Company names might be trademarks of their respective owners.

While TE has made every reasonable effort to ensure the accuracy of the information in this brochure, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this catalog are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications.