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 0.5mm - 3.4mm
- 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

te.com/products/Spring-Fingers

TE connectivity
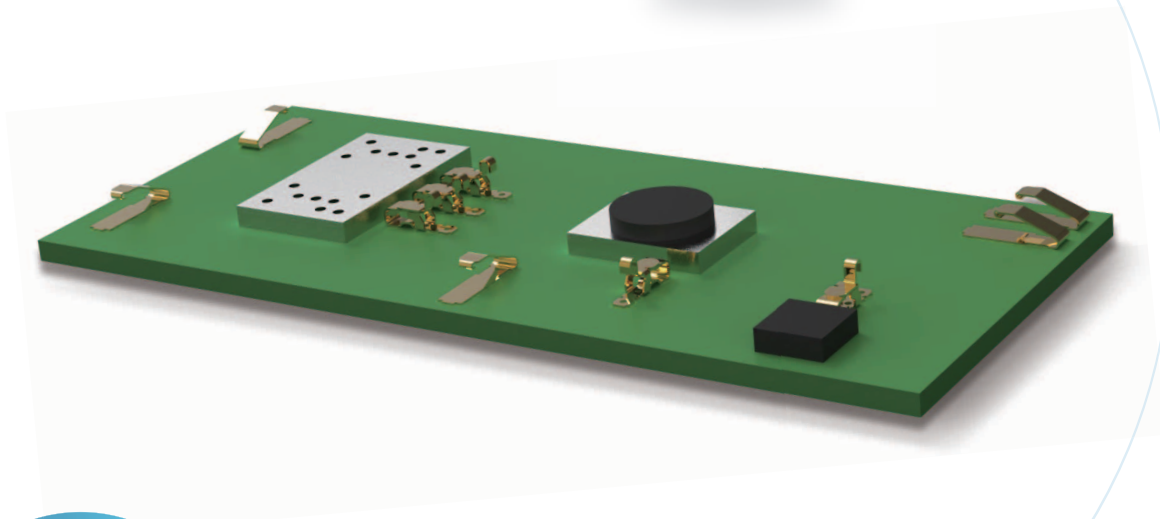
Applications

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

Home Entertainment
- Set top boxes
- Game consoles
- DVD players
- Blu-Ray disc drives
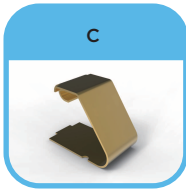
Industrial Equipment
- Security systems
- POS scanners

Personal Computing
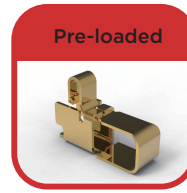- Desktop computers
- Notebooks
- Tablets

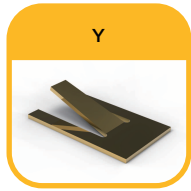## Types of Spring Fingers

Standard-flat contact

Box	C

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

Pre-Loaded-Round or Flat Contact
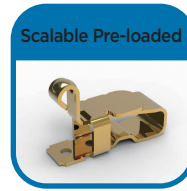
Pre-loaded

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.
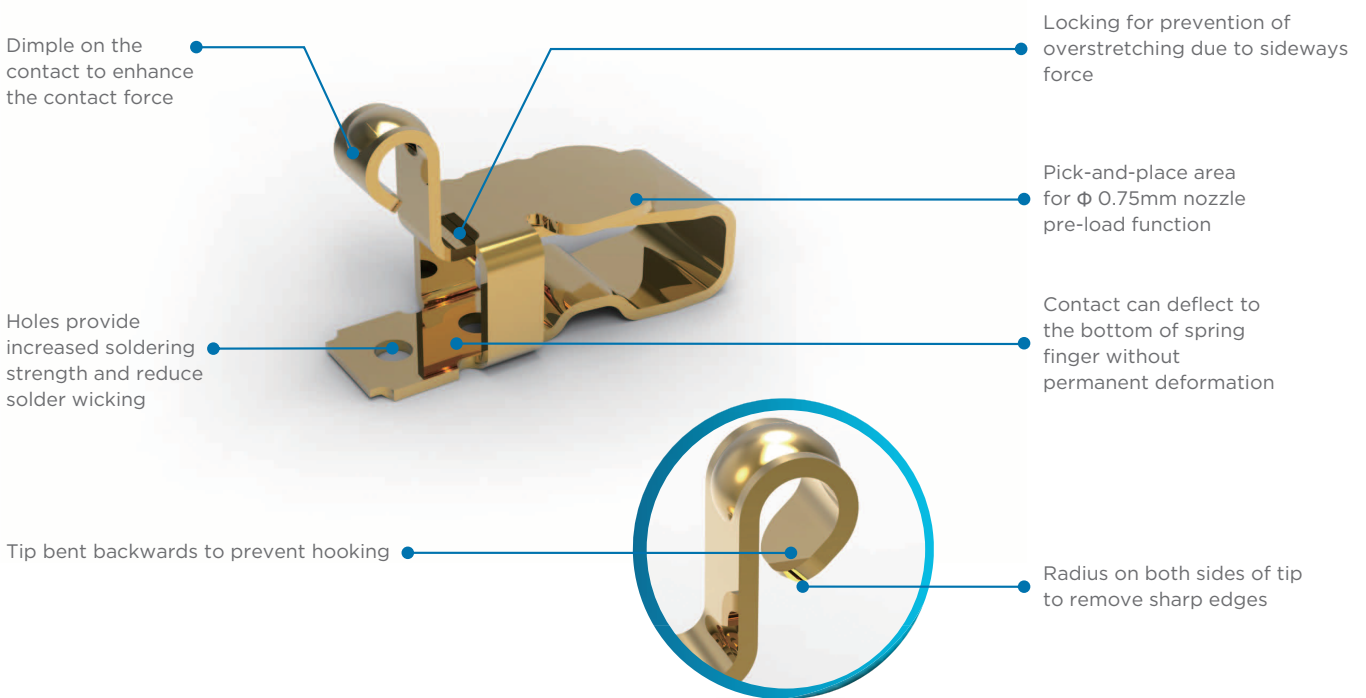
Ultra low profile

Y

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

Pre-loaded Scalable

Scalable Pre-loaded

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

Pick-and-place area for Φ 0.75mm nozzle pre-load function

Holes provide increased soldering strength and reduce solder wicking

Contact can deflect to the bottom of spring finger without permanent deformation

Tip bent backwards to prevent hooking

Radius on both sides of tip to remove sharp edges

Standard and Ultra Low Profile Spring Fingers

P/N	Type	Contact Finish	Uncompressed Height (mm)	Width (mm)	Working Range (mm)
1447009-5	Y	Nickel	0.8	2.0	0.5–0.6
2040852-1	Y	Gold Over Nickel	0.8	2.0	0.5–0.6
1447360-9	C	Gold over Nickel	1.7	1.5	0.5–1.4
1447360-8	C	Gold over Nickel	1.3	1.2	0.8–1.1
1746136-1	Box	Gold over Nickel	1.5	2.0	0.9–1.2
1871059-1	C	Gold over Nickel	1.7	1.5	1.2–1.5
1674954-1	Box	Gold Flash	2.0	2.0	1.3–1.6
1734300-1	C	Gold over Nickel	3.0	2.49	1.8–2.4
1447009-7	C	Gold over Nickel	3.5	2.49	2.2–2.8
1447009-8	C	Gold over Nickel	3.5	2.49	2.2–2.8
1734303-1	Box	Tin-Copper over Nickel	4.0	2.49	2.4–3.2
1437259-6	C	Nickel	4.0	2.49	2.4–3.2
1775073-1	Box	Gold over Nickel	4.3	4.0	2.5–3.5

Working range column headers (mm): 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4.0

Pre-Loaded Spring Fingers

P/N	Type	Contact Finish	Uncom-pressed Height (mm)	Width (mm)	Working Range 0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
1551631-4	Pre-Loaded	Gold over Nickel	1.24	1.0	█	█	█	█	█																				
2134078-1	Pre-Loaded	Gold over Nickel	1.2	1.05		█	█	█																					
2199001-1	Pre-Loaded	Gold over Nickel	1.2	1.05		█	█	█																					
1565158-1	Pre-Loaded	Gold over Nickel	1.5	1.1				█	█	█	█	█																	
1554825-1	Pre-Loaded	Gold over Nickel	1.3	1.0			█	█	█	█	█																		
1-1447360-1	Pre-Loaded	Gold over Nickel	1.4	1.0				█	█	█	█	█																	
1857724-4	Pre-Loaded	Gold Flash over Nickel	1.8	1.0					█	█	█	█	█	█	█														
1551281-4	Pre-Loaded	Gold over Nickel	1.8	1.0				█	█	█	█	█	█																
1551401-4	Pre-Loaded	Gold over Nickel	1.8	1.0				█	█	█	█	█	█																
1565322-1	Pre-Loaded	Gold over Nickel	1.6	0.8				█	█	█	█	█																	
2040761-1	Pre-Loaded	Gold over Nickel	1.99	2.0								█	█	█	█	█	█	█											
1554901-1	Pre-Loaded	Gold over Nickel	2.0	1.1						█	█	█	█	█	█	█	█	█	█										
1746854-1	Pre-Loaded	Nickel	2.4	1.1									█	█	█	█	█	█	█	█	█								
1827625-1	Pre-Loaded	Gold over Nickel	3.0	1.4														█	█	█	█	█	█	█	█	█	█		
1903646-1	Pre-Loaded	Gold over Nickel	3.0	1.4														█	█	█	█	█	█	█	█	█	█		

Scalable Spring Finger Family

P/N	Type	Contact Finish	Uncom-pressed Height (mm)	Width (mm)	Working Range 0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
1551572-5	Pre-Loaded	Gold over Nickel	1.80	1.15				█	█	█	█	█	█																
1551573-5	Pre-Loaded	Gold over Nickel	2.15	1.15							█	█	█	█	█	█	█	█											
1551574-5	Pre-Loaded	Gold over Nickel	2.60	1.15											█	█	█	█	█	█	█	█							
1551575-5	Pre-Loaded	Gold Flash over Nickel	3.00	1.3															█	█	█	█	█	█	█	█			
1551576-5	Pre-Loaded	Gold over Nickel	3.40	1.4																		█	█	█	█	█	█	█	█

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 Technical Support Center

Austria:	+43 (0) 1-9056-0
Baltic Regions:	+44 (0) 1-382508080
Canada:	+1 (800) 522-6752
China:	+86 (0) 400-820-6015
France:	+33 (0) 1-3420-8686
Germany:	+49 (0) 6151-607-1999
Italy:	+39 (0) 011-401-2111
Latin/S. America:	+54 (0) 11-4733-2200
Mexico:	+52 (0) 55-1106-0800
Netherlands:	+31 (0) 73-6246-999
Nordic:	+46 (0) 8-5072-5000
Spain/Portugal:	+34 (0) 932-910-330
Switzerland:	+41 (0) 71-447-0447
UK:	+44 (0) 800-267666
USA:	+1 (800) 522-6752

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