Amphenol
COMMUNICATIONS SOLUTIONS

Minitek127® Product Presentation
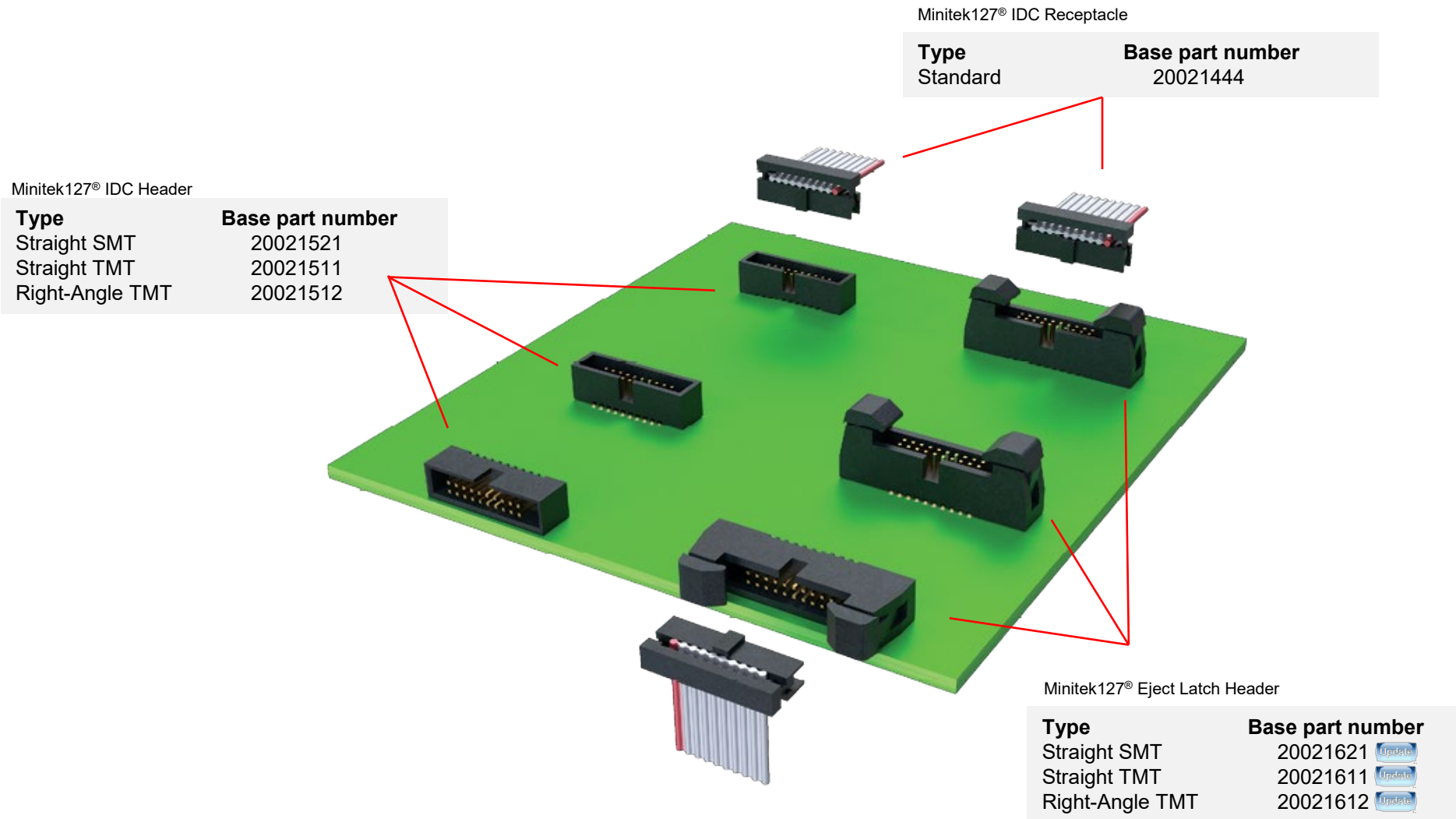
FCi Basics

Minitek127® Value Proposition

- Minitek127® is an extensive modular connector family on 1.27mm pitch which covers **board-to-board** and **ribbon cable-to-board** solutions

- Minitek127® comprises **PCB receptacles**; **IDC receptacles**, **unshrouded**, **shrouded and eject-latch headers** with straight and right angle, surface mount and through hole configurations and up to 100 positions

- Minitek127® comes in several standard selective gold plated versions ranging from 0.76Au to Gold Flash to **support applications in a wide range of environments**

- **Minitek127® is ideal for 'demanding applications',** where specifications and performance matters, like Communications, IT/Datacom, Medical, Industrial & Instrumentation and Automotive markets

Minitek127® Features & Benefits

Features	Benefits
Industry proven, modular connector system	One connector family covers multiple board to board and IDC to board connection needs
Space saving 1.27mm pitch	40% less board space compared with 2.00mm
Lowest profile eject latch header	Meets your specific design requirements
Lowest coplanarity at 0.1mm	Facilitates efficient and cost effective automatic placement
0.5mm square drawn wire pin	Provides four smooth mating surfaces
Dimensional stable, high-performance plastics	Withstands higher operating temperatures and supports reflow soldering processes
Wide variety of customized stacking headers	Meeting specific system architecture requirements

Minitek127® IDC to Board Product Overview

Minitek127® IDC Receptacle

Type	Base part number
Standard	20021444

Minitek127® IDC Header

Type	Base part number
Straight SMT	20021521
Straight TMT	20021511
Right-Angle TMT	20021512

Minitek127® Eject Latch Header

Type	Base part number
Straight SMT	20021621 Update
Straight TMT	20021611 Update
Right-Angle TMT	20021612 Update

Amphenol
COMMUNICATIONS SOLUTIONS

FCi Basics

Minitek127® - IDC Receptacle Specifications

Material
- Housing : High Temperature Thermoplastic
- Flammability : UL94V-0
- Terminal: Copper Alloy
- Plating: Gold or GXT over nickel

Environmental
- Operating Temperature: -40°C to +105°C

Electric Performance
- Current rating: up to 1A continuous
- Contact resistance: 30mΩ max.
- Insulation resistance : 100 MΩ min
- Contact dielectric withstanding voltage: 500V rms
- Voltage rating: 125V AC

Mechanical Performance
- Durability: 100 mating cycles
- Mating force: 2.2N/Pin Max
- Unmating force: 0.2N/Pin Min
- Contact retention force: Male 2.94N/Pin Min Female 1.47N/Pin Min
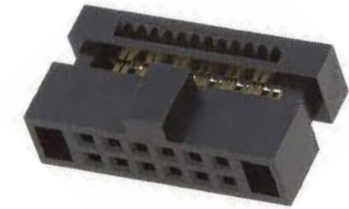
Minitek127® - IDC Headers Specifications

Material
- Housing : High Temperature Thermoplastic
- Flammability : UL94V-0
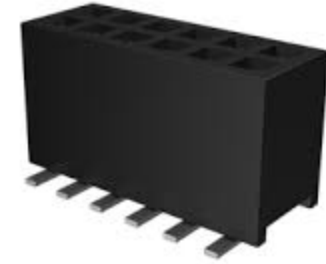- Terminal: Copper Alloy
- Plating: Gold or GXT over nickel

Environmental
- Operating Temperature: -40°C to +105°C

Electric Performance
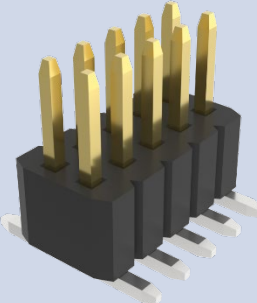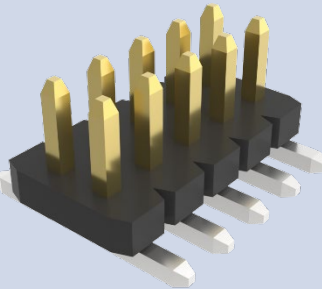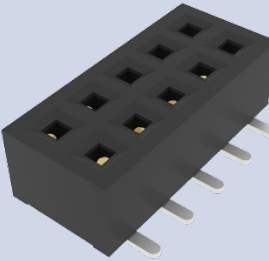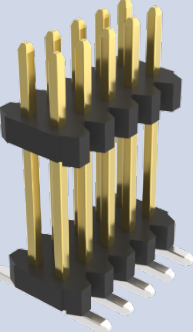- Current rating: up to 1A continuous
- Contact resistance: 30mΩ max.
- Insulation resistance : 100 MΩ min
- Contact dielectric withstanding voltage: 500V rms
- Voltage rating: 125V AC

Mechanical Performance
- Durability: 100 mating cycles

Minitek127® - Board to Board Product Overview
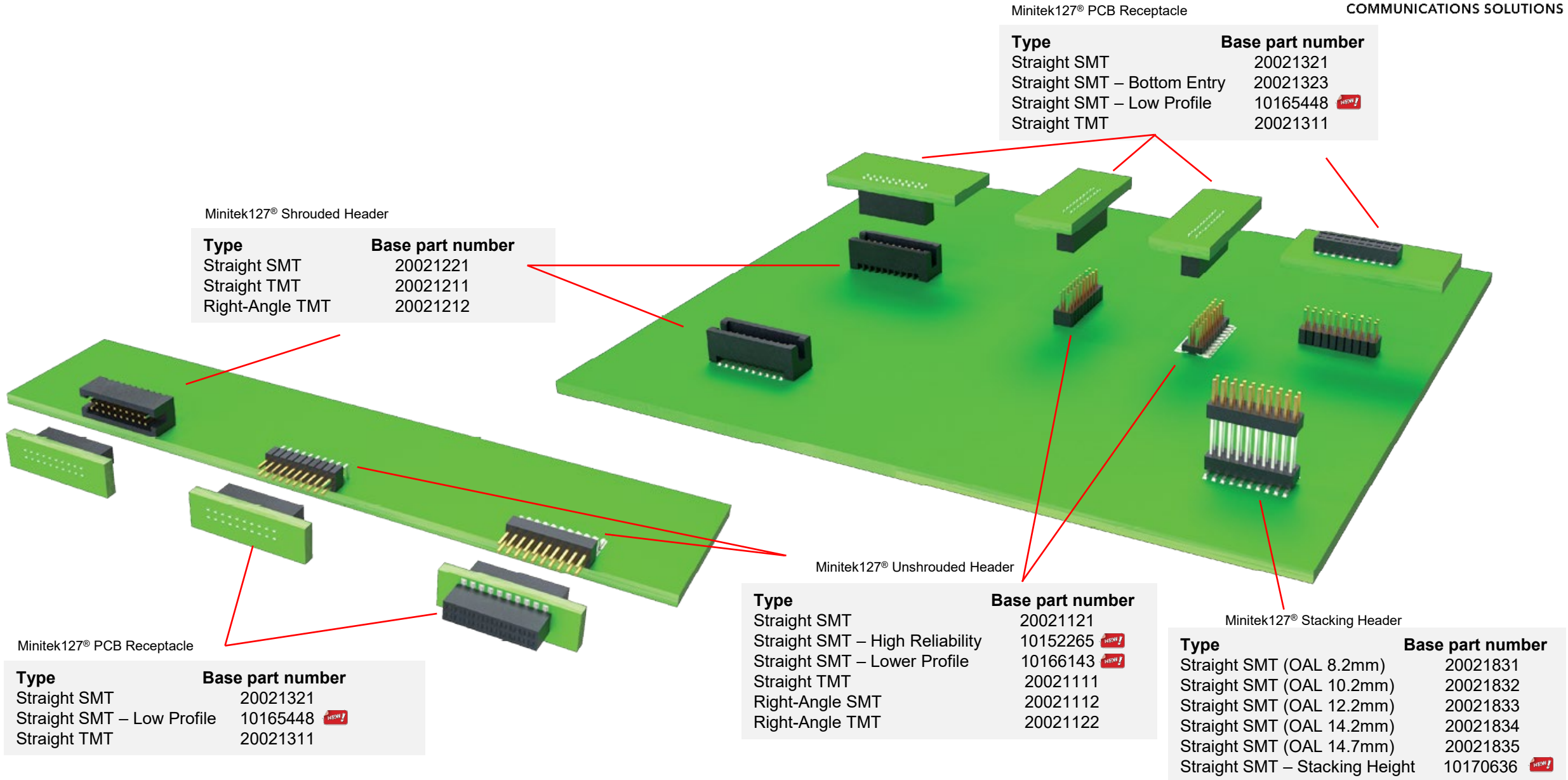
Minitek127® PCB Receptacle

Type	Base part number
Straight SMT	20021321
Straight SMT – Bottom Entry	20021323
Straight SMT – Low Profile	10165448 [NEW]
Straight TMT	20021311

Minitek127® Shrouded Header

Type	Base part number
Straight SMT	20021221
Straight TMT	20021211
Right-Angle TMT	20021212

Minitek127® PCB Receptacle

Type	Base part number
Straight SMT	20021321
Straight SMT – Low Profile	10165448 [NEW]
Straight TMT	20021311

Minitek127® Unshrouded Header

Type	Base part number
Straight SMT	20021121
Straight SMT – High Reliability	10152265 [NEW]
Straight SMT – Lower Profile	10166143 [NEW]
Straight TMT	20021111
Right-Angle SMT	20021112
Right-Angle TMT	20021122

Minitek127® Stacking Header

Type	Base part number
Straight SMT (OAL 8.2mm)	20021831
Straight SMT (OAL 10.2mm)	20021832
Straight SMT (OAL 12.2mm)	20021833
Straight SMT (OAL 14.2mm)	20021834
Straight SMT (OAL 14.7mm)	20021835
Straight SMT – Stacking Height	10170636 [NEW]

FCi Basics

Minitek127® - Stacking Height Matrix

	Surface Mount		Through Hole	
Mating Height	6mm - 8mm	8mm - 12mm	6.9mm	9.5mm – 15.5mm
Product Mix	Standard Header and PCB Receptacle	Stacking Header and standard PCB Receptacle	Standard Header and PCB Receptacle	Stacking Header and standard PCB Receptacle
Receptacle PN	20021321	20021321	20021311	20021311
Header PN	20021121	10170636	20021111	2002181x; 2002182x

Minitek127® - PCB Receptacles and Headers Specifications

Material
- Housing : High Temperature Thermoplastic
- Flammability : UL94V-0
- Terminal: Copper Alloy
- Plating: Gold or GXT over nickel

Environmental
- Operating Temperature: -55°C to +125°C

Electric Performance
- Current rating: 1A
- Insulation resistance : 1000 MΩ min
- Contact dielectric withstanding voltage: 500V rms

Mechanical Performance
- Mating cycles (durability): 100 - Gold
- Insertion force gold finish contact: 2.2 N
- Withdrawal force (min) gold finish contact: 0.2 N
- Contact retention force: Male 5N/Pin Min, Female 3N/Pin Min

Minitek127® New Product Introduction

	High Reliability	Lower Profile	Lower Profile	Stacking Height
Gender	Header	Header	Receptacle	Header
Orientation	Vertical	Vertical	Vertical	Vertical
Mounting	SMT	SMT	SMT	SMT
Pin range	2x2 ~ 2x50	2x2 ~ 2x15	2x2 ~ 2x15	2x2 ~ 2x25
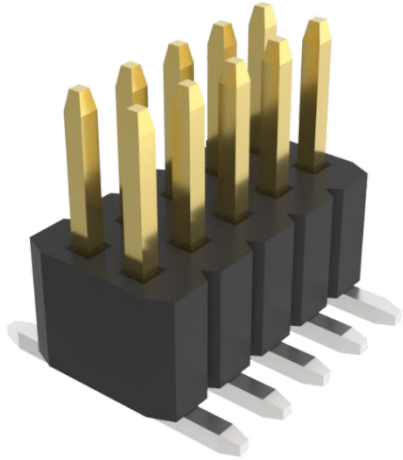
PN	10152265
Position range	4-100pos
Plating	Gold flash / 30u"Au
Mating length	3.05mm
Housing height	2.92mm
Stacking height	7.42 Min (with 20021321)

High Reliability Version

Housing height increase from 1.1mm to 2.52mm

Thicker housing can increase strength more than 50%
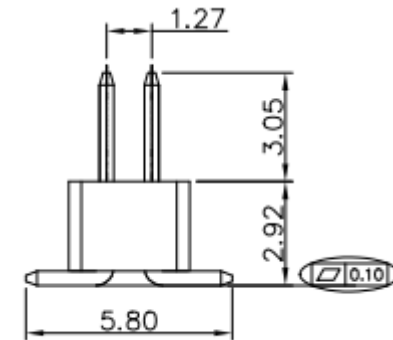
Amphenol
10152265

FCi Basics

Minitek127® New Product Introduction
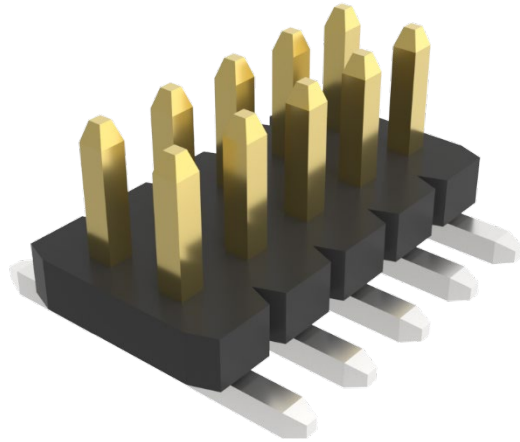
PN	10166143
Position range	4-30pos
Plating	Gold flash / 30u"Au
Mating length	2.0mm
Housing height	1.3mm
Stacking height	3.6mm Min (with 10165448)

Low Profile Version
Housing height decrease from 1.1mm to 0.8mm

Suitable for more compact applications
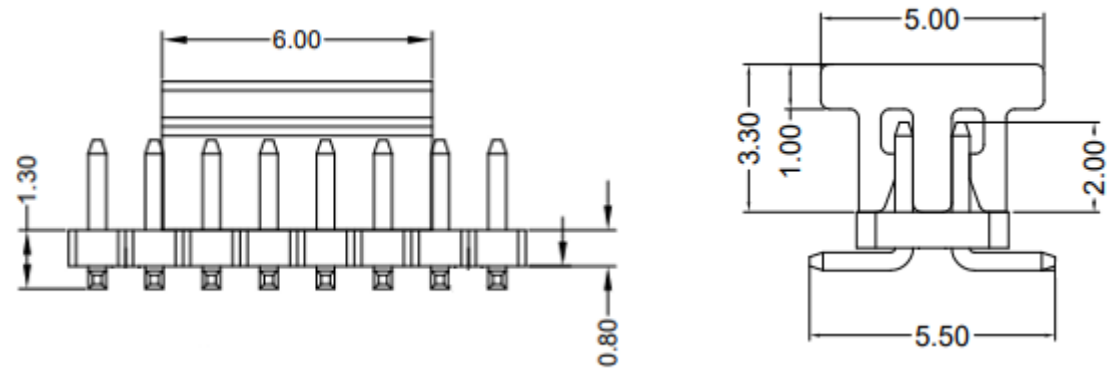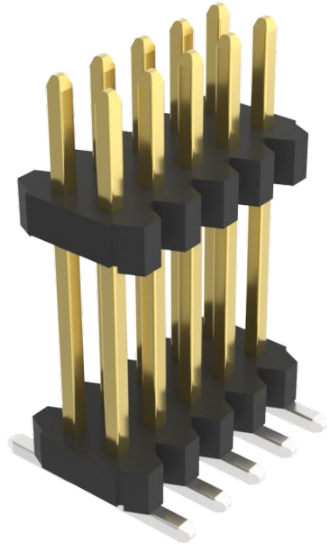
Minitek127® New Product Introduction
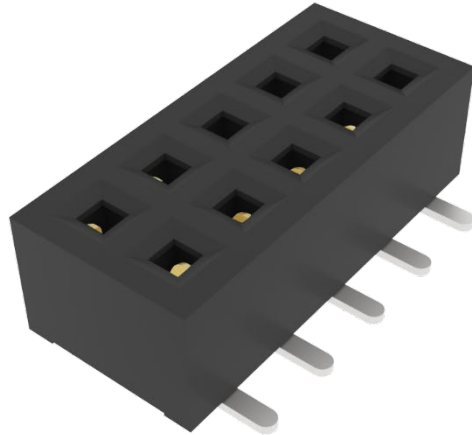
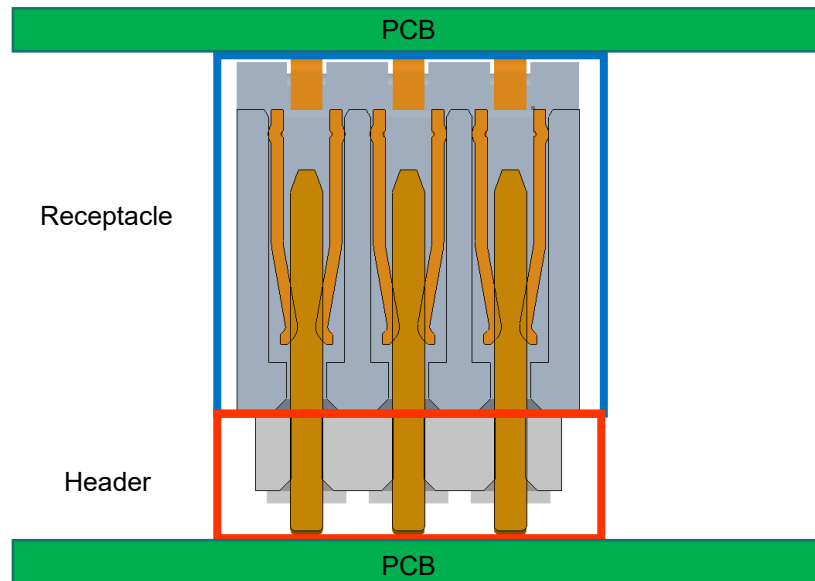| PN	10165448
Position range	4-30pos
Plating	Gold flash / 30u"Au
Mating length	-
Housing height	2.3mm
Stacking height	3.6mm Min (with 10166143)

Low Profile Version

Housing height decrease from 4.4mm to 2.1mm

Suitable for more compact applications

With Post
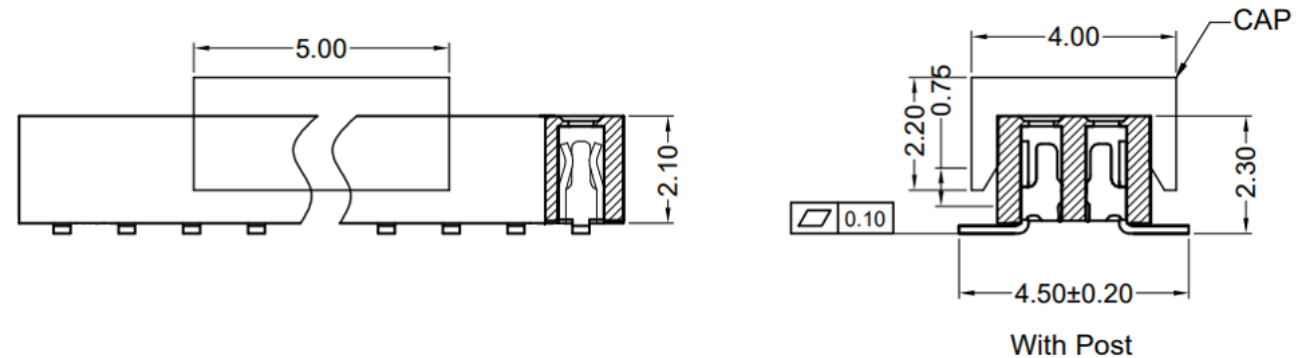
Minitek127® New Product Introduction

Stacking Height Version

PN	10170636				
Position range	4-50pos				
Plating	Gold flash / 30u"Au				
Mating length	Depend				
Stacking height code	A1	B2	C3	D4	E5
Housing height	3.5	4.5	5.5	6.5	7.5
Stacking height Min (mate with 20021321)	8	9	10	11	12

Minitek127® Stacking Height
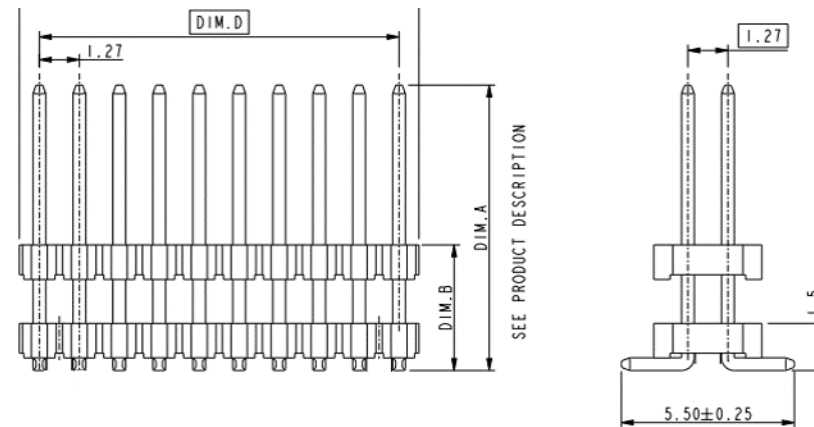
Why we need stacking height range, not a specific stacking height number?

- In Board to Board application, customer have various stacking height request. We are unable to design and provide different housing height for all request.
- In Minitek 1.27 solution, we set 5 standard housing height, according to wipe characteristics, customer can use standard parts in higher stacking height application(need other way to fix two PCB, like nut).
- Stacking height range can help reduce standard part, but serve for more customer.
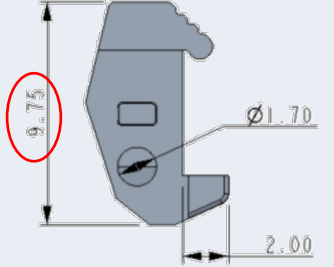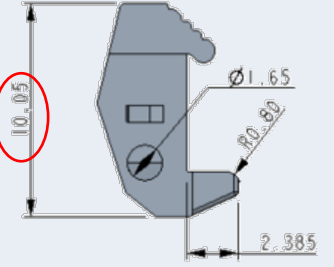

Minimum stacking height
Two housing touched
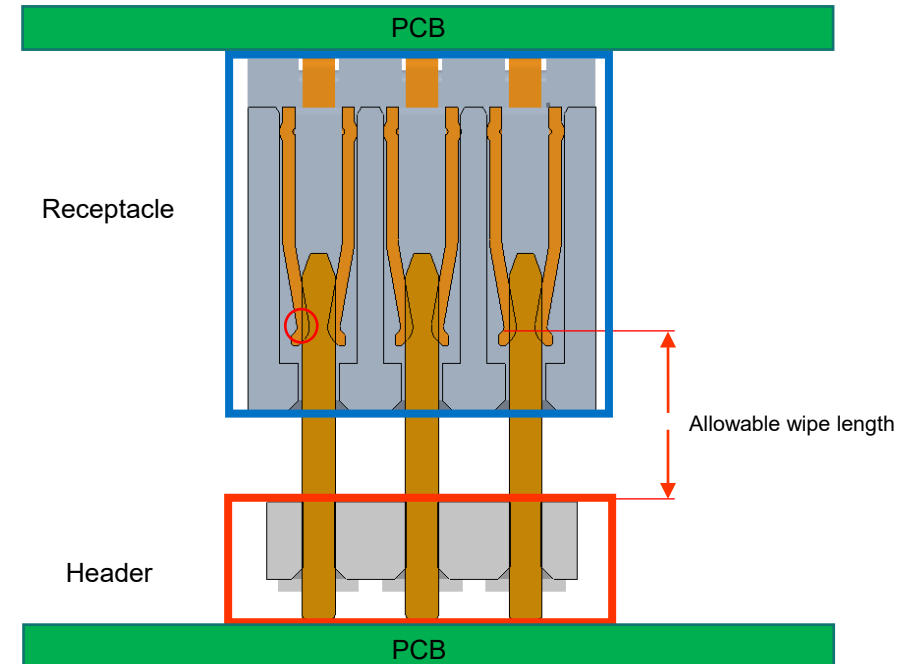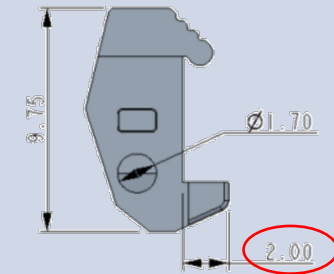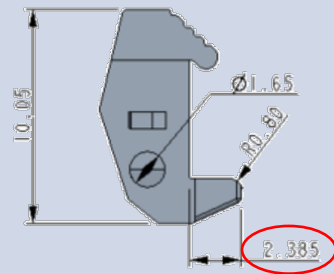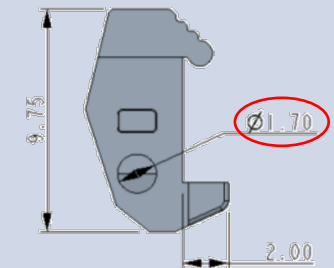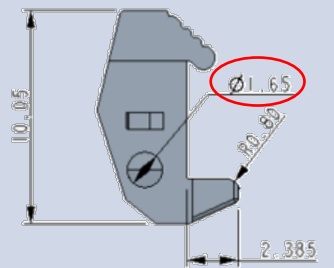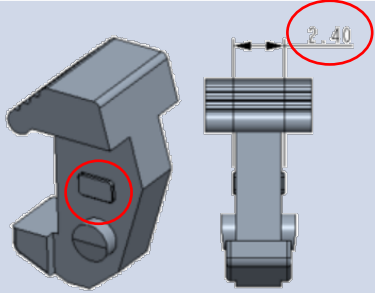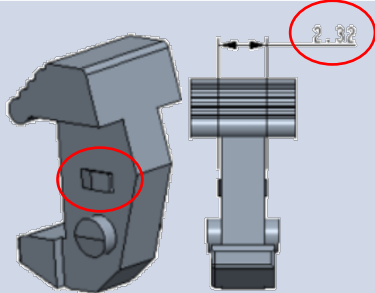
Maximal stacking height
Wipe but can keep contact

Minitek127® Stacking Height Matrix

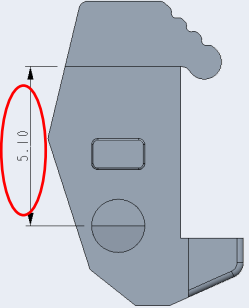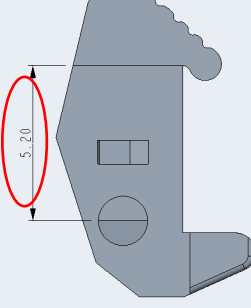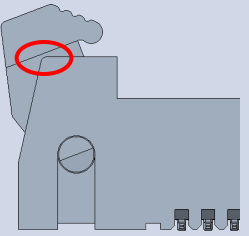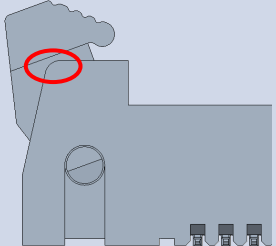| Header PN	Receptacle PN	Stacking height range		Typical height
		Min	Max	
10166143	10165448	3.6mm		3.6mm
20021121	20021321	6mm	7.05mm	6mm, 6.5mm, 7mm
10152265	20021321	7.42mm	8.47mm	7.5mm, 8mm
10170636-A1	20021321	8mm	8.65mm	8mm, 8.5mm
10170636-B2	20021321	9mm	9.61mm	9mm, 9.5mm
10170636-C3	20021321	10mm	10.55mm	10mm, 10.5mm
10170636-D4	20021321	11mm	11.61mm	11mm, 11.5mm
10170636-E5	20021321	12mm	12.5mm	12mm, 12.5mm
200218xx	20021321	More than 12mm		13mm, 14mm, 15mm, …

We have solution for each 0.5mm increase, which more than 6mm.

Minitek127® IDC Improvement

Description	Before design	New design	Benefits
Increase the length of the ejector from 2.00mm to 2.385mm			Make receptacle remove more easily.
Increase the height of ejector from 9.75mm to 10.05mm			Increase moment force height of ejector, to make receptacle remove more easily.
Reduce the diameter of ejector cylinder from 1.70mm to 1.65mm			Increase the gap between ejector emboss and housing, to make ejector open easily.

Minitek127® IDC Improvement

Description	Before design	New design	Benefits
Re-design the emboss of ejector and reduce distance between two embosses from 2.40mm to 2.32mm			Reduce the interference between ejector emboss and housing, to make open easily
Increase the dimension from 5.10mm to 5.20mm			Make ejector can be opened easily.
Increase round diameter			Reduce the risk of interference between ejector and housing.

Minitek127® Target Applications

- Industrial Automation
- Instrumentation
- Measurement Equipment
- Vending Machines
- Motion Control

- Medical Imaging Systems
- Servers
- Communication Equipment
- Storage Equipment
- Network Systems

- Electronic Control Systems
- Onboard Charging
- Interior lighting

Minitek127® - Marketing Tools

❑ Samples available (check with sample room Tatabanya : samples.global@amphenol-eu.com)

❑ Website quick link for Board to board: Landing Page
❑ Website quick link for Cable to board: Landing Page

❑ Available on website

- ➢ Drawings

- ➢ 3D Models

- ➢ Datasheet

- ➢ Product specifications

- ➢ Product presentation

Thank You

Amphenol
COMMUNICATIONS SOLUTIONS

FCi Basics