

MAX solutions

Mill-Max Spring-loaded Connectors Minimize Noise



When the power is on, you don't want shock or vibration to create spurious signals. Mill-Max Spring-loaded Connectors provide a reliable electrical connection in the most rigorous environments:

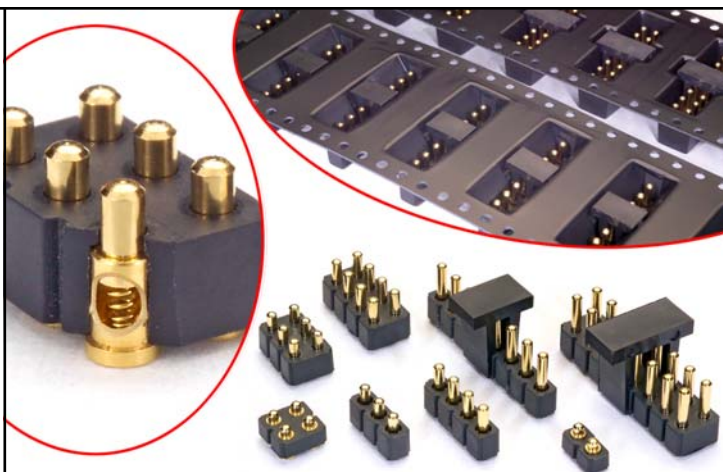
- **Maximum Continuity:** Precision-machined gold-plated components and a low-resistance spring maintain a consistent electrical path.
- **Maximum Stability:** Tested to a minimum of 50G shock and 10G vibration with no spikes $>1\mu\text{s}$ and $>1.15\text{V}$ with 0.5A applied.
- **Maximum Endurance:** 1,000,000 cycles and still electrically silent.
- **Maximum Range:** Six families of single and double row strip assemblies for .100" mounting grid - low and high profile surface mount styles available on carrier tape & a thru-hole style for manual placement. Plus – a choice of 45 discrete spring-loaded contacts for use in customer specific assemblies.

(1/09-506,525,534,537,540,546,554,560,561,562,568,571)

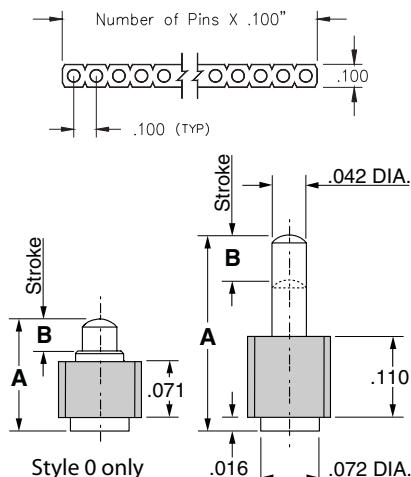
Mill-Max Mfg. Corp. • 190 Pine Hollow Road, Oyster Bay, NY 11771-0300
516-922-6000 • Fax: 516-922-9253 • www.mill-max.com



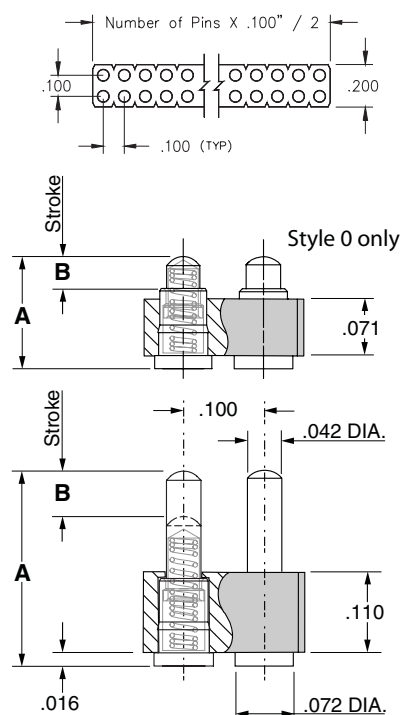
- Modular contacts for use on .100" grid, available in five heights from .137" to .236", supplied in single and double row contact strips.
- Precision machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a long stroke relative to the low profile of the assembly.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- Both 811 & 813 series, contact styles 1 thru 4, are available on 32mm wide carrier tape for pick and place assembly per EIA-481. See page 119 for strip lengths available and ordering information.



SINGLE ROW Series 811



DOUBLE ROW Series 813



Ordering Information

Single Row Series 811

811-22-0XX-30-00X-101

Specify # of contacts

Specify contact style 0-4

01-64

Double Row Series 813

813-22-0XX-30-00X-101

Specify # of contacts

Specify contact style 0-4

04-72

CONTACT STYLE	INITIAL HEIGHT A	Stroke B
0	.137	.039
1	.177	.045
2	.197	.055
3	.217	.055
4	.236	.055

Technical Specifications

Materials:

Contact piston & Base: Machined copper alloy plated 20μ" gold over 100μ" nickel
 Spring: Beryllium copper plated 10μ" gold
 Insulator: High temp. thermoplastic rated UL94 V-0

Mechanical:

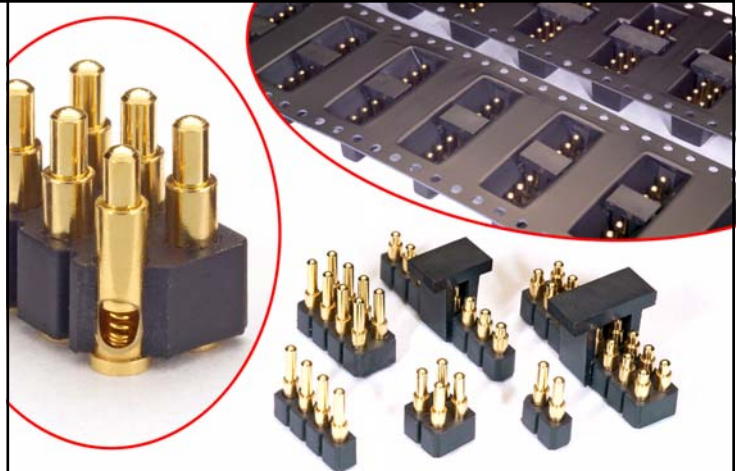
Spring force @ initial height (A): 25 grams
 Spring force @ mid stroke (B/2): 60 grams
 Spring force @ full stroke (B): 95 grams
 Durability: 1,000,000 cycles min.
 Coplanarity: .005" (Single Row up to 10 pins; Double Row up to 20 pins) For higher pin counts contact Tech Support.

Electrical:

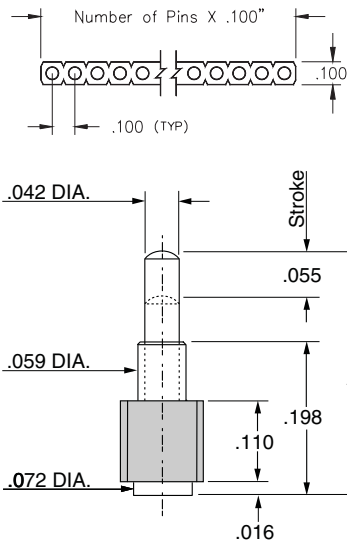
Voltage rating: 100Vrms/150Vdc
 Current rating: 2A (continuous), 3A (peak) per contact
 Contact resistance: 20mΩ max.
 Insulation resistance: 10,000MΩ min.
 Dielectric strength: 700Vrms min.
 Capacitance: 1pF max.



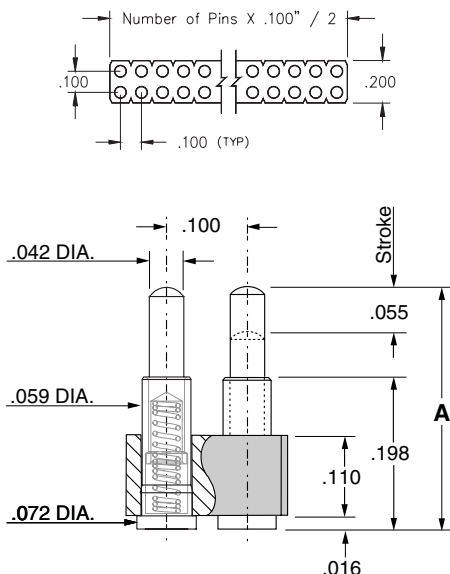
- Modular contacts for use on .100" grid, available in ten heights from .255" to .430", supplied in single and double row contact strips.
- Precision machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a long stroke relative to the low profile of the assembly.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- Both 812 & 814 series are available on 32mm wide carrier tape for automated pick and place assembly per EIA-481. See page 119 for strip lengths available and ordering information.



SINGLE ROW Series 812



DOUBLE ROW Series 814



Ordering Information

Single Row Series 812

812-22-0XX-30-00X-101

Specify # of contacts

Specify contact style 0-9

02-64

Double Row Series 814

814-22-0XX-30-00X-101

Specify # of contacts

Specify contact style 0-9

04-72

CONTACT STYLE	INITIAL HEIGHT A	CONTACT STYLE	INITIAL HEIGHT A
0	.255	5	.350
1	.275	6	.370
2	.295	7	.390
3	.315	8	.410
4	.335	9	.430

Technical Specifications

Materials:

Contact piston & Base: Machined copper alloy plated 20μ" gold over 100μ" nickel
 Spring: Beryllium copper plated 10μ" gold
 Insulator: High temp. thermoplastic rated UL94 V-0

Mechanical:

Spring force @ initial height (A): 25 grams
 Spring force @ mid stroke (.0275): 60 grams
 Spring force @ full stroke (.055): 95 grams
 Durability: 1,000,000 cycles min.

Electrical:

Voltage rating: 100Vrms/150Vdc
 Current rating: 2A (continuous), 3A (peak) per contact
 Contact resistance: 20mΩ max.
 Insulation resistance: 10,000MΩ min.
 Dielectric strength: 700Vrms min.
 Capacitance: 1pF max.



Ordering Information for Series 811/812/813/814 in Carrier Tape

Single Row Series 811/812

811-22-00X-30-00X-191

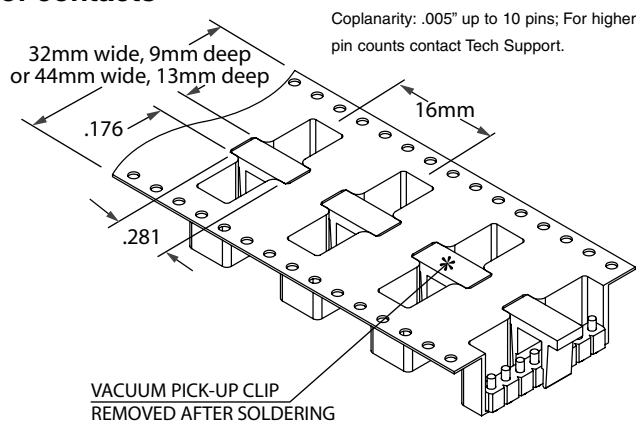
Specify # of contacts → 2-8
(32mm wide tape, 400 parts per 13" reel)

812-22-00X-30-00X-191

Specify # of contacts → 2-8
(32mm wide tape, 400 parts per 13" reel)

812-22-0XX-30-00X-191

Specify # of contacts → 2-12
(44mm wide tape, 200 parts per 13" reel)



Double Row Series 813/814

813-22-0XX-30-00X-191

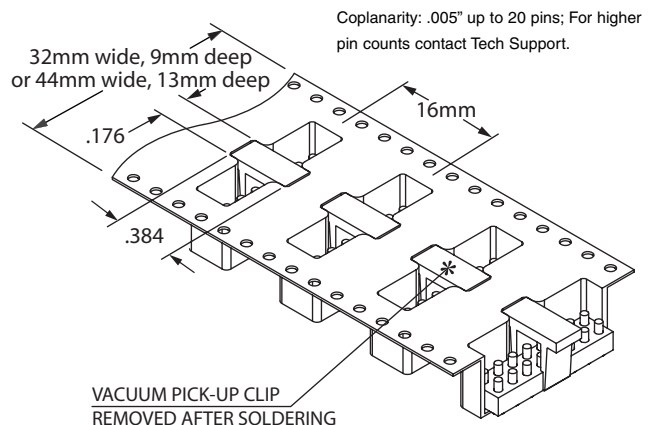
Specify # of contacts → 04-16
(32mm wide tape, 400 parts per 13" reel)

814-22-0XX-30-00X-191

Specify # of contacts → 04-16
(32mm wide tape, 400 parts per 13" reel)

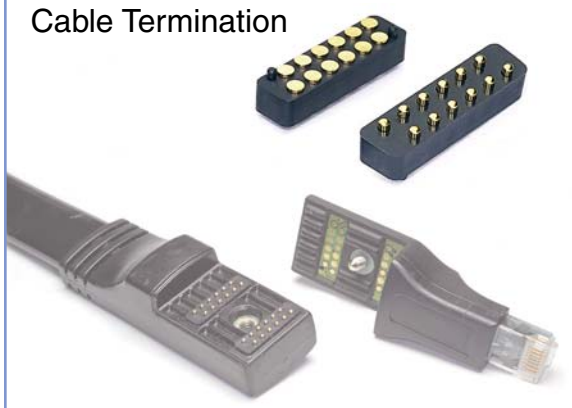
814-22-0XX-30-00X-191

Specify # of contacts → 04-24
(44mm wide tape, 200 parts per 13" reel)



Some Typical Applications

Cable Termination



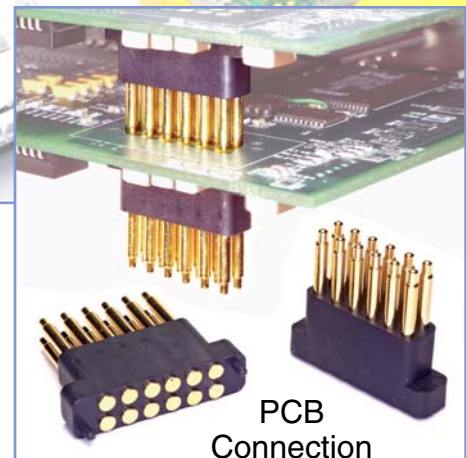
Internal Battery Connection



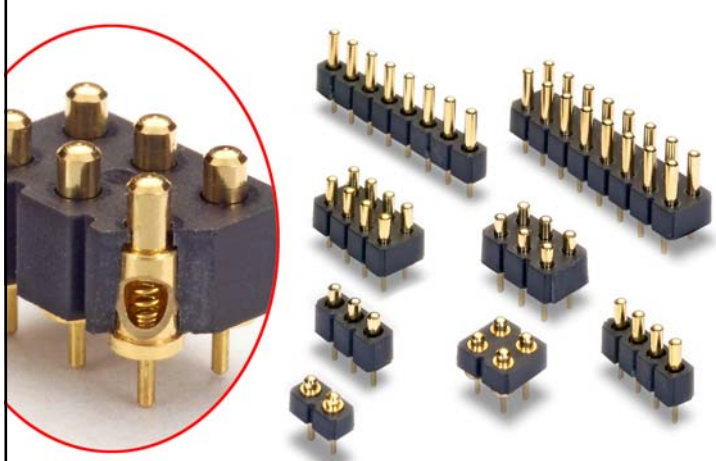
Charging Base for Portable Instruments



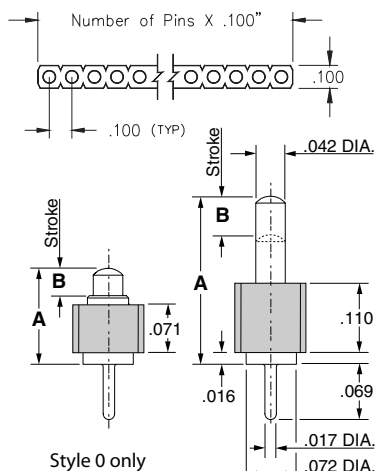
PCB Connection



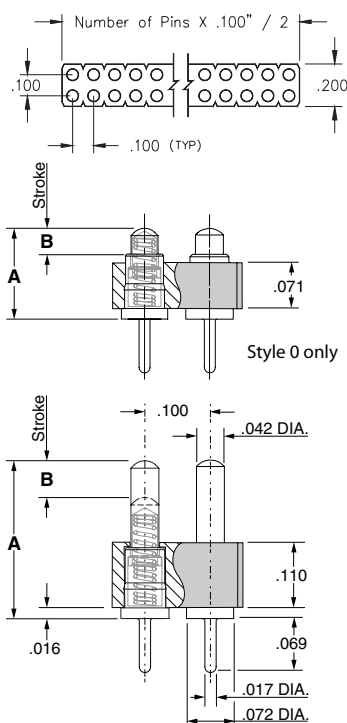
- Modular contacts for use on .100" grid, available in five heights from .137" to .236", supplied in single and double row contact strips.
- Precision machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a long stroke relative to the low profile of the assembly.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 821 & 823 series contact strips are designed for manual placement into Ø.022±.003" plated-thru-holes in the circuit board prior to hand, wave or reflow soldering.



SINGLE ROW Series 821



DOUBLE ROW Series 823



Ordering Information

Single Row Series 821

821-22-0XX-10-00X-101

Specify # of contacts

Specify contact style 0-4

02-64

Double Row Series 823

823-22-0XX-10-00X-101

Specify # of contacts

Specify contact style 0-4

04-72

CONTACT STYLE	INITIAL HEIGHT A	Stroke B
0	.137	.039
1	.177	.045
2	.197	.055
3	.217	.055
4	.236	.055

Technical Specifications

Materials:

Contact piston & Base: Machined copper alloy plated 20μ" gold over 100μ" nickel
Spring: Beryllium copper plated 10μ" gold
Insulator: High temp. thermoplastic rated UL94 V-0

Mechanical:

Spring force @ initial height (A): 25 grams
Spring force @ mid stroke (B/2): 60 grams
Spring force @ full stroke (B): 95 grams
Durability: 1,000,000 cycles min.

Electrical:

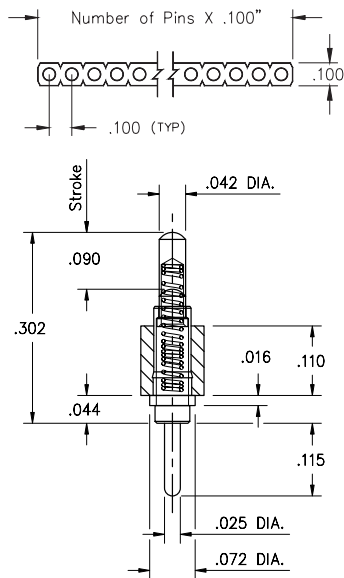
Voltage rating: 100Vrms/150Vdc
Current rating: 2A (continuous), 3A (peak) per contact
Contact resistance: 20mΩ max.
Insulation resistance: 10,000MΩ min.
Dielectric strength: 700Vrms min.
Capacitance: 1pF max.



- Modular contacts for use on .100" grid, available in a height of .302", supplied in single and double row contact strips.
- Precision machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a .045 mid stroke & .090 max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 825 & 827 series contact strips are designed for manual placement into $\varnothing .030 \pm .003$ " plated-thru-holes in the circuit board prior to hand, wave or reflow soldering.



SINGLE ROW Series 825



Ordering Information

Fig. 1

Single Row Series 825

825-22-0XX-10-001101

Specify # of contacts → 02-64

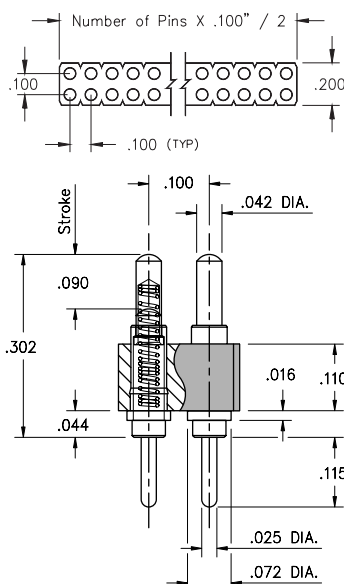
Fig. 2

Double Row Series 827

827-22-0XX-10-001101

Specify # of contacts → 04-72

DOUBLE ROW Series 827



Technical Specifications

Materials:

Contact piston & Base: Machined copper alloy plated 20 μ " gold over 100 μ " nickel
 Spring: Beryllium copper plated 10 μ " gold
 Insulator: High temp. thermoplastic rated UL94 V-0

Mechanical:

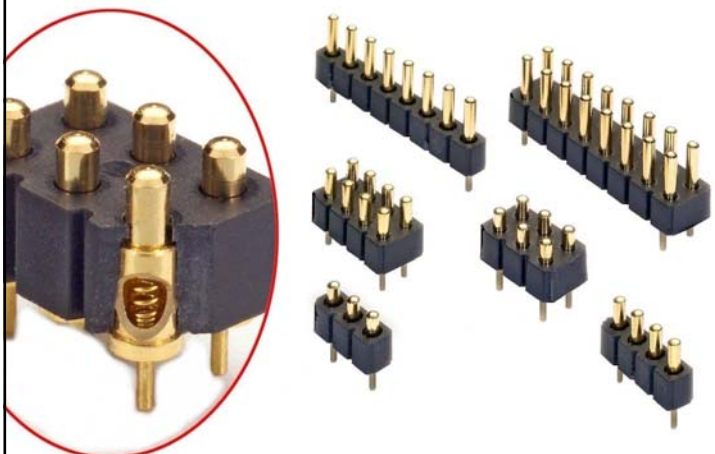
Spring force @ initial height (A): 25 grams
 Spring force @ mid stroke (B/2): 60 grams
 Spring force @ full stroke (B): 95 grams
 Durability: 1,000,000 cycles min.

Electrical:

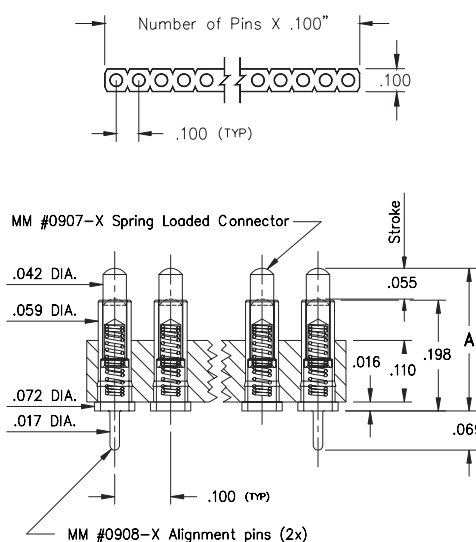
Voltage rating: 100Vrms/150Vdc
 Current rating: 2A (continuous), 3A (peak) per contact
 Contact resistance: 20m Ω max.
 Insulation resistance: 10,000M Ω min.
 Dielectric strength: 700Vrms min.
 Capacitance: 1pF max.



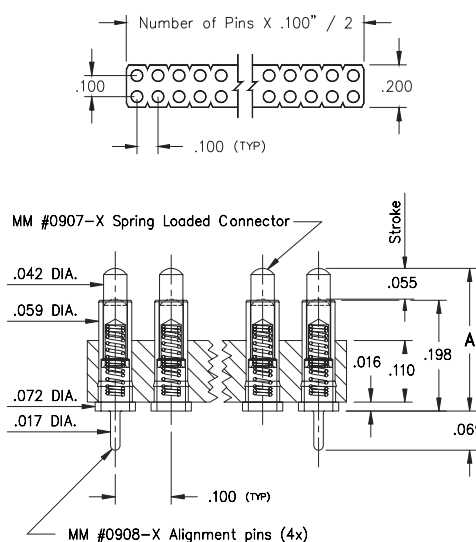
- Modular contacts for use on .100" grid, available in ten heights from .255" to .430", supplied in single and double row contact strips.
- Precision machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a .0275 mid stroke & .055 max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 812 & 814 series contact strips are designed for manual placement into Ø .023±.003" plated-throughs in the circuit board prior to intrusive reflow soldering.



Single Row Series 812...01X101



Double Row Series 814...01X101



Ordering Information

Single Row Series 812...01X101

812-22-0XX-30-01X-101

Specify # of contacts → 03-64
Specify contact style 0-9

Double Row Series 814...01X101

814-22-XXX-30-01X-101

Specify # of contacts → 006-100
Specify contact style 0-9

CONTACT STYLE	INITIAL HEIGHT A	CONTACT STYLE	INITIAL HEIGHT A
0	.255	5	.350
1	.275	6	.370
2	.295	7	.390
3	.315	8	.410
4	.335	9	.430

Technical Specifications

Materials:

Contact piston & Base: Machined copper alloy plated 20μ" gold over 100μ" nickel
Spring: Beryllium copper plated 10μ" gold
Insulator: High temp. thermoplastic rated UL94 V-0

Mechanical:

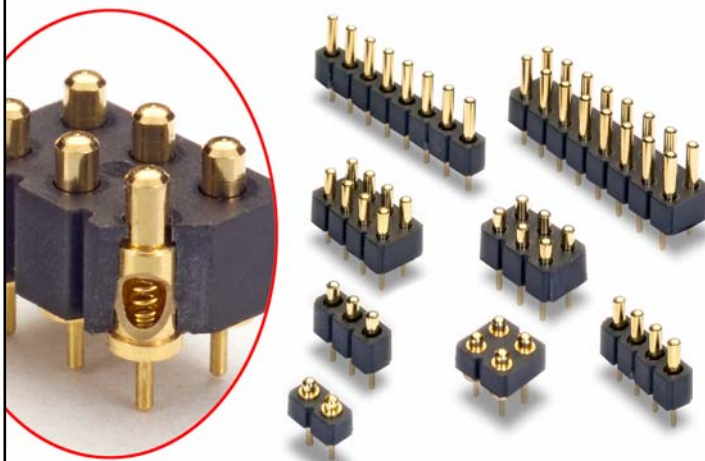
Spring force @ initial height (A): 25 grams
Spring force @ mid stroke (B/2): 60 grams
Spring force @ full stroke (B): 95 grams
Durability: 1,000,000 cycles min.

Electrical:

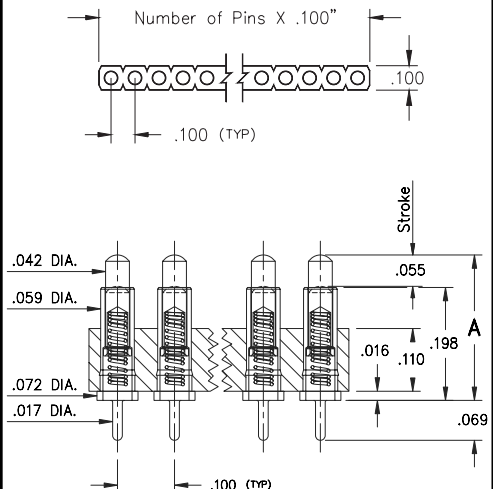
Voltage rating: 100Vrms/150Vdc
Current rating: 2A (continuous), 3A (peak) per contact
Contact resistance: 20mΩ max.
Insulation resistance: 10,000MΩ min.
Dielectric strength: 700Vrms min.
Capacitance: 1pF max.



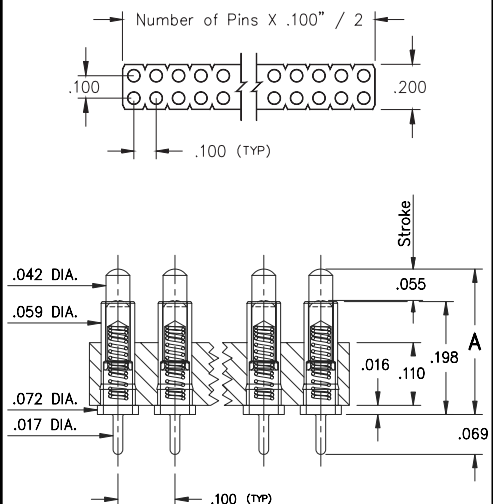
- Modular contacts for use on .100" grid, available in ten heights from .255" to .430", supplied in single and double row contact strips.
- Precision machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a .0275 mid stroke & .055 max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 816 & 818 series contact strips are designed for manual placement into Ø .023±.003" plated-thru-holes in the circuit board prior to intrusive reflow soldering.



Single Row Series 816...00X101



Double Row Series 818...00X101



Ordering Information

Single Row Series 816...00X101

816-22-0XX-10-00X-101

Specify # of contacts

Specify contact style 0-9

02-64

Double Row Series 818...00X101

818-22-0XX-10-00X-101

Specify # of contacts

Specify contact style 0-9

04-72

CONTACT STYLE	INITIAL HEIGHT A	CONTACT STYLE	INITIAL HEIGHT A
0	.255	5	.350
1	.275	6	.370
2	.295	7	.390
3	.315	8	.410
4	.335	9	.430

Technical Specifications

Materials:

Contact piston & Base: Machined copper alloy plated 20µ" gold over 100µ" nickel

Spring: Beryllium copper plated 10µ" gold

Insulator: High temp. thermoplastic rated UL94 V-0

Mechanical:

Spring force @ initial height (A): 25 grams

Spring force @ mid stroke (B/2): 60 grams

Spring force @ full stroke (B): 95 grams

Durability: 1,000,000 cycles min.

Electrical:

Voltage rating: 100Vrms/150Vdc

Current rating: 2A (continuous), 3A (peak) per contact

Contact resistance: 20mΩ max.

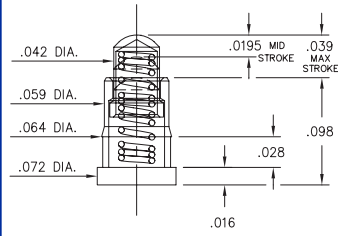
Insulation resistance: 10,000MΩ min.

Dielectric strength: 700Vrms min.

Capacitance: 1pF max.



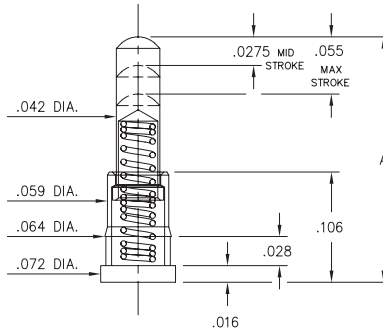
0900-0



0900-0-00-00-00-00-11-0

Short stroke, Surface mount
Lowest profile

0900-1⇒4

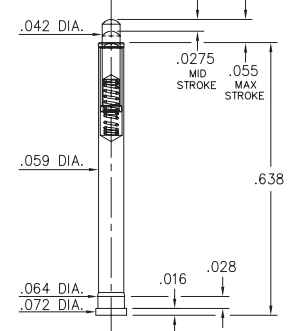


0900-X-00-00-00-00-11-0

Standard stroke, Surface mount
Low profile

Basic Part Number	Length A
0900-1	.177
0900-2	.197
0900-3	.217
0900-4	.236

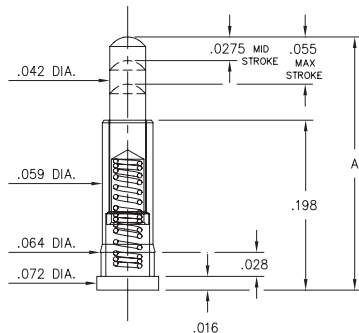
0905



0905-0-00-00-00-00-11-0

Standard stroke, Surface mount
Highest Profile

0907-X

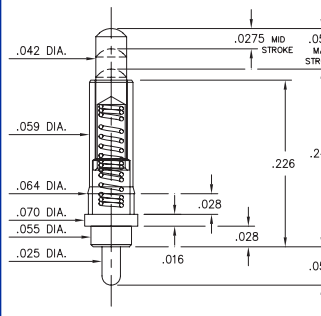


0907-X-15-20-75-14-11-0

Standard stroke, Surface mount
High profile

Basic Part Number	Length A
0907-0	.255
0907-1	.275
0907-2	.295
0907-3	.315
0907-4	.335
0907-5	.350
0907-6	.370
0907-7	.390
0907-8	.410
0907-9	.430

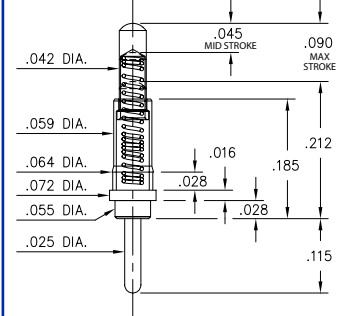
0901



0901-0-00-00-00-00-11-0

Standard stroke
Solder mount in .027 min. mounting hole

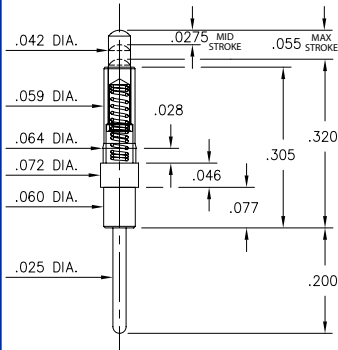
0914



0914-0-15-20-77-14-11-0

Long stroke.
Solder mount in .027 min. mounting hole

0922

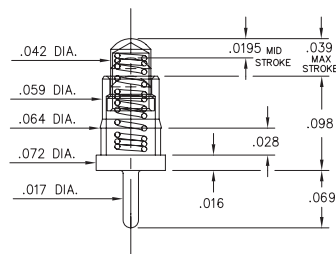


0922-0-15-20-75-14-11-0

Standard stroke

Solder mount in .027 min. mounting hole

0906-0

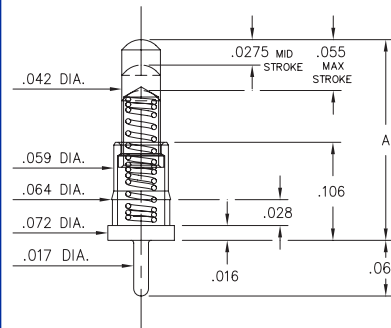


0906-0-15-20-76-14-11-0

Short stroke

Solder mount in .018 min. mounting hole

0906-1⇒4



0906-X-15-20-75-14-11-0

Standard stroke

Solder mount in .018 min. mounting hole

Basic Part Number	Length A
0906-1	.177
0906-2	.197
0906-3	.217
0906-4	.236

SPECIFICATIONS

SLEEVE & PLUNGER MATERIAL: Copper Alloy

SPRING MATERIAL: Beryllium Copper

CURRENT RATING: 2A continuous, 3A peak

CONTACT RESISTANCE: 20mΩ max.

DURABILITY: 1,000,000 cycles min.

DIMENSION IN INCHES

TOLERANCES ON: LENGTHS: ±.005

DIAMETERS: ±.002

ANGLES: ± 2°

ORDER CODE: XXXX - X - 15 - 20 - 7X - 14 - 11 - 0

BASIC PART #

SLEEVE & PLUNGER FINISH:

20 20μ" GOLD OVER NICKEL

SPRING FINISH:

14 10μ" GOLD OVER NICKEL

SPRING

75 Standard Stroke (.055):

76 Short Stroke (.039):

77 Long Stroke (.090):

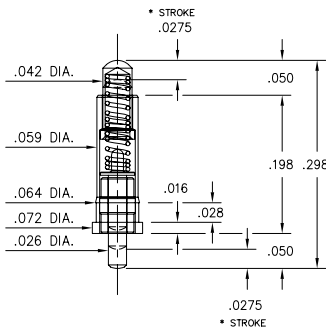
25 grams@min stroke

60 grams@mid stroke

95 grams@max stroke



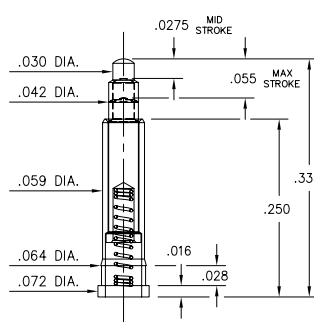
0980



0980-0-15-20-75-14-11-0

Double action, *.055 Combined Stroke
Mount between parallel circuit boards

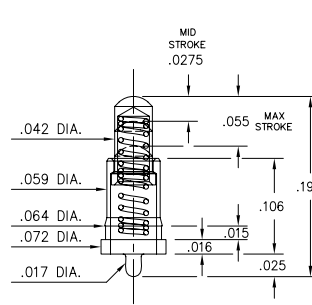
0925



0925-0-15-20-73-14-26-0

Standard Stroke
Surface Mount

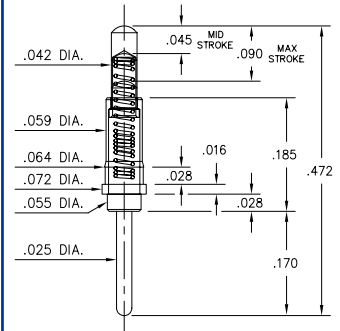
0930



0930-0-15-20-75-14-11-0

Standard Stroke
Solder Mount in .018 min. mounting hole

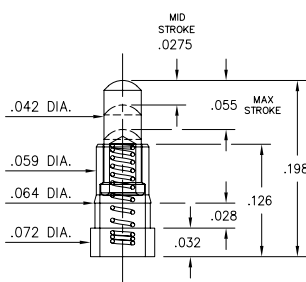
0932



0932-0-15-20-77-14-11-0

Long Stroke
Solder Mount in .027 min. mounting hole

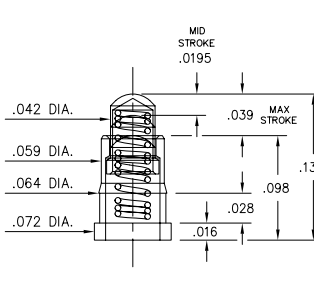
0934



0934-0-15-20-74-14-26-0

Standard Stroke
Surface Mount

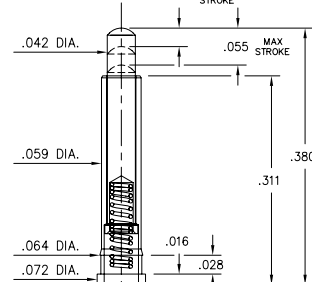
0923



0923-0-15-20-78-14-11-0

Short Stroke
Surface Mount

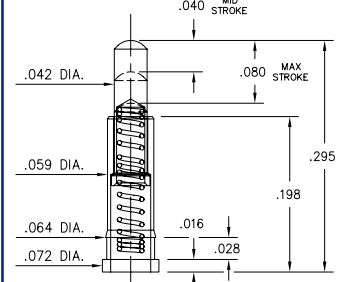
0927



0927-0-15-20-75-14-11-0

Standard Stroke
Surface Mount

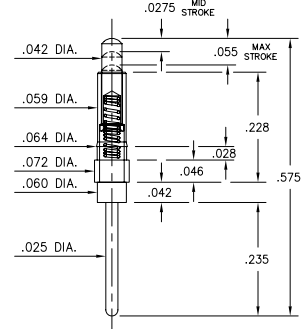
0928



0928-0-15-20-77-14-11-0

Long Stroke
Surface Mount

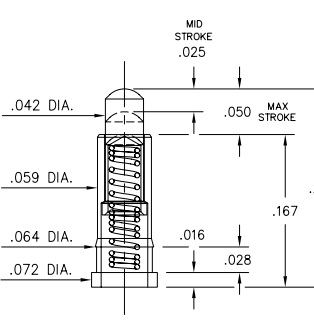
0929



0929-0-15-20-75-14-11-0

Standard Stroke
Solder Mount in .027 min. mounting Hole

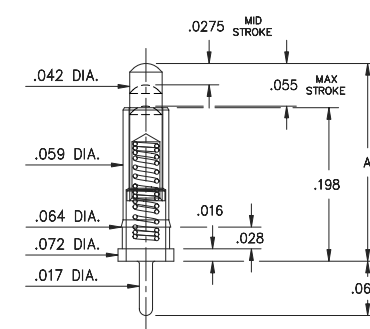
0936



0936-0-15-20-75-14-11-0

Standard Stroke
Surface Mount

0908-X



0908-X-15-20-75-14-11-0

Standard Stroke
Solder mount in .018 min. mounting hole

Basic Part Number	Length A
0908-0	.255
0908-1	.275
0908-2	.295
0908-3	.315
0908-4	.335
0908-5	.350
0908-6	.370
0908-7	.390
0908-8	.410
0908-9	.430

SPECIFICATIONS

SLEEVE & PLUNGER MATERIAL: Copper Alloy
SPRING MATERIAL: Beryllium Copper
CURRENT RATING: 2A continuous, 3A peak
CONTACT RESISTANCE: 20mΩ max.
DURABILITY: 1,000,000 cycles min.
DIMENSION IN INCHES
TOLERANCES ON: LENGTHS: ±.005
 DIAMETERS: ±.002
 ANGLES: ± 2°

ORDER CODE: XXXX - X - 15 - 20 - 7X - 14 - XX - 0

BASIC PART #

SLEEVE & PLUNGER FINISH:

20 20μ" GOLD OVER NICKEL

SPRING FINISH:

14 10μ" GOLD OVER NICKEL

SPRING

71 Standard Stroke (.055):	} xx grams@min stroke
75 Standard Stroke (.055):	
73/74 Standard Stroke (.055):	
77 Long Stroke (.090):	
78 Short Stroke (.039):	25 grams@min stroke
	60 grams@min stroke
	95 grams@min stroke
	xx grams@min stroke

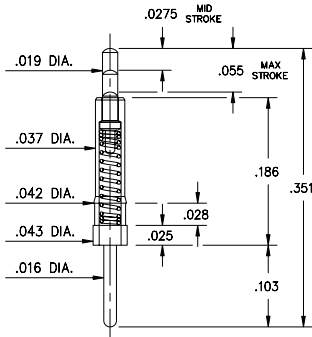




SPRING LOADED CONNECTORS Discrete Spring Loaded Contacts



0950



0950-0-15-20-71-14-11-0

Standard Stroke

Solder Mount in .018 min. mounting hole

SPECIFICATIONS

SLEEVE & PLUNGER MATERIAL: Copper Alloy

SPRING MATERIAL: Beryllium Copper

CURRENT RATING: 2A continuous, 3A peak

CONTACT RESISTANCE: 20mΩ max.

DURABILITY: 1,000,000 cycles min.

DIMENSION IN INCHES

TOLERANCES ON: LENGTHS: ±.005
DIAMETERS: ±.002
ANGLES: ± 2°

ORDER CODE: XXXX - X - 15 - 20 - 7X - 14 - XX - 0

BASIC PART # →

SLEEVE & PLUNGER FINISH: →

20 20μ" GOLD OVER NICKEL

SPRING FINISH: →

14 10μ" GOLD OVER NICKEL

SPRING

71 Standard Stroke (.055):	}	xx grams@min stroke
75 Standard Stroke (.055):		25 grams@min stroke
73/74 Standard Stroke (.055):		60 grams@min stroke
77 Long Stroke (.090):		95 grams@min stroke
78 Short Stroke (.039):		xx grams@min stroke

