Printed Circuit Board Interconnect Products

- Test Points
- Connectors
- Headers
- DIP Sockets
- Terminal Blocks
- 3L Multicoders
- DIP Switches

E-Mark INC.

E-Mark INC. Company Profile

E-Mark's business philosophy centers upon providing each of its customers with **maximum value**. This includes product ***quality*** appropriate for the application, **accurate delivery** & **competitive pricing**.

E-Mark INC. was established in **1985** and is classified by the U.S. Government as a small, woman-owned business. The company specializes in interconnect products and operates out of its facility in Shelton, Connecticut.

In addition to importing and distributing standard and custom products, the company also has several products it sells manufactured to its specifications. **E-Mark's** suppliers are carefully chosen and most of them carry approvals relevant to their individual products including ISO 9000, CECC, UL, VDE, etc. Cataloged products are stocked at **E-Mark's** Connecticut location for *immediate shipment.*

E-Mark INC. markets its products through a network of manufacturer's representatives and through local or regional distributors. Most of the company's customers are OEMs involved in the manufacture of a variety of electronic equipment including data processing equipment, telecom equipment, ATE products, machine controls, etc.

Banking and trade references are available on request.

We would be pleased to put you in contact with individuals at any of our current customers who can provide you with information confirming our excellent service, quality & product value.

E-Mark INC.
415 Howe Avenue, Suite LL160, Shelton, CT 06484-3168 U.S.A. ▪ 1-800-831-5383
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Test Points With Glass Insulator

Features

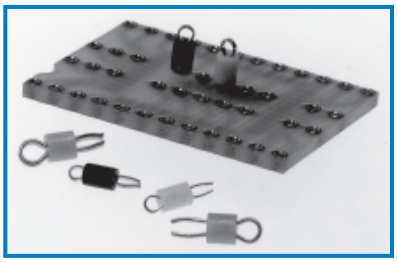
- *Working temperature up to 475°C*
- *Eight colors allow color coding*
- *Spring design allows firm attachment to PCB without damage to plated through holes*
- *Ring top allows firm attachment of probes, etc.*
- *Three sizes available*

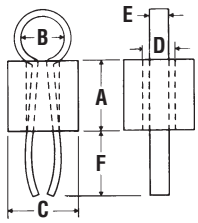
Designed to function as test points on PCB's, these terminals have a unique spring type design which allows them to be inserted and held firmly in place even when reversed for soldering without damaging plated through holes.

Each terminal is insulated with a Boro Silicate, sintered glass bead which is available in eight different colors to enable color coding.

Applications include points of attachment for test equipment, raising hot components above the PCB surface and for mounting components which may need frequent replacement. Groups of test points may also be used to allow for field configurability of PCB functions.

Three sizes are available, one for a 1.02 mm (.040") diameter hole and two for a 1.32 mm (.052") diameter hole (one of which offers extended leads). The pin itself is manufactured from tinned, phosphor bronze. All terminals listed below are supplied in packs of 100 pieces.





Dimensions

Ordering Information

PART NUMBER	BEAD COLOR	HOLE SIZE	MIN. CENTERS	Dimensions mm (inches)						PCB Thickness
				A	B	C	D	E	F	
01-1013 01-1014 01-1015 01-1016 01-1017 01-1018 01-1036 01-1037	White Yellow Black Brown Blue Pink Green Red	1.32 (.052")	3.20 (.126")	2.8-3.1 (.110-.122")	2.0-2.2 (.079-.087")	2.9-3.1 (.114-.122")	1.5-1.8 (.059-.070")	0.8 (.032")	2.8 (.110")	1.58 (.062")
01-1019 01-1020 01-1021 01-1022 01-1023 01-1024 01-1034 01-1035	White Yellow Black Brown Blue Pink Green Red	1.02 (.040")	2.5 (.098")	3.1-3.3 (.122-.130")	1.3-1.5 (.051-.059")	2.2-2.5 (.087-.098")	1.1-1.3 (.043-.051")	0.5 (.02")	2.8 (.110")	1.58 (.062")
01-1101 01-1102 01-1103 01-1104 01-1105 01-1106 01-1107 01-1108	White Yellow Black Brown Blue Pink Green Red	1.32 (.052")	3.20 (.126")	2.8-3.1 (.110-.122")	2.0-2.2 (.079-.087)	2.9-3.1 (.114-.122")	1.5-1.8 (.059-.070")	0.8 (.032")	3.57 (.141")	2.38 (.094")

RoHS 2002/95/EC

Compliant Test Points

Each of these test points incorporate an ingenious kinked pin design used as a microminiature retention mechanism. This prevents damage to through-plated holes during insertion while providing sufficient retention for wave or hand soldering.

Minimum suitable board thickness for these pins is 1.4 mm (.055") and PCB hole sizes after plating should measure 0.96 to 1.12 mm (.041 ±.003").

All pins have a contact resistance of less than 5 milliohms and solderability exceeds the requirements of MIL-STD-750. Standard package size is 100 pieces.

Material

Test Point: Phosphor Bronze.

Finish: Tin.

Figure 1

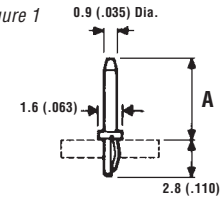
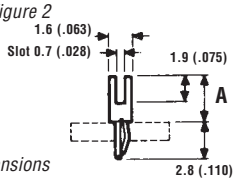


Figure 2



Dimensions

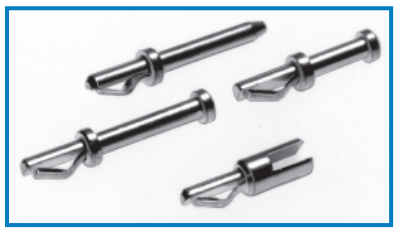
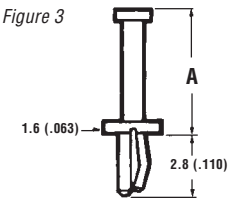


Figure 3



Ordering Information

Part Number	Description	Figure	"A"
02-1002	Straight Pin	1	6.0 (.236)
02-1003	Slotted Head	2	3.1 (.122)
02-1004	Turret Head	3	4.0 (.158)
02-1005	Turret Head	3	6.0 (.236)

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as of 06/01/2006

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SMT Ball And Socket Connector

Features

- *Designed for fast, consistent testing and connection of SMT assemblies*
- *Quick connect/disconnect with **click lock** feature*
- *Wide range of movement allows flexibility in applications.*
- *Two heights of test points available*
- *Supplied loose or on tape and reel for production applications using pick and place equipment*

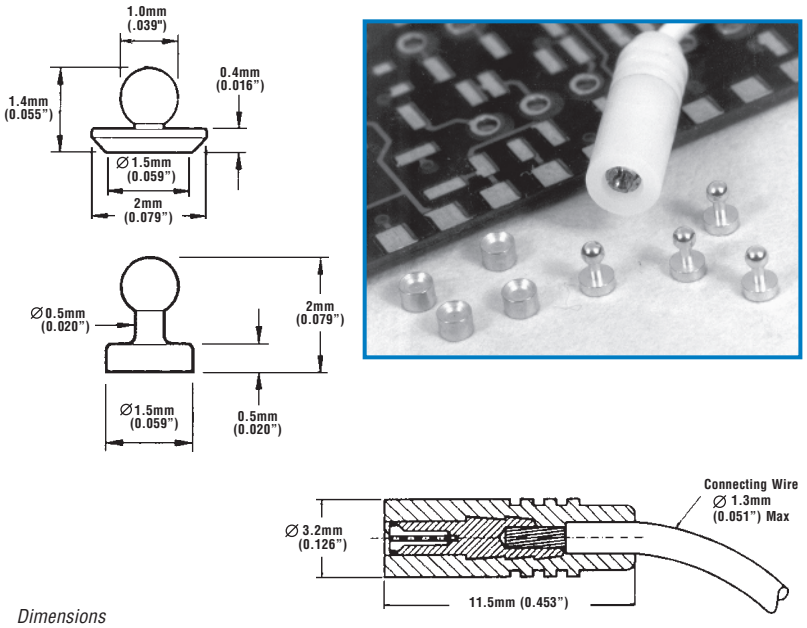
Specifications

Electrical and Mechanical

Recommended Pad Size:	2 mm
Contact resistance (including socket):	2 mΩ (max)
Socket insulation resistance:	10,000 MΩ
Operating temperature:	-55° to +125°C
Current rating:	3A
Max angular movement before disconnection:	±30°
Retention force (typ):	2 Kg.
Retention torque (typ):	200 gcm.

Tape and Reel (02-105X only)

Reel sizes:	7" (2K & 3K test points) 13" (10K test points)
Tape:	4mm spacing, 8mm width



Dimensions

Ordering Information

Description	Unit of Sale	Part Number
Socket, white	Each	**02-1033**
Test point, H = 2mm	Each	**02-1032**
Test point, H = 1.4mm	Each	**02-1049**
Test point, H = 1.4mm	Reel, 3K pcs.	**02-1050**
Test point, H = 2mm	Reel, 2K pcs.	**02-1080**

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SMT Test Points

These test point are designed to facilitate the connection of test probes to PCBs which are primarily surface mount in design. Supplied on tape and reel, these test points are readily inserted with most common pick and place equipment.

Note: Tops of test points are not plated. Be sure to orient properly before soldering.

Specifications

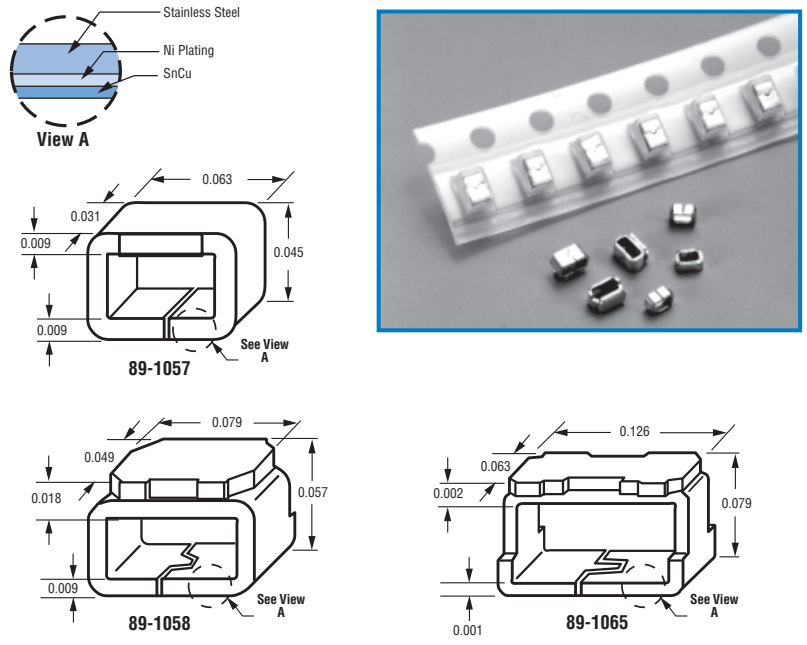
Electrical

Contact resistance:	<50mΩ
Current rating:	2A
Operating temperature:	-55° to +125°C

Materials & Finishes

Material:	Stainless Steel (SUS 304)
Finish:	SnCu
Packaging:	Parts on 4mm pitch / 8mm tape width. 2,000

** Quanties less than 2,000 pieces are supplied on tape cut from reel.*



Ordering Information

P/N Lead-Free	Description	Length	Width	Height
89-1057	0603 Test Point	.063" (1.6 mm)	.031" (0.8 mm)	.045" (1.15 mm)
89-1058	0805 Test Points	.079" (2.0 mm)	.049" (1.25 mm)	.057" (1.45 mm)
89-1065	1206 Test Points	.126" (3.2 mm)	.063" (1.6 mm)	.079" (2.0 mm)

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Pin Headers — 2mm Spacing

Features

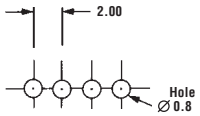
- *Single or double row on 2.0 mm centers*
- *Phosphor bronze pins, 0.5 mm square*
- *Choice of gold or tin finish*

Specifications

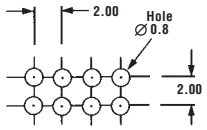
Current rating:	2A
Insulation resistance:	1 x 10^4 MΩ
Voltage proof:	650 V mrs @ 50 Hz

Recommended PCB Patterns for Headers & Sockets

Single Row

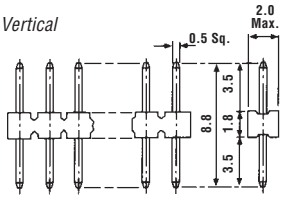


Double Row

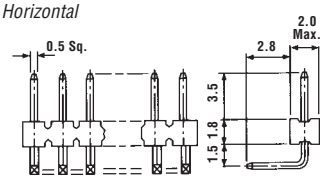


Single Row

Vertical

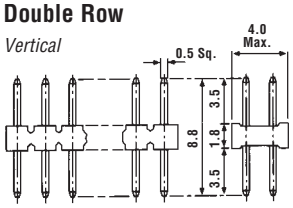


Horizontal

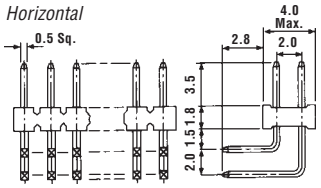


Double Row

Vertical



Horizontal



Dimensions

Ordering Information

M22 - XXX XX XX

Single row, Vertical = 201
Single row, Horizontal = 203
Double row, Vertical = 202
Double row, Horizontal = 204

Plating: 05 = Gold, 06 = Tin

Number of Positions: 02 - 50 max

EXAMPLE: M22-202 04 06 = Double Row, Vertical Pin Header with 4 positions (8 pins), Tin Finish

Pin Headers — 2mm "200" Series

Features

- *Selective gold / tin plating**
- *Copper Alloy Pins .5mm square*
- *Single row 2-40 pins*
- *Double row 4-80 pins*
- *Mates with M22-611 / 612 or 20035A series*

Specifications

Current rating:	1.5A max.
Voltage rating:	150 V AC
Dielectric strength:	500 V one minute
Insulator:	Nylon UL 94 V-0
Contact:	Brass 65 / 35

** Alternative finishes available in production quantities*

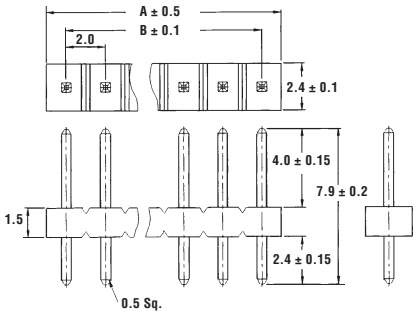
Ordering Information

2001XS - XXG2T

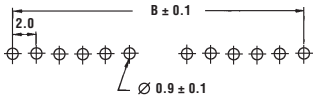
Single row = 0
Double row = 2

Number of Pins Total
Single row = 02 - 40
Double row = 04 - 80

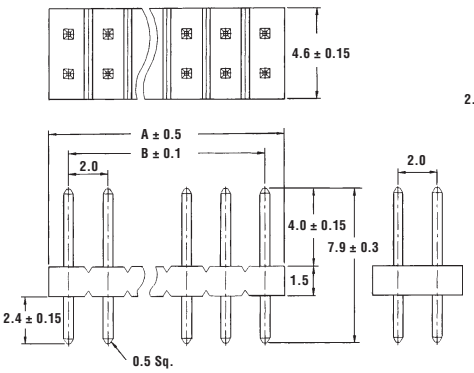
B = (No. Pins-1)* 2mm
Single Row



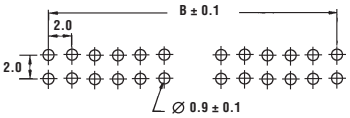
Recommended P.C.B. Layout



Double Row



Recommended P.C.B. Layout
B = (No. Pins ÷ 2)* 2mm



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2.0mm Dual Row SMD Socket

A reliable dual row 2mm socket with location pegs. Available on tape and reel for production applications.

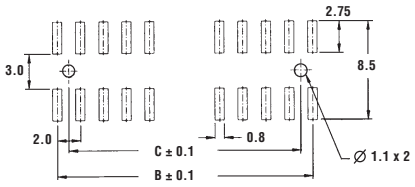
Mates with 20012 Series Headers.
See page 6.

Specifications

4-50 Curcuits

Insulator Material:	Black high temp. plastic
Temperature Range:	-40° to +105°C
Terminal Material:	Phosphor bronze
Plating:	Contact - Selective gold/tin plated
Max. Current Rating:	1.5A
Voltage Rating:	150V AC
Dielectric Strength:	500V (Min. 60 seconds)

Recommended P.C.B. Layout

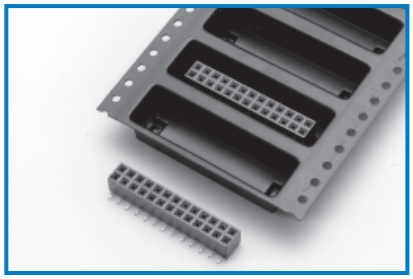


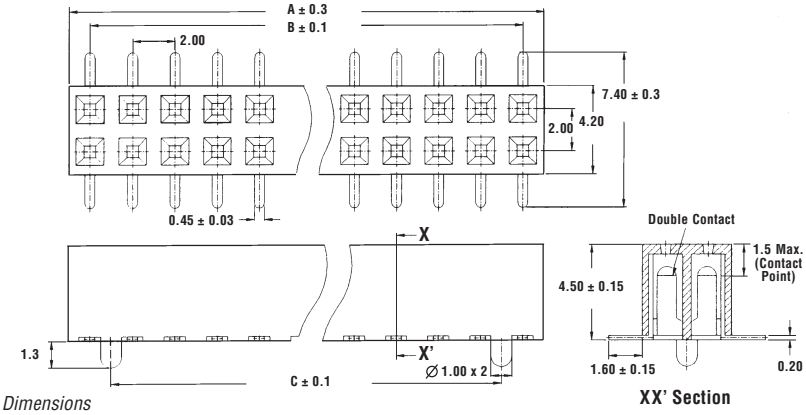
Ordering Information

20035A - XX - XX - T

- Number of pins
- **Plating:**
  - G2 - Indicate gold flash
  - G3* - 10µ" gold over nickel
  - G4* - 15µ" gold over nickel
  - G5* - 30µ" gold over nickel
- Selective Plate

* Certain minimums apply





Dimensions

Dimensional Information

Part Number	DimA	DimB	DimC
20035A - 04XX	4.0	2.0	—
20035A - 06XX	6.0	4.0	—
20035A - 08XX	8.0	6.0	4.0
20035A - 10XX	10.0	8.0	6.0
20035A - 12XX	12.0	10.0	8.0
20035A - 14XX	14.0	12.0	10.0
20035A - 16XX	16.0	14.0	12.0
20035A - 18XX	18.0	16.0	14.0
20035A - 20XX	20.0	18.0	16.0
20035A - 22XX	22.0	20.0	18.0
20035A - 24XX	24.0	22.0	20.0
20035A - 26XX	26.0	24.0	22.0

Part Number	DimA	DimB	DimC
20035A - 28XX	28.0	26.0	24.0
20035A - 30XX	30.0	28.0	26.0
20035A - 32XX	32.0	30.0	28.0
20035A - 34XX	34.0	32.0	30.0
20035A - 36XX	36.0	34.0	32.0
20035A - 38XX	38.0	36.0	34.0
20035A - 40XX	40.0	38.0	36.0
20035A - 42XX	42.0	40.0	38.0
20035A - 44XX	44.0	42.0	40.0
20035A - 46XX	46.0	44.0	42.0
20035A - 48XX	48.0	46.0	44.0
20035A - 50XX	50.0	48.0	46.0

PCB Sockets — 2mm Spacing

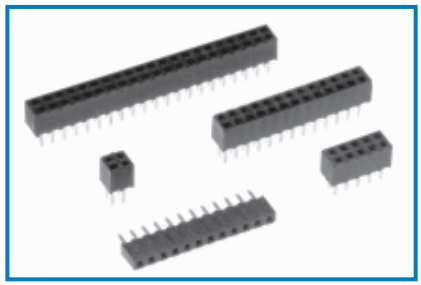
Features

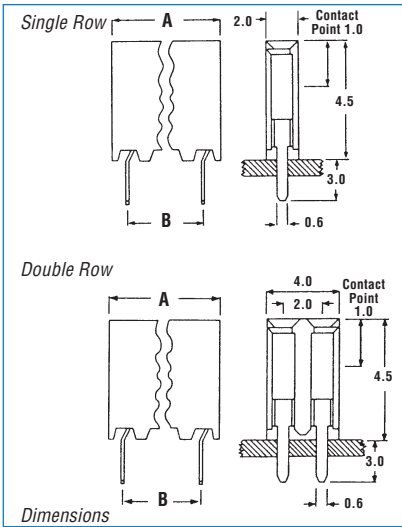
- *Single and double row vertical sockets on 2 mm centers*
- *Tapered Entry*
- *Anti-wicking, twin leaf phosphor bronze contacts*
- *Choice of tin or selective gold finish*

Specifications

Current rating:	2A
Contact resistance:	2 mΩ
Insulation resistance:	1 x 10^4 MΩ
Voltage proof:	650 V mrs @ 50 Hz
Insertion force:	1.5 N max. (5.4 oz)
Withdrawal force:	0.3 N min. (1.1 oz)
Number of cycles	*Gold:* 300 *Tin:* 50

Recommended PCB Pattern — See Above





Dimensions

A = Number of Postions x 2.0 mm
B = A - 2.0 mm

Ordering Information

M22 - XXX XX XX

- Single row = 611
  Double row = 612
- Plating:
  22 = Selective Gold, 06 = Tin
- Number of Positions: 02 - 25 max

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Shunts For 0.1" Headers

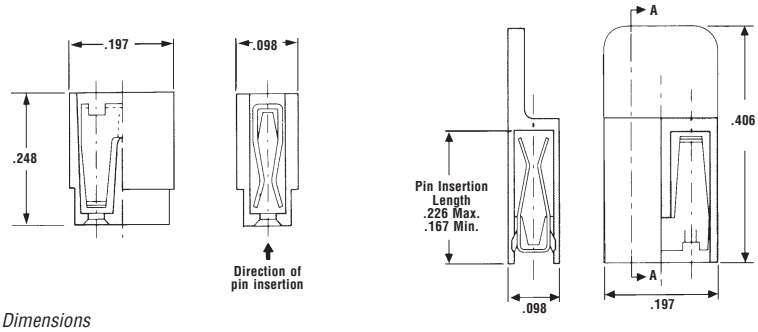
Features

- *End and side stackable on 0.1" grid*
- *Plugs on 0.025" square or round posts*
- *Tapered entry for pin insertion*
- *High pressure double-sided contact*
- *Can be fitted and removed by hand*
- *Choice of colors and plating finish*

Specifications

Housing:	Glass filled polyester UL94V-0
Socket contact:	Phosphor bronze
Plating finish:	Gold or tin over nickel
Current rating:	3A at 50°C
Contact resistance:	20 mΩ maximum
Insertion force:	3 N (11 ozs)
Withdrawal force:	2 N (7 ozs)
Number of insertions	*Gold:* 300 *Tin:* 50

Open Top *Closed Top With Handle*



Dimensions

Ordering Information

COLOR	OPEN TOP PART NUMBER	CLOSED TOP WITH HANDLE PART NUMBER
Light Grey	M7565-XX	M7965-XX
Red	M7566-XX	M7966-XX
Black	M7567-XX	M7967-XX
Blue	M7571-XX	M7971-XX

Plating Option: 05 = Gold, 06 = Tin

Example: M7565-05 = Open Top Shunt with gold finish

Economy Shunt For 0.1" Headers

Features

- *Easiest way of programming by simply connecting 2 contact points together*
- *Two different versions:*
  1. *Closed housing*
  2. *Housing with opening for test pin*
- *Reliable contact due to 2 independent contact points per pin*
- *Side stackable / end stackable*

Specifications

Electrical

Current rating:	3 Amp. max.
Contact resistance:	≤15 mΩ
Insulation resistance:	≥1000 MΩ
Withstanding voltage:	650 V RMS

Mechanical

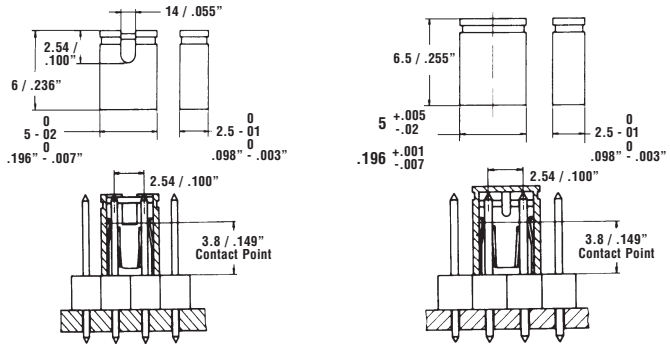
Mechanical life cycle	*Gold plated:* 100 *Tin plated:* 75
Operating temperatures:	-55°C to +125°C -62°F to +257°F

Material

Contact (clip):	Phosphor bronze
Surface of contact:	See Plating Code
Insulator body (housing):	Glass filled polyester P.B.T. (UL 94 V-0) Color Black*

**Alternative colors available on request*

Open Housing Version *Closed Housing Version*



Dimensions: mm/inches

Ordering Information

Please replace 'X' with appropriate coding listed in table below

2 8 0 - X 1 - X 0

Jumper Version (type)

Definition	Code
Closed housing	0
Open housing	1

Surface of contact

Definition	Code
Tin plated 5 um / 200u"	0
Gold flash	1

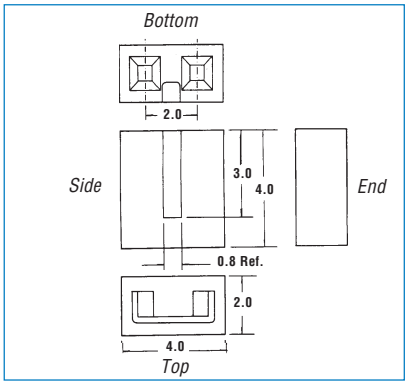
2.0mm Mini-Jumper

Specifications

Contact:	pho. bronze
Insulator:	P.B.T. UL94V-0
Plating:	Gold or Tin
Current rating:	1.5A Max.
Voltage rating:	150 V AC
Dielectric strength:	500V AC one minute
Temperature range:	-20°C to +105°C

Ordering Information

Tin — White:	Part Number **20060-T1**
Gold — Black:	Part Number **20060-G2**



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Square Pin Headers 0.635mm / .025”

Pitch 2.54mm/.100”
Single or double row — angled or straight

Features

- *Pin headers can be supplied in straight or right angle versions*
- *Each one available in strips of:*
  1 row = 1 to 40 pins
  2 rows = 4 to 80 pins
- *Different platings such as full gold or full tin, or selective gold are available*
- *Designed for soldering into a PC board or between two PCB’s*

Specifications

Electrical/Mechanical

Operating temperatures:
-40°C to +105°C
-40°F to +221°F

Press fit of pin into the insulator body:
>8.8 N (31 oz.)

Max. soldering Temperature:
+260°C, 10 seconds
+500°F, 10 seconds

Material

Pin: Copper Alloy *

Surface of contact:
2 µm (80 µ”) Nickel, Gold and Tin plated;

Insulator: Black glass filled polyamid 6.6 (UL 94 V-0)

Table 1

E0X - XX0 - XXX - 10X

Pin Length Code	Metric (mm)			Inches		
Single, double row	A	B	C	A	B	C
01	5.84	2.79	11.17	.230	.110	.440
05	8.08	2.79	13.41	.318	.110	.528

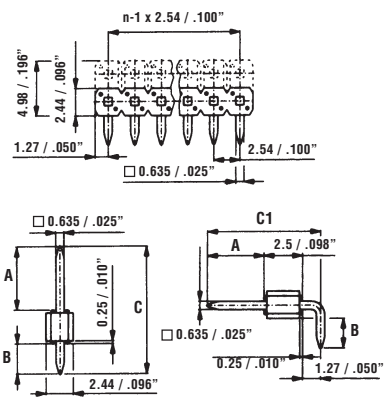
Table 2

E1X - XX0 - XXX - 10X

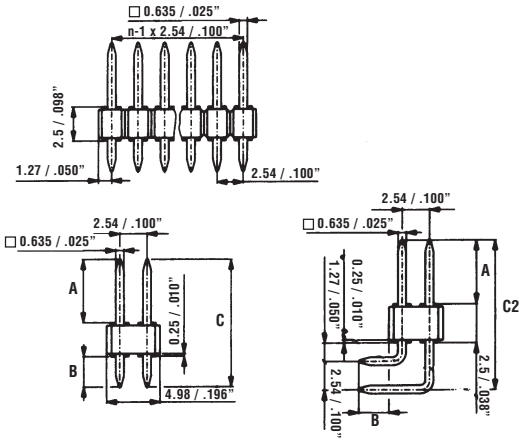
Pin Length Code	Metric (mm)			Inches		
Single, double row	A	B	C	A	B	C
11	5.84	2.79	11.17	.230	.110	.440
15	8.08	2.79	13.41	.318	.110	.528

* *Alternate base material available — contact factory*

Single Row



Double Row



n = number of contacts

Dimensions: mm/inches

Ordering Information

Please replace ‘X’ with appropriate coding listed in table below

EXX - XX0 - XXX - 10X

Header Series

Definition	Code
single row straight	01
double row straight	02
single row angled	11
double row angled	12

Pin Length Code

See Table
1
1
2
2

No. of Contacts

Definition	Code
single row	001 to 040
double row	004 to 080

Contact Plating

Definition	Code
Full Tin Sn 3µm/120µ”	1
Full Gold Flash	2

Other plating available upon request

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PCB Board-To-Board Spacers

E-Mark pin headers of all pitches are available as custom board spacers allowing the user great flexibility in product design. In addition to simply varying the pin and insulator lengths, E-Mark offers selective pin loading where required.

For a quick estimate of cost, simply complete the appropriate section below and FAX back: (203) 922-8231

NAME

COMPANY

ADDRESS / MAIL STOP

( ) PHONE

CITY / STATE / ZIP

( ) FAX

2mm Pitch Board Spacers

Specifications

Materials

Pin: Copper Alloy

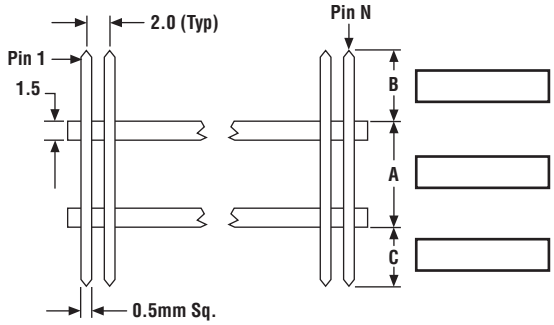
Insulator: Hi-Temp Plastic (UL 94 V-0)

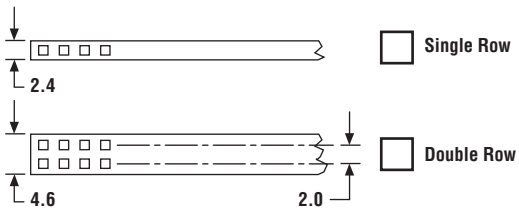
Electrical / Environmental

Current rating: 1.5 A

Voltage rating: 150 VAC

Operating temperatures: -40°C to +105°C





Total Number of Positions (not pins) = (1-40 max) _____

Selectively Remove The Following Pins = _____

*** Plating:**

* *Alternative plating available, certain minimums apply.*

☐ Tin

☐ Gold Flash

☐ 10µ" Gold

Quantity: _____

.1" Pitch Board Spacers

Specifications

Materials

Pin: Copper Alloy

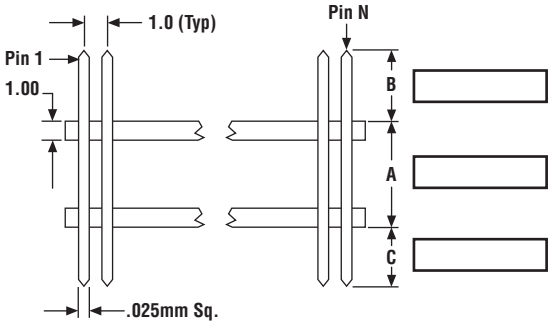
Insulator: Glass filled PBT (UL 94 V-0)

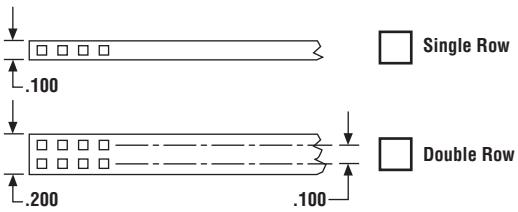
Electrical / Environmental

Current rating: 3 A

Voltage rating: 250 VAC

Operating temperatures: -40°C to +105°C





Total Number of Positions (not pins) = (1-40 max) _____

Selectively Remove The Following Pins = _____

*** Plating:**

* *Alternative plating available, certain minimums apply.*

☐ Tin

☐ Gold Flash

☐ 10µ" Gold

Quantity: _____

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Vertical & Horizontal PCB Sockets

For square post headers □ 0.635 mm / □ .025"
Single or double row — straight or angled — tin / gold — solder tail

Features

- *A quality Socket Header designed for parallel or angled PCB to PCB applications*
- *Mates with square post headers □ 0.635 mm / □ .025"*
- *Protected fork contacts (stamped)*
- *Maximum number of contacts are 40 for single row, and 80 for double row*

Specifications

Electrical

Current rating:	3 Amps / contact max.
Contact resistance:	≤ 20 mΩ / contact
Insulation resistance:	≥ 100 MΩ
Operating voltage:	60 V_{eff}
Dielectric withstanding voltage:	1000 V AC / minute

Mechanical

Average insertion force:	0.8 N (3 oz.)
Average withdrawal force:	0.8 N (3 oz.)
Mechanical life cycle:	min. 100

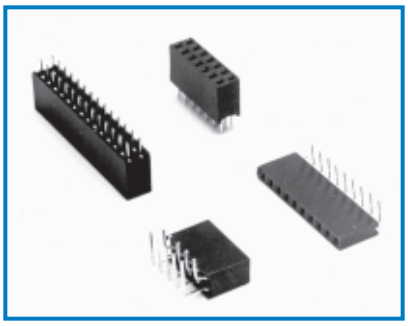
Operating temperatures:
-40°C to +105°C
-40°F to +221°F

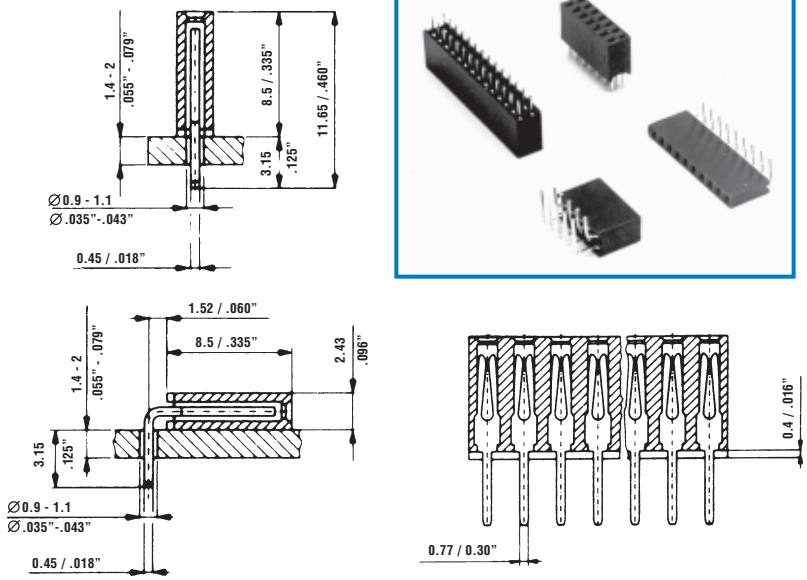
Sodering temperatures:
+260°C, 10 seconds
+500°F, 10 seconds

Material

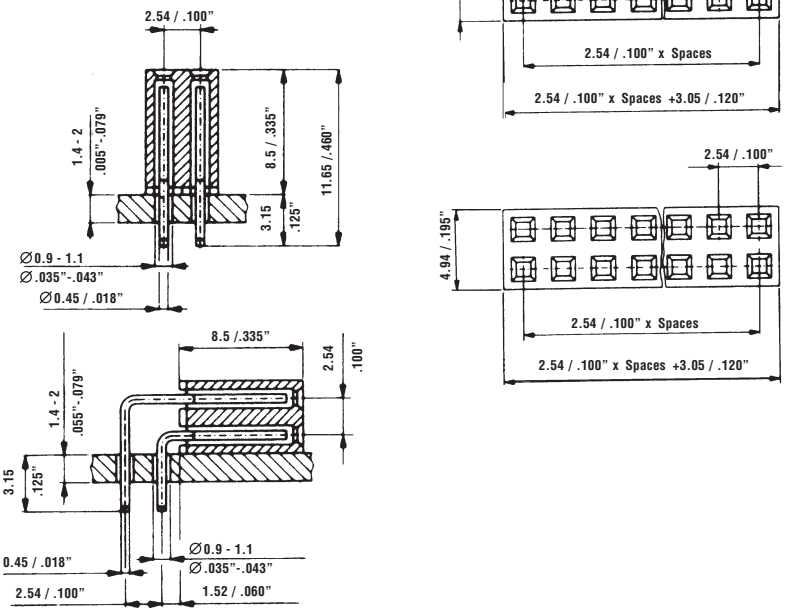
Contact:	Phosphor bronze
Insulator body:	Glass filled polyester UL 94 V-0 (black)

Single Row





Double Row



Dimensions: mm/inches

Ordering Information

Please replace 'X' with appropriate coding listed in table below

26X - X - XX10 - X

Female Header Series

Definition	Code
single row straight double row straight	262
single row angled double row angled	263

Number of rows

Definition	Code
single row	1
double row	2

No. of Contacts

Definition	Code
single row	1 - 40
double row	4 - 80

Surface of Contact

Definition	Code
Tin plated	1
Gold plated	2

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Production DIP Socket

Dual-in-line IC Sockets with stamped and formed “Dual beam” contacts

Features

- *Most popular IC Sockets from 6 to 48 contacts*
- *Low profile*
- *Double sided contacts “Dual beam”*
- *Wide entry for easy IC insertion*
- *Overstress protection*
- *Manually and automatically insertable*

Specifications

Electrical

Current rating (continuous):	1 Amp/contact
Contact resistance:	≤ 10 mΩ
Insulation resistance:	≥ 10^{10} Ω
Operating voltage:	60 $V_{eff.}$
Contact capacity (between 2 contacts):	0.5 pF
Overload voltage:	≥ 600 $V_{eff.}$

Mechanical

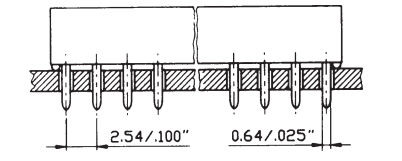
Insertion force:	2.0 N max. (7 oz.)
Withdrawal force:	0.5 N min. (2 oz.)
Mechanical life cycle:	50 min.

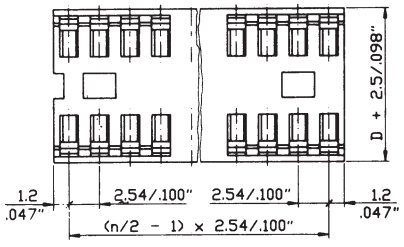
Operating temperatures:
55°C to +150°C
-67°F to +369°F

Soldering temperature:
+220°C, 10 seconds
+428°F, 10 seconds

Material

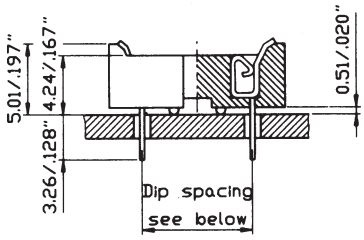
Contact:	Phosphor bronze
Surface of contact:	Tin plated; 3 to 5 µm/ 120 to 196 µ”
Insulator:	Black glass filled polyester (UL 94 V-0)





n = number of contacts

Straight tail version



Dimensions: mm/inches

Ordering Information

Please replace ‘X’ with appropriate coding listed in table below

E61-XXX-10-11

Number of Contacts — **Dip Spacing D**

No. of contact = Code	Definition	Code
06, 08, 14, 16, 18, 20, 22, 24, 28	7.62 /.300"	3
22, 24	10.16 /.400"	4
24, 28, 32, 40, 42, 48	15.24 /.600"	6

Standard Packing Units

A	06 (.3)	08 (.3)	14 (.3)	16 (.3)	18 (.3)	20 (.3)	22 (.3)	22 (.4)	24 (.3)	24 (.6)	28 (.6)	32 (.6)	40 (.6)	42 (.6)	48 (.6)
T	80	60	34	30	26	24	22	18	20	20	17	15	12	11	10

Legend: A = Number of contacts (and Dip Spacing)
T = Number of Sockets per T (Tube)

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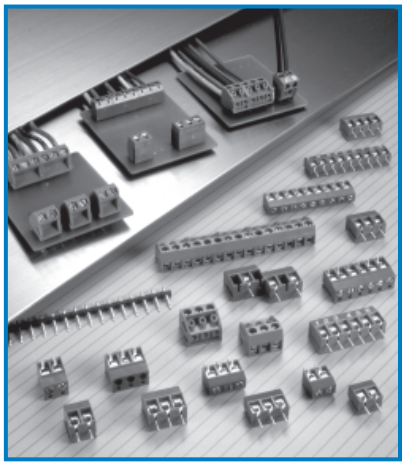
Terminal Block Section

Features

- *5 mm or 10 mm contact spacing*
- *2 & 3 position blocks slide together to form longer lengths*
- *Wire guards*
- *Access holes for test probes*

E-Mark terminal blocks are an economic and reliable solution for wire to PCB connections. The range includes top, front and angled wire entry versions as well as a two-part, pluggable version.

All E-Mark terminal blocks are supplied in 2 and 3 position modules which may be linked together to form any combination of positions. Most terminal blocks also feature access holes for test probes and all feature wire guards to prevent direct pressure of the screws on conductors.



Specifications

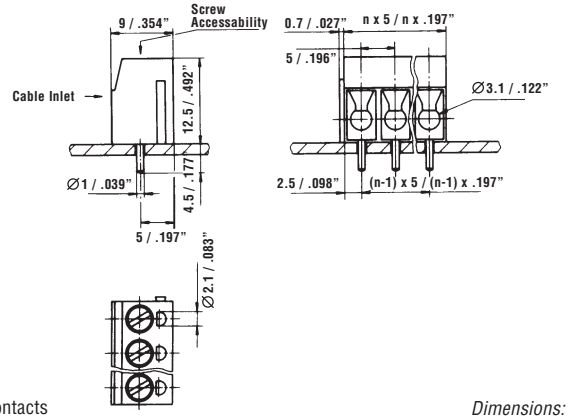
Specification	Series 300	301	310	311	320	332
Material						
Contact	Brass, tin plated	=	=	=	=	=
Screw	Zinc plated steel, clear chromate					
Wire guard	Copper alloy	=	=	=	=	BeCu
S.T. plating	Tin	=	=	=	=	=
Insulator	Polyester, G/F UL 94-VO	=	=	=	=	=
Insulator color	Blue	Blue	Blue	Blue	Blue	Blue
Electrical						
Voltage rating per VDE 0110 Group A:						
5 mm spacing	380 V	250 V	380 V	250 V	125 V	125 V
10 mm spacing	750 V	380 V	750 V	380 V	380 V	380 V
Current rating:	16A	=	=	=	=	10A/POS
Mechanical						
Operating temp.	-33 to +120 C	=	=	=	=	=
Soldering temp.	+260 C (10 S. max)	=	=	=	=	=
Max wire cross section in MM^2	2.5	1.5	2.5	1.5	1.5	1.5
Terminal screw size	M3	M2.6	M3	M2.6	M2.6	M2.6
Approval						

300 Series — Front Wire Inlet 12.5mm (.492") High

Notice:
To avoid accumulated tolerance-variations of Terminal-Blocks to PC-Board spacing, limit the number of contacts to not more than 30 contacts per row

Recommended PC-Board-holes diameter:

∅ 1.2 mm to ∅ 1.4 mm
∅ .047" to ∅ .055"



n = number of contacts

Dimensions: mm/inches

Ordering Information:
Please replace 'X' with appropriate coding listed in table below

300 - XXX - 1600

Number of Contacts

Definition	Code
2 contacts	02
3 contacts	03
(2 and 3 blocks are the standard version with multiples thereof available	etc.

Pitch (Pin Spacing)

Definition	Code
5 mm/.197"	1
10 mm/.394"	2

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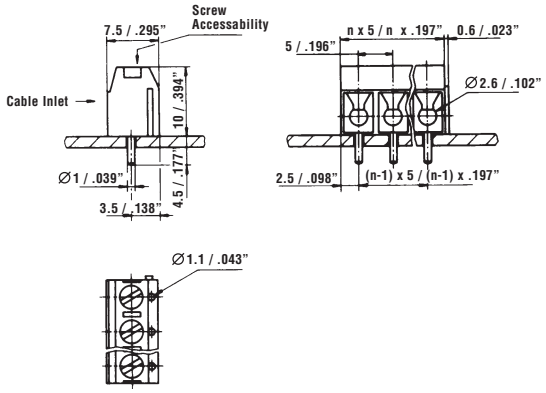
301 Series — Low Profile Front Wire Inlet 10mm (.394”) High

Notice:
To avoid accumulated tolerance-variations of Terminal-Blocks to PC-Board spacing, limit the number of contacts to not more than 30 contacts per row

Recommended PC-Board-holes diameter:

∅ 1.2 mm to ∅ 1.4 mm
∅ .047" to ∅ .055"



n = number of contacts

Dimensions: mm/inches

Ordering Information

Please replace ‘X’ with appropriate coding listed in table below

301 - XXX - 1600

Number of Contacts

Definition	Code
2 contacts	02
3 contacts	03
(2 and 3 blocks are the standard version with multiples thereof available	etc.

Pitch (Pin Spacing)

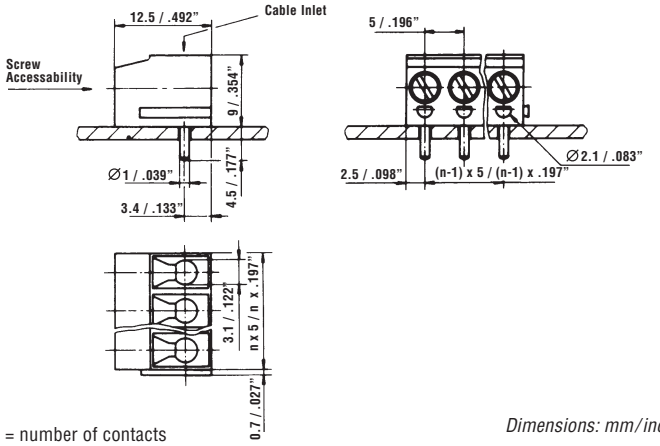
Definition	Code
5 mm/.197"	1
10 mm/.394"	2

310 Series — Top Wire Inlet 9mm (.354”) High

Notice:
To avoid accumulated tolerance-variations of Terminal-Blocks to PC-Board spacing, limit the number of contacts to not more than 30 contacts per row.

Recommended PC-Board-holes diameter:

∅ 1.2 mm to ∅ 1.4 mm
∅ .047" to ∅ .055"



n = number of contacts

Dimensions: mm/inches

Ordering Information

Please replace ‘X’ with appropriate coding listed in table below

310 - XXX - 1600

Number of Contacts

Definition	Code
2 contacts	02
3 contacts	03
(2 and 3 blocks are the standard version with multiples thereof available	etc.

Pitch (Pin Spacing)

Definition	Code
5 mm/.197"	1
10 mm/.394"	2

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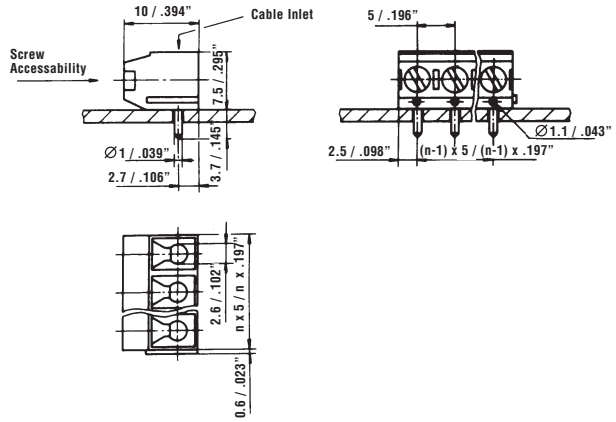
311 Series — Low Profile Top Wire Inlet 7.5mm (.295") High

Notice:
To avoid accumulated tolerance-variations of Terminal-Blocks to PC-Board spacing, limit the number of contacts to not more than 30 contacts per row

Recommended PC-Board-holes diameter:

∅ 1.2 mm to ∅ 1.4 mm
∅ .047" to ∅ .055"



n = number of contacts

Dimensions: mm/inches

Ordering Information

Please replace 'X' with appropriate coding listed in table below

311 - XXX - 1600

Number of Contacts

Definition	Code
2 contacts	02
3 contacts	03
(2 and 3 blocks are the standard version with multiples thereof available	etc.

Pitch (Pin Spacing)

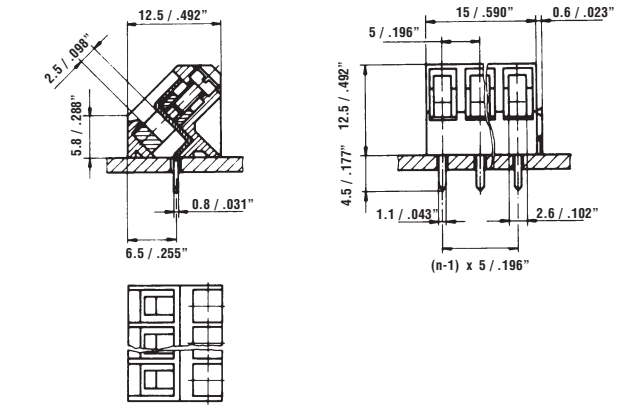
Definition	Code
5 mm/.197"	1
10 mm/.394"	2

320 Series — 45° Wire Inlet 12.5mm (.492") High

Notice:
To avoid accumulated tolerance-variations of Terminal-Blocks to PC-Board spacing, limit the number of contacts to not more than 30 contacts per row

Recommended PC-Board-holes diameter:

∅ 1.3 mm to ∅ 1.5 mm
∅ .051" to ∅ .059"



n = number of contacts

Dimensions: mm/inches

Ordering Information

Please replace 'X' with appropriate coding listed in table below

320 - XXX - 1600

Number of Contacts

Definition	Code
2 contacts	02
3 contacts	03
(2 and 3 blocks are the standard version with multiples thereof available	etc.

Pitch (Pin Spacing)

Definition	Code
5 mm/.197"	1
10 mm/.394"	2

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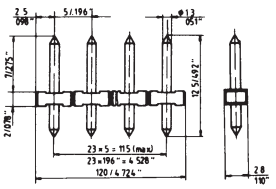
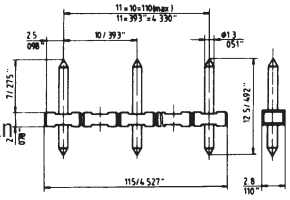
332 Series — (Pluggable) Front Or Top Wire Inlet Headers / Pins Ordered Separately

Pin Header Strips

Spacing 5 mm / .197"
Part Number:
299-1-001-XXX-1
replace XXX with desired
Number of contacts, which can
be cut down to required
number (24 max.)

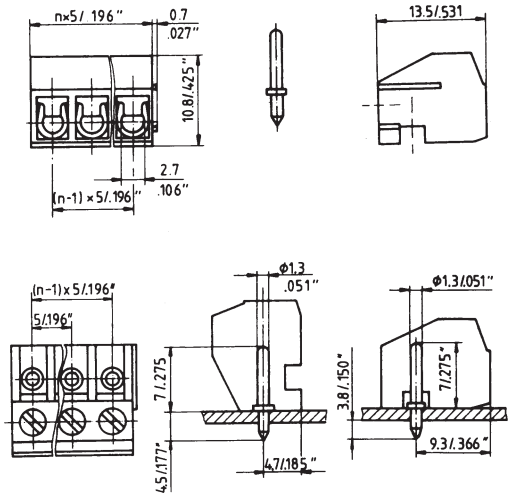


Spacing 10 mm / .394"
Part Number:
299-1-002-XXX-1
replace XXX with desired
Number of contacts, which can
be cut down to required
number



Loose Pins (single)
Part Number:
909-9001

Dimensions: mm/inches



Recommended PC-Board-holes
diameter: ∅ 1.5 mm
∅ .059"

n = number of contacts

Dimensions: mm/inches

Ordering Information

Please replace 'X' with appropriate coding listed in table below

3 3 2 - X X X - 1 6 0 0

Number of Contacts

Definition	Code
2 contacts	02
3 contacts	03
(2 and 3 blocks are the standard version with multiples thereof available	etc.

Pitch (Pin Spacing)

Definition	Code
5 mm/.197"	1
10 mm/.394"	2

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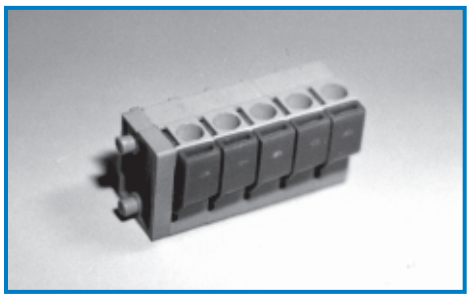
Quick Clamp Terminal Block

Pitch 5.00mm x 7.62mm /
.197" x .300"

Features

- *Vertical or horozontal wire inlet*
- *The screwless terminals are suitable for both solid and stranded wire*
- *A spring made of stainless strip steel guarantees permanent and safe contact*
- *Operated by pushing a screwdriver on the lever. This lever is fully integrated into the body*
- *Equipped with a cover for easy hand adjustment*



Specifications

Mechanical/Electrical

Operating temperature:
-33°C to +120°C

Soldering temperature:
+250°C, 5 seconds max.

Wire size:
24-16 AWG.

Current rating:
15 Amp. - @ 300 V AC

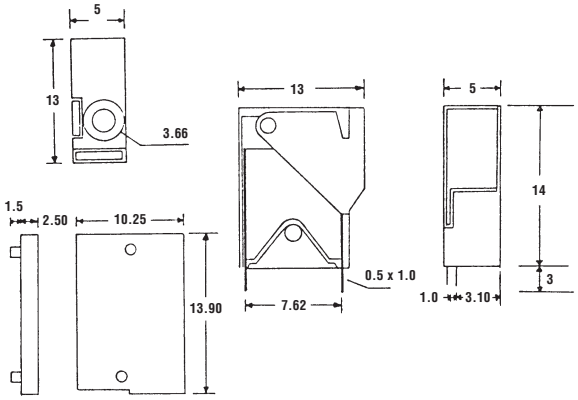
Insulation withstands voltage:
200 V AC min.

Insulation resistance:
≥ 500 mΩ at 500 V DC

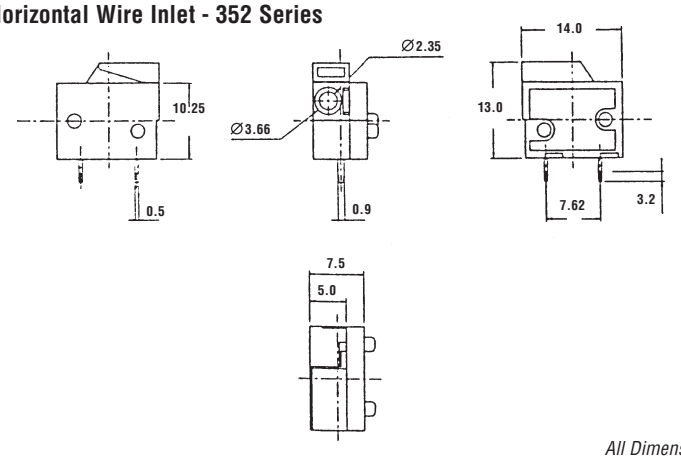
Material

Contact:	Brass (CU ZN) CU/NI, tin plated
Spring:	Stainless strip steel
Solder tail:	Tin plated
Insulator body, lever, cover:	Green polyester (glass filled) (UL 94V-0)

Vertical Wire Inlet - 351 Series



Horizontal Wire Inlet - 352 Series



All Dimensions in mm

Ordering Information

Please replace 'X' with appropriate coding listed in table below

XXX - XXX - 1500

Series

Definition	Code
Vertical Wire Inlet	351
Horizontal Wire Inlet	352

No. of Contacts

Definition	Code
2 contacts	02
4 contacts etc..	04

Pitch

Definition	Code
5mm/.197"	1
10mm/.394"	3

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302 / 312 Series
Top or Front Wire Inlet
3.5mm Spacing / 7.0mm High

Features

- *Center to center spacing of only 3.5 mm*
- *2 and 3 position modular blocks assemble to make any size required*
- *Only 7.0 mm height off PCB*

Specifications

Mechanical/Electrical

Operating temperature:
-30°C to +120°C

Soldering temperature:
+260°C, 10 seconds max.

Wire size:
16-26 AWG.

Current rating:
10 Amp.

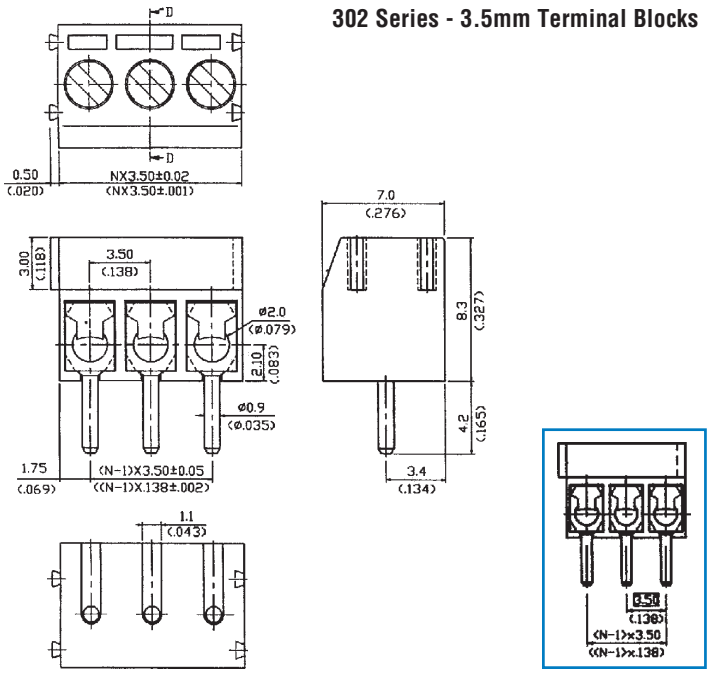
Insulation resistance:
5000 MΩ (min.)/1500 V

Contact resistance:
15 MΩ (max.)

Material

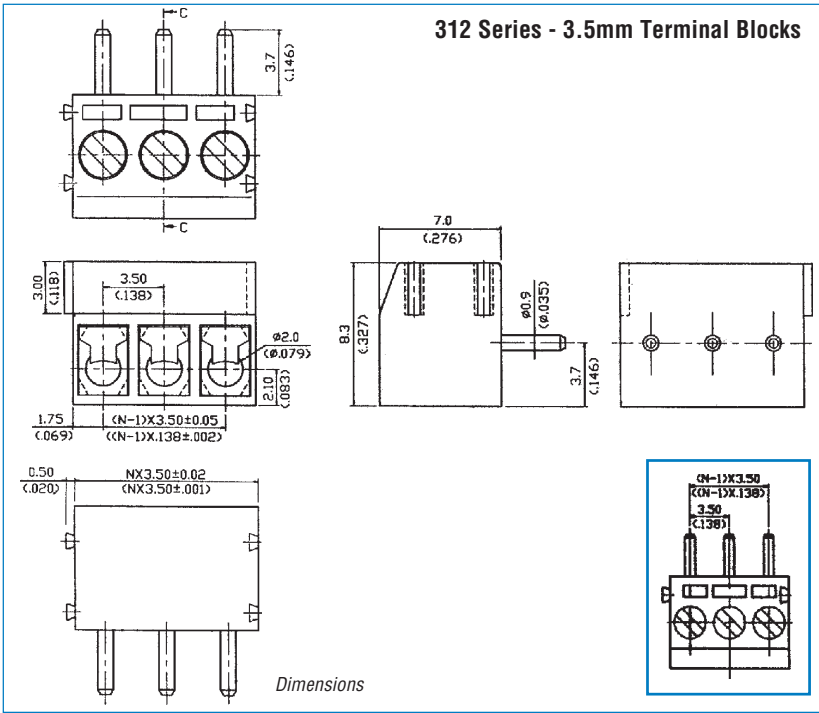
Contact:	Brass
Terminal screw:	Zinc plated steel, clear chromate finish
Wire guard:	Stainless steel
Solder tail:	Tin plated
Insulator:	Glass filled polyester (UL 94V-0), blue

302 Series - 3.5mm Terminal Blocks



Dimensions

312 Series - 3.5mm Terminal Blocks



Dimensions

Ordering Information

Please replace 'X' with appropriate coding listed in table below

3X2 - XXX - 1600

Series

Definition	Code
Front Cable Inlet Type	0
Top Wire Inlet Type	1

No. of Contacts

Definition	Code
2 contacts (standard)	02
3 contacts (basic blocks)	03

Pitch (Pin Spacing)

Definition	Code
3.5 mm/.138"	1
7.00mm/.276" wtc.	2

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HA-52 Series Terminal Block

Features

- *No tools necessary for operation*
- *Choice of flat or thumb grip levers*
- *Superior shock resistant contact design*
- *PCB standoffs for flux removal*

Ideal for applications where end users must interface with equipment or where field changes may need to be made, the HA-52 series of terminal blocks brings new meaning to the tern convenience!

Available with either flat or thumb grip style levers, these terminal blocks require no tools at all for wire connection. In addition to being convenient for inexperienced or poorly equipped users, experienced users will benefit from the increased productivity which they afford.

A superior anti-shock contact design assures reliability of connections and molded-in standoffs aid in flux removal. Both styles are available in sizes from 2 through 20 poles.

Specifications

Mechanical/Electrical

Wire range:
18-22 AWG. stranded

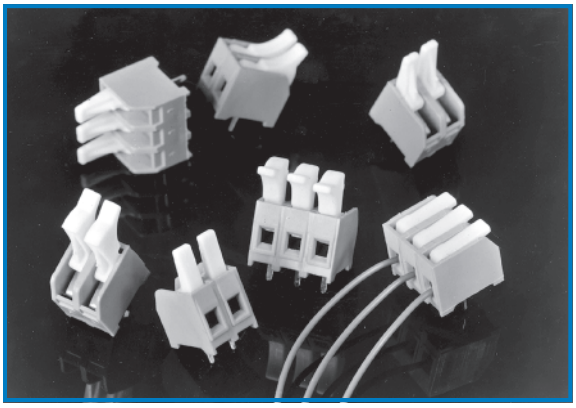
Contact rating:
10 Amp. - @ 300 V AC

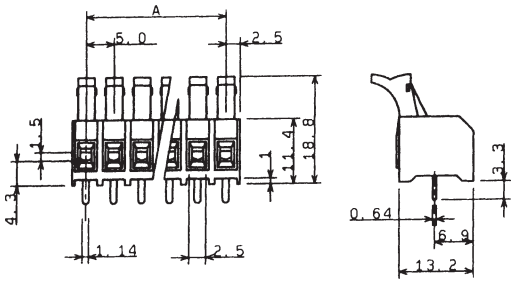
Dielectric Strength:
2000 V AC

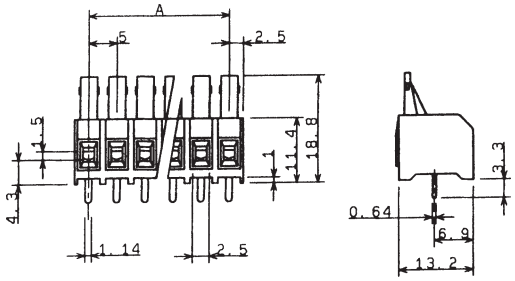
Insulation resistance:
≥ 500 mΩ at 500 V

Material

Body material:	Thermoplastic rated UL94-VO, color green
Terminal:	Brass, Tin plated
Cam lever:	Thermoplastic rated UL94-VO, color white







Dimension: Pitch 5 mm

Pole	2	3	4	5	6	7	8	9	10	11	12
A	5	10	15	20	25	30	35	40	45	50	55

Pole	13	14	15	16	17	18	19	20
A	60	65	70	75	80	85	90	95

All Dimensions in mm

Ordering Information

Please replace 'X' with appropriate coding listed in table below

HA-52 - X - XX

Series

Definition	Code
Thumb Grip Lever	1
Flat Lever	2

Number of Poles (02-20)

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Pluggable Terminal Blocks - Right Angle

Specifications

Materials & Finishes

Cage clamp:	Brass, Ni plated
Contact:	Phosphor bronze, Tin plated, 0.4t
Insulating body:	Polyamide 66 (UL94V-0)
Screw:	M3.0, steel, Zinc plated
Color:	Green

Environmental

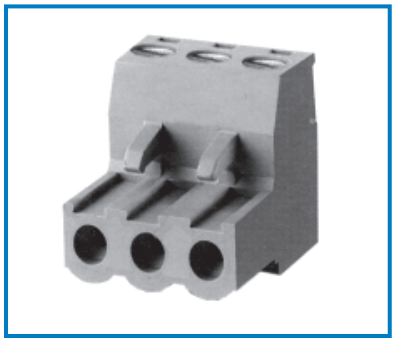
Operation temperature:	-55°C to +105°C
Short-time temperature:	up to 250°C (+482°F)

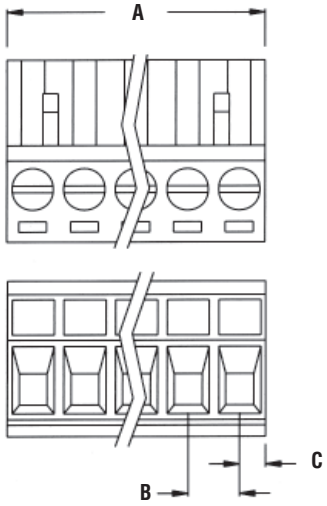
Electrical

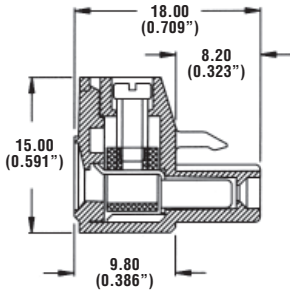
Current rating:	16 Amp AC300V
Insulation withstanding voltage:	AC2000V min
Insulation resistance:	>5000 mΩ DC500V
Wide strip length:	4mm - 5mm
Wire range:	14 - 24 AWG
Screws torque:	4.5lb.-inch

Type MC100-500
(5 mm/0.197" pitch)

Type MC100-508
(5.08 mm/0.200" pitch)







B = MC100-500: 5.00 (0.197") MC100-508: 5.08 (0.200")

C = MC100-500: 2.50 (0.098") MC100-508: 2.54 (0.100")

Dimensional Information

Pitch: 5.00 mm (0.197 inch)			
Part Number	Poles	A (mm)	A (inch)
MC100-50002	2	10.00	0.394
MC100-50003	3	15.00	0.591
MC100-50004	4	20.00	0.787
MC100-50005	5	25.00	0.984
MC100-50006	6	30.00	1.181
MC100-50007	7	35.00	1.378
MC100-50008	8	40.00	1.575
MC100-50009	9	45.00	1.772
MC100-50010	10	50.00	1.969
MC100-50011	11	55.00	2.165
MC100-50012	12	60.00	2.362
MC100-50024	24	120.00	4.724

Pitch: 5.08 mm (0.200 inch)			
Part Number	Poles	A (mm)	A (inch)
MC100-50802	2	10.16	0.400
MC100-50803	3	15.24	0.600
MC100-50804	4	20.32	0.800
MC100-50805	5	25.40	1.000
MC100-50806	6	30.48	1.200
MC100-50807	7	35.56	1.400
MC100-50808	8	40.64	1.600
MC100-50809	9	45.72	1.800
MC100-50810	10	50.80	2.000
MC100-50811	11	55.88	2.200
MC100-50812	12	60.96	2.400
MC100-50824	24	120.92	4.800

3.5 mm and 3.81 mm types also available.
Contact factory for details.

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Pluggable Terminal Blocks - Vertical

Specifications

Materials & Finishes

Cage clamp:	Brass, Ni plated
Contact:	Phosphor bronze, Tin plated, 0.4t
Insulating body:	Polyamide 66 (UL94V-0)
Screw:	M2.6, steel, Zinc plated
Color:	Green

Environmental

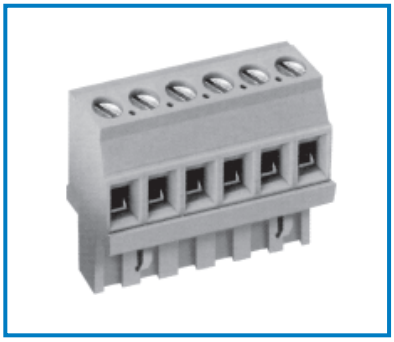
Operation temperature:	-55°C to +105°C
Short-time temperature:	up to 250°C (+482°F)

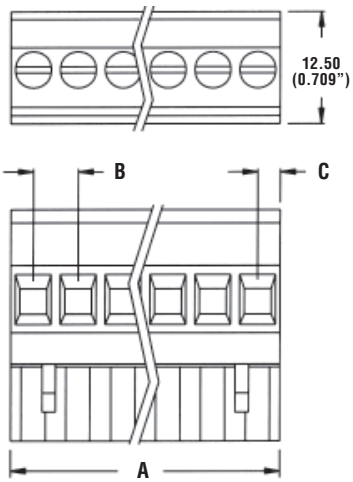
Electrical

Current rating:	16 Amp AC300V
Insulation withstanding voltage:	AC2000V min
Insulation resistance:	>5000 mΩ DC500V
Wide strip length:	7mm
Wire range:	14 - 24 AWG
Screws torque:	4.5lb.-inch

Type MC200-500
(5 mm/0.197" pitch)

Type MC200-508
(5.08 mm/0.200" pitch)





B = MC200-500: 5.00 (0.197")
MC200-508: 5.08 (0.200")

C = MC200-500: 2.50 (0.098")
MC200-508: 2.54 (0.100")

Dimensional Information

Pitch: 5.00 mm (0.197 inch)			
Part Number	Poles	A (mm)	A (inch)
MC200-50002	2	10.00	0.394
MC200-50003	3	15.00	0.591
MC200-50004	4	20.00	0.787
MC200-50005	5	25.00	0.984
MC200-50006	6	30.00	1.181
MC200-50007	7	35.00	1.378
MC200-50008	8	40.00	1.575
MC200-50009	9	45.00	1.772
MC200-50010	10	50.00	1.969
MC200-50011	11	55.00	2.165
MC200-50012	12	60.00	2.362
MC200-50024	24	120.00	4.724

Pitch: 5.08 mm (0.200 inch)			
Part Number	Poles	A (mm)	A (inch)
MC200-50802	2	10.16	0.400
MC200-50803	3	15.24	0.600
MC200-50804	4	20.32	0.800
MC200-50805	5	25.40	1.000
MC200-50806	6	30.48	1.200
MC200-50807	7	35.56	1.400
MC200-50808	8	40.64	1.600
MC200-50809	9	45.72	1.800
MC200-50810	10	50.80	2.000
MC200-50811	11	55.88	2.200
MC200-50812	12	60.96	2.400
MC200-50824	24	121.92	4.800

3.5 mm and 3.81 mm types also available. Contact factory for details.

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Header - Right Angle, Open End

Specifications

Materials & Finishes

Solder pin:	1.0 mm square, Brass Tin plated
Insulating body:	Polyamide 66 (UL94V-0)
Color:	Green

Environmental

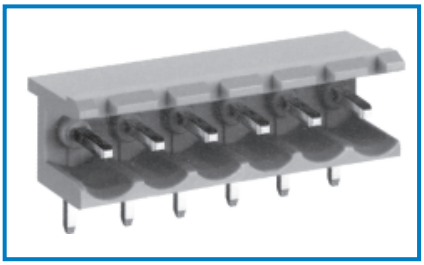
Operation temperature:	-55°C to +105°C
Short-time temperature:	up to 250°C (+482°F)

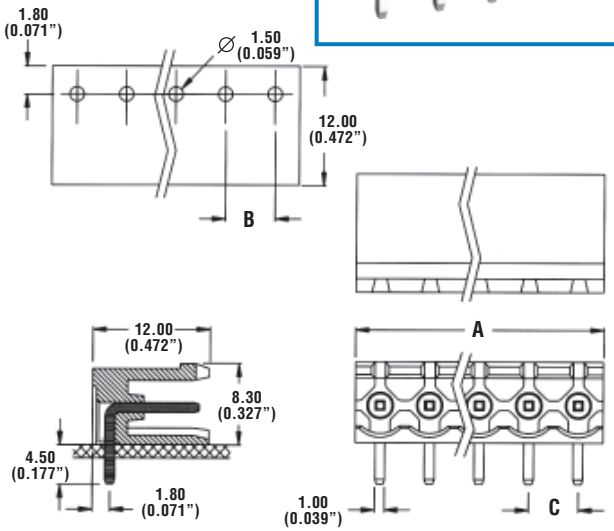
Electrical

Current rating:	12 Amp AC300V
Insulation withstanding voltage:	AC2000V min
Insulation resistance:	>5000 mΩ DC500V
PCB hole diameter:	∅ 1.5 mm

Type ME010-500
(5 mm/0.197" pitch)

Type ME010-508
(5.08 mm/0.200" pitch)





Dimensional Information

Pitch: 5.00 mm (0.197 inch)			
Part Number	**Poles**	**A (mm)**	**A (inch)**
ME010-50002	2	10.00	0.394
ME010-50003	3	15.00	0.591
ME010-50004	4	20.00	0.787
ME010-50005	5	25.00	0.984
ME010-50006	6	30.00	1.181
ME010-50007	7	35.00	1.378
ME010-50008	8	40.00	1.575
MC200-50009	9	45.00	1.772
ME010-50010	10	50.00	1.969
ME010-50011	11	55.00	2.165
ME010-50012	12	60.00	2.362
ME010-50024	24	120.00	4.724

Pitch: 5.08 mm (0.200 inch)			
Part Number	**Poles**	**A (mm)**	**A (inch)**
ME010-50802	2	10.16	0.400
ME010-50803	3	15.24	0.600
ME010-50804	4	20.32	0.800
ME010-50805	5	25.40	1.000
ME010-50806	6	30.48	1.200
ME010-50807	7	35.56	1.400
ME010-50808	8	40.64	1.600
ME010-50809	9	45.72	1.800
ME010-50810	10	50.80	2.000
ME010-50811	11	55.88	2.200
ME010-50812	12	60.96	2.400
ME010-50824	24	121.92	4.800

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Header - Vertical, Open End

Specifications

Materials & Finishes

Solder pin:	1.0 mm square, Brass Tin plated
Insulating body:	Polyamide 66 (UL94V-0)
Color:	Green

Environmental

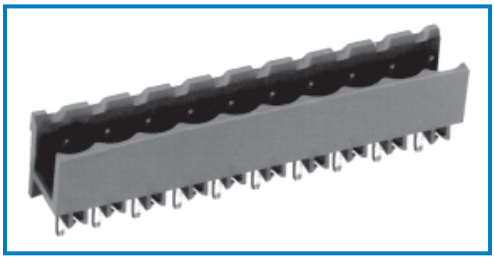
Operation temperature:	-55°C to +105°C
Short-time temperature:	up to 250°C (+482°F)

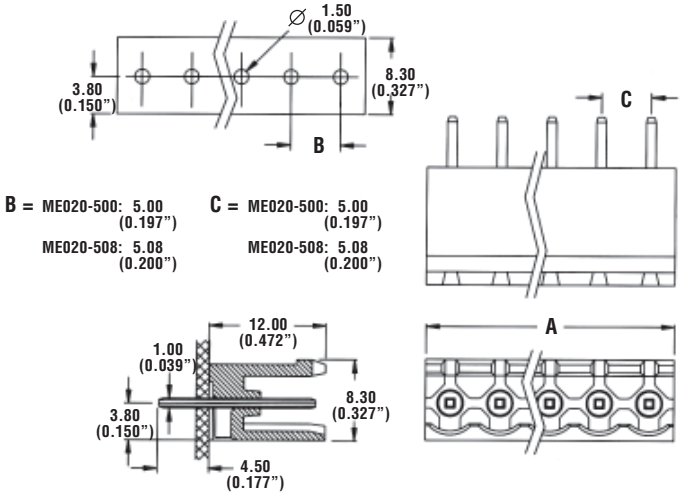
Electrical

Current rating:	12 Amp AC300V
Insulation withstanding voltage:	AC2000V min
Insulation resistance:	>5000 mΩ DC500V
PCB hole diameter:	∅ 1.5 mm

Type ME020-500
(5 mm/0.197" pitch)

Type ME020-508
(5.08 mm/0.200" pitch)





Dimensional Information

Pitch: 5.00 mm (0.197 inch)			
Part Number	**Poles**	**A (mm)**	**A (inch)**
ME020-50002	2	10.00	0.394
ME020-50003	3	15.00	0.591
ME020-50004	4	20.00	0.787
ME020-50005	5	25.00	0.984
ME020-50006	6	30.00	1.181
ME020-50007	7	35.00	1.378
ME020-50008	8	40.00	1.575
MC020-50009	9	45.00	1.772
ME020-50010	10	50.00	1.969
ME020-50011	11	55.00	2.165
ME020-50012	12	60.00	2.362
ME020-50024	24	120.00	4.724

Pitch: 5.08 mm (0.200 inch)			
Part Number	**Poles**	**A (mm)**	**A (inch)**
ME020-50802	2	10.16	0.400
ME020-50803	3	15.24	0.600
ME020-50804	4	20.32	0.800
ME020-50805	5	25.40	1.000
ME020-50806	6	30.48	1.200
ME020-50807	7	35.56	1.400
ME020-50808	8	40.64	1.600
ME020-50809	9	45.72	1.800
ME020-50810	10	50.80	2.000
ME020-50811	11	55.88	2.200
ME020-50812	12	60.96	2.400
ME020-50824	24	121.92	4.800

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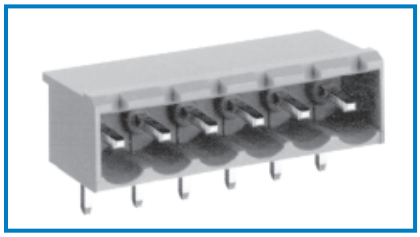
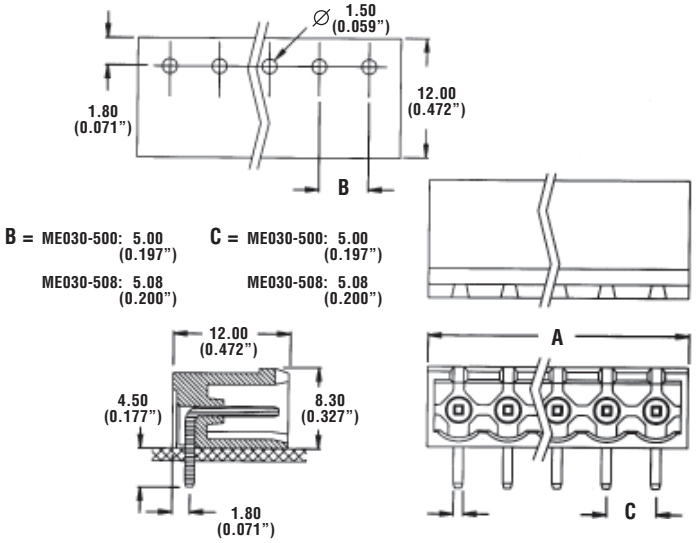
Header - Right Angle, Closed End

Type ME030-500
(5 mm/0.197" pitch)

Type ME030-508
(5.08 mm/0.200" pitch)





Specifications

Materials & Finishes

Solder pin:	1.0 mm square, Brass Tin plated
Insulating body:	Polyamide 66 (UL94V-0)
Color:	Green

Environmental

Operation temperature:	-55°C to +105°C
Short-time temperature:	up to 250°C (+482°F)

Electrical

Current rating:	12 Amp AC300V
Insulation withstanding voltage:	AC2000V min
Insulation resistance:	>5000 mΩ DC500V
PCB hole diameter:	∅ 1.5 mm

Dimensional Information

Pitch: 5.00 mm (0.197 inch)			
Part Number	**Poles**	**A (mm)**	**A (inch)**
ME030-50002	2	11.60	0.457
ME030-50003	3	16.60	0.654
ME030-50004	4	21.60	0.850
ME030-50005	5	26.60	1.047
ME030-50006	6	31.60	1.244
ME030-50007	7	36.60	1.441
ME030-50008	8	41.60	1.638
MC030-50009	9	46.60	1.835
ME030-50010	10	51.60	2.031
ME030-50011	11	56.60	2.228
ME030-50012	12	61.60	2.425
ME030-50024	24	121.60	4.787

Pitch: 5.08 mm (0.200 inch)			
Part Number	**Poles**	**A (mm)**	**A (inch)**
ME030-50802	2	11.76	0.463
ME030-50803	3	16.84	0.663
ME030-50804	4	21.92	0.863
ME030-50805	5	27.00	1.063
ME030-50806	6	32.08	1.263
ME030-50807	7	37.16	1.463
ME030-50808	8	42.24	1.663
ME030-50809	9	47.32	1.863
ME030-50810	10	52.40	2.063
ME030-50811	11	57.48	2.263
ME030-50812	12	62.56	2.463
ME030-50824	24	123.52	4.863

3.5 mm and 3.81 mm types also available. Contact factory for details.

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Header - Vertical, Closed End

Specifications

Materials & Finishes

Solder pin:	1.0 mm square, Brass Tin plated
Insulating body:	Polyamide 66 (UL94V-0)
Color:	Green

Environmental

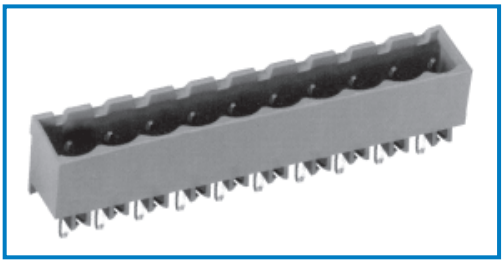
Operation temperature:	-55°C to +105°C
Short-time temperature:	up to 250°C (+482°F)

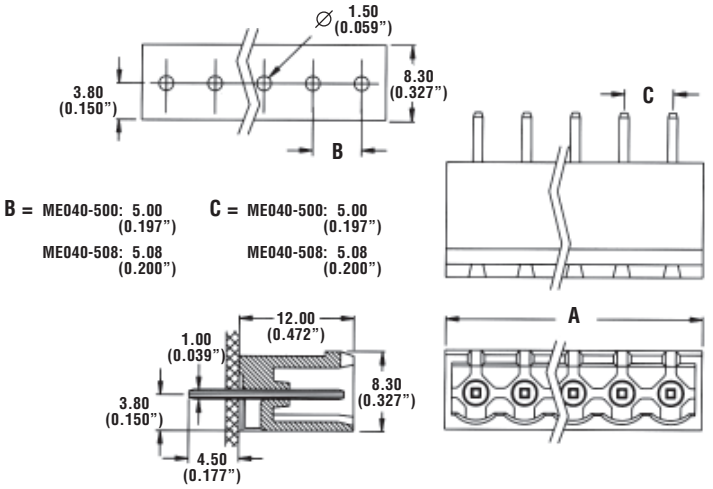
Electrical

Current rating:	12 Amp AC300V
Insulation withstanding voltage:	AC2000V min
Insulation resistance:	>5000 mΩ DC500V
PCB hole diameter:	∅ 1.5 mm

Type ME040-500
(5 mm/0.197" pitch)

Type ME040-508
(5.08 mm/0.200" pitch)





Dimensional Information

Pitch: 5.00 mm (0.197 inch)			
Part Number	Poles	A (mm)	A (inch)
ME040-50002	2	11.60	0.457
ME040-50003	3	16.60	0.654
ME040-50004	4	21.60	0.850
ME040-50005	5	26.60	1.047
ME040-50006	6	31.60	1.244
ME040-50007	7	36.60	1.441
ME040-50008	8	41.60	1.638
MC040-50009	9	46.60	1.835
ME040-50010	10	51.60	2.031
ME040-50011	11	56.60	2.228
ME040-50012	12	61.60	2.425
ME040-50024	24	121.60	4.787

Pitch: 5.08 mm (0.200 inch)			
Part Number	Poles	A (mm)	A (inch)
ME040-50802	2	11.76	0.463
ME040-50803	3	16.84	0.663
ME040-50804	4	21.92	0.863
ME040-50805	5	27.00	1.063
ME040-50806	6	32.08	1.263
ME040-50807	7	37.16	1.463
ME040-50808	8	42.24	1.663
ME040-50809	9	47.32	1.863
ME040-50810	10	52.40	2.063
ME040-50811	11	57.48	2.263
ME040-50812	12	62.56	2.463
ME040-50824	24	123.52	4.863

3.5 mm and 3.81 mm types also available.
Contact factory for details.

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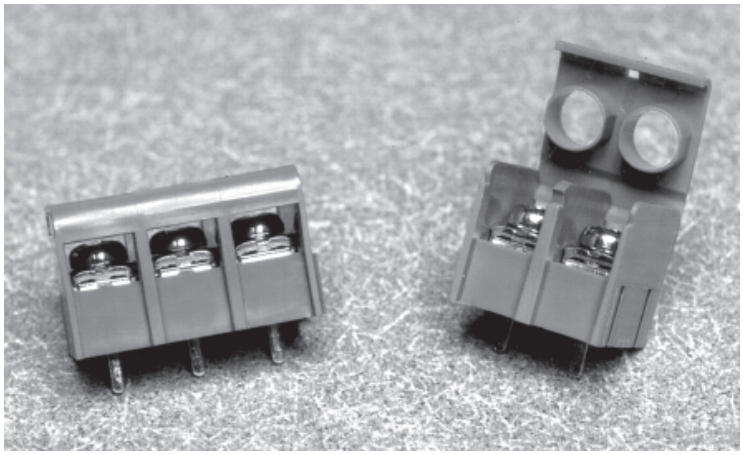
Modular Barrier Strips With Integral Molded Covers

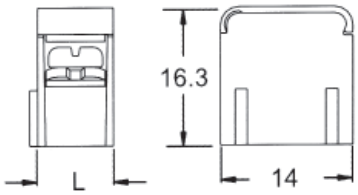
E-Mark proudly introduces an entirely new concept in barrier strips — modular strips with integrally molded covers. Available in two and three pole sizes which slide together to make almost any number of positions. Their integrally molded covers increase safety in every application!



Features

- *Barrier & Tri-barrier types*
- *Six contact styles*
- *Two pitches:*
  .30" (7.62 mm)
  .375" (9.5 mm)
- *Short lead times*
- *Access holes permit adjustment when covers are closed*

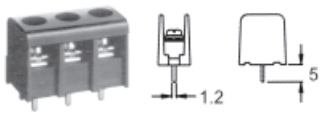
C31M PCB Barrier Termainal Block Modular Type



Specifications

Pitch (mm):	7.62
Poles:	M2, M3
Rated Current:	10A AC300V
Terminal:	Brass, Tin Plated, 0.8t
Wire Range (AWG):	16-22
Insulator Body:	Polyamide 66 (UL 94V-0), Green/Black
Screw:	M3.0, Steel, Ni Plated
Dimension (L x W x H mm):	Length (L) = 7.62 x Poles

C31MBM11-03

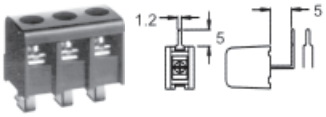


C31MBM14-03

C31MBM23-03

C31MBM32-03

C31MBP32-03



C31MBS11-03

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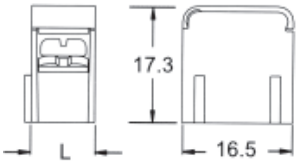
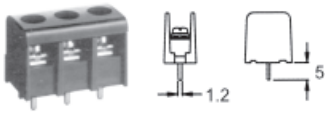
C34M PCB Barrier Termainal Block Modular Type



Specifications

Pitch (mm):	9.50
Poles:	M2, M3
Rated Current:	15A AC300V
Terminal:	Brass, Tin Plated, 0.8t
Wire Range (AWG):	14-22
Insulator Body:	Polyamide 66 (UL 94V-0), Green/Black
Screw:	M3.0, Steel, Ni Plated
Dimension (L x W x H mm):	Length (L) = 9.50 x Poles

C34MBM11-03

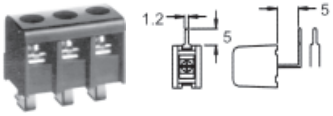


C34MBM14-03

C34MBM23-03

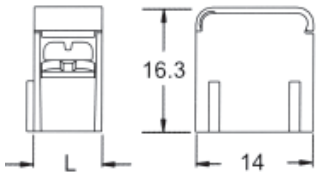
C34MBM32-03

C34MBP32-03



C34MBS11-03

C41M PCB Tri Barrier Terminal Block Modular Type



Specifications

Pitch (mm):	7.62
Poles:	M2, M3
Rated Current:	10A AC300V
Terminal:	Brass, Tin Plated, 0.8t
Wire Range (AWG):	16-22
Insulator Body:	Polyamide 66 (UL 94V-0), Green/Black
Screw:	M3.0, Steel, Ni Plated
Dimension (L x W x H mm):	Length (L) = 7.62 x Poles

C41MBM11-03

C41MBB11-03

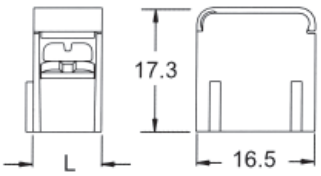
C41MBM23-03

C41MBM32-03

C41MBP32-03

C41MBS11-03

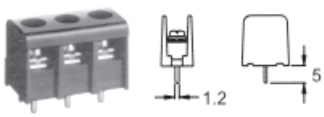
C44M PCB Tri Barrier Terminal Block Modular Type



Specifications

Pitch (mm):	9.50
Poles:	M2, M3
Rated Current:	15A AC300V
Terminal:	Brass, Tin Plated, 0.8t
Wire Range (AWG):	14-22
Insulator Body:	Polyamide 66 (UL 94V-0), Green/Black
Screw:	M3.0, Steel, Ni Plated
Dimension (L x W x H mm):	Length (L) = 9.50 x Poles

C44MBM11-03

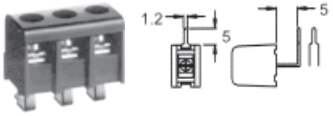


C44MBM14-03

C44MBM23-03

C44MBM32-03

C44MBP32-03



C44MBS11-03

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E-Mark TRINARY Dip Switches

Features

- *Three actuator settings (1, open, 0)*
- *Bottom sealed as standard to prevent flux contamination (Top Seal Option)*
- *Three styles available (standard thru-hole, auto insertion compatible, SMT compatible)*
- *Twin, gold plated contacts for reliability*

Application

E-Mark's TRINARY switches are ideal for coding telecom, transceiving, remote control, alarm equipment, etc. which use ICs with TRINARY coding. Each contact offers the user three settings (1, open, or 0) which vastly increases the number of codes possible compared to two state (1,0) operation. For example, 9 bits with TRINARY yields 19,683 (3^9) codes while two state yields 512 (2^9) codes... an increase of 38X!

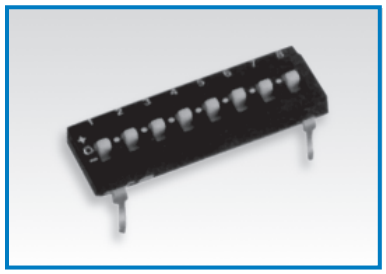
E-Mark TRINARY switches are available in three styles to suite any application.

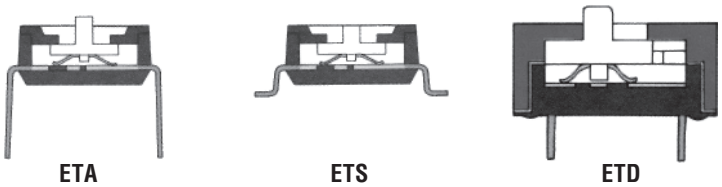
ETD style:
Normal thru-hole mounting

ETA style:
Automatic insertion compatible

ETS style:
SMT compatible

All switches are manufactured from the highest quality components including UL-94V0 plastics.





ETA ETS ETD

Specifications

Electrical

Contact Rating
Switching: 25mA, 24 VDC
Non-switching: 100mA, 50 VDC

Contact Resistance
Initial: 50 mΩ max.
After life test: 100 mΩ max.

Insulation Resistance:
1,000 MΩ min. at 100 VDC

Dielectric Strengh:
500 VDC min. for 1 minute

Capacitance between adjacent switches 5pF max.

Mechanical and Environmental

Temperature Rating
Operating: -25° to +70°C
Storage: -40° to +85°C

Operation Force:
800 g max.

Operation Life:
2,000 Operations

Humidity:
95% RH, 40°C for 96 Hrs.

Vibration:
Per MIL-STD-202F, Method 204D

Solderability:
After flux 230 ± 5°C for 5 ± 0.5 second 95% coverage

Soldering Heat
For ETA, ETD Type:
260 ± 5°C for 5 ± 1 second
For ETS Type:
260 ± 5°C for 10 ± 1 second
260 ± 5°C for 2 ± 0.5 second
(Resistance to IR Reflow Soldering Heat)

Ordering Information

ETD - 08 - E - X

Series Name:
ETD: Bottom Epxoy Sealed type
ETA: Automatic Inserting type
ETS: Surface Mounting type

Number of Positions

Actuator:
E: Extended Actuator
L: Low Profile Actuator

Option:
Blank: Non-Top Tape Sealed
T: Top Tape Sealed

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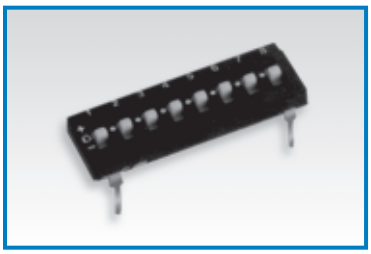
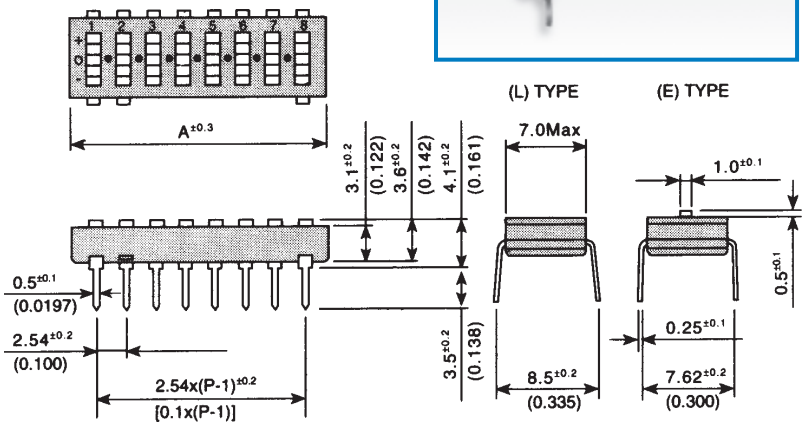
ETA

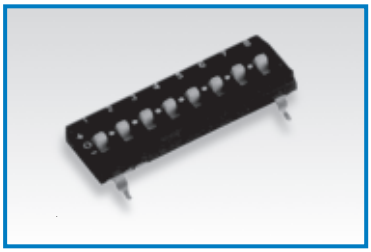


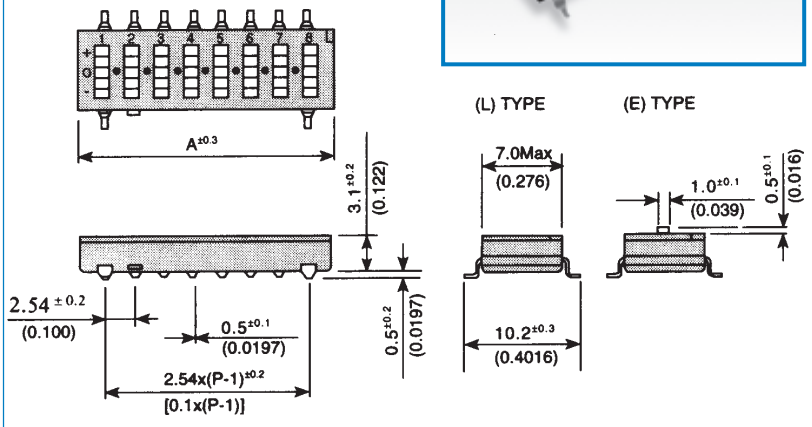


Dimension A

Positions	4	5	7	8	9	10
A	11.76 (0.463)	14.3 (0.563)	19.38 (0.763)	21.92 (0.863)	24.46 (0.963)	27.00 (1.063)

ETS





Dimension A

Positions	4	5	7	8	9	10
A	11.76 (0.463)	14.3 (0.563)	19.38 (0.763)	21.92 (0.863)	24.46 (0.963)	27.00 (1.063)

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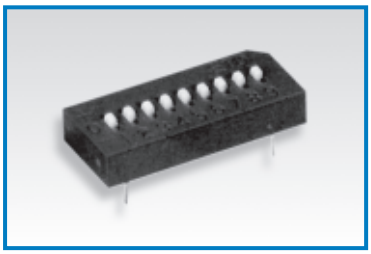
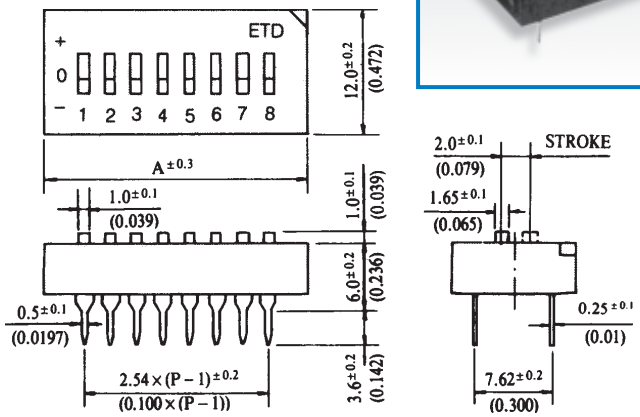
E-Mark TRINARY Dip Switches *Continued*

ETD

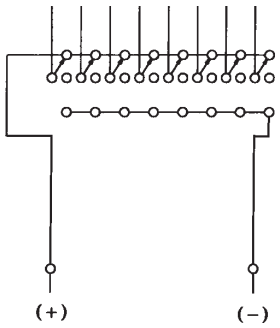




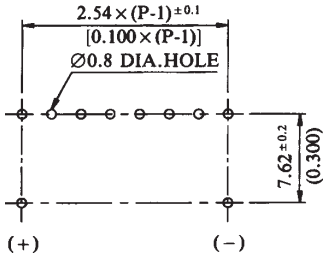
Dimension A

Positions	4	5	7	8	9	10
A	15.30 (0.602)	17.84 (0.702)	22.92 (0.902)	25.46 (1.002)	28.00 (1.102)	30.54 (1.202)

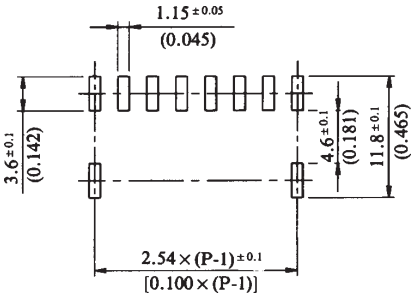
Circuit Diagram



P.C.B. Layout (Top View) (ETD / ETA)

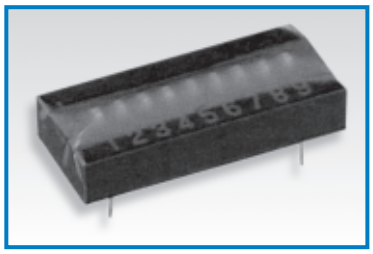


P.C.B. Pattern (ETS)

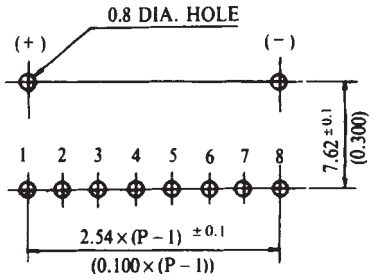


Options

Tape Sealed



Reverse P.C.B. Layout available



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Jumper-Switch™

Features

- *Drop-in replacement for jumpers*
- *Secured in the ON or OFF setting*
- *0.1" mounting pitch*
- *1 thru 16 ON / OFF contacts*
- *Hard gold plated wiping contacts*

A switchable jumper on 0.1" pitch that securely switches PCB track signals ON / OFF with a positive contact action. Supplied in units of 1 through 16 poles they provide an alternative to jumpers without the need for exposed bare pins.

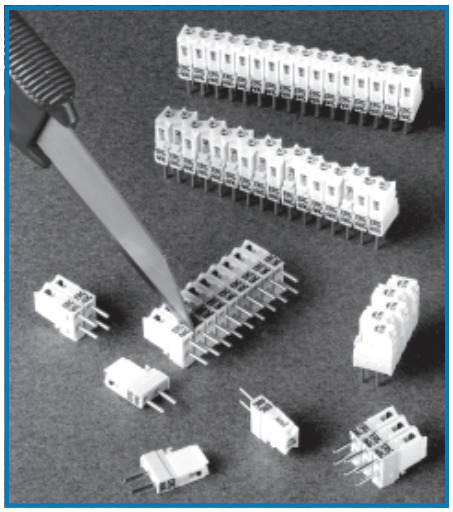
Longer units (up to 16 poles) save loading time in production. In the design state they can be cut with a utility knife to achieve any combination required to provide flexible switching with the least routing on a PCB.

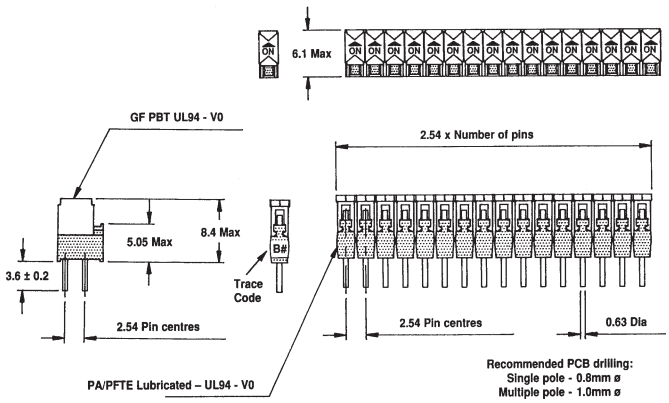
Options available including sliders of different colors in the EIA range, a mixture of colors for sliders in multi-pole versions and slider numbering.

Reliable switching of the gold over nickel plated, phosphor bronze contacts is guaranteed with the 4 point wiping contact design. The contacts never rub over any plastic part and every one is tested before shipment. The positive detent action guarantees good shock resistance.

The deep 'V' slots positively locate any operating probe.

Jumper-Switch™ has been designed for use on hand or flow soldered and washed PCBs. The tight pin fit prevents any wicking. Users should evaluate that their particular processes are compatible with the unsealed contact design concept.





All Dimensions in mm

Ordering Information

Please replace 'X' with appropriate coding listed in table below

JSA4 - XX - XX

Series Jumper-Switch™

Definition	Code
2 rows of pins - ON/OFF	A
Slider Color Yellow (standard)	4

Definition	Code
Number of sliders	01 - 16

Gold Thickness

Definition	Code
Standard 0.1µ	G0
Special 0.1µ	G1

Specifications

Contact Ratings

Non-Switching: 100 VAC, 5A

Switching: 1µV to 100V, 1µA to 1A, 10 VA

Contacts are shipped in "ON" position

Initial Contact Resistance

Typical: 10mΩ

Max: 15mΩ (at 10VA, 10mA max)

Insulation resistance: 1,000 MΩ at 500 VDC min

Life: Minimum 1,000 operations

Dielectric Strengths

1 minute: 500Vrms 50 Hz

Capacitance between open contacts: <5pf. at 1KHz

Temperature

Operating range for continuous electrical use and manual operation is restricted to -55° to +85°C for standard products

Operating Force (per pole): Max. 5N

Humidity

Damp Heat Steady State: 56 days

Solderability: <2 seconds to wet at 235°C as per IEC 68 and BS2011 Test T, solder bath method.

Resistance to soldering heat as per IEC 69 and BS2011 10 seconds satisfactory at 260°C when mounted on 1.5mm PCB. Samples available on request.

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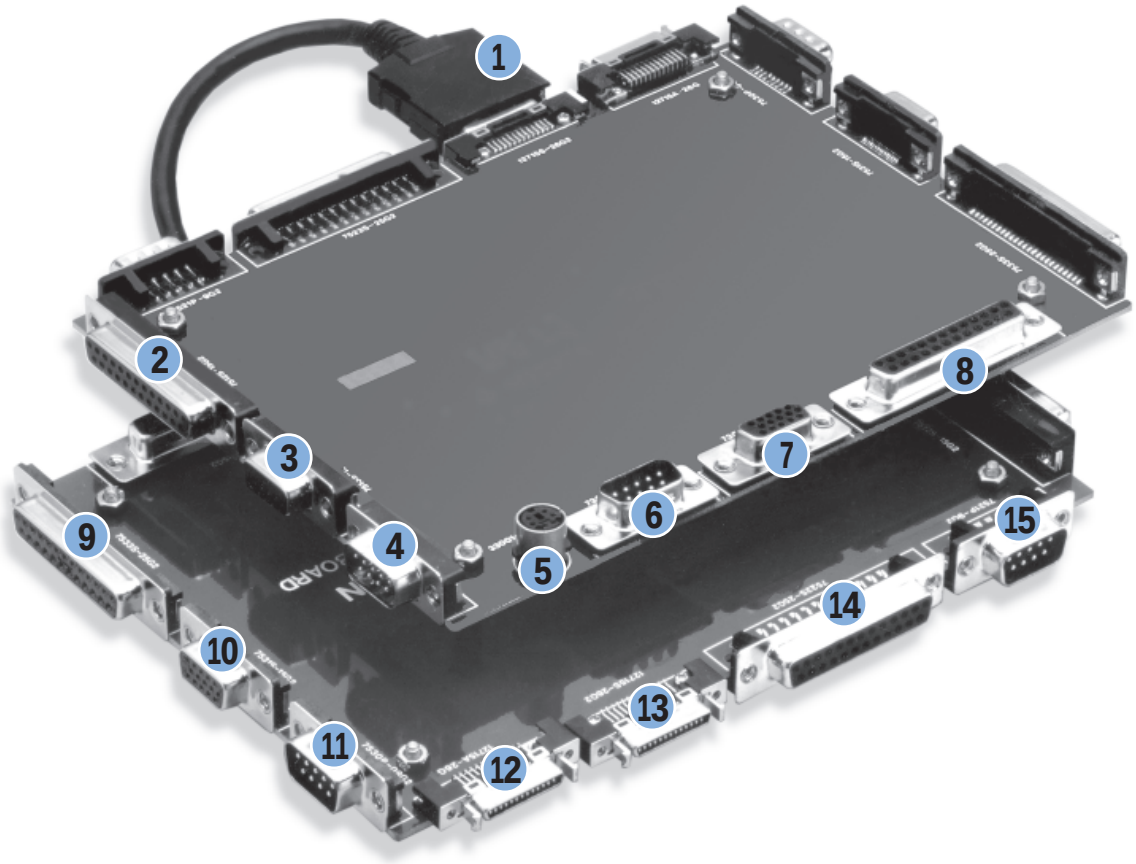
Space Saving D-Sub Connectors for I/O

If you've ever wondered where you can obtain the space saving D-Sub connectors used in notebook computers and other space sensitive equipment, this is the place you'll find them. For example, comparing volume, our 25 contact D-Sub female consumes only 20% of the volume required by standard D-Sub females!

Illustrated below is a wide variety of specialized D-Sub connectors available as SMD parts or through hole types.

Start saving space today!

Request our separate ***D-Sub*** connector catalog by calling the toll-free number shown below or through the E-Mark web site.



1. **Half Pitch Ultra Thin D-Sub**
   Male solder type with cover
2. **Slim D-Sub Right Angle P.C.B. Mount**
   Female type 2.0 mm
3. **Slim D-Sub Right Angle P.C.B. Mount**
   High Density female type 2.0 mm
4. **Slim D-Sub Right Angle P.C.B. Mount**
   Male type 2.0 mm
5. **Mini DIN**
6. **Ultra Thin D-Sub Straight P.C.B. Mount**
   Male type
7. **Ultra Thin D-Sub Straight P.C.B. Mount**
   High Density female type
8. **Ultra Thin D-Sub Straight P.C.B. Mount**
   Female type
9. **Ultra Thin D-Sub**
   Female S.M.D. type
10. **Ultra Thin D-Sub High Density**
    Female S.M.D. type
11. **Ultra Thin D-Sub**
    Male S.M.D. type
12. **Half Pitch Ultra Thin D-Sub Right Angle P.C.B. Mount**
    Female type
13. **Half Pitch Ultra Thin D-Sub Edge Mount**
    Female type
14. **Ultra Thin D-Sub Edge Mount**
    Female type
15. **Ultra Thin D-Sub Edge Mount**
    Male type

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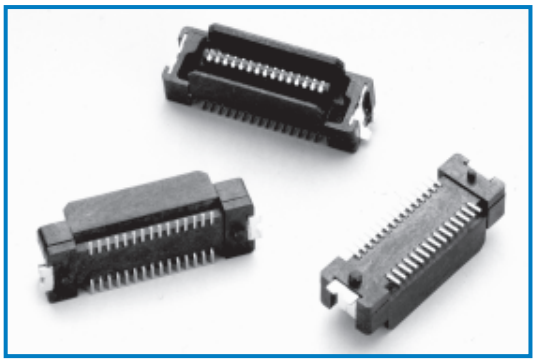
.8 mm Pitch Stacking Connectors

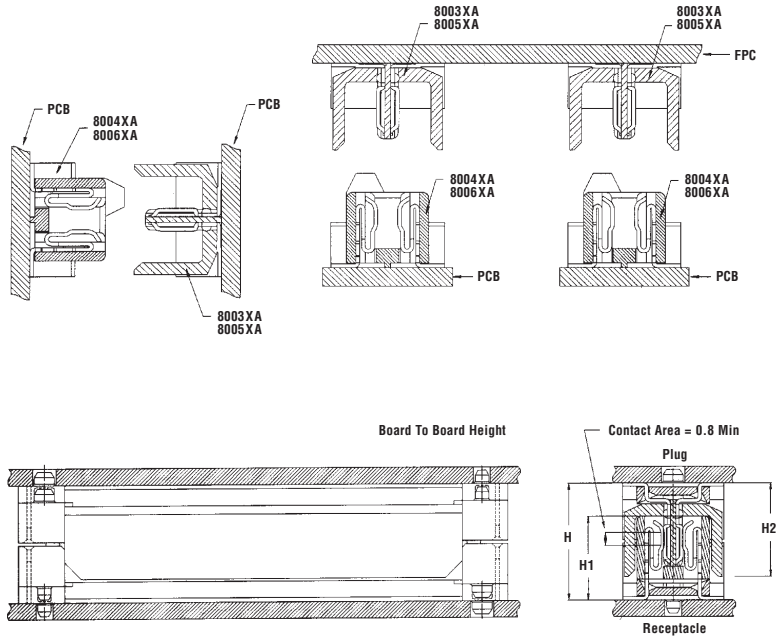
E-Mark is pleased to introduce a new range of SMD compatible, stacking connectors featuring 0.8 mm pitch and designed for board to board connections. Their small footprint and high pin density make them ideal for demanding applications where space is tight.

Available in sizes from 10 to 200 contacts, the plugs and sockets in this range feature strong, reinforcing solder clips and are polarized to prevent mismating. These connectors can be supplied in tubes or on tape and reel for automatic placement.

Shown at right are a few typical configurations using the ***800 Series*** connectors as well as a chart showing the standard stacking heights which are able to be achieved using different combinations of plugs and sockets.

Request the separate ***800 Series*** connector catalog by calling the toll-free number shown below or through the E-Mark web site.





Dimensions

Dimensional Of Board To Board Heights

H	Receptacle	H1	Plug	H2
5.0	80060A - XXXXXX	4.0	80030A - XXXXXX	4.6
6.0	80060A - XXXXXX	4.0	80031A - XXXXXX	5.6
7.0	80060A - XXXXXX	4.0	80032A - XXXXXX	6.6
8.0	80060A - XXXXXX	4.0	80033A - XXXXXX	7.6
9.0	80062A - XXXXXX	6.0	80032A - XXXXXX	6.6
10.0	80040A - XXXXXX	7.4	80050A - XXXXXX	8.0
11.0	80040A - XXXXXX	7.4	80051A - XXXXXX	9.0
12.0	80040A - XXXXXX	7.4	80052A - XXXXXX	10.0
13.0	80040A - XXXXXX	7.4	80053A - XXXXXX	11.0
14.0	80042A - XXXXXX	9.4	80052A - XXXXXX	10.0
15.0	80040A - XXXXXX	7.4	80055A - XXXXXX	13.0
16.0	80043A - XXXXXX	10.4	80053A - XXXXXX	11.0
17.0	80042A - XXXXXX	7.4	80055A - XXXXXX	13.0
18.0	80043A - XXXXXX	10.4	80055A - XXXXXX	13.0
20.0	80045A - XXXXXX	12.4	80055A - XXXXXX	13.0

E-Mark INC.
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