

Guidelines taken from IPC-7351

Footprint Expert Landpattern Naming Convention

PCB Libraries, Inc.

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Surface Mount Land Pattern Naming Convention

Ball Grid Array's with Alphanumeric Rows	BGA + Pin Qty. + C or N + P Pitch _	Ball Columns X Ball Rows _	Body Length X Width X Height + B Ball Diameter
Ball Grid Array's with Alphanumeric Columns	BGA + Pin Qty. + C or N + P Pitch + A _	Ball Columns X Ball Rows _	Body Length X Width X Height + B Ball Diameter
BGA w/Dual Pitch	BGA + Pin Qty. + C or N + P Col Pitch X Row Pitch _	Ball Columns X Ball Rows _	Body Length X Width X Height + B Ball Diameter
BGA w/Staggered Pins	BGAS + Pin Qty. + C or N + P Pitch _	Ball Columns X Ball Rows _	Body Length X Width X Height + B Ball Diameter
Capacitors, Aluminum Electrolytic	CAPAE + Base Body Size X Height + L Lead Length X Width		
Capacitors, Chip, Array, Concave	CAPCAV + Pin Qty. + P Pitch _	+ Body Length X Width X Height + L Lead Length X Width	
Capacitors, Chip, Array, Flat	CAPCAF + Pin Qty. + P Pitch _	+ Body Length X Width X Height + L Lead Length X Width	
Capacitors, Chip	CAPC + Body Length X Width X Height + L Lead Length		
Capacitors, Dual Flat No-lead	CAPDFN + Body Length X Width X Height + L Lead Length X Width		
Capacitors, Molded	CAPM + Lead Span X Body Width X Height + L Lead Length X Width		
Capacitors, Polarized, Chip	CAPPC + Body Length X Width X Height + L Lead Length		
Capacitors, Polarized, Dual Flat No-lead	CAPPDFN + Body Length X Width X Height + L Lead Length X Width		
Capacitors, Polarized, Molded	CAPPM + Lead Span X Body Width X Height + L Lead Length X Width		
Capacitors, Side Concave, 2 Pin	CAPSC + Body Length X Width X Height + L Lead Length		
Ceramic Flat Packages	CFP + Pin Qty. + P Pitch _	Body Length X Lead Span X Height + L Lead Length X Width	
Column Grid Array, Circular Lead	CGA + Pin Qty. P Pitch _	Pin Columns X Pin Rows _	Body Length X Width X Height + L Diameter
Pillar Column Grid Array	PCGA + Pin Qty. P Pitch _	Pin Columns X Pin Rows _	Body Length X Width X Height + L Diameter
Crystals (2 leads)	XTAL + Body Length X Width X Height + L Lead Length X Width		
Crystals, Dual Flat No-lead	XTALDFN + Body Length X Width X Height + L Lead Length X Width		
Crystals, Side Concave	XTALSC + Body Length X Width X Height + L Lead Length		
Diodes, Chip	DIOC + Body Length X Width X Height + L Lead Length		
Diodes, Dual Flat No-lead	DIODFN + Pin Qty. _	Body Length X Width X Height + L Lead Length X Width	
Diodes, Molded	DIOM + Lead Span X Body Width X Height + L Lead Length X Width		
Diodes, Non-polarized, Chip	DIONC + Lead Span X Body Width X Height + L Lead Length		
Diodes, Non-polarized, Dual Flat No-lead	DIONDFN + Pin Qty. _	Body Length X Width X Height + L Lead Length X Width	
Diodes, Non-polarized, Molded	DIONM + Lead Span X Body Width X Height + L Lead Length X Width		
Diodes, MELF	DIOMELF + Body Length + Diameter + L Lead Length		
Diodes, Side Concave	DIOSC + Body Length X Width X Height + L Lead Length		
Diodes, Side Concave, 4 Pin	DIOSC4 + P Pitch _	Body Length X Width X Height + L Lead Length	
Diodes, Small Outline Flat Lead, 2 Pin	SODFL + Lead Span X Body Width X Height + L Lead Length X Width		
Diodes, Small Outline Flat Lead, 3 - 6 Pin	DIOSOFL + Pin Qty. + P Pitch _	+ Lead Span X Body Height + L Lead Length X Width	
DPAK	DPAK + Pin Qty. + P Pitch _	Lead Span X Height + L Lead Length X Width + T Thermal Tab Pad Length X Width	
Ferrite Bead, Chip	BEADC + Body Length X Width X Height + L Lead Length		
Fuses, Chip	FUSC + Body Length X Width X Height + L Lead Length		
Fuses, Dual Flat No-Lead	FUSDFN + Body Length X Width X Height + L Lead Length X Lead Width		
Fuses, Molded	FUSM + Lead Span X Body Width X Height + L Lead Length X Lead Width		
Fuses, Side Concave	FUSSC + Body Length X Width X Height + L Lead Length		
IC, Small Outline Package, Flat Lead	SOPFL + Pin Qty. + P Pitch _	+ Lead Span X Body Height + L Lead Length X Width	
Inductors, Chip	INDC + Body Length X Width X Height + L Lead Length		
Inductors, Chip, Array, Concave	INDCAV + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Inductors, Chip, Array, Flat	INDCAF + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Inductors, Dual Flat No-lead	INDDFN + Body Length X Width X Height + L Lead Length X Width		
Inductors, Molded	INDM + Lead Span X Body Width X Height + L Lead Length X Width		
Inductors, Precision, Molded	INDPM + Lead Span X Body Width X Height + L Lead Length X Width		
Inductors, Side Concave	INDSC + Body Length X Width X Height + L Lead Length		
Integrated Circuit, Small Outline, Flat Lead, 3 - 6 pin	ICSOFL + Pin Qty. + P Pitch _	+ Lead Span X Body Height + L Lead Length X Width	
Land Grid Array, Circular Lead	LGA + Pin Qty. + C + P Pitch _	Pin Columns X Pin Rows _	Body Length X Width X Height + L Lead Diameter
Land Grid Array, Square Lead	LGA + Pin Qty. + S + P Pitch _	Pin Columns X Pin Rows _	Body Length X Width X Height + L Lead Size
LED's, Chip	LEDC + Body Length + Width X Height + L Lead Length		
LED's, Dual Flat No-lead	LEDDFN + Body Length X Width X Height + L Lead Length X Width		
LED's, Molded	LEDM + Lead Span X Body Width X Height + L Lead Length X Width		
LED's, Side Concave	LEDSC + Body Length X Width X Height + L Lead Length		
LED's, Side Concave, 4 Pin	LEDSC4 + P Pitch _	Body Length X Width X Height + L Lead Length	
Oscillators, Dual Flat No-Lead (4-pin)	OSCDFN4 _	Body Length X Width X Height + L Lead Length X Width	
Oscillators, Side Concave	OSCS + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Oscillators, Side Flat	OSCSF + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Oscillators, J-Lead	OSCJ + Pin Qty. + P Pitch _	Body Length X Lead Span X Height + L Lead Width	
Oscillators, L-Bend Lead	OSCL + Pin Qty. + P Pitch _	Body Length X Lead Span X Height + L Lead Length X Width	
Oscillators, Corner Concave	OSCCC + Body Length X Width X Height + L Lead Length X Width		
Plastic Leaded Chip Carriers	PLCC + Pin Qty. + P Pitch _	Lead Span L1 X Lead Span L2 Nominal X Height + L Lead Width	
Plastic Leaded Chip Carrier Sockets Square	PLCCS + Pin Qty. + P Pitch _	Lead Span L1 X Lead Span L2 Nominal X Height + L Lead Width	
Pull-back Small Outline No-lead	PSON + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width + T Thermal Pad Length X Width	
Pull-back Quad Flat No-lead	PQFN + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width + T Thermal Pad Length X Width	
Quad Flat Packages	QFP + Pin Qty. + P Pitch _	Lead Span L1 X Lead Span L2 Nominal X Height + L Lead Length X Width + T Thermal Pad Length X Width	
Ceramic Quad Flat Packages	CQFP + Pin Qty. + P Pitch _	Lead Span L1 X Lead Span L2 Nominal X Height + L Lead Length X Width	
Quad Flat No-lead	QFN + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width + T Thermal Pad Length X Width	
Quad Leadless Ceramic Chip Carriers	LCC + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Quad Leadless Ceramic Chip Carriers (Pin 1 on Side)	LCCS + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Resistors, Chip	RESC + Body Length X Width X Height + L Lead Width		
Resistors, Chip, Array, Concave	RESCAV + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Resistors, Chip, Array, Convex, E-Version (Even Pin Size)	RESCAXE + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Resistors, Chip, Array, Convex, S-Version (Side Pins Diff)	RESCAXS + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Resistors, Chip, Array, Flat	RESCAF + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width	
Resistors, Dual Flat No-lead	RESDFN + Pin Qty. _	Body Length X Width X Height + L Lead Length X Width	
Resistors, MELF	RESMELF + Body Length + Diameter + L Lead Width		
Resistors, Molded	RESM + Lead Span X Body Width X Height + L Lead Length X Width		
Resistors, Side Concave	RESSC + Body Length X Width X Height + L Lead Length X Width		
Small Outline IC, J-Leaded	SOJ + Pin Qty. + P Pitch _	Body Length X Lead Span X Height + L Lead Width	
Small Outline IC, L-Leaded	SOL + Pin Qty. + P Pitch _	Body Length X Lead Span X Height + L Lead Width	
Small Outline Integrated Circuit, (50 mil Pitch SOIC)	SOIC + Pin Qty. + P Pitch _	Body Length X Lead Span X Height + L Lead Length X Width	
Small Outline Packages	SOP + Pin Qty. + P Pitch _	Body Length X Lead Span X Body Height + L Lead Length X Width + T Thermal Pad Length X Width	
Small Outline No-lead	SON + Pin Qty. + P Pitch _	Body Length X Width X Height + L Lead Length X Width + T Thermal Pad Length X Width	
Small Outline Diode	SOD + Lead Span X Body Width X Height + L Lead Length X Width		
SOT143	SOT143 - + Pin Qty. + P Pitch _	Lead Span X Body Height + L Lead Length	
SOT343	SOT343 - + Pin Qty. + P Pitch _	Lead Span X Body Height + L Lead Length	
SOT23	SOT23 - + Pin Qty. + P Pitch _	Lead Span X Body Height + L Lead Length	
SOT223	SOT223 - + Pin Qty. + P Pitch _	Lead Span X Body Height + L Lead Length	
Thermistors, Chip	THRMC + Body Length + Width X Height + L Lead Width		
Transistors, Small Outline, Flat Lead, 3 - 6 pin	TRXSOFL + Pin Qty. + P Pitch _	+ Lead Span X Body Length X Body Height + L Lead Length X Width	
Transistors, Dual Flat No-lead	TRXDFN + Pin Qty. _	Body Length X Width X Height + L Lead Length X Width	
Varistors, Chip	VARC + Body Length X Width X Height + L Lead Width		

Note: All footprint dimensional values are Nominal except Height is Maximum.

Library Expert Naming Convention for Through-Hole Land Patterns

The land pattern naming convention uses component dimensions to derive the land pattern name.

The first 3 – 6 characters in the land pattern name describe the component family.

The first number in the land pattern name refers to the Lead Spacing or hole to hole location to insert the component lead.

All numbers that follow the Lead Spacing are component dimensions.

These characters are used as component body identifiers that precede the value and this is the priority order of the component body identifiers –

P = Pitch for components with more than two leads

W = Maximum Lead Width (or Component Lead Diameter)

L = Body Length for horizontal mounting

D = Body Diameter for round component body

T = Body Thickness for rectangular component body

H = Height for vertically mounted components

Q = Pin Quantity for components with more than two leads

R = Number of Rows for connectors

Notes:

All component body values are in millimeters and go two places to the right of the decimal point and no leading zeros.

All Complexity Levels used in the examples are “B”.

Component, Category

Land Pattern Name

Capacitors, Non Polarized Axial Diameter Horizontal Mounting **CAPAD** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **CAPAD800W52L600D150**

Capacitors, Non Polarized Axial Diameter; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50

Capacitors, Non Polarized Axial Rectangular **CAPAR** + Lead Spacing + **W** Lead Width + **L** Body Length + **T** Body thickness + **H** Body Height

Example: **CAPAR800W52L600T50H70**

Capacitors, Non Polarized Axial; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Thickness 0.50; Body Height 0.70

Capacitors, Non Polarized Axial Diameter Vertical Mounting **CAPADV** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **CAPADV300W52L600D150**

Capacitors, Non Polarized Axial; Lead Spacing 3.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50mm

Capacitors, Non Polarized Axial Rect. Vert. Mtg. **CAPARV** + Lead Spacing + **W** Lead Width + **L** Body Length + **T** Body Thickness + **H** Body Height

Example: **CAPARV300W52L600T50H70**

Capacitors, Non Polarized Axial Rect. Vertical; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Thickness 0.50; Body Height 0.70

Capacitors, Non Polarized Radial Diameter **CAPRD** + Lead Spacing + **W** Lead Width + **D** Body Diameter + **H** Body Height

Example: **CAPRD200W52D300H550**

Capacitors, Non Polarized Radial Diameter; lead spacing 2.00; lead width 0.52; Body Diameter 3.00; Height 5.50

Capacitors, Non Polarized Radial Rectangular **CAPRR** + Lead Spacing + **W** Lead Width + **L** Body Length + **T** Body thickness + **H** Body Height

Example: **CAPRR200W52L50T70H550**

Capacitors, Non Polarized Radial Rectangular; lead spacing 2.00; lead width 0.52; Body Length 0.50; Body thickness 0.70; Height 5.50

Capacitors, Non Polarized Radial Disk Button **CAPRB** + Lead Spacing + **W** Lead Width + **L** Body Length + **T** Body thickness + **H** Body Height

Example: **CAPRB200W52L50T70H550**

Capacitors, Non Polarized Radial Rectangular; lead spacing 2.00; lead width 0.52; Body Length 0.50; Body thickness 0.70; Height 5.50

Capacitors, Polarized Axial Diameter Horizontal Mounting **CAPPAD** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **CAPPAD800W52L600D150**

Capacitors, Polarized Axial Diameter; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50

Capacitor, Polarized Radial Diameter **CAPPRD** + Lead Spacing + **W** Lead Width + **D** Body Diameter + **H** Body Height

Example: **CAPPRD200W52D300H550**

Capacitors, Polarized Radial Diameter; lead spacing 2.00; lead width 0.52; Body Diameter 3.00; Height 5.50

Diodes, Axial Diameter Horizontal Mounting **DIOAD** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **DIOAD800W52L600D150**

Diodes, Non Polarized Axial Diameter; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50

Diodes, Axial Diameter Vertical Mounting **DIOADV** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **DIOADV300W52L600D150**

Diodes, Non Polarized Axial; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50

Dual-In-Line Packages **DIP** + Lead Span + **W** Lead Width + **P** Pin Pitch + **L** Body Length + **H** Component Height + **Q** Pin Qty

Example: **DIP762W52P254L1905H508Q14**

Dual-In-Line Package: Lead Span 7.62; Lead Width 0.52; Pin Pitch 2.54; Body Length 19.05; Body Height 5.08; Pin Qty 14

Dual-In-Line Sockets **DIPS** + Lead Span + **W** Lead Width + **P** Pin Pitch + **L** Body Length + **H** Component Height + **Q** Pin Qty

Example: **DIPS762W52P254L1905H508Q14**

Dual-In-Line Package Socket: Lead Span 7.62; Lead Width 0.52; Pin Pitch 2.54; Body Length 19.05; Body Height 5.08; Pin Qty 14

Headers, Vertical.....**HDRV** + Lead Span + **W** Lead Width + **P** Pin Pitch + **R** Pins per Row + **L** Body Length + **T** Body Thickness + **H** Height

Example: **HDRV200W52P200R2L4400T400H900**

Header, Vertical: Lead Span 2.00; Lead Width 0.52; Pin Pitch 2.00; 2 Rows; Body Length 44.00; Body Thickness 4.00; Body Height 9.00

Headers, Right Angle**HDRRA** + Lead Span + **W** Lead Width + **P** Pin Pitch + **R** Pins per Row + **L** Body Length + **T** Body Thickness + **H** Height

Example: **HDRRA200W52P200R2L4400T400H900**

Header, Vertical: Lead Span 2.00; Lead Width 0.52; Pin Pitch 2.00; 2 Rows; Body Length 44.00; Body Thickness 4.00; Body Height 9.00

Inductors, Axial Diameter Horizontal Mounting**INDAD** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **INDAD800W52L600D150**

Inductors, Axial Diameter; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50

Inductors, Axial Diameter Vertical Mounting **INDADV** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **INDADV300W52L600D150**

Inductors, Axial Diameter Vertical Mounting; Lead Spacing 3.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50

Inductors, Non-Polarized, Radial Diameter.....**INDRD** + Lead Spacing + **W** Lead Width + **D** Body Diameter + **H** Body Height

Example: **INDRD800W52D600H500**

Inductors, Non-Polarized, Radial Diameter; Lead Spacing 8.00; Lead Width 0.52; Body Diameter 6.00; Body Height 5.00

Inductors, Polarized, Radial Diameter**INDPRD** + Lead Spacing + **W** Lead Width + **D** Body Diameter + **H** Body Height

Example: **INDPRD300W52D600H500**

Inductors, Polarized, Radial Diameter; Lead Spacing 3.00; Lead Width 0.52; Body Diameter 6.00; Body Height 5.00

Jumpers, Wire**JUMP** + Lead Spacing + **W** Lead Width

Example: **JUMP500W52**

Jumper; Lead Spacing 5.00; Lead Width 0.52

Mounting Holes Plated With Support Pad..... **MTGP** + Pad Size + **H** Hole Size + **Z** Inner Layer Pad Size

Example: **MTGP700H400Z520**

This is a Mounting hole for a #6-32 screw using a circular 7.00 land on the primary and secondary side of the board, a 4.00 diameter hole with the internal lands are smaller than the external and are also circular 5.20 in diameter.

Mounting Holes Non-Plated With Support Pad**MTGNP** + Pad Size + **H** Hole Size + **Z** Inner Layer Pad Size

Example: **MTGNP700H400Z520**

This is a Mounting hole for a #6-32 screw using a circular 7.00 land on the primary and secondary side of the board, a 4.00 diameter hole with the internal lands are smaller than the external and are also circular 5.20 in diameter.

Mounting Holes Non-Plated Without Support Pad**MTGNP** + Pad Size + **H** Hole Size + **Z** Inner Layer Pad Size + **K** Keep-out Diameter

Example: **MTGNP100H400Z520K700**

This is a Mounting hole for a #6-32 screw using a circular 1mm land on the primary and secondary side of the board, a 4.00 diameter hole with the internal lands are smaller than the external and are also circular 5.20 in diameter and a 7.00 diameter keep-out.

Mounting Holes Plated with 8 Vias **MTGP** + Pad Size + **H** Hole Size + **Z** Inner Layer Pad Size + 8 Vias

Example: **MTGP700H400Z520V8**

This is a Mounting hole for a #6-32 screw using a circular 7mm land on the primary and secondary side of the board, a 4mm diameter hole with the internal lands are smaller than the external and are also circular 5.2mm in diameter, with 8 vias.

Pin Grid Array's.....**PGA** + Pin Qty + **P** Pitch + **C** Pin Columns + **R** Pin Rows + **L** Body Length **X** Body Width + **H** Component Height

Example: **PGA84P254C10R10L2500X2500H300**

Pin Grid Array: Pin Qty 84; Pin Pitch 2.54; Columns 10; Rows 10; Body Length 25.00 X 25.00; Component Height 3.00

Resistors, Axial Diameter Horizontal Mounting.....**RESAD** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **RESAD800W52L600D150**

Resistors, Axial Diameter; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50

Resistors, Axial Diameter Vertical Mounting **RESADV** + Lead Spacing + **W** Lead Width + **L** Body Length + **D** Body Diameter

Example: **RESADV300W52L600D150**

Resistors, Axial Diameter Vertical Mounting; Lead Spacing 3.00; Lead Width 0.52; Body Length 6.00; Body Diameter 1.50

Resistors, Axial Rectangular Horizontal Mounting ..**RESAR** + Lead Spacing + **W** Lead Width + **L** Body Length + **T** Body thickness + **H** Body Height

Example: **RESAR800W52L600T50H70**

Resistors, Axial Rectangular; Lead Spacing 8.00; Lead Width 0.52; Body Length 6.00; Body Thickness 0.50; Body Height 0.70

Single-In-Line Packages.....**SIP** + Body Width + **W** Lead Width + **P** Pin Pitch + **L** Body Length + **H** Component Height + **Q** Pin Qty

Example: **DIP150W52P254L1905H508Q14**

Single-In-Line Package: Body Width 1.5; Lead Width 0.52; Pin Pitch 2.54; Body Length 19.05; Body Height 5.08; Pin Qty 14

Test Points, Round Land.....**TP** + Lead Width

Example: **TP52**

Test Points, Square Land..... **TPS** + Lead Width

Example: **TPS52**

Test Points, Top Land Round & Bottom Land Square**TPRS** + Lead Width

Example: **TPRS52**

Wire **PAD** + Wire Width

Example: **PAD52**

Library Expert Land Pattern Naming Convention Notes

- All dimensions are in Metric Units
- All Lead Span and Height numbers go two places past the decimal point and “include” trailing Zeros
- All Lead Span and Body Sizes go two place before the decimal point and “remove” leading Zeros
- All Chip Component Body Sizes are one place to each side of the decimal point
- Pitch Values are two places to the right & left of decimal point with no leading Zeros but include trailing zeros

Land Pattern Naming Convention: Each land pattern in IPC-7351 is specified by a unique name that must convey the package family type, pin quantity, pin pitch, body length and width dimensions, terminal lead span, terminal lead length and width and thermal pad dimensions whenever applicable. Other fields in a land pattern name are optional and are discussed below.

Table 1 specifies the naming convention for each package type. The following notes provide the user with guidance on using the table.

Specific characters are reserved for use in the naming convention to denote or separate certain fields:

- **P** : Prefixes pin pitch. For example, P80 specifies a 0.80 mm pitch between terminations.
- **L** : Prefixes nominal lead dimensions
- **T** : Prefixes thermal tab dimensions
- **X** : Dimension separator. For example, 0.80 mm by 1.50 mm is denoted 80X150
- **C, N** : Denote Collapsing and Non-collapsing balls respectively when specifying a BGA land pattern
- **_** : Underscore is a field separator between pin quantity and/or pin pitch and the package body dimensions
- **-** : Dash is a field separator between pin quantity in hidden and deleted pin components
- **+** : Plus denotes “in addition to”. The plus “+” symbol does not actually appear in the land pattern name but is only used to assist the user in reading Table 1.

Additional notes for using Table 1:

- All dimensions are metric units
- All dimensions are nominal except height is maximum
- All numeric values are two places before and after the decimal point and “remove” leading Zeros
- If there is no pin quantity in the Land Pattern Name it is assumed that the pin quantity is 2
- Thermal Tabs are included in the Pin Quantity

Additional and Optional Fields:

The suffix letters “L”, “M”, and “N” are used to signify when the land protrusion is at their minimum (least), maximum (most), or median (nominal) protrusion and appear as the last character. The 3 Density Levels are defined as follows:

M = Maximum (Most) Material Condition (Density Level A)

N = Median (Nominal) Material Condition (Density Level B)

L = Minimum (Least) Material Condition (Density Level C)

If no Density Level suffix is provided, then the land pattern either follows the component manufacturer's recommended pattern or a custom land pattern for use with multiple component manufacturer's packages in the same component family.

Additional suffices for JEDEC Standard parts that have several alternate packages are as follows:

AA, AB, AC JEDEC Component Identifier (used primarily on Semiconductor packages).

Additional suffices for alternate components that do not follow the JEDEC standard are as follows (these are located before the Density Level suffix):

“A” – Alternate Component letter is used when component package nominal dimensions are the same for two packages but the package tolerances are different enough to create a unique land pattern to avoid land pattern name duplication.

Ball Grid Array (BGA) packages may require land pattern names that indicate a difference in pitch between balls in the rows vs. balls in the columns. These are often referred to as a “dual pitch BGA”. For example, the BGA land pattern name of BGA48C**80X100**P6X8_900X1200X120 conveys that the pitch 0.80 mm between columns and 0.100 mm between rows.

Note: In this example, Pin A1 is assumed to be located in the Lower left when viewing the package from the top view. A 90° rotation of the BGA swaps the definition of Rows and Columns.

A pin order or pin quantity modifier shall be added to the component package type specification to convey reverse pin ordering, hidden pins, or deleted pins.

SOP20R: 20 pin part, Reverse Pin Order

SOT143R: Reverse Pin Order

SOP20-24: 20 pin part in a 24 pin package. The pins are numbered 1 – 24 the hidden pins are skipped over. The schematic symbol displays up to 24 pins.

SOP24-20: 20 pin part in a 24 pin package. The pins are numbered 1 – 20 the deleted pins are removed. The schematic symbol displays 20 pins.

Land Pattern Naming for Non-conforming Packages: A large number of component packages are unique, non-standard packages or unique connectors. These component packages do not fit into a standard land pattern name due to their unique features. Therefore, in order to have a single land pattern naming convention that covers every component package in the electronics industry, the land pattern name must be associated with the component manufacturer and their part number or case code as shown below:

ManufacturerNameAbbreviation_ManufacturerPartNumber or
ManufacturerNameAbbreviation_ManufacturerCaseCode

- All special characters used in the part number will be replaced with a hyphen “-” except periods “.” will be replaced with an underscore “_”.
- If the component package or connector is unique and has a single manufacturer part number, then **Part Number** would be used to generate the Land Pattern Name
- The component is a standard package and is associated with multiple manufacturer part numbers then manufacturer **Case Code** would be used to generate the Land Pattern Name

Examples:

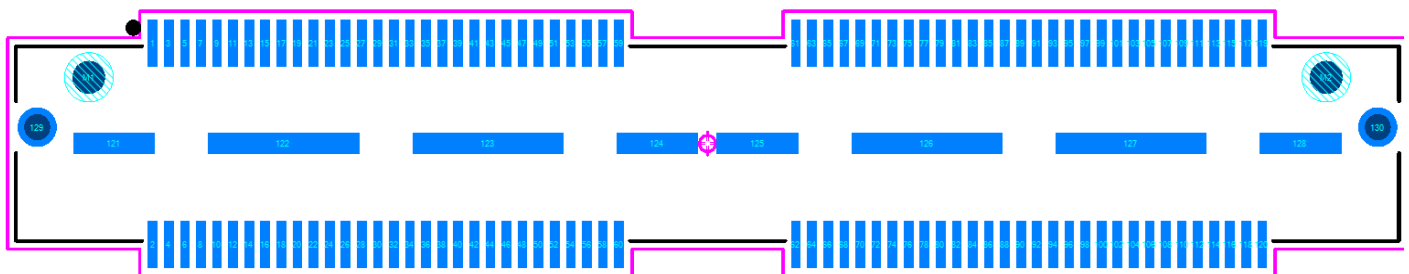
FOXCONN_JFM38U1A-2PVT-4F
MOLEX_67503-1020
SAMTEC_QTH-060-01-L-D-A

TI_RKG41
MAXIM_L1053-H2
CUI_SJ-3566AN

CK_CRD16CM0SB
ABRACON_ABM11
AMPHENOL_101-00565-64

For reference, various unique footprints are shown below that are non-conforming with Table 1.

SAMTEC_QTH-060-01-L-D-A – SMT Connector with plated mounting and non-plated alignment holes



Appendix I - Library Expert Manufacturer Names

for updates, visit www.PCBLibraries.com/downloads

2J Antennas..... 2J
3D Plus..... 3DPLUS
3M 3M
4D 4D
ABLIC ABLIC
Abracon ABRACON
Aces ACES
Active-Semi ACTIVESEMI
Adafruit ADAFRUIT
Adam Technologies ADAMTECH
Adesto Technologies ADESTO
Advanced ADVANCED
Advanced Acoustic Technology AAT
Advanced Crystal Technology ADVCRYSTAL
Advanced Linear Devices ALD
AEconversion AEC
AEL Crystals AEL
Aeroflex AEROFLEX
AirBorn AIRBORN
Aker AKER
AKM Semiconductor AKMSEMI
Akros Silicon AKROS
Allegro Micro ALLEGRO
Alliance Memory ALLIANCE
Allwinner Technology ALLWINNER
Alpha & Omega ALPHA
Alpha Novatech ALPHANOVA
Alps ALPS
Altech ALTECH
Altera ALTERA
Amass AMASS
Amazing Microelectronic AMAZINGMICRO
Ambiq Micro AMBIQ
American Bright AMERICANBRIGHT
American Electrical AMELECTRICAL
American Technical Ceramics AMTECHCER
American Zettler AZETTLER
Ametherm AMETHERM
Amgis Toroids AMGIS
Amotech AMOTECH
Amphenol AMPHENOL
Amphenol Advanced Sensors AMPHENOLAS
Amphenol Aerospace Operations AMPHENOLAE
Amphenol Canada AMPHENOLCA
Amphenol Connex AMPHENOLCX
Amphenol ICC AMPHENOLICC
ams AG AMSAG
Amtek Technology AMTEK
Analog Devices ANALOG
Analog Microelectronics ANALOGMICRO
Anaren ANAREN
Andon ANDON
Anglia ANGLIA
Antenova ANTENOVA
Antique Electronic Supply ANTIQUEES
Apacer Technology APACER
Apem APEM
Apex Microtechnology APEXMICRO
API Delevan APIDEV
API Technologies APITECH
Aquantia AQUANTIA
Arch Electronics ARCHELEC
Arduino ARDUINO
Aries ARIES
Artesyn Embedded Technologies ARTESYN
ASJ ASJ
Assmann ASSMANN

Atlanta Micro ATLANTAMICRO
Atmel ATMEL
AUK Contractors AUK
Avago Technologies AVAGO
Avalanche Technology AVALANCHE
Avdel AVDEL
AVX AVX
Axon AXON
Azimuth Electronics AZIMUTH
Azoteq AZOTEQ
AzureWave AZUREWAVE
Battery Space BATTERYSPACE
Beckhoff BECKHOFF
Bel Power Solutions BELPS
BelFuse BELFUSE
Bellwether BELLWETHER
BeRex BEREX
Bernier BERNIER
BH Electronics BHELECTRONICS
Binder BINDER
Bivar BIVAR
BLOCK BLOCK
Blockmaster Electronics BLOCKMASTER
Bluegiga Technologies BLUEGIGA
Bosch-Sensortec BOSCH
Bothhand BOTHHAND
Bourns BOURNS
Boyd BOYD
Bridgelux BRIDGELUX
BrightKing BRIGHTKING
BRILLNICS BRILLNICS
Broadcom BROADCOM
Buddies Technology BUDDIES
Bulgin BULGIN
C&K CK
C3Semi C3
Caddock CADDOCK
Cal-Chip CALCHIP
California Eastern Laboratories CEL
Cambion CAMBION
Cambridge Silicon Radio CSR
Camden Boss CAMDEN
Cantherm CANTHERM
Cardinal CARDINAL
Carling Technologies CARLING
Central CENTRAL
Challenge Electronics CHALLENGE
Changjiang Connectors CJT
Chequers Electronic CHEQUERS
ChinaSound CHINASOUND
Cinch CINCH
Cirrus Logic CIRRUS
CIT Relay and Switch CIT
Citizen Finedevice CITIZEN
Cliff Electronic Components CLIFF
CML Microcircuits CMLMICRO
CnC Tech CNCTECH
Cobham COBHAM
COEV Magnetics COEVMAG
CogniMem Technologies COGNIMEM
Coil WS COILWS
Coilcraft COILCRAFT
Coilmaster COILMASTER
Cole COLE
Comax Electronics COMAX
Comchip COMCHIP
COMM CON Connectors COMMCON

Comtec COMTEC
 CONEC CONEC
 Conexant CONEXANT
 Connfly Electronic CONNFLY
 Connor-Winfield CONNORWINFIELD
 Contact Technology CONTACT
 Copal COPAL
 Coral CORAL
 Cornell Dubilier Electronics CDE
 Cosel COSEL
 Cotex Industrial COTEX
 Coto COTO
 COTSWORKS COTSWORKS
 Cree CREE
 Crydom CRYDOM
 Crystek CRYSTEK
 CS Bright CSBRIGHT
 CTC Coils CTCCOILS
 CTS CTS
 CUI CUI
 CUI Devices CUIDEVICES
 Custom MMIC CUSTOMMMIC
 CviLux CVILUX
 CW Industries CWIND
 Cyntec CYNTEC
 Cypress Semiconductor CYPRESS
 Cyrod CYROD
 Darfon Electronics DARFON
 Data Delay Devices DATADELAY
 Data Device Corporation DDC
 Datatronics DATATRONICS
 Davicom DAVICOM
 Dean Technology DEANTECH
 Decawave DECAWAVE
 Defense Supply Center, Columbus DSC
 Degson Electronics DEGSON
 Delta Electronics DELTA
 Deltron DELTRON
 Device Engineering DEVICEENG
 Dialight DIALIGHT
 Dialog DIALOG
 Dielectric DIELECTRIC
 DIGI DIGI
 Digilent DIGILENT
 Digitron Semiconductors DIGITRON
 Dinkle DINKLE
 Diodes DIODES
 Dionics DIONICS
 Diotec Semiconductor DIOTEC
 DIPTRONICS DIPTRONICS
 Dold DOLD
 Dominant Semiconductors DOMINANTSEMI
 DORJI Applied Technologies DORJI
 DSP Group DSP
 DYNAMAX DYNAMAX
 EastRising Technology EASTRISING
 Eaton Bussmann EATON
 EBY Electro EBYELECTRO
 EBYTE EBYTE
 Ecliptek ECLIPTEK
 ECS International ECS
 EDAC EDAC
 EECO EECO
 EFC Wesco EFCWESCO
 Efficient Power Conversion EPC
 Efinix EFINIX
 Electrocube ELECTROCUBE
 Electronic Assembly EA
 Electronic Concepts ELECTRONICCONCEPTS
 Elesta ELESTA
 Elite Semiconductor Memory Technology ESMT

ELMA ELMA
 Elmo Motion Control ELMO
 Elna ELNA
 EMC Technology EMCTECH
 EnOcean ENOCEAN
 Enpirion ENPIRION
 Enpirion ENPIRION
 Enplas ENPLAS
 Envoy Data ENVOYDATA
 EPCOS EPCOS
 EPIGAP Optronic EPIGAP
 Epitex EPITEX
 Epson EPSON
 ERNI ERNI
 ESKA ESKA
 Espressif ESPRESSIF
 E-Switch ESWITCH
 E-tec Interconnect ETEC
 Etron Technology ETRON
 ETSI ETSI
 Ettinger ETTINGER
 Eurohm EUROHM
 Euroquartz Ltd EUROQUARTZ
 Everlight EVERLIGHT
 Everspin Technologies EVERSPIN
 Exar Corporation EXAR
 Excelitas EXCELITAS
 Excellence Optoelectronics EXCELLENCEOPTO
 Fagor Electronica FAGOR
 Fairchild Imaging FAIRCHILDIMG
 Fairchild Semiconductor FAIRCHILD
 Fair-Rite FAIRRITE
 Fairview Microwave FAIRVIEW
 Fanstel FANSTEL
 Faratronic FARATRONIC
 Fastron FASTRON
 Ferroxcube FERROXCUBE
 Feryster FERYSTER
 Finder FINDER
 Finisar FINISAR
 First Sensor FIRSTSENSOR
 Fischer Elektronik FISCHER
 FN-Link FNLINK
 Fox Electronics FOX
 Foxconn Electronics FOXCONN
 Fractus Antennas FRACTUSANT
 Freebird Semiconductor FREEBIRDSEMI
 Freescale FREESCALE
 Fremont Micro Devices FMD
 Fresco Logic FRESCO
 Frontier FRONTIER
 FTDI Chip FTDI
 Fuji FUJI
 Fujitsu FUJITSU
 Fuzetec FUZETEC
 GAIA Converter GAIA
 GaN Systems GAN
 Gemalto GEMALTO
 General Electric GE
 GeneSiC GENESIC
 Geyer Electronic GEYER
 Glenair GLENAIR
 Global Connector Technology GCT
 Golledge GOLLEDGE
 Good Sky Electric GOODSKY
 Gowanda GOWANDA
 GradConn GRADCONN
 Grayhill GRAYHILL
 Greenliant GREENLIANT
 GSI Technology GSI
 Guerilla RF GUERILLARF

HAHN	HAHN
Haiwai Electronics	HAIWAI
HALO Electronics	HALO
Hamamatsu	HAMAMATSU
Hammond	HAMMOND
HanRun	HANRUN
HAOYU Electronics	HAOYU
Harting	HARTING
Hartmann	HARTMANN
Harvatek	HARVATEK
Harwin	HARWIN
Hemisphere	HEMISPHERE
Hewlett Packard	HP
Hillcrest Labs	HILLCRESTLABS
Hirose	HIROSE
Hittite	HITTITE
HK Resistors	HKRESISTORS
HMicron	HMICRO
Holt	HOLT
Holtek Semiconductor	HOLTEK
Holy Stone	HOLYSTONE
Honda Tsushin Kogyo	HTK
Honeywell	HONEYWELL
Hongfa	HONGFA
Hoyato	HOYATO
Hsuan Mao Technology	HSUANMAO
HTC Korea - TAEJIN	HTCTAEJIN
HUBER+SUHNER	HUBERSUHNER
HVP	HVP
IC Plus	ICPLUS
ICE Components	ICE
iC-Haus	ICHAUS
Illinois Capacitor	ILLINOIS
ILSI America	ILSI
Imo Precision Controls	IMOPC
Industrial Fiber Optics	INDUSTRIALFIBEROPTICS
Inertial Sense	INERTIALSENSE
Infineon	INFINEON
Infinite Power Solutions	INFINITE
Infomart	INFOMART
Innovasic	INNOVASIC
Inolux	INOLUX
Inrcore	INRCORE
Intan Technologies	INTAN
Integrated Device Technology	IDT
Integrated Silicon	ISSI
Intel	INTEL
International Rectifier	IRF
Intersil	INTERSIL
Invac	INVAC
InvenSense	INVENSENSE
I-PEX	IPEX
IQD Frequency Products	IQD
Iriso Electronics	IRISO
Ironwood Electronics	IRONWOOD
ITE Tech	ITETECH
ITG Electronics	ITG
ITT Cannon	ITT
IXYS	IXYS
JALCO Co., Ltd	JALCO
Japan Aviation Electronics	JAE
Jauch Quartz GmbH	JAUCH
Jianghai	JIANGHAI
Johanson	JOHANSON
JPC	JPC
JQL Electronics	JQL
JRC	JRC
JST	JST
KAIDA	KAIDA
Kaweei Technology	KAWEEITECH
KDS	KDS

KEL	KEL
Kemet	KEMET
Keysight Technologies	KEYSIGHT
Keystone Electronics	KEYSTONE
Kindwin Opto Electronic	KINDWIN
Kinetic Technologies	KINETICTECH
King Core Electronics	KINGCORE
Kingbright	KINGBRIGHT
Kingstate Electronics	KINGSTATE
Kionix	KIONIX
KIOXIA	KIOXIA
Kirale Technologies	KIRALE
KitaGawa	KGS
Klaran	KLARAN
Knitter-Switch	KNITTER
Knowles Electronics	KNOWLES
KOA Speer Electronics	KOA
Kobiconn	KOBICONN
Kodenshi	KODENSHI
Korea Electric Terminal	KET
KOTL	KOTL
KYCON	KYCON
Kyocera	KYOCERA
Kyushu Dentsu	KYUSHU
Laird	LAIRD
Lantronix	LANTRONIX
Lattice Semiconductor	LATTICE
Leach	LEACH
Leader Tech	LEADERTECH
Ledtronics	LEDTRONICS
Legacy Technologies	LEGACYTECH
Lelon	LELON
LEM	LEM
LEMO	LEMO
Leoco	LEOCO
Lime Microsystems	LIME
LINK-PP	LINKPP
Linx	LINX
Lite-On Optoelectronics	LITEON
Littelfuse	LITTELFUSE
Loranger	LORANGER
Lotes	LOTES
LS Mtron	LSMTRON
LSR	LSR
Lumberg	LUMBERG
Lumex	LMX
Lumileds	LUMILEDS
Luminus	LUMINUS
Lumissil Microsystems	LUMISSIL
LUXSHARE-ICT	LUXSHARE
Lyn-Tron	LYNTRON
MAC8	MAC8
MACOM	MACOM
Macronix	MACRONIX
Maestro Wireless	MAESTROWL
Mallory Sonalert Products	MALLORY
Maluska	MALUSKA
Marathon Special Products	MARATHONSP
Marki Microwave	MARKI
Marktech	MARKTECH
Marvell	MARVELL
Masach	MASACH
Maxim Integrated	MAXIM
MaxLinear	MAXLINEAR
MEAN WELL	MEANWELL
MEC Switches	MECSWITCHES
Meder	MEDER
MegaChips	MEGACHIPS
Melexis	MELEXIS
Memory Protection Devices	MPD
MEMSIC	MEMSIC

Mercury Crystal	MERCURYCR
Meticom	METICOM
METZ Connect	METZ
MG Electronics	MGELECTRONICS
Micrel	MICREL
Micro Commercial	MICRO
Microchip	MICROCHIP
MicroCrystal	MICROCRYSTAL
Microhard	MICROHARD
Micron	MICRON
Micronas	MICRONAS
Micropac	MICROPAC
MicroPower Direct	MPDIRECT
MICROS	MICROS
Microsemi	MICROSEMI
MILL-MAX	MILLMAX
Mini-Circuits	MINICIRCUITS
MiniRF	MINIRF
Minntronix	MINNTRONIX
Mirrorcle Technologies	MIRRORCLE
Mitsubishi Electric	MITSUBISHI
MMD	MMD
Molex	MOLEX
Monolithic Power Systems	MONOLITHIC
MORNSUN	MORNSUN
Most Well Technology	MOSTWELL
Motocraft	MOTOCRAFT
Moxie	MOXIE
MPE Garry	MPEGARRY
MS Kennedy	MSK
MtronPTI	MTRONPTI
Multicomp	MULTICOMP
Murata	MURATA
Nanya	NANYA
NDK	NDK
Neltron Industrial	NELTRON
NetPower	NETPOWER
Neutrik USA	NEUTRIK
Newhaven Display	NEWHAVEN
Nexperia	NEXPERIA
NIC Components	NIC
Nichia Corporation	NICHIA
Nichicon	NICHICON
Nicomatic	NICOMATIC
Nimbelink	NIMBELINK
Nippon Chemi-Con	NIPPON
NKK Switches	NKK
NorComp	NORCOMP
Nordic	NORDIC
NORWE	NORWE
Nover	NOVER
Nuvoton	NUVOTON
NVE	NVE
NXP Semiconductors	NXP
Octavo Systems	OCTAVO
ODU	ODU
OEP	OEP
Ohmite	OHMITE
Omnetics	OMNETICS
OmniVision Technologies	OMNIVISION
OMRON	OMRON
On Shore Technology	OST
Onion	ONION
onsemi	ONSEMI
Opto Diode	OPTODIO
Orbel	ORBEL
OSA Opto Light	OSAOPTO
Osram	OSRAM
OUPiIN	OUPiIN
PAN JIT International	PANJIT
Panasonic	PANASONIC

PANCON	PANCON
PARA Light	PARALIGHT
Parallax	PARALLAX
Passive Plus	PASSIVEPLUS
PCA Electronics	PCA
PCI Express	PCIEX
PennEngineering	PENNENG
Peregrine Semiconductor	PEREGRINE
Pericom Semiconductor	PERICOM
Phoenix Contact	PHOENIX
Pickering	PICKERING
Pico Electronics	PICO
Piconics	PICONICS
Picor	PICOR
PIHER	PIHER
Plessey	PLESSEY
Pletronics	PLETRONICS
Polyshine	POLYSHINE
Pomona Electronics	POMONA
Positronic	POSITRONIC
Power Integrations	POWERINT
PPT Shenzhen Magnetic Technology	PPT
Preci-Dip	PRECIDIP
Premo	PREMO
Presidio Components	PRESIDIO
Proant	PROANT
Prolific	PROLIFIC
Protectron	PROTECTOR
Protek Devices	PROTEK
Provertha	PROVERTHA
P-TEC	PTEC
PTR Messtechnik	PTRM
PUI Audio	PUIAUDIO
Pulse Electronics	PULSE
Pulser	PULSER
Purdy	PURDY
Qorvo	QORVO
QT Brightek	QTBRIGHTTEK
Q-TECH	QTECH
Qualcomm	QUALCOMM
Qualtek Electronics	QUALTEK
QuartzCom	QUARTZCOM
Quectel	QUECTEL
Quickfilter Technologies	QUICKFILTER
QuickLogic	QUICKLOGIC
Radiall	RADIALL
RAFI	RAFI
Rakon	RAKON
RALEC	RALEC
Ralink	RALINK
Raltron	RALTRON
Rami Technology	RAMITECH
Ramtron	RAMTRON
RAONTECH	RAONTECH
Raytac	RAYTAC
RCD Components	RCDCOMP
RDI	RDI
Realtek Semiconductor	REALTEKSEMI
RECOM Electronic	RECOM
Rectron	RECTRON
Redpine Signals	REDPINE
Renata Batteries	RENATA
Renco Electronics	RENCO
Renesas Electronics	RENESAS
RF Solutions	RFSOL
RFHIC	RFHIC
RFMD	RFMD
Richtek Technology	RICHTEK
Ricoh Electronic Devices	RICOH
Riedon	RIEDON
Rigado	RIGADO

RLC Electronics.....	RLCELEC	Sunex Digital Imaging Optics.....	SUNEX
RLS.....	RLS	SunLED.....	SUNLED
ROHM Semiconductor.....	ROHM	Sunlord.....	SUNLORD
Rosenberger.....	ROSENBERGER	Suotek.....	SUOTEK
RS.....	RS	Superior Sensor Technology.....	SUPERIOR
Rubycon.....	RUBYCON	Surge Components.....	SURGECOMP
Samsung Electro-Mechanics.....	SAMSUNGEM	Susumu.....	SUSUMU
Samsung Semiconductor.....	SAMSUNGSEMI	Suyin Technologies.....	SUYIN
Samtec.....	SAMTEC	Switchcraft.....	SWITCHCRAFT
SanDisk.....	SANDISK	SYFER.....	SYFER
Sangshin.....	SANGSHIN	SynQor.....	SYNQOR
Sanken Electric.....	SANKEN	Tadiran Batteries.....	TADIRANBATT
Sanyo.....	SANYO	Tag Connect.....	TAG
Schaffner.....	SCHAFFNER	Taicom.....	TAICOM
Schurter.....	SCHURTER	Taimag.....	TAIMAG
SEGGER.....	SEGGER	Tai-Saw Technology.....	TAISAW
Seiko Instruments.....	SEIKO	TaiTien Electric.....	TAITIEN
Semitec.....	SEMITEC	TAITRON.....	TAITRON
Semtech.....	SEMTECH	Taiwan Semiconductor.....	TAIWANSEMI
Sena Technologies.....	SENATECH	Taiyo Yuden.....	TAIYO
Sensata Technologies/Airpax.....	SENSATA	Talema Group.....	TALEMA
Sensata WELLS-CTI.....	SENSATAWELLSCTI	Tamura.....	TAMURA
Sensirion.....	SENSIRION	Taoglas.....	TAOGLAS
Sensitron.....	SENSITRON	TDK.....	TDK
Sensor Electronic Technology.....	SETI	TE Connectivity.....	TE
Seoul Semiconductor.....	SEOULSEMI	Tecate.....	TECATE
SGX Sensortech.....	SGXSENSORTECH	Tektronix.....	TEKTRONIX
Sharp Microelectronics.....	SHARP	Teledyne.....	TELEDYNE
SIBA Fuses.....	SIBA	Telit.....	TELIT
Sierra Wireless.....	SIERRAWL	Tempo Semiconductor.....	TEMPOSEMI
Sigma Designs.....	SIGMA	Tensility International.....	TENSILITY
Signal Transformer.....	SIGNAL	Texas Instruments.....	TI
Silego Technology.....	SILEGO	Therma-Flo.....	THERMAFLO
Silergy.....	SILERGY	Thinking Electronics.....	THINKING
Silex Technology.....	SILEX	Titan Opto.....	TITANOPTO
Silicon Labs.....	SILICONLABS	Toko America.....	TOKOAM
Silvertel.....	SILVERTEL	Topline.....	TOPLINE
Singatron Enterprises.....	SINGATRON	Toptek.....	TOPTEK
SiTIME.....	SITIME	TOP-UP.....	TOPUP
Siward.....	SIWARD	Torex Semiconductor.....	TOREX
SK hynix.....	SKHYNIX	Toshiba.....	TOSHIBA
Skylab.....	SKYLAB	Traco.....	TRACO
Skyworks Solutions.....	SKYWORKS	Transko.....	TRANSKO
SMC Diodes.....	SMCDIODES	Transphorm.....	TRANSPHORM
SMEC.....	SMEC	Triad Magnetics.....	TRIADMAGNETICS
Smiths Connectors.....	SMITHS	Triad Semiconductor.....	TRIADSEMI
SMK.....	SMK	Trinamic Motion Control GmbH.....	TRINAMIC
SMP Technology.....	SMPTECH	TriQuint.....	TRIQUINT
Snaptron.....	SNAPTRON	Trontek.....	TRONTEK
Soberton.....	SOBERTON	TRP Connector.....	TRPCONN
Solidlite.....	SOLIDLITE	Trxcom.....	TRXCOM
Solomon Systech.....	SOLOMONSYS	TT Electronics.....	TT
Song Chuan.....	SONGCHUAN	Tusonix.....	TUSONIX
Song Huei Electric.....	SONGHUEI	TXC Corporation.....	TXC
Sonix Technology.....	SONIX	U-Blox.....	UBLOX
SOSHIN.....	SOSHIN	UJU Electronics.....	UJU
Souriau Connection Technology.....	SOURIAU	Ulti-Mate.....	ULTIMATE
Southwest Microwave.....	SOUTHWEST	United Chemi-Con.....	UNITEDCC
Spansion.....	SPANSION	UTAC Thai.....	UTACTHAI
Sprague-Goodman.....	SPRAGUE	Valcon.....	VALCON
SRT Micro Ceramique.....	SRTMICRO	VectorNav Technologies.....	VECTORNAV
ST Microelectronics.....	ST	Vectron.....	VECTRON
Stackpole Electronics.....	STACKPOLE	VEN.....	VEN
Standex-Meder Electronics.....	STANDEX	Venkel.....	VENKEL
Stanley Electric.....	STANLEY	Vesper.....	VESPER
STAR MICRONICS.....	STAR	VIA Labs.....	VIALABS
STARCONN.....	STARCONN	Vicor.....	VICOR
State of the Art.....	SA	Vigo.....	VIGO
Stewart Connector.....	STEWART	Virginia Panel.....	VPC
Sullins Connector Solutions.....	SULLINS	Vishay.....	VISHAY
Sumida.....	SUMIDA	Visual Communications.....	VCC

Vitec Electronics	VITEC
Vitrohm	VITROHM
VLSI Solutions	VLSI
Volgen/Kaga Electronics	VOLGEN
Voltage Multipliers	VOLTAGEMULTI
Voltronics	VOLTRONICS
VPT Power	VPTPOWER
VTI	VTI
WAGO	WAGO
Wakefield	WAKEFIELD
Walsin Technology	WALSIN
Wamco	WAMCO
Weco	WECO
WeEn Semiconductors	WEENSEMI
Weidmuller	WEIDMULLER
Weixin Electronics	WEIXIN
WIMA	WIMA
Winbond Electronics	WINBOND
WIZnet	WIZNET
Wolfson	WOLFSON
Worldsemi	WORLDSEMI
WP Products	WPPRO
Würth	WURTH
XFMRS	XFMRS
XICON	XICON
Xilinx	XILINX
XKB Connectivity	XKB
XMOS	XMOS
XMULTIPLE	XMULTIPLE
XP EMCO	XPEMCO
XP Power	XPPOWER
Yageo	YAGEO
Yamaichi Electronics	YAMAICHI
Yantel	YANTEL
YDS	YDS
Yoldal	YOLDAL
Yost Labs	YOSTLABS
Z-Communications	ZCOMM
Zentri	ZENTRI
Zierick	ZIERICK
Zilog	ZILOG