IPC-7351A Naming Convention for Standard SMT Land Patterns

Surface Mount Land Patterns

Component, Category

Land Pattern Name

Ball Grid Array's Body Width X Height BGA wPinc Life + 6 and Columns X Ball Rows Body Length X Width X Height BGA w/Staggered Pins Bod X width X Height BGA w/Staggered Pins Bod Sal Pin Cly + 6 or N + Cill Pinc X Row Pinch P + Ball Columns X Ball Rows Body Length X Body Width X Height BGA w/Staggered Pins Body Sal Pin Cly + 6 or N + Pitch P + Ball Columns X Ball Rows Body Length X Body Width X Height BGA w/Staggered Pins Body New York Row		
BGA Note: The Cor N = Collapsing or Non-collapsing Balls Capacitors, Chip, Array, Concave CAPCAV + Pitch P + Body Length X Body Width X Height - Pin Cty Capacitors, Chip, Array, Flat CAPCAF + Pitch P + Body Length X Body Width X Height - Pin Cty Capacitors, Chip, Array, Flat CAPCAF + Pitch P + Body Length X Body Width X Height - Pin Cty Capacitors, Chip, Non-polarized CAPCP + Body Length + Body Width X Height Capacitors, Chip, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Chip, Wire Rectangle CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded Column Grad Array + Capacitors, Molded Diodes, Molded	Ball Grid Array'sBGA + Pin Qty + C or	N + Pitch P + Ball Columns X Ball Rows _ Body Length X Body Width X Height
BGA Note: The Cor N = Collapsing or Non-collapsing Balls Capacitors, Chip, Array, Concave CAPCAV = Pitch P + Body Length X Body Width X Height - Pin CNy Capacitors, Chip, Array, Flat CAPCAV = Pitch P + Body Length X Body Width X Height - Pin CNy Capacitors, Chip, Array, Flat CAPCAF = Pitch P + Body Length X Body Width X Height - Pin CNy Capacitors, Chip, Non-polarized CAPCP + Body Length + Body Width X Height Capacitors, Chip, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Chip, Wire Rectangle CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized CAPCWR + Body Length + Body Width X Height Doda Molded Dioda Array + Body Length + Body Width X Height Doda Molded Dioda Molded Di	BGA w/Dual Pitch . BGA + Pin Qty + C or N + Col Pitch X I	Row Pitch P + Ball Columns X Ball Rows Body Length X Body Width X Height
BGA Note: The C or N = Collapsing or Non-collapsing Balls Capacitors, Chip, Array, Concave Capacitors, Chip, Array, Concave Capacitors, Chip, Array, Flat Capacitors, Chip, Array, Flat Capacitors, Chip, Non-polarized. CAPCP + Body Length X Body Width X Height Capacitors, Chip, Non-polarized. CAPCP + Body Length + Body Width X Height Capacitors, Chip, Wire Rectangle CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Non-polarized. CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Non-polarized. CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized. CAPCWR + Body Length + Body Width X Height Capacitors, Molded, Polarized. CAPCWR + Body Length + Body Width X Height Capacitors, Multiple Head Capacitors, Molded, Polarized. CAPCWR + Body Length + Body Width X Height Capacitors, Aluminum Electrolytic Capacitors, Aluminum Electrolytic Capacitors, Aluminum Electrolytic Capacitors, Molded, Polarized. CAPCWR + Body Length + Body Width X Height Capacitors, Aluminum Electrolytic Capacitors, Molded, Polarized. CAPCWR + Body Length + Body Width X Height Pin Qty Cystals (2 leads) XTALL + Body Length X Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Body Width X Height Diodes, Molded. DFH + Body Length + Bod		
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Capactors, Chip, Polarized		
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Capacitors, Molded, Polarized. CAPAE + Base Body, Size X Height Capacitors, Aluminum Electrolytic Capacitors, Aluminum Electrolytic Capacitors, Aluminum Electrolytic Column Grand Array's CGA + Pitch P + Number of Pin Rows X Height - Pin Qty Crystals (2 leads) XTAL + Body Length X Body Width X Height - Pin Qty Crystals (2 leads) DFN + Body Length X Body Width X Height - Pin Qty Diodes, Chip DIOM + Body Length X Body Width X Height - Pin Qty Diodes, Chip DIOM + Body Length X Body Width X Height Diodes, Mcled DIOM + Body Length + Body Width X Height Diodes, Mcled DIOM + Body Length + Body Width X Height Diodes, Mcled DIOM + Body Length + Body Width X Height Inductors, Molded Brand + Body Length + Body Width X Height Inductors, Molded Minuter + Body Length + Body Width X Height Inductors, Molded Minuter + Body Length + Body Width X Height Inductors, Chip, Array, Concave. Minuter + Body Length + Body Width X Height Inductors, Chip, Array, Concave. Minuter + Body Length + Body Width X Height Inductors, Chip, Array, Concave. Minuter + Body Length + Body Width X Height Inductors, Chip, Array, Concave. Minuter + Body Length - Body Width X Height Inductors, Chip, Array, Lat. Minuter + Body Length - Body Width X Height Inductors, Chip, Array, Lat. LED + Body Length - Body Width X Height Inductors, Chip, Array, Lat. Minuter + Body Length - Body Width X Height Inductors, Chip, Array, Lat. Minuter + Body Length - Body Width X Height Inductors, Chip, Array, Lat. Minuter + Body Length - Body Len		
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Fuss, Molded	Diodes, Molded	DIOM + Body Length + Body Width X Height
INDC + Body Length + Body Width X Height Inductors, Precision Wire Wound INDM + Body Length + Body Width X Height Inductors, Precision Wire Wound INDCAV + Pitch P + Body Length + Body Width X Height Inductors, Chip, Array, Concave. INDCAV + Pitch P + Body Length X Body Width X Height - Pin Qty Inductors, Chip, Array, Filat. INDCAY + Pitch P + Body Length X Body Width X Height - Pin Qty Land Grid Array LED's, Molded. LEDM + Body Length X Body Width X Height - Pin Qty Land Grid Array LED's, Molded. LEDM + Body Length X Body Width X Height - Pin Qty Land Grid Array LED's, Molded. LEDM + Body Length X Body Width X Height - Pin Qty Oscillators, J-Lead OSCSC + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, J-Lead OSCJ + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bend Lead OSCJ + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bend Lead OSCJ + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bend Lead OSCL + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bend Lead OSCL + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, Corner Concave PLCCS + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Plastic Leaded Chip Carriers PLCCS + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Ceramic Quad Flat Packages QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Ceramic Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty Ceramic Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty Ceramic Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty Resistors, Chip Array, Concave RESCH + Pitch P + Body Width X Body Length X Height - Pin Qty Resistors, Chip Array, Convex, S-Version (Side Pins Diff) RESCH + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, S-Version (Even Pin Size) LCCS + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, C	Diodes, MELF	DIOMELF + Body Length + Body Diameter
INDC + Body Length + Body Width X Height Inductors, Precision Wire Wound INDM + Body Length + Body Width X Height Inductors, Precision Wire Wound INDCAV + Pitch P + Body Length + Body Width X Height Inductors, Chip, Array, Concave. INDCAV + Pitch P + Body Length X Body Width X Height - Pin Qty Inductors, Chip, Array, Filat. INDCAY + Pitch P + Body Length X Body Width X Height - Pin Qty Land Grid Array LED's, Molded. LEDM + Body Length X Body Width X Height - Pin Qty Land Grid Array LED's, Molded. LEDM + Body Length X Body Width X Height - Pin Qty Land Grid Array LED's, Molded. LEDM + Body Length X Body Width X Height - Pin Qty Oscillators, J-Lead OSCSC + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, J-Lead OSCJ + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bend Lead OSCJ + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bend Lead OSCJ + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bend Lead OSCL + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bend Lead OSCL + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, Corner Concave PLCCS + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Plastic Leaded Chip Carriers PLCCS + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Ceramic Quad Flat Packages QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Ceramic Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty Ceramic Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty Ceramic Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty Resistors, Chip Array, Concave RESCH + Pitch P + Body Width X Body Length X Height - Pin Qty Resistors, Chip Array, Convex, S-Version (Side Pins Diff) RESCH + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, S-Version (Even Pin Size) LCCS + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, C	Fuses, Molded	FUSM + Body Length + Body Width X Height
INDM + Body Length + Body Width X Height Inductors, Precision Wire Wound Inductors, Chip, Array, Concave		
INDCAY - Prictor P - Body Length + Body Width X Height Inductors, Chip, Array, Concave		
INDCAV P HITCH P + Body Length X Body Width X Height - Pin Cty Land Grid Array. LGA + Pin Cty - Pitch P + Body Length X Body Width X Height - Pin Cty Land Grid Array. LGA + Pin Cty - Pitch P + Ball Columns X Ball Rows _ Body Length X Body Width X Height LED's, Molded LEDM + Body Length + Body Width X Height Pin Cty Oscillators, Side Concave OSCSC + Pitch P + Body Length X Body Width X Height Pin Cty Oscillators, Side Concave OSCSC + Pitch P + Body Length X Body Width X Height Pin Cty Oscillators, J-Lead OSCJ + Pitch P + Body Length X Body Width X Height Pin Cty Oscillators, Corner Concave. OSCC + Pitch P + Body Length X Body Width X Height Pin Cty Oscillators, Corner Concave. PLCC + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height Pin Cty Quad Flat Packages. PLCC + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height Pin Cty Quad Flat Packages. QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height Pin Cty Quad Flat No-lead QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height Pin Cty Quad Flat No-lead QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height Pin Cty Quad Flat No-lead QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height Pin Cty Quad Flat No-lead QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height Pin Cty Quad Flat No-lead QFP + Pitch P + Body Width X Body Length X Height Pin Cty Quad Leadless Ceramic Chip Carriers. LCC + Pitch P + Body Width X Body Length X Height Pin Cty Quad Leadless Ceramic Chip Carriers. LCC + Pitch P + Body Width X Body Length X Height Pin Cty Quad Leadless Ceramic Chip Carriers (Pin 1 on Side) RESSC + Body Length + Body Width X Height Pin Cty Resistors, Chip, Array, Concave RESCA + Pitch P + Body Length X Body Length X Height Pin Cty Resistors, Chip, Array, Concave RESCA + Pitch P + Body Length X Body Width X Height Pin Cty Resistors, Chip, Array, Concave RESCA + Pitch P + Body Length X Body Width X Height Pin Cty Resistors, Chip, Array, Concave, S-Version (Side Pins Diff) RESCAX + Pitch P + Body Length X Body		
INDCAF + Pitch P + Body Length X Body Width X Height - Pin Cty Land Grid Array		
Land Grid Array. LGA + Pin Qty - Pitch P + Ball Columns X Ball Rows _ Body Length X Body Width X Height LED's, Molded		
LEDN, Molded	Land Grid Array	Oty - Pitch P + Ball Columns Y Ball Rows - Body Length Y Body Width Y Height
OSCIBators, Side Concave OSCSC + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, L-Bead Lead OSCJ + Pitch P + Body Length X Body Width X Height - Pin Qty Oscillators, Corner Concave OSCCC + Body Length X Body Width X Height - Pin Qty Oscillators, Corner Concave OSCCC + Body Length X Body Width X Height - Pin Qty Oscillators, Corner Concave PLCC + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Plastic Leaded Chip Carriers Sockets Square PLCCS + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Quad Flat Packages QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Quad Flat Packages QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty + Thermal Pad Pull-back Quad Flat No-lead QFN + Pitch P + Body Width X Body Length X Height - Pin Qty + Thermal Pad Quad Leadless Ceramic Chip Carriers LCC + Pitch P + Body Width X Body Length X Height - Pin Qty Quad Leadless Ceramic Chip Carriers (Pin 1 on Side) LCCS + Pitch P + Body Width X Body Length X Height - Pin Qty Resistors, Chip RESC + Body Length X Height - Pin Qty Resistors, Chip, Array, Concave RESCAY + Pitch P + Body Length X Body Width X Height Resistors, MELF Resistors, Chip, Array, Concave RESCAY + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, E-Version (Even Pin Size) RESCAXE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) RESCAXE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) RESCAXE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) RESCAXE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, E-Version (Even Pin Size) SOP + Pitch P + Lead Span Nominal X		
OSCJ + Pitch P + Bodý Length X Bodý Width X Height - Pin Qty Oscillators, L-Bend Lead	Oscillators Sido Canadya	OSCSC + Ditch D + Dody Longth V Dody Width V Height Dip Oty
OSCL + Pitch P + Body Length X Body Width X Height - Pin Qty Plastic Leaded Chip Carriers		
OsciC + Body Length X Body Width X Height Plastic Leaded Chip Carriers		
Plastic Leaded Chip Carriers		
Plastic Leaded Chip Carrier Sockets Square		
Quad Flat Packages		
Ceramic Quad Flat Packages		
Quad Flat No-lead	Quad Flat Packages	QFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty
Pull-back Quad Flat No-lead	Ceramic Quad Flat Packages	CQFP + Pitch P + Lead Span L1 X Lead Span L2 Nominal X Height - Pin Qty
Quad Leadless Ceramic Chip Carriers		
Quad Leadless Ceramic Chip Carriers (Pin 1 on Side) RESC + Pitch P + Body Width X Body Length X Height - Pin Qty Resistors, Chip. RESC + Body Length + Body Width X Height Resistors, Molded RESM + Body Length + Body Width X Height Resistors, Chip, Array, Concave RESCAV + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, E-Version (Even Pin Size) RESCAXE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) RESCAXE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) RESCAXE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Flat. RESCAYE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Flat. RESCAYE + Pitch P + Body Length X Body Width X Height - Pin Qty Resistors, Chip, Array, Flat. RESCAYE + Pitch P + Body Length X Body Width X Height - Pin Qty Small Outline Integrated Circuit, (50 mil Pitch SOIC) SOIC127P + Lead Span Nominal X Height - Pin Qty Small Outline Packages SOP + Pitch P + Lead Span Nominal X Height - Pin Qty Small Outline No-lead. SON + Pitch P + Body Width X Body Length X Height - Pin Qty + Thermal Pad Pull-back Small Outline No-lead. SON + Pitch P + Body Width X Body Length X Height - Pin Qty + Thermal Pad Scaye SCA9 + Pitch P + Lead Span Nominal X Height - Pin Qty Scaye SCA9 + Pitch P + Lead Span Nominal + Body Width X Height SOT (Example: SOD3717X135 = JEDEC SOD123) SOD + Lead Span Nominal + Body Length X Body Width X Height SOT343 & SOT343 Reverse (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package)		
Resistors, Chip		
Resistors, Molded		
Resistors, Molded	Resistors, Chip	RESC + Body Length + Body Width X Height
Resistors, MELF Resistors, Chip, Array, Concave Resistors, Chip, Array, Convex, E-Version (Even Pin Size) Resistors, Chip, Array, Convex, E-Version (Even Pin Size) Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) Resistors, Chip, Array, Flat Resistors, Chip, Array, Convex, E-Version (Even Pin Qty Resistors, Chip, Array, Flat Resistors, Chip, Array Resistors, Chip, Area Resistors, Chip, Area R		
Resistors, Chip, Array, Concave		
Resistors, Chip, Array, Convex, E-Version (Even Pin Size) Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) Resistors, Chip, Array, Convex, S-Version (Side Pins Diff) Resistors, Chip, Array, Flat. Resistors, Pisch P + Body Length X Body Width X Height - Pin Qty Soll + Pin Qty Array Resistors, Chip, Array Flat. Resistors, Chip, Array		
Resistors, Chip, Array, Convex, S-Version (Side Pins Diff)		
Resistors, Chip, Array, Flat		
Small Outline IC, J-Leaded	Resistors Chip Array Flat	RESCAE + Pitch P + Body Length X Body Width X Height - Pin Oty
Small Outline Integrated Circuit, (50 mil Pitch SOIC) Small Outline Packages SOP + Pitch P + Lead Span Nominal X Height - Pin Qty Small Outline No-lead SON + Pitch P + Body Width X Body Length X Height - Pin Qty + Thermal Pad Pull-back Small Outline No-lead PSON + Pitch P + Body Width X Body Length X Height - Pin Qty + Thermal Pad SC89 SC89 + Pitch P + Lead Span Nominal X Height - Pin Qty SC90 SC90 + Lead Span Nominal + Body Length X Body Width X Height SOD (Example: SOD3717X135 = JEDEC SOD123) SOD + Lead Span Nominal + Body Width X Height SOT89 (JEDEC Standard Package) SOT143 & SOT343 (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT143 & SOT23 Packages (Example: SOT230P700X180-4) SOT + Pitch P + Lead Span Nominal X Height - Pin Qty		
Small Outline Packages SOP + Pitch P + Lead Span Nominal X Height - Pin Qty Small Outline No-lead SON + Pitch P + Body Width X Body Length X Height - Pin Qty + Thermal Pad Pull-back Small Outline No-lead PSON + Pitch P + Body Width X Body Length X Height - Pin Qty + Thermal Pad SC89 SC89 + Pitch P + Lead Span Nominal X Height - Pin Qty SC90 SC90 SC90 + Lead Span Nominal + Body Length X Body Width X Height SOD (Example: SOD3717X135 = JEDEC SOD123) SOD + Lead Span Nominal + Body Width X Height SOT89 (JEDEC Standard Package) SOT143 & SOT343 (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT143 & SOT23 & SOT223 Packages (Example: SOT230P700X180-4) SOT + Pitch P + Lead Span Nominal X Height - Pin Qty		
Small Outline No-lead	Small Outline Prograted Circuit, (50 mill Filter SOIC)	SOB + Ditch B + Lead Span Nominal V Height - Din Oty
Pull-back Small Outline No-lead	Small Outline Packages	
SC89 + Pitch P + Lead Span Nominal X Height - Pin Qty SC90 SC90 + Lead Span Nominal + Body Length X Body Width X Height SOD (Example: SOD3717X135 = JEDEC SOD123) SOD + Lead Span Nominal + Body Width X Height SOT89 (JEDEC Standard Package) SOT143 & SOT343 (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT143 & SOT23 & SOT223 Packages (Example: SOT230P700X180-4) SOT + Pitch P + Lead Span Nominal X Height - Pin Qty		
SC90 + Lead Span Nominal + Body Length X Body Width X Height SOD (Example: SOD3717X135 = JEDEC SOD123) SOD + Lead Span Nominal + Body Width X Height SOT89 (JEDEC Standard Package) SOT143 & SOT343 (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT143 & SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT343 Reverse (JEDEC Standard Package) SOT343 Reverse (JEDEC STANDARD STANDAR		
SOD (Example: SOD3717X135 = JEDEC SOD123) SOD + Lead Span Nominal + Body Width X Height SOT89 (JEDEC Standard Package) SOT143 & SOT343 (JEDEC Standard Package) SOT143 & SOT343 Reverse (JEDEC Standard Package) SOT	SC89	SC89 + Pitch P + Lead Span Nominal X Height - Pin Qty
SOT89 (JEDEC Standard Package)	SC90	SC90 + Lead Span Nominal + Body Length X Body Width X Height
SOT143 & SOT343 (JEDEC Standard Package)		
SOT143 & SOT343 Reverse (JEDEC Standard Package)		
SOT23 & SOT223 Packages (Example: SOT230P700X180-4)SOT + Pitch P + Lead Span Nominal X Height - Pin Qty		
SOT23 & SOT223 Packages (Example: SOT230P700X180-4)SOT + Pitch P + Lead Span Nominal X Height - Pin Qty TO (Generic DPAK - Example: TO228P970X238-3)TO + Pitch P + Lead Span X Height - Pin Qty	SOT143 & SOT343 Reverse (JEDEC Standard Package).	SOT143R & SOT343R
TO (Generic DPAK - Example: TO228P970X238-3)	SOT23 & SOT223 Packages (Example: SOT230P700X18	0-4)SOT + Pitch P + Lead Span Nominal X Height - Pin Qty
	TO (Generic DPAK - Example: TO228P970X238-3)	TO + Pitch P + Lead Span X Height - Pin Qty

IPC-7351A 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

Naming Convention Special Character Use for Land Patterns

The _ (underscore) is the separator between pin Qty in Hidden & Deleted pin components

The - (dash) is used to separate the pin qty.

The X (capital letter X) is used instead of the word "by" to separate two numbers such as height X width like "Quad Packages".

PCB Libraries Suffix Naming Convention for Land Patterns

Common SMT Land Pattern to Describe Environment Use (This is the last character in every name)
Note: This excludes the BGA component family as they only come in the Nominal Environment Condition

- M Most Material Condition (Level A)
- N...... Nominal Material Condition (Level B)
- L....Least Material Condition (Level C)

Alternate Components that do not follow the JEDEC, EIA or IEC Standard

- A................ Alternate Component (used primarily for SOP & QFP when Component Tolerance or Height is different)
- B..... Second Alternate Component

Reverse Pin Order

• -20RN........ 20 pin part, Reverse Pin Order, Nominal Environment

Hidden Pins

• -20_24N 20 pin part in a 24 pin package. The pins are numbered 1 – 24 the hidden pins are skipped. The schematic symbol displays up to 24 pins.

Deleted Pins

• -24_20N 20 pin part in a 24 pin package. The pins are numbered 1 – 20. The schematic symbol displays 20 pins.

JEDEC and EIA Standard parts that have several alternate packages

AA, AB, AC. JEDEC or EIA Component Identifier

GENERAL SUFFIXES

_HS.....HS = Land Pattern with Heat Sink attachment requiring additional holes or pads

Example: TO254P1055X160_HS-6N

_BECBEC = Base, Emitter and Collector (Pin assignments used for three pin Transistors)

Example: SOT95P280X160_BEC-3N

_SGD......SGD = Source, Gate and Drain (Pin assignments used for three pin Transistors)

Example: SOT95P280X160 SGD-3N

213......213 = Alternate pin assignments used for three pin Transistors

Example: SOT95P280X160_213-3N

PCB Libraries Naming Convention for Non-Standard SMT Land Patterns

Surface Mount Land Patterns

Component, Category <u>Land Pattern Name</u>

Amplifiers	AMP Mfr 's Part Number
Batteries	
Capacitors, Variable	
Capacitors, Chip, Array, Concave (Pins on 2 or 4 sides)	
Capacitors, Chip, Array, Concave (Firis on 2 of 4 sides)	CAPCAE Mfr Series No Fin Qty
Capacitare Missellaneous	CAP Mfr 's Port Number
Capacitors, Miscellaneous	VTAL Mfr.'s Dort Number
Crystals	
Diodes, Miscellaneous	
Diodes, Bridge Rectifiers	
Ferrite Beads	
Fiducials	FID + Pad Size X Solder Mask Size
Filters	
Fuses	
Fuse, Resettable	FUSER_Mfr.'s Part Number
Inductors, Miscellaneous	
Inductors, Chip, Array, Concave (Pins on 2 or 4 sides)	INDCAV_Mtr Series No Pin Qty
Inductors, Chip, Array, Flat (Pins on 2 sides)	INDCAF_Mtr Series No Pin Qty
Keypad	KEYPAD_Mfr.'s Part Number
LEDS	LED_Mfr.'s Part Number
LEDS, Chip	LED_Mfr.'s Part Number
Liquid Crystal Display	
Microphones	
Opto Isolators	
Oscillators	OSC_Mfr.'s Part Number - Pin Qty
Quad Flat Packages w/Bumper Corners, Pin 1 Side BQFP + Pitch P + Lead Sp	oan L1 X Lead Span L2 Nominal X Height - Pin Qty
Quad Flat Packages w/Bumper Corners, 1 CenterBQFPC + Pitch P + Lead Sp	oan L1 X Lead Span L2 Nominal X Height - Pin Qty
Resistors, Chip, Array, Concave (Pins on 2 or 4 sides)	
Resistors, Chip, Array, Convex Type E (Pins on 2 sides)	RESCAXE_ Mfr Series No Pin Qty
Resistors, Chip, Array, Convex Type S (Pins on 2 sides)	RESCAXS_ Mfr Series No Pin Qty
Resistors, Chip, Array, Flat (Pins on 2 sides)	
Relays	RELAY_Mfr.'s Part Number
Speakers	
Switches	
Test Points, Round TP + Pad Size (1 place left of decimal and 2 place)	ces right of decimal, Example TP100 = 1.00mm)
Test Points, Square	ace left of decimal and 2 places right of decimal)
Test Points, Rectangle TP + Pad Length X Pad Width (1 plane)	ace left of decimal and 2 places right of decimal)
Thermistors	THERM_Mfr.'s Part Number
Transceivers	
Transducers (IRDA's)	
Transient Voltage Suppressors	TVS_Mfr.'s Part Number
Transient Voltage Suppressors, Polarized	TVSP_Mfr.'s Part Number
Transistor Outlines, Custom	TRANS_Mfr.'s Part Number
Transformers	
Trimmers & Potentiometers	
Tuners	
Varistors	
Voltage Controlled Oscillators	
Voltage Regulators, Custom	VREG_Mfr.'s Part Number

Note: All dimensions are in Metric Units and all numbers go two places past the decimal point

PCB Libraries Naming Convention for Through-Hole Land Patterns

Through Hole Land Patterns

Component, Category Land Pattern Name

Amplifiare	AMD Mir's Dort Number
	DIOB_Mfr.'s Part Number
Capacitors, Non Polarized Axial	CARR : Die Chasing - Body Length & Body Diameter
Capacitors, Non Polarized Radial, Round	
Capacitors, Non Polarized Radiai, Ovai	CAPR + Pin Spacing - Body Width X Body Length X Component Height
Capacitors, Polarized Axial	
	CAPPR + Pin Spacing - Body Diameter X Component Height
	XTAL_Mfr.'s Part Number
	DO- JEDEC Part Number
	DIP + Pin Qty + Pin Span in MILS
	DIPS + Pin Qty + Pin Span in MILS
	FUSER_Mfr.'s Part Number
	HDR + Number of Rows X Number of pins per Row
Inductors	IND_Mfr.'s Part Number
	JUMP + Distance between Pads
LED's	LED_Mfr.'s Part Number
Liquid Crystal Display	LCD_Mfr.'s Part Number
	MTG + Hole Size_Pad Size
Mounting Holes Plated with 8 Vias	MTG + Hole Size_Pad Size - VIA
	OPTO_Mfr.'s Part Number
	OSC_Mfr.'s Part Number
	PAD + Pad Size X Hole Size + H
	PHODET_Mfr.'s Part Number
	PGA + Number of Pin Rows X Number of Pin Columns - Pin Qty
	REG_Mfr.'s Part Number
Relays	RELAY_Mfr.'s Part Number
	RES + Pad Spacing - Body Length X Body Diameter
	SIP + Pin Qty
	SHIELD_Mfr.'s Part Number
	SHIELD + Body Length X Body Width
	SPKR_Mfr's Part Number
	STIF_Mfr's Part Number
	SW_Mfr.'s Part Number
	TP + Pad Size + P + Hole Size + D + Height + H
	TPS + Pad Size + P + Hole Size + D + Height + H
	TP + Top Pad X Bottom Pad + P + Hole Size + D + Height + H
	THERM_Mfr.'s Part Number
	XDCR_Mfr.'s Part Number
	TO- JEDEC Number
	TRANS_Mfr.'s Part Number
	XFMR_Mfr.'s Part Number
	TUNER_Mfr.'s Part Number
	VAR_Mfr.'s Part Number
	VCO_Mfr.'s Part Number
Voltage Regulators (JEDEC Standard Package)	

Note: All dimensions are in Metric Units and all numbers go two places past the decimal point

PCB Libraries Naming Convention for Connector Land Patterns

<u>Library Name</u> <u>Land Pattern Name</u>

SAMTEC™	SAMTEC Part Number
CONNECTORS (Miscellaneous Connector Libraries)	
3M™	3M_Part Number
AGILENT™	AGILENT_Part Number
AIRBORNE™	AIRBORNE_Part Number
AMPHENOL™	AMPHENOL_Part Number
AVX™	AVX_Part Number
BERG™	BERG_Part Number
BLOCKMASTER ELECTRONICS™	BLOCKMASTER_Part Number
CUI-STACK™	CUI-STACK_Part Number
E.F. JOHNSON™	JOHNSON_Part Number
FCI ELECTRONICS™	FCI_Part Number
FUJITSU™	FUJITSU_Part Number
HIROSE™	HIROSE_Part Number
ITT CANNON™	ITT_Part Number
JALCO™	JALCO_Part Number
JWT™	
JST™	
KEYSTONE™	-
KYCON™	KYCON_Part Number
LEMO™	
MILL-MAX™	
MOLEX™	=
NEUTRIK™	
PHOENIX™	
PULSE™	-
RIA™	
SIEMENS™	
SPEEDTECH™	
STEWART™	_
SULLINS™	
SWITCHCRAFT™	
TYCO™	
YAMAICHI™	YAMAICHI Part Number

IPC-7351 Surface Mount Land Patterns Sectional Breakdown

IPC-735* Component Family Breakdown:

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IPC-7351 = IEC 61188-5-1, Generic requirements - Attachment (land/joint) considerations - General Description
IPC-7352 = IEC 61188-5-2, Sectional requirements - Attachment (land/joint) considerations - Discrete Components
IPC-7353 = IEC 61188-5-3, Sectional requirements - Attachment (land/joint) considerations - Gull-Wing leads, two sides (SOP)
IPC-7354 = IEC 61188-5-4, Sectional requirements - Attachment (land/joint) considerations - J leads, two sides (SOJ)
IPC-7355 = IEC 61188-5-5, Sectional requirements - Attachment (land/joint) considerations - Gull-Wing leads, four sides (QFP)
IPC-7356 = IEC 61188-5-6, Sectional requirements - Attachment (land/joint) considerations - J leads, four sides (PLCC)
IPC-7357 = IEC 61188-5-7, Sectional requirements - Attachment (land/joint) considerations - Post leads, two sides (DIP)
IPC-7358 = IEC 61188-5-8, Sectional requirements - Attachment (land/joint) considerations - Area Array Components (BGA)
IPC-7359 = NO IEC Document, Sectional requirements - Attachment (land/joint) considerations - No Lead Components (LCC)
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IPC-7351 Surface Mount Land Pattern Zero Orientation

- 1) Chip Capacitors, Resistors and Inductors (RES, CAP and IND) Pin 1 (Positive) on Left
- 2) Molded Inductors (INDM), Resistors (RESM), Molded Polarized Capacitors (CAPMP) Pin 1 (Positive) on Left
- 3) Precision Wire-wound Inductors Pin 1 (Positive) on Left
- 4) MELF Diode Pin 1 (Cathode) on Left
- 5) SOD Diodes Pin 1 (Cathode) on Left
- 6) Aluminum Electrolytic Capacitors Pin 1 (Positive) on Left
- 7) SOT Devices (SOT23, SOT23-5, SOT223, SOT89, SOT143, etc.) Pin 1 Upper Left
- 8) TO252 & TO263 (DPAK Type) Devices Pin 1 Upper Left
- 9) Small Outline Gullwing ICs (SOIC, SOP, TSOP, SSOP, TSSOP) Pin 1 Upper Left
- 10) Ceramic Flat Packs (CFP) Pin 1 Upper Left
- 11) Small Outline J Lead ICs (SOJ) Pin 1 Upper Left
- 12) Quad Flat Pack ICs (PQFP, SQFP) Pin 1 Upper Left
- 13) Ceramic Quad Flat Packs (CQFP) Pin 1 Upper Left
- 14) Bumper and Plastic Quad Flat Pack ICs (BQFPC, PQFPC Pin 1 Center) Pin 1 Top Center
- 15) Plastic Leaded Chip Carriers (PLCC) Pin 1 Top Center
- 16) Leadless Chip Carriers (LCC) Pin 1 Top Center
- 17) Leadless Chip Carriers (LCCS Pin 1 on Side) Pin 1 Upper Left
- 18) Quad Flat No-Lead ICs (QFN) QFNS & QFNRV, QFNRH Pin 1 Upper Left
- 19) Ball Grid Arrays (BGA) Pin A1 Upper Left