

PLCC

Plastic Leaded Chip Carrier

Plastic Leaded Chip Carriers (PLCC) are four-sided "J" Leaded Plastic body packages. Lead counts range from 20 to 84. PLCC packages can be square or rectangle. Body sizes range from .35" to 1.15". PLCCs are JEDEC standard compliant. The PLCC "J" Lead configuration requires less board space versus equivalent gull leaded components.

Daisy-Chained And Lead-Free Parts Available!

PLCC Plastic Leaded Chip Carrier

Part Number (In Tubes)	Pin Count	Body Size	Quantity Per Tube	Part Number (Tape and Reel)	Tape Width	Tape Pitch	Quantity 13" Reel
PLCC20T	20	8.8mm	48	PLCC20TR	16mm	12mm	1,000
PLCC28T	28	11.4mm	38	PLCC28TR	24mm	16mm	750
PLCC32T	32	11.4 x 13mm	30	PLCC32TR	24mm	16mm	750
PLCC44T	44	16.5mm	27	PLCC44TR	32mm	24mm	450/500
PLCC52T	52	19.0mm	24	PLCC52TR	32mm	24mm	450
PLCC68T	68	24.1mm	18	PLCC68TR	44mm	32mm	230/250
PLCC84T	84	29.2mm	15	PLCC84TR	44mm	36mm	250

Notes

- All PLCCs have "J" leads.
- Standard lead pitch is 1.27mm (50 mils).
- PLCCs are to JEDEC standards.
- Tube quantity may vary.
- 13" reels are standard.
- Parts available on Tape and Reel.
- Moisture sensitivity is JEDEC level 3.
- Lead-free parts are available with 100% Matte Sn finish.

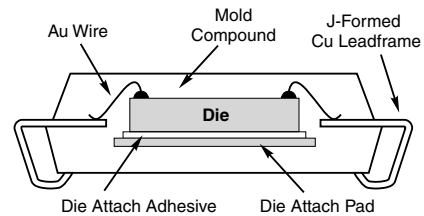


Part Number System

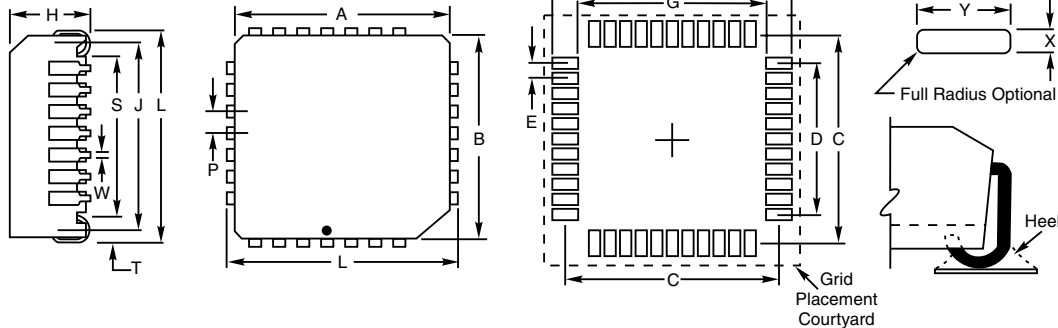
Plastic Leaded Chip Carrier — PLCC20T — Packaging

Number of Pins

- Packaging: T=Tubes, TR=Tape and Reel.
- Add "Sn" to end of part number for Lead-Free.



For kits see pages 53, 55, 60, 62, 67, 70, 71, 79 and 82.



PLCC Component Dimensions

Component Identifier	L (mm)		S (mm)		W (mm)		T (mm)		A (mm)		B (mm)		J (mm)	H (mm)	P (mm)
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Ref	Max	Basic
PLCC-20	9.78	10.03	5.78	6.53	0.33	0.53	1.50	2.00	8.89	9.04	8.89	9.04	7.87	4.57	1.27
PLCC-28	12.32	12.57	8.32	9.07	0.33	0.53	1.50	2.00	11.43	11.58	11.43	11.58	10.41	4.57	1.27
PLCC-44	17.40	17.65	13.40	14.15	0.33	0.53	1.50	2.00	16.51	16.66	16.51	16.66	15.49	4.57	1.27
PLCC-52	19.94	20.19	15.94	16.69	0.33	0.53	1.50	2.00	19.05	19.20	19.05	19.20	18.03	5.08	1.27
PLCC-68	25.02	25.27	21.02	21.77	0.33	0.53	1.50	2.00	24.13	24.33	24.13	24.33	23.11	5.08	1.27
PLCC-84	30.10	30.35	26.10	26.85	0.33	0.53	1.50	2.00	29.21	29.41	29.21	29.41	28.19	5.08	1.27

PLCC Land Patterns

Component Identifier	Z (mm)	G (mm)	X (mm)	Y (mm)	C (mm)	D (mm)	E (mm)	Placement Grid (No. of Elements)
PLCC-20	10.80	6.40	0.60	2.20	8.60	5.08	1.27	24 x 24
PLCC-28	13.40	9.00	0.60	2.20	11.20	7.62	1.27	30 x 30
PLCC-44	18.40	14.00	0.60	2.20	16.20	12.70	1.27	40 x 40
PLCC-52	21.00	16.60	0.60	2.20	18.80	15.24	1.27	44 x 44
PLCC-68	26.00	21.60	0.60	2.20	23.80	20.32	1.27	54 x 54
PLCC-84	31.20	26.80	0.60	2.20	29.00	25.40	1.27	66 x 66

SOIC/SOJ

Small Outline Integrated Circuit

Small Outline Package (SOP/SOJ) body size was compressed and the lead pitch tightened to obtain a smaller version SOP. This yields an IC package that is a significant reduction in the size (compared to stan-

dard package). All IC assembly processes remain the same as with our standard SOPs.

SOIC/SOJ Small Outline Integrated Circuit

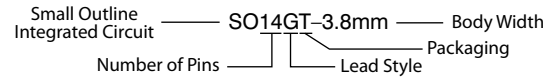
Part Number	Number of Pins	Lead Style	Body Width	Quantity Per Tube	Tape Width	Tape Pitch	Quantity 13" Reel
SO8GT-3.8mm*	8	Gull	3.8mm	100	12mm	8mm	2,500
SO14GT-3.8mm	14	Gull	3.8mm	50	16mm	8mm	2,500
SO16GT-3.8mm	16	Gull	3.8mm	48	16mm	8mm	2,500
SO16GT-7.6mm	16	Gull	7.6mm	46	16mm	12mm	1,000
SO20GT-7.6mm	20	Gull	7.6mm	38	24mm	12mm	1,000
SO24GT-7.6mm*	24	Gull	7.6mm	31	16mm	12mm	1,000
SO28GT-7.6mm	28	Gull	7.6mm	25	24mm	12mm	1,000
SO28JT-7.6mm	28	J-Lead	7.6mm	26	24mm	12mm	1,000
SO32JT-7.6mm	32	J-Lead	7.6mm	25	24mm	12mm	750

Notes

- * = Available as an ExposedPad™ SOIC package by Amkor. ExposedPad™ can increase heat dissipation by as much as 110% over standard packages.
- Standard lead pitch is 1.27mm.
- Tube quantity may vary.
- Parts available on Tape and Reel.
- Lead-free parts are available with 100% Matte Sn finish.



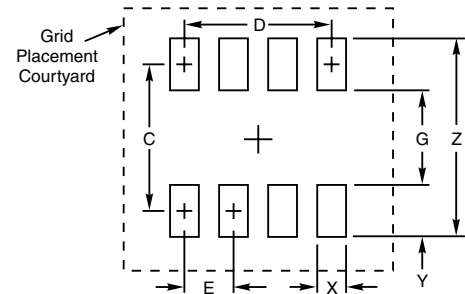
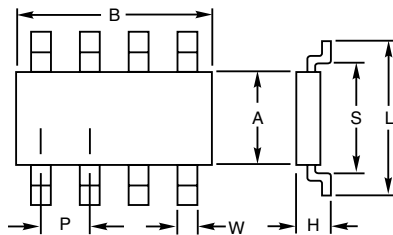
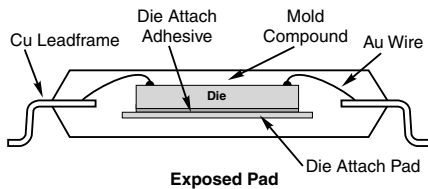
Part Number System



- Lead Style: G=Gull Wing, J=J-Leaded.
- Packaging: T=Tubes, TR=Tape and Reel.
- Add "Sn" to end of part number for Lead-Free.



For kits see pages 53, 55, 60, 62, 67, 68, 69, 70, 71, 73 and 79.



SOIC Component Dimensions

Component Identifier	JEDEC Number	L (mm)		S (mm)		W (mm)		T (mm)		A (mm)		B (mm)		H (mm)		P (mm)
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Basic
S08	MS-012 AA	5.80	6.30	3.26	4.55	0.33	0.51	0.40	1.27	3.80	4.00	4.80	5.00	1.35	1.75	1.27
S014	MS-012 AB	5.80	6.30	3.26	4.55	0.33	0.51	0.40	1.27	3.80	4.00	8.55	8.75	1.35	1.75	1.27
S016	MS-012 AC	5.80	6.30	3.26	4.55	0.33	0.51	0.40	1.27	3.80	4.00	9.80	10.00	1.35	1.75	1.27
SO16-7.6mm	MS-013 AA	10.00	10.65	7.46	8.85	0.33	0.51	0.40	1.27	7.40	7.60	10.10	10.50	2.35	2.65	1.27
SO20-7.6mm	MS-013 AC	10.00	10.65	7.46	8.85	0.33	0.51	0.40	1.27	7.40	7.60	12.60	13.00	2.35	2.65	1.27
SO28-7.6mm	MO-119 AB	10.29	10.64	8.21	9.01	0.36	0.51	0.53	1.04	7.40	7.60	18.08	18.39	2.34	2.64	1.27

SOIC Land Pattern Dimensions

Component Identifier	Z (mm)	G (mm)	X (mm)	Y (mm) Ref	C (mm) Ref	D (mm) Ref	E (mm) Ref	Placement Grid (No. of Grid Elements)
S08	7.40	3.00	0.60	2.20	5.20	3.81	1.27	12 x 16
S014	7.40	3.00	0.60	2.20	5.20	7.62	1.27	20 x 16
S016	7.40	3.00	0.60	2.20	5.20	8.89	1.27	22 x 16
SO16-7.6mm	11.40	7.00	0.60	2.20	9.20	8.89	1.27	22 x 22
SO20-7.6mm	11.40	7.00	0.60	2.20	9.20	11.43	1.27	28 x 24
SO28-7.6mm	11.40	7.00	0.60	2.20	9.20	16.51	1.27	38 x 24

TSOP

Thin Small Outline Package

Thin Small Outline Packages (TSOP) are thin body size components; thickness is 1.0mm. TSOP packages have four sides and are rectangular. Type I TSOPs have the leads protruding from the width portion of the package. Type II TSOPs have the leads protruding from the length portion of the package. Lead counts range from 28 to 54. Package body size ranges from 8x11.8mm to 12x20mm.



TSOP Thin Small Outline Package – Type I

Part Number	Number of Pins	Body Size	Lead Pitch	Quantity Per Tray	Tape Width	Tape Pitch	Quantity 13" Reel
TI-TSOP28-8.1x11.8mm-.55mm	28	8.1 x 11.8mm	.55mm	234	24mm	12mm	1,000
TI-TSOP28-8x20mm-.5mm	28	8 x 20mm	.5mm	156	32mm	12/16mm	1,000
TI-TSOP32-8x11.8mm-.5mm	32	8 x 11.8mm	.5mm	234	24mm	12mm	1,000
TI-TSOP32-8x18.4mm-.5mm	32	8 x 18.4mm	.5mm	156	32mm	12/16mm	1,000
TI-TSOP40-10x14mm-.5mm	40	10 x 14mm	.5mm	160	32mm	12/16mm	1,000
TI-TSOP40-10x18.4mm-.5mm	40	10 x 18.4mm	.5mm	120	32mm	16mm	1,000
TI-TSOP48-12x18.4mm-.5mm	48	12 x 18.4mm	.5mm	96	32mm	16mm	1,000

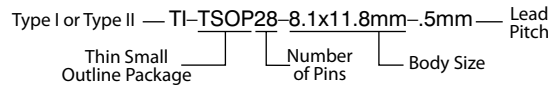
TSOP Thin Small Outline Package – Type II

Part Number	Number of Pins	Body Size	Lead Pitch	Quantity Per Tray	Tape Width	Tape Pitch	Quantity 13" Reel
TII-TSOP40/44-10.16x18.42mm-.8mm	40/44	10.16 x 18.42mm	.8mm	135	32mm	16mm	1,000
TII-TSOP44-10.16x18.42mm-.8mm	44	10.16 x 18.42mm	.8mm	135	32mm	16mm	1,000
TII-TSOP44/50-10.16x20.95mm-.8mm	44/50	10.16 x 20.95mm	.8mm	135	32mm	16mm	1,000
TII-TSOP50-10.16x20.95mm-.8mm	50	10.16 x 20.95mm	.8mm	117	32mm	16mm	1,000
TII-TSOP54-10.16x22.22mm-.8mm	54	10.16 x 22.22mm	.8mm	108	44mm	16mm	1,000

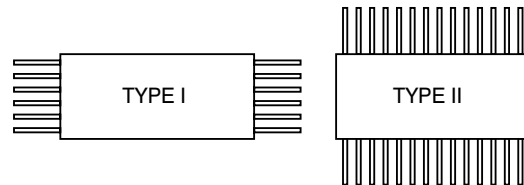
Notes

- Standard packaging is in JEDEC trays or tape and reel (quantities may vary).
- Body dimensions are measured by body length and width.
- Type I means that pins extend from the narrow end (the width) of the body.
- Type II means that pins extend from the wide end (the length) of the body.
- Parts available on Tape and Reel upon special request.
- Lead-free parts are available with 100% Matte Sn or SnBi.

Part Number System



- Add "T" to end of part number for Tray.
- Add "TR" to end of part number for Tape and Reel.
- Add specific finish to end of part number for Lead-Free, i.e Sn or SnBi.



For recommended kits see pages 58, 67 and 71.



The Small Shrink Outline Package (SSOP) body size is compressed and the lead pitch is tightened to obtain a small version of the standard SOIC packages. Lead counts range from 8 to 64. Body sizes are 209 and 300 mils. The SSOP package is JEDEC and EIAJ compliant. The package leads are solder plated.

SSOP Small Shrink Outline Package

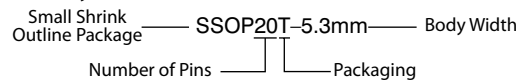
Part Number	Number of Pins	Body Width	Pitch	Quantity Per Tube	Tape Width	Tape Pitch	Quantity 13" Reel
SSOP14T-5.3mm	14	5.3mm	.65mm	100	16mm	12mm	1,000
SSOP16T-5.3mm	16	5.3mm	.65mm	80	16mm	12mm	1,000
SSOP20T-5.3mm	20	5.3mm	.65mm	62	16mm	12mm	1,000
SSOP24T-5.3mm	24	5.3mm	.65mm	66	16mm	12mm	1,000
SSOP28T-5.3mm	28	5.3mm	.65mm	47	16/24mm	12mm	1,000
SSOP48T-7.6mm	48	7.6mm	1.27mm	30	32mm	12/16mm	1,000
SSOP56T-7.6mm	56	7.6mm	1.27mm	26	32mm	12/16mm	500

Notes

- Tube quantity may vary.
- Parts available on Tape and Reel upon special request.
- 209 and 300 mil body widths.
- JEDEC and EIAJ package outline standard compliance.
- High-conductivity copper leadframes.
- Eutectic solder plating is 85/15 Sn/Pb.
- Moisture sensitivity is JEDEC level 3.
- Lead-free available with 100% Matte Sn alloy.



Part Number System



- Add "T" for Tubes or "TR" for Tape and Reel to end of part number.
- Add "ePad" to beginning of part number when ordering ExposedPad™ package.
- Add "Sn" to end of part number for Lead-Free.



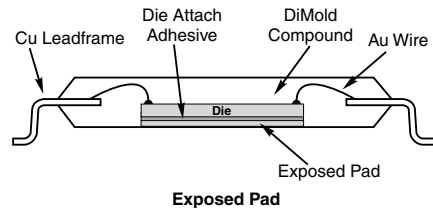
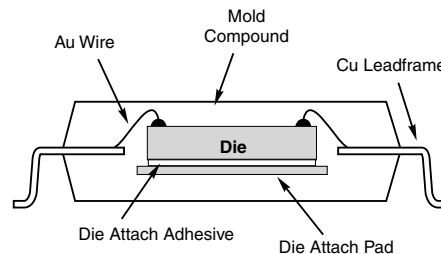
Looking for Lead-Free?

This symbol indicates that lead-free parts are available!



For kits see pages 60, 71, 79 and 82.

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Note: Drawings not to scale.

TSSOP

Thin Shrink Small Outline Package



The Thin Shrink Small Outline Package (TSSOP) offers smaller body sizes, smaller lead pitches and package thickness (0.9mm thick) than standard SOIC packages. Body widths are 3.0mm, 4.4mm and 6.1mm. Lead counts range from 8 to 80. This package conforms to JEDEC package outlines. Parts are also available as an ExposedPad™ package.



TSSOP Thin Shrink Small Outline Package

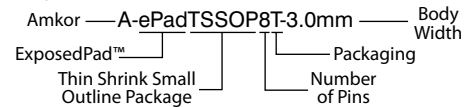
Part Number	Number of Pins	Body Width	Pitch	Tape Width	Tape Pitch	Quantity Per Tube	Quantity Per Reel
A-TSSOP8T-3.0mm	8	3.0mm	.65mm	12mm	8mm	98	2,500
A-TSSOP8T-4.4mm	8	4.4mm	.65mm	12/16mm	8mm	100	1,000/2,500
A-TSSOP10T-3.0mm	10	3.0mm	.5mm	12mm	8mm	98	2,500
A-TSSOP14T-4.4mm	14	4.4mm	.65mm	12/16mm	8mm	96	1,000/2,500
A-TSSOP16T-4.4mm	16	4.4mm	.65mm	12/16mm	8mm	96	1,000/2,500
A-TSSOP20T-4.4mm	20	4.4mm	.65mm	16mm	8/12mm	74	1,000/2,500
A-TSSOP24T-4.4mm	24	4.4mm	.65mm	16mm	8/12mm	62	1,000/2,500
A-TSSOP28T-4.4mm	28	4.4mm	.65mm	16mm	8/12mm	50	1,000
A-TSSOP28T-6.1mm	28	6.1mm	.65mm	24mm	12mm	50	1,000
A-TSSOP32T-6.1mm	32	6.1mm	.65mm	24mm	12mm	44	1,000
A-TSSOP38T-4.4mm	38	4.4mm	.5mm	16mm	8/12mm	50	1,000
A-TSSOP38T-6.1mm	38	6.1mm	.65mm	24mm	12mm	39	1,000
A-TSSOP44T-4.4mm	44	4.4mm	.5mm	24mm	12mm	42	1,000
A-TSSOP48T-4.4mm	48	4.4mm	.4mm	16mm	8mm	50	1,000
A-TSSOP48T-6.1mm	48	6.1mm	.5mm	24mm	12mm	39	1,000
A-TSSOP56T-4.4mm	56	4.4mm	.4mm	24mm	12mm	42	1,000
A-TSSOP56T-6.1mm	56	6.1mm	.5mm	24mm	12mm	35	1,000
A-TSSOP64T-6.1mm	64	6.1mm	.5mm	N/A	N/A	28	N/A
A-TSSOP80T-6.1mm	80	6.1mm	.4mm	N/A	N/A	28	N/A

Notes

- 0.9mm body thickness for 4.4 and 6.1mm body widths.
- 0.85mm body thickness for 3.0mm body width.
- JEDEC package outline is standard.
- High conductivity copper leadframes.
- Very low-stress mold compound.
- Tube quantity may vary.
- Parts available on Tape and Reel upon special request.
- All pin counts listed are available as an ExposedPad™ package.
- Lead-free available with 100% Matte Sn alloy.

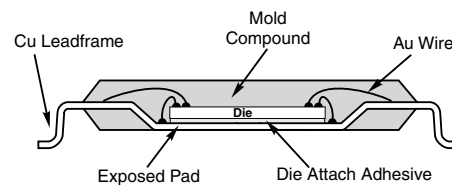


Part Number System



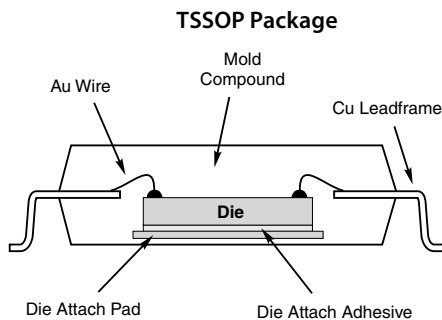
- Add "T" for Tubes or "TR" for Tape and Reel to end of part number.
- Add "ePad" to beginning of part number when ordering ExposedPad™ package.
- Add "Sn" to end of part number for Lead-Free.

ExposedPad™ TSSOP Package



ExposedPad™ Notes

- Solder plated exposed metal die pad.
- Highly conductive copper leadframe.
- Up to 60% improvement in Theta JA (compared to standard TSSOP).
- Overall height is 1.1mm.



For recommended kit see page 55.