

LPCC™

Leadless Plastic Chip Carrier

The LPCC patented plastic package was developed by ASAT in 1998, introducing a "leadless" concept into ASAT's expanding portfolio. The LPCC package is a superior choice for high-speed applications where thermal and electrical performance is paramount and space constraints are unavoidable. For thermal solutions, this package has the ability to mount the die attach pad directly to the board for heat dissipation.

Typical Applications

- ASICs, DSP, ASSP
- High-speed networks
- Personal digital assistants
- RF applications
- Telecommunications

Advantages

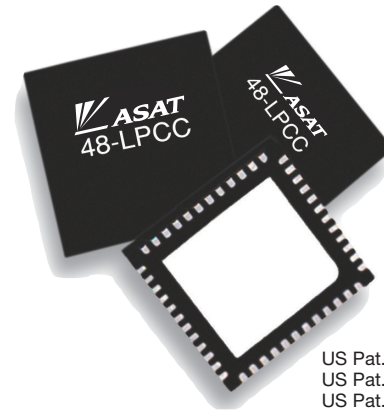
- Lead-free and "green" options available
- Lowest stress at solder joint compared to CSP & Flex packages
- Saw singulation technique provides larger die pads for better thermal performance
- Very low inductance for high-speed applications
- Ten day design cycle time including lead frame
- Immune to die shrink
- Die pad mounting to motherboard provides for excellent thermal performance

Features

- Body sizes from 2 to 10 mm SQ*
- Lead counts from 8 to 72
- Standard assembly materials, equipment and processes
- Ground plane bonding option
- Conforms to JEDEC registered outlines for QFP-N (MO-220) and SO-N (MO-229)
- Exposed die and dual-in-line versions available
- 0.4 mm, 0.5 mm and 0.65 mm thickness options per JEDEC outline MO-248
- Bumped LPCC available for JEDEC outline MO-250
- Stacked die option available

LPCC packages are constructed with standard materials and can be designed to meet your special packaging requirements

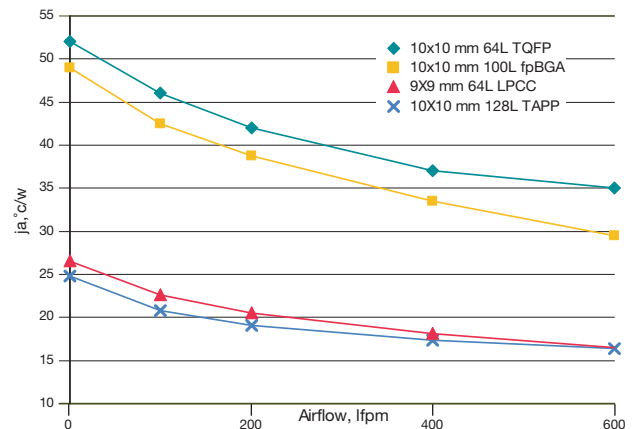
*Custom sizes available



US Pat. 6,229,200
 US Pat. 6,242,281
 US Pat. 6,294,100
 US Pat. 6,545,347
 US Pat. 6,585,905
 US Pat. 6,940,154

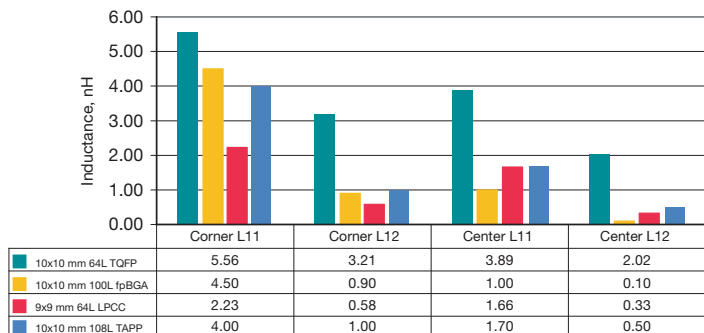
Thermal Performance

(various package types)



Electrical Performance

(various package types)



Standard Materials

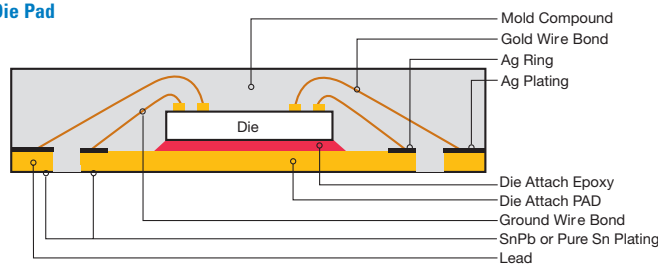
Lead Frame	Copper Alloy
Lead Frame Finish	85/15 Sn/Pb or 100% Sn
Die Attach	Conductive Epoxy
Mold Compound	Standard or Green
Marking	Laser

Reliability

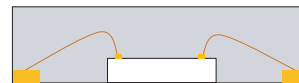
Preconditioning	JEDEC Standard
Autoclave, 121°C	168 Hours
Temp. Cycle, Cond. C	500/1000 Cycles
Unbiased HAST, 130°C	96 Hours
HTSL, 150°C	1000 Hours
2nd Level, -40/+125°C	Up to 5000 Cycles

Typical Cross Section

Exposed Die Pad



Exposed Die



Typical Package Configurations

Body Size	Pitch	Lead Count	Exposed DAP Size*	Max Die Size (w/o DB)*	Max Die Size (w/ DB)	Min Die Size*	Package Thickness
3 x 3	0.65	8/16	65 x 65	65 x 65	35 x 35	35 x 3 5	0.90/0.75
3 x 3	0.5	12/16	65 x 65	65 x 65	35 x 35	35 x 35	0.90/0.75
4 x 4	0.65	12/16	104 x 104	104 x 104	74 x 74	35 x 35	0.90/0.75
4 x 4	0.5	20/24	104 x 104	104 x 104	74 x 74	35 x 35	0.90/0.75
4 x 5	0.5	24/28	104 x 144	104 x 144	74 x 114	35 x 35	0.90/0.75
5 x 5	0.65	20/24	144 x 144	144 x 144	114 x 114	35 x 35	0.90/0.75
5 x 5	0.5	28/32	144 x 144	144 x 144	114 x 114	35 x 35	0.90/0.75
6 x 6	0.65	24/28/32	183 x 183	183 x 183	153 x 153	73 x 73	0.90/0.75
6 x 6	0.5	36/40	183 x 183	183 x 183	153 x 153	73 x 73	0.90/0.75
7 x 7	0.65	32/36	222 x 222	222 x 222	192 x 192	112 x 112	0.90/0.75
7 x 7	0.5	40/44/48	222 x 222	222 x 222	192 x 192	112 x 112	0.90/0.75
8 x 8	0.65	36/40/44	261 x 261	261 x 261	232 x 232	151 x 151	0.90/0.75
8 x 8	0.5	48/52/56	261 x 261	261 x 261	232 x 232	151 x 151	0.90/0.75
9 x 9	0.65	44/48	301 x 301	296 x 296	271 x 271	191 x 191	0.90/0.75
9 x 9	0.5	56/60/64	301 x 301	296 x 296	271 x 271	191 x 191	0.90/0.75
10 x 10	0.5	68/72	236 x 236	234 x 234	204 x 204	134 x 134	0.90/0.75

Note: JEDEC Reference Outline MO-220, MO-229 and MO-248

*dimensions in mils

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USA

Headquarters
Milpitas, CA
Tel. 408-964-7400
Fax 408-964-5535

Mission Viejo, CA
Tel. 949-830-0965
Fax 949-830-3505

Austin, TX
Tel. 512-249-4750
Fax 408-964-5535

Auburn, MA
Tel. 508-832-6631
Fax 508-832-6645

Asia

Headquarters
Hong Kong
Tel. 852-2408-7811
Fax 852-2407-4056

China
Tel. 86-769-8542-8811
Fax 86-769-8542-6633

Singapore
Tel. 65-6238-0188
Fax 65-6238-0133

Korea
Tel. 82-2-332-5226
Fax 82-2-323-5579

Europe

Germany
Tel. 49-611-97774-256
Fax 49-611-97774-159

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