

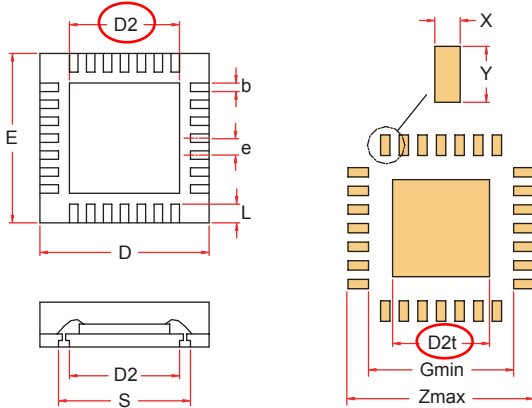
LPCC

PCB Land Pattern Dimensions

The table shown at the bottom of the page should be used only as a guideline towards designing an effective land pattern that will achieve optimum solder joint reliability, while avoiding solder bridging during reflow. Estimates are based on tolerance analyses per IPC-SM-782A, ASAT's LPCC package outlines and the following assumptions:

PCB Land Pattern Dimensions

$D2 \neq D2t$

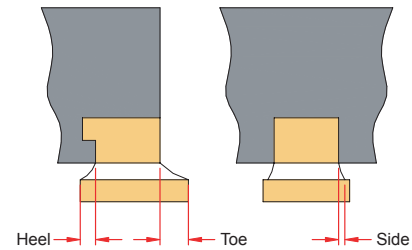


Minimum solder fillet dimensions:

- Toe = 0.1 mm
- Heel = 0.05 mm
- Side = 0.0 mm
- PCB fabrication tolerance = 0.05 mm
- Package placement tolerance = 0.05 mm

Solder wetting on the unplated sides of the leads is not guaranteed. However, no reliability issues have been reported by ASAT customers. It is generally observed that fillets are formed, depending on solder paste type and length of package exposure to SMT conditions. The toe fillet, if formed, will further improve solder joint reliability. The PCB land pattern must allow for this formation.

Solder Fillets



Body Size	Leads	ND / NE	Lead Pitch	Variation	Dmin	Dmax	Emin	Emax	bmin	bmax	Lmin	Lmax	Zmax	Gmin	X	Y	D2t
2 x 2	8	2 / 2	0.50	VCCD	1.90	2.10	1.90	2.10	0.23	0.28	0.35	0.45	2.22	1.00	0.31	0.67	0.99
3 x 3	12	3 / 3	0.50	VEED-3	2.90	3.10	2.90	3.10	0.23	0.28	0.35	0.45	3.22	2.00	0.31	0.67	1.59
3 x 3	16	4 / 4	0.50	VEED-4	2.90	3.10	2.90	3.10	0.23	0.28	0.35	0.45	3.22	2.00	0.31	0.67	1.59
4 x 4	20	5 / 5	0.50	VGGD-5	3.90	4.10	3.90	4.10	0.23	0.28	0.35	0.45	4.22	3.00	0.31	0.67	2.59
4 x 4	24	6 / 6	0.50	VGGD-6	3.90	4.10	3.90	4.10	0.23	0.28	0.35	0.45	4.22	3.00	0.31	0.67	2.59
4 x 5	24	5 / 7	0.50	VGHD-1	3.90	4.10	4.90	5.10	0.23	0.28	0.35	0.45	4.22	3.00/4.00	0.31	0.67	2.59
4 x 5	28	6 / 8	0.50	VGHD-3	3.90	4.10	4.90	5.10	0.23	0.28	0.35	0.45	4.22	3.00/4.00	0.31	0.67	2.59
5 x 5	28	7 / 7	0.50	VHHD-3	4.90	5.10	4.90	5.10	0.23	0.28	0.35	0.45	5.22	4.00	0.31	0.67	3.59
5 x 5	32	8 / 8	0.50	VHHD-4	4.90	5.10	4.90	5.10	0.23	0.28	0.35	0.45	5.22	4.00	0.31	0.67	3.59
5 x 7	38	7 / 12	0.50	VHRD-1	4.90	5.10	6.90	7.10	0.23	0.28	0.35	0.45	5.22	4.00/6.00	0.31	0.67	3.59
6 x 6	36	9 / 9	0.50	VJJD-4	5.90	6.10	5.90	6.10	0.23	0.28	0.35	0.45	6.22	5.00	0.31	0.67	4.59
6 x 6	40	10 / 10	0.50	VJJD-5	5.90	6.10	5.90	6.10	0.23	0.28	0.35	0.45	6.22	5.00	0.31	0.67	4.59
7 x 7	40	10 / 10	0.50	VKKD	6.90	7.10	6.90	7.10	0.23	0.28	0.35	0.45	7.22	6.00	0.31	0.67	5.59
7 x 7	44	11 / 11	0.50	VKKD-3	6.90	7.10	6.90	7.10	0.23	0.28	0.35	0.45	7.22	6.00	0.31	0.67	5.59
7 x 7	48	12 / 12	0.50	VKKD-4	6.90	7.10	6.90	7.10	0.23	0.28	0.35	0.45	7.22	6.00	0.31	0.67	5.59
8 x 8	48	12 / 12	0.50	VLLD	7.90	8.10	7.90	8.10	0.23	0.28	0.35	0.45	8.22	7.00	0.31	0.67	6.59
8 x 8	52	13 / 13	0.50	VLLD-4	7.90	8.10	7.90	8.10	0.23	0.28	0.35	0.45	8.22	7.00	0.31	0.67	6.59
8 x 8	56	14 / 14	0.50	VLLD-5	7.90	8.10	7.90	8.10	0.23	0.28	0.35	0.45	8.22	7.00	0.31	0.67	6.59
9 x 9	56	14 / 14	0.50	VMMD-2	8.90	9.10	8.90	9.10	0.23	0.28	0.35	0.45	9.22	8.00	0.31	0.67	7.59
9 x 9	60	15 / 15	0.50	VMMD-1	8.90	9.10	8.90	9.10	0.23	0.28	0.35	0.45	9.22	8.00	0.31	0.67	7.59
9 x 9	64	16 / 16	0.50	VMMD	8.90	9.10	8.90	9.10	0.23	0.28	0.35	0.45	9.22	8.00	0.31	0.67	7.59
3 x 3	8	2 / 2	0.65	VEEC-2	2.90	3.10	2.90	3.10	0.30	0.35	0.35	0.45	3.22	2.00	0.38	0.67	1.59
3 x 3	12	3 / 3	0.65	VEEC-1	2.90	3.10	2.90	3.10	0.30	0.35	0.35	0.45	3.22	2.00	0.38	0.67	1.59
4 x 4	12	3 / 3	0.65	VGGC-1	3.90	4.10	3.90	4.10	0.30	0.35	0.35	0.45	4.22	3.00	0.38	0.67	2.59
4 x 4	16	3 / 3	0.65	VGGC-2	3.90	4.10	3.90	4.10	0.30	0.35	0.35	0.45	4.22	3.00	0.38	0.67	2.59
5 x 5	20	5 / 5	0.65	VHHC-2	4.90	5.10	4.90	5.10	0.30	0.35	0.35	0.45	5.22	4.00	0.38	0.67	3.59
5 x 5	24	6 / 6	0.65	VHHC-1	4.90	5.10	4.90	5.10	0.30	0.35	0.35	0.45	5.22	4.00	0.38	0.67	3.59
5 x 6	22	5 / 6	0.65	VHJC	4.90	5.10	5.90	6.10	0.30	0.35	0.35	0.45	5.22	4.00/5.00	0.38	0.67	3.59
6 x 6	24	6 / 6	0.65	VJJC-1	5.90	6.10	5.90	6.10	0.30	0.35	0.35	0.45	6.22	5.00	0.38	0.67	4.59
6 x 6	28	7 / 7	0.65	VJJC-3	5.90	6.10	5.90	6.10	0.30	0.35	0.35	0.45	6.22	5.00	0.38	0.67	4.59
6 x 6	32	8 / 8	0.65	VJJC-2	5.90	6.10	5.90	6.10	0.30	0.35	0.35	0.45	6.22	5.00	0.38	0.67	4.59
7 x 7	32	8 / 8	0.65	VKKC-2	6.90	7.10	6.90	7.10	0.30	0.35	0.35	0.45	7.22	6.00	0.38	0.67	5.59
7 x 7	36	9 / 9	0.65	VKKC-1	6.90	7.10	6.90	7.10	0.30	0.35	0.35	0.45	7.22	6.00	0.38	0.67	5.59
8 x 8	36	9 / 9	0.65	VLLC-1	7.90	8.10	7.90	8.10	0.30	0.35	0.35	0.45	8.22	7.00	0.38	0.67	6.59
8 x 8	40	10 / 10	0.65	VLLC-3	7.90	8.10	7.90	8.10	0.30	0.35	0.35	0.45	8.22	7.00	0.38	0.67	6.59
8 x 8	44	11 / 11	0.65	VLLC-2	7.90	8.10	7.90	8.10	0.30	0.35	0.35	0.45	8.22	7.00	0.38	0.67	6.59
9 x 9	44	11 / 11	0.65	VMMC-1	8.90	9.10	8.90	9.10	0.30	0.35	0.35	0.45	9.22	8.00	0.38	0.67	7.59
9 x 9	48	12 / 12	0.65	VMMC	8.90	9.10	8.90	9.10	0.30	0.35	0.35	0.45	9.22	8.00	0.38	0.67	7.59