



JEDEC Matrix Trays
X, Y and Step Dimensions
 See Drawing Below

Updated
 Oct, 2002

TopLine makes no guarantee as to the accuracy of this list.
 Dimensions are metric (mm) unless indicated as inches (")

BGA

Type	JEDEC Standard	Var	BGA Body Size	Columns N1	Rows N2	Cells N3	Up Left Corner (+X) M	Up Left Corner (-Y) M1	-Y step M2	+X Step M3
BGA	CO-029	AAA	5mm x 5mm	16	36	576	8.70	8.75	8.50	7.90
BGA	CO-029	AA	7mm x 7mm	13	32	416	11.55	11.80	9.40	9.40
BGA	CO-029	AAB	8mm x 8mm	12	29	348	10.75	11.90	10.40	10.40
BGA	CO-029	AB	9mm x 9mm	10	26	260	16.65	15.00	11.40	11.40
BGA	CO-029	AY	10mm x 10mm	10	24	240	9.00	9.15	12.90	13.10
BGA	CO-029	AC	11mm x 11mm	8	22	176	17.20	16.80	13.40	14.50
BGA	CO-029	AZ	12mm x 12mm	9	21	189	9.55	10.00	14.75	14.60
BGA	CO-029	AD	13mm x 13mm	8	20	160	15.45	15.00	15.00	15.00
BGA	CO-029	AE	15mm x 15mm	7	18	126	16.35	11.30	17.20	17.20
BGA	CO-029	AF	17mm x 17mm	6	15	90	19.20	21.00	19.50	19.50
BGA	CO-029	AG	19mm x 19mm	6	14	84	14.60	18.79	21.34	21.34
BGA	CO-029	AH	21mm x 21mm	5	12	60	20.15	26.05	23.90	23.90
BGA	CO-029	AJ	23mm x 23mm	5	12	60	16.95	17.25	25.50	25.50
BGA	CO-029	AK	25mm x 25mm	4	11	44	26.70	20.00	27.50	27.50
BGA	CO-029	AL	27mm x 27mm	4	10	40	24.15	26.10	29.20	29.20
BGA	CO-029	AM	29mm x 29mm	4	9	36	20.85	31.10	31.60	31.40
BGA	CO-029	AN	31mm x 31mm	3	9	27	25.05	21.90	33.60	42.90
BGA	CO-029	AP	33mm x 33mm	3	8	24	32.45	33.25	35.50	35.50
BGA	CO-029	AR	35mm x 25mm	3	8	24	29.95	24.50	38.00	38.00
BGA	CO-029	AX	37.5mm x 37.5mm	3	7	21	27.95	37.50	40.00	40.00
BGA	CO-029	AT	40mm x 40mm	3	7	21	25.65	30.60	42.30	42.30
BGA	CO-029	AU	42.5mm x 42.5mm	2	6	12	26.70	43.75	45.50	82.50
BGA	CO-029	AV	45mm x 45mm	2	6	12	30.00	30.00	51.00	75.90
BGA	CO-029	AW	47.5mm x 47.5mm	2	6	12	30.00	31.25	50.50	75.90
BGA	CO-029	AX	50mm x 50mm	2	5	12	41.45	51.50	53.00	53.00
RECTANGULAR PACKAGE										
BGA	CO-029	BF	16mm x 8mm	9	20	180	8.20	12.60	20.70	11.95
BGA	CO-029	BG	13mm x 11mm	11	15	165	9.55	10.25	15.50	14.60
BGA	CO-029	BE	22mm x 14mm	8	12	96	11.60	24.95	24.10	16.10
BGA	CO-029	BA	22mm x 14mm	7	12	84	12.75	23.30	24.40	18.40
BGA	CO-029	BB	21mm x 18.5mm	6	13	78	14.60	16.50	23.50	21.34
BGA	CO-029	BC	25mm x 21mm	5	11	55	20.95	20.00	27.50	23.50
BGA	CO-029	BD	32.5mm x 25mm	4	8	32	26.70	33.25	35.50	27.50

QFP, TQFP, LQFP

Metric Type	JEDEC		QFP Body Size	columns N1	Rows N2	Cells N3	From Corner (+X) M	From Corner (-Y) M1	-Y step M2	+X Step M3
	Standard	Var								
TQFP	CS-007	AA	5mm Square	12	30	360	10.20	11.05	10.10	10.50
TQFP	CS-007	AB	7mm Square	10	25	250	11.25	11.10	12.20	12.60
QFP	CS-004	AA	10mm Square	6	16	96	18.30	17.25	18.70	19.86
TQFP	CS-007	AC	10mm Square	8	20	160	13.00	13.10	15.20	15.70
TQFP	CS-007	AJ	12mm Square	7	17	119	13.95	14.30	17.90	18.00
QFP	CS-004	AB	14mm Square	6	14	84	15.45	17.75	21.50	21.00
TQFP	CS-007	AE	14mm Square	6	15	90	15.45	15.40	20.30	21.00
TQFP	CS-007	AG	20mm Square	5	12	60	17.55	17.80	25.40	25.20
TQFP	CS-007	AH	24mm Square	4	10	40	20.70	20.70	30.40	31.50
QFP	CS-004	AD	28mm Square	3	8	24	30.93	27.93	37.02	37.02
TQFP	CS-007	AJ	28mm Square	4	9	36	19.65	28.70	32.20	32.20
QFP	CS-004	AE	32mm Square	3	8	24	26.57	25.13	37.82	41.38
QFP	CS-004	AF	40mm Square	2	6	12	29.22	31.10	50.56	77.46
QFP	CS-004	AC	14mm x 20mm	6	11	66	15.45	22.50	27.00	21.00
TQFP	CS-007	AF	14mm x 20mm	6	12	72	15.45	17.80	25.40	21.00

BQFP

Bumpered Type	JEDEC		Size	columns N1	Rows N2	Cells N3	From Corner (+X) M	From Corner (-Y) M1	-Y step M2	+X Step M3
	Standard	Var	Lead Count BQFP - PQFP							
BQFP	CS-002	AC	100 PIN	5	11	55	17.81	19.05	27.69	25.07
BQFP	CS-002	AD	132 PIN	4	9	36	20.94	23.98	33.38	31.34

TSOP (T1)

Type 1	JEDEC		Body Size	Columns N1	Rows N2	Cells N3	Corner (+X) M	Corner (-Y) M1	-Y step M2	+X Step M3
	Standard	Var								
TSOP (I)	CS-008	AB	6 x 16mm (24L)	16	15	240	8.70	14.00	20.50	7.90
TSOP (I)	CS-008	BA	8 x 14mm (32L)	13	16	208	8.85	15.00	19.00	9.85
TSOP (I)	CS-008	BD	8 x 20mm (32L)	13	12	156	8.85	14.50	26.00	9.85
TSOP (I)	CS-008	CA	10 x 14mm (40L)	10	16	160	14.40	15.00	19.00	11.90
TSOP (I)	CS-008	CD	10 x 20mm (40L)	10	12	120	14.40	17.25	25.50	11.90
TSOP (I)	CS-008	DD	12 x 20mm (48L)	8	12	96	15.80	17.25	25.50	14.90
TSOP (I)	CS-008	EC	14 x 20mm (56L)	7	13	91	18.15	20.10	22.90	16.60

TSOP (T2)

Type 2	JEDEC Standard	Var	Lead Count and Body Size	Columns N1	Rows N2	Cells N3	Up Left Corner (+X) M	Up Left Corner (-Y) M1	-Y step M2	+X Step M3
TSOP(II)	CS-005	AA	7.62 x 17.14mm	11	16	176	12.30	13.95	19.14	11.13
TSOP(II)	CS-005	AB	10.16 x 18.41mm	9	15	135	13.27	14.56	20.42	13.67
TSOP(II)	CS-005	AC	10.16 x 20.95mm	9	13	117	13.27	19.74	22.96	13.67
TSOP(II)	CS-005	AE	7.62 x 18.41mm	11	15	165	12.30	14.56	20.42	11.13
TSOP(II)	CS-005	AF	10.16 x 22.22 (23.5)mm	9	12	108	13.27	15.60	25.80	13.67
TSOP(II)	CS-005	AG	10.16 x 26.03mm	9	11	99	13.27	16.50	28.20	13.67

PLCC

Type	JEDEC Standard	Var	PLCC Pin Count	columns N1	Rows N2	Cells N3	Up Left Corner (+X) M	Up Left Corner (-Y) M1	-Y step M2	+X Step M3
PLCC	CO-016	AG	44 Square	4	10	40	0.899"	1.180"	1.180"	1.184"
PLCC	CS-003	AG	44 Square	4	10	40	16.50	23.73	20.58	20.58
PLCC	CO-016	AH	52 Square	4	9	36	0.869"	1.307"	1.307"	1.204"
PLCC	CS-003	AH	52 Square	4	9	36	21.71	18.78	23.12	23.12
PLCC	CO-016	AI	68 Square	3	7	21	1.079"	1.679"	1.679"	1.596"
PLCC	CS-003	AJ	68 Square	3	7	21	25.65	30.60	28.20	28.20
PLCC	CO-016	AJ	84 Square	3	7	21	1.070"	1.148"	1.684"	1.605"
PLCC	CS-003	AK	84 Square	3	7	21	34.67	24.38	33.28	33.28

