Analog and Logic Packaging

Texas Instruments

The comprehensive guide
to package solutions

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2011

Pin count	Package type	TI package designator	Body length (mm)		Body width (mm)		Lead width (mm)		Pitch (mm)	Lead foot (mm)		Pkg width (mm)		Height (mm)
			Min	Max	Min	Max	Min	Max	Nom	Min	Max	Min	Max	Max
2	PowerFLEX	KTP	5.91	6.17	6.02	6.27	0.63	0.79	2.29	0.94	1.19	9.42	9.68	2.03
3	PFM/DPAK	KVU	6.5	6.7	5.97	6.22	0.76	0.89	2.29	1.4	1.78	9.8	10.41	2.39
3	PFM/TO—263/DDPAK	KTT	9.65	10.67	8.38	9.65	0.66	0.91	2.54	1.78	2.79	14.6	15.88	4.83
3	PowerFLEX	KTE	9.27	9.52	7.87	8.13	0.63	0.79	2.54	0.79	1.04	10.41	10.67	2.03
3	SOT/SC-70	DCK	1.85	2.15	1.10	1.40	0.15	0.30	0.65	0.26	0.46	1.80	2.40	1.10
3	SOT/SOT-23	DBZ	2.8	3.04	1.2	1.4	0.37	0.51	0.95	0.4	0.6	2.1	2.64	1.12
3	SOT	DRT	0.95	1.05	0.75	0.85	0.10	0.20	0.35	0.10	0.20	0.95	1.05	0.50
3	SOT/SOT-89	PK	4.4	4.6	2.4	2.6	0.36	0.53	1.5	0.8	1.2	3.94	4.25	1.6
3	TO-220	KC	9.65	10.67	8.38	9.02	0.71	0.89	2.54	—	—	26.92	31.24	4.7
3	TO-220	KCS	9.65	10.67	8.38	9.02	0.71	0.89	2.54	—	—	26.92	31.24	4.7
3	TO-92	LP	4.44	5.21	4.32	5.34	0.41	0.56	1.27	—	—	4.44	5.212	5.34
4	DSLGA (PicoStar™)	YFM	0.74	0.8	0.74	0.8	0.18	0.22	0.4	—	—	0.74	0.8	0.15
4	SOT/SOT-223	DCY	6.3	6.7	3.3	3.7	0.66	0.84	2.3	0.75	—	6.7	7.3	1.8
4	SOT-143	DZD	2.8	3.04	1.2	1.4	0.3	0.5	1.92	0.2	0.6	2.1	2.64	1.22
4	WCSP/NanoStar™	YDC	1.09	1.15	1.09	1.15	0.15*	0.19*	0.50	—	—	1.09	1.15	0.40
4	WCSP/NanoStar	YFP	0.74	0.8	0.74	0.8	0.21*	0.25*	0.4	—	—	0.74	0.8	0.5
4	WCSP/NanoStar	YZV	0.85	0.95	0.85	0.95	0.2*	0.25*	0.5	—	—	0.85	0.95	0.5
5	PFM	KV	9.65	10.67	8.38	9.25	0.75	1.02	1.7	—	—	24.64	25.15	4.7
5	PFM/TO-263/DDPAK	KTT	9.65	10.67	8.2	9.65	0.66	0.91	1.7	1.78	2.79	14.6	15.88	4.83
5	PowerFLEX	KTG	9.27	9.52	7.87	8.13	0.63	0.79	1.7	0.79	1.04	10.41	10.67	2.03
5	SOT/SC-70	DCK	1.85	2.15	1.1	1.4	0.15	0.3	0.65	0.26	0.46	1.8	2.4	1.1
5	SOT/SOT-23	DBV	2.8	3	1.5	1.7	0.3	0.5	0.95	0.35	0.55	2.6	3	1.45
5	SOT	DRL	1.5	1.7	1.1	1.3	0.15	0.25	0.5	0.2	0.4	1.5	1.7	0.6
5	SOT	DRT	0.95	1.05	0.75	0.85	0.1	0.2	0.35	0.1	0.2	0.95	1.05	0.5
5	TO-220	KC	9.65	10.67	7.67	9.25	0.64	1.02	1.7	—	—	26.51	31.24	4.83
5	WCSP/NanoStar	YFK	1.28	1.34	0.88	0.94	0.20*	0.30*	0.40	—	—	0.88	0.94	0.63
5	WCSP/NanoStar	YZP	1.35	1.45	0.85	0.95	0.21*	0.25*	0.50	—	—	0.85	0.95	0.50
5	WCSP/NanoStar	YZU	1.25	1.75	0.95	1.45	0.25*	0.35*	0.5	—	—	0.95	1.45	0.75
5	WCSP/NanoStar	YEU	1.25	1.75	0.95	1.45	0.25*	0.35*	0.5	—	—	0.95	1.45	0.75
5	WCSP/NanoStar	YEQ	1.17	1.67	0.8	1.3	0.15*	0.2*	0.5	—	—	0.8	1.3	0.63
6	PicoStar™	YFM	1.16	1.85	0.76	1.45	0.18	0.22	0.40	—	—	0.76	1.45	0.15
6	SOT/SC-70	DCK	1.85	2.15	1.1	1.4	0.15	0.3	0.65	0.26	0.46	1.8	2.4	1.1
6	SOT/SOT-23	DBV	2.8	3	1.5	1.7	0.25	0.5	0.95	0.35	0.55	2.6	3	1.45
6	SOT	DRL	1.5	1.7	1.1	1.3	0.15	0.25	0.5	0.2	0.4	1.5	1.7	0.6
6	SOT	DRT	0.95	1.05	0.75	0.85	0.1	0.2	0.35	0.1	0.2	0.95	1.05	0.5
6	SOT-223	DCQ	6.45	6.55	3.45	3.55	0.41	0.51	1.27	0.91	1.14	6.86	7.26	1.8
6	USON (Small Scale SON)	DRY	1.4	1.5	0.95	1.05	0.15	0.25	0.5	0.25	0.35	0.95	1.05	0.6
6	WCSP/NanoStar	YFJ	1.14	1.20	0.74	0.80	0.10*	0.14*	0.40	—	—	0.74	0.80	0.30
6	WCSP/NanoStar	YFP	1.14	1.2	0.74	0.8	0.21*	0.25*	0.4	—	—	0.74	0.8	0.5
6	WCSP/NanoStar	YFC	1.14	1.2	0.74	0.8	0.21*	0.25*	0.4	—	—	0.74	0.8	0.63
6	WCSP/NanoStar	YZP	1.35	1.45	0.85	0.95	0.21*	0.25*	0.5	—	—	0.85	0.95	0.5
6	WSON	DRS	2.85	3.15	2.85	3.15	0.3	0.4	0.95	0.45	0.55	2.85	3.15	0.8
6	WSON (Small Scale SON)	DRV	1.90	2.10	1.90	2.10	0.25	0.35	0.65	0.20	0.30	1.90	2.10	0.80
6	X2SON (Small Scale SON)	DSF	0.95	1.05	0.95	1.05	0.14	0.2	0.35	0.35	0.45	0.95	1.05	0.4
8	MSOP	DGN	2.9	3.1	2.9	3.1	0.25	0.38	0.65	0.4	0.7	4.75	5.05	1.1
8	SOIC	D	4.8	5	3.81	4	0.35	0.51	1.27	0.4	1.12	5.8	6.2	1.75
8	WSON	DRJ	3.9	4.1	3.9	4.1	0.25	0.35	0.8	0.4	0.6	3.9	4.1	0.8
8	WSON	DRG	2.9	3.1	2.9	3.1	0.2	0.3	0.5	0.4	0.6	2.9	3.1	0.8
8	SOP	PS	5.9	6.5	5	5.6	0.35	0.51	1.27	0.55	0.95	7.4	8.2	2
8	SOT-23	DCN	2.8	3	1.45	1.75	0.22	0.38	0.65	0.3	0.6	2.6	3	1.45

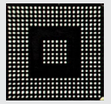
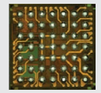
** On NanoStar™ packages, the term lead width actually refers to bump diameter.*

Pin count	Package type	TI package designator	Body length (mm)		Body width (mm)		Lead width (mm)		Pitch (mm)	Lead foot (mm)		Pkg width (mm)		Height (mm)
			Min	Max	Min	Max	Min	Max	Nom	Min	Max	Min	Max	Max
8	SSOP/SM8	DCT	2.75	3.15	2.7	2.9	0.15	0.3	0.65	0.2	0.6	3.75	4.25	1.3
8	TSSOP	PW	2.9	3.1	4.3	4.5	0.19	0.3	0.65	0.5	0.75	6.2	6.6	1.2
8	UQFN (Small Scale QFN)	RSE	1.45	1.55	1.45	1.55	0.2	0.3	0.5	0.3	0.4	1.45	1.55	0.6
8	VSSOP/MSOP	DGK	2.9	3.1	2.9	3.1	0.25	0.38	0.65	0.4	0.7	4.75	5.05	1.1
8	VSSOP/US8	DDU	1.9	2.1	2.2	2.4	0.17	0.25	0.5	0.2	0.35	3	3.2	0.9
8	WCSP/NanoStar	YFP	1.54	1.6	0.74	0.8	0.21	0.25	0.4	—	—	0.74	0.8	0.5
8	WSON (Small Scale SON)	DQD	1.60	1.80	1.25	1.45	0.15	0.25	0.40	0.15	0.35	1.25	1.45	0.80
8	WSON	DRG	2.9	3.1	2.9	3.1	0.2	0.3	0.5	0.4	0.6	2.9	3.1	0.8
8	WSON	DRJ	3.9	4.1	3.9	4.1	0.25	0.35	0.8	0.4	0.6	3.9	4.1	0.8
8	X2QFN (Small Scale QFN)	RUG	1.45	1.55	1.45	1.55	0.2	0.3	0.5	0.3	0.4	1.45	1.55	0.4
8	X2SON	DQE	1.35	1.45	0.95	1.05	0.15	0.20	0.35	0.25	0.35	0.95	1.05	0.40
8	X2SON (Small Scale SON)	DQL	1.95	2.05	1.35	1.45	0.15	0.25	0.50	0.30	0.40	1.35	1.45	0.40
8	X2SON (Small Scale SON)	DQM	1.75	1.85	1.15	1.25	0.15	0.25	0.40	0.45	0.55	1.15	1.25	0.40
9	WCSP/NanoStar	YFP	1.14	1.2	1.14	1.2	0.21	0.25	0.4	—	—	1.14	1.2	0.5
10	MSOP	DGS	2.9	3.1	2.9	3.1	0.17	0.27	0.5	0.4	0.7	4.75	5.05	1.1
10	UQFN (Small Scale QFN)	RSW	1.75	1.85	1.35	1.45	0.15	0.25	0.4	0.35	0.45	1.35	1.45	0.55
10	UQFN (Small Scale QFN)	RSE	1.95	2.05	1.45	1.55	0.2	0.3	0.5	0.3	0.4	1.45	1.55	0.6
10	USON (Small Scale SON)	DQA	2.40	2.60	0.90	1.10	0.15	0.25	0.50	0.30	0.43	0.90	1.10	0.55
10	VSON	DRC	2.85	3.15	2.85	3.15	0.18	0.3	0.5	0.3	0.5	2.85	3.15	1
10	WCSP/NanoStar	YZP	1.84	1.9	1.34	1.4	0.21	0.25	0.5	—	—	1.34	1.4	0.5
10	WCSP/NanoStar	YFU	1.53	1.59	1.02	1.08	0.21	0.25	0.40	—	—	1.02	1.08	0.32
10	WQFN (Small Scale QFN)	RSD	1.95	2.05	1.45	1.55	0.20	0.30	0.50	0.30	0.40	1.45	1.55	0.80
10	X2QFN (Small Scale QFN)	RUG	1.95	2.05	1.45	1.55	0.2	0.3	0.5	0.3	0.4	1.45	1.55	0.4
12	UFBGA/MicroStar Jr. BGA	ZXU	2.4	2.6	1.9	2.1	0.25	0.35	0.5	—	—	1.9	2.1	0.61
12	UQFN (Small Scale QFN)	RUT	1.90	2.10	1.60	1.80	0.15	0.25	0.40	0.45	0.55	1.60	1.80	0.55
12	WCSP/NanoStar	YFC	1.54	1.6	1.14	1.2	0.21	0.25	0.4	—	—	1.14	1.2	0.63
12	WCSP/NanoStar	YFF	1.53	1.59	1.13	1.19	0.20	0.30	0.40	—	—	1.13	1.19	0.63
12	WCSP/NanoStar	YZP	1.84	1.9	1.34	1.4	0.21	0.25	0.5	—	—	1.34	1.4	0.5
12	WCSP/NanoStar	YZT	1.84	1.9	1.34	1.4	0.21	0.25	0.5	—	—	1.34	1.4	0.63
12	WQFN	RSF	3.85	4.15	3.85	4.15	0.25	0.35	0.8	0.45	0.65	3.85	4.15	0.8
12	WSON (Small Scale SON)	DQD	2.40	2.60	1.25	1.45	0.15	0.25	0.40	0.15	0.35	1.25	1.45	0.80
12	WSON (Small Scale SON)	DSV	2.90	3.10	1.25	1.45	0.20	0.25	0.50	0.20	0.30	1.25	1.45	0.80
12	X2QFN (Small Scale QFN)	RUE	1.95	2.05	1.35	1.45	0.15	0.25	0.4	0.35	0.45	1.35	1.45	0.4
14	PDIP	N	18.92	19.69	6.10	6.60	0.38	0.53	2.54	—	—	7.62	8.26	5.08
14	VQFN	RGY	3.35	3.65	3.35	3.65	0.18	0.3	0.5	0.3	0.5	3.35	3.65	1
14	SOIC	D	8.55	8.75	3.81	4	0.35	0.51	1.27	0.4	1.12	5.8	6.2	1.75
14	SOP	NS	9.9	10.5	5	5.6	0.35	0.51	1.27	0.55	1.05	7.4	8.2	2
14	SSOP	DB	5.9	6.5	5	5.6	0.22	0.38	0.65	0.55	0.95	7.4	8.2	2
14	TSSOP	PW	4.9	5.1	4.3	4.5	0.19	0.3	0.65	0.5	0.75	6.2	6.6	1.2
14	TVSOP	DGV	3.5	3.7	4.3	4.5	0.13	0.23	0.4	0.5	0.75	6.2	6.6	1.2
14	X2QFN (Small Scale QFN)	RUC	1.95	2.05	1.95	2.05	0.15	0.25	0.4	0.35	0.45	1.95	2.05	0.4
14	X2QFN (Small Scale QFN)	RUD	1.65	1.75	1.45	1.55	0.14	0.2	0.35	0.25	0.35	1.45	1.55	0.4
15	WCSP/NanoStar	YFU	2.33	2.39	1.02	1.08	0.21	0.25	0.40	—	—	1.02	1.08	0.32
16	PDIP	N	18.92	19.69	6.10	6.60	0.38	0.53	2.54	—	—	7.62	8.26	5.08
16	VQFN	RGY	3.85	4.15	3.35	3.65	0.18	0.3	0.5	0.3	0.5	3.35	3.65	1
16	QSOP	DBQ	4.8	5	3.81	3.99	0.2	0.3	0.64	0.4	0.89	5.8	6.2	1.75
16	SOIC	DW	10.16	10.41	7.4	7.6	0.35	0.51	1.27	0.4	1.27	10.15	10.63	2.65
16	SOIC	D	9.8	10	3.81	4	0.35	0.51	1.27	0.4	1.12	5.8	6.2	1.75
16	SOP	NS	9.9	10.5	5	5.6	0.35	0.51	1.27	0.55	1.05	7.4	8.2	2

Pin count	Package type	TI package designator	Body length (mm)		Body width (mm)		Lead width (mm)		Pitch (mm)	Lead foot (mm)		Pkg width (mm)		Height (mm)
			Min	Max	Min	Max	Min	Max	Nom	Min	Max	Min	Max	Max
16	SSOP	DB	5.9	6.5	5	5.6	0.22	0.38	0.65	0.55	0.95	7.4	8.2	2
16	TSSOP	PW	4.9	5.1	4.3	4.5	0.19	0.3	0.65	0.5	0.75	6.2	6.6	1.2
16	TVSOP	DGV	3.5	3.7	4.3	4.5	0.13	0.23	0.4	0.5	0.75	6.2	6.6	1.2
16	UQFN (Small Scale QFN)	RSV	2.55	2.65	1.75	1.85	0.15	0.25	0.4	0.35	0.45	1.75	1.85	0.55
16	VQFN	RGT	2.85	3.15	2.85	3.15	0.18	0.3	0.5	0.3	0.5	2.85	3.15	1
16	VQFN	RGV	3.85	4.15	3.85	4.15	0.23	0.38	0.65	0.45	0.65	3.85	4.15	1
16	WCSP/NanoStar	YFP	1.54	1.60	1.54	1.60	0.21	0.25	0.40	—	—	1.54	1.60	0.50
16	WQFN	RTZ	2.9	3.1	2.9	3.1	0.25	0.35	0.5	0.25	0.35	2.9	3.1	0.8
16	WQFN	RTE	2.85	3.15	2.85	3.15	0.18	0.3	0.5	0.3	0.5	2.85	3.15	0.8
16	WSON	DQD	3.20	3.40	1.25	1.45	0.15	0.25	0.40	0.15	0.35	1.25	1.45	0.80
18	PDIP	N	21.59	23.37	6.10	6.60	0.38	0.53	2.54	—	—	7.62	8.26	5.08
18	SOIC	DW	11.51	11.73	7.4	7.6	0.35	0.51	1.27	0.4	1.27	10.15	10.63	2.65
20	MicroStar Jr.™ ZT BGA	ZXY	2.9	3.1	2.4	2.6	0.25	0.35	0.5	—	—	2.4	2.6	0.61
20	PDIP	N	23.88	26.92	6.10	6.60	0.38	0.53	2.54	---	---	7.62	8.26	5.08
20	VQFN	RGY	4.35	4.65	3.35	3.65	0.18	0.3	0.5	0.3	0.5	3.35	3.65	1
20	QSOP	DBQ	8.56	8.74	3.81	3.99	0.2	0.3	0.64	0.4	0.89	5.8	6.2	1.75
20	SOIC	DW	12.7	12.95	7.39	7.59	0.35	0.51	1.27	0.4	1.27	10.15	10.65	2.65
20	SOP	NS	12.3	12.9	5	5.6	0.35	0.51	1.27	0.55	1.05	7.4	8.2	2
20	SSOP	DB	6.9	7.5	5	5.6	0.22	0.38	0.65	0.55	0.95	7.4	8.2	2
20	TSSOP	PW	6.4	6.6	4.3	4.5	0.19	0.3	0.65	0.5	0.75	6.2	6.6	1.2
20	TVSOP	DGV	4.9	5.1	4.3	4.5	0.13	0.23	0.4	0.5	0.75	6.2	6.6	1.2
20	USON	DQS	3.95	4.05	1.95	2.05	0.15	0.25	0.40	0.50	0.60	1.95	2.05	0.55
20	VFBGA/MicroStar Jr.™ BGA	GQN	3.9	4.1	2.9	3.1	0.35	0.45	0.65	—	—	2.9	3.1	1
20	VQFN	RGW	4.85	5.15	4.85	5.15	0.23	0.38	0.65	0.45	0.65	4.85	5.15	1
20	WCSP/NanoStar™	YFP	1.94	2	1.54	1.6	0.21	0.25	0.4	—	—	1.54	1.6	0.5
20	WCSP/NanoStar	YZP	2.37	2.43	1.87	1.93	0.21	0.25	0.50	—	—	1.87	1.93	0.50
20	WQFN	RVC	3.90	4.10	2.90	3.10	0.15	0.25	0.50	0.35	0.45	2.90	3.10	0.80
24	PDIP	NT	31.24	32	6.35	7.11	0.38	0.53	2.54	—	—	7.62	8.26	5.08
24	QSOP	DBQ	8.56	8.74	3.81	3.99	0.2	0.3	0.64	0.4	0.89	5.8	6.2	1.75
24	SOIC	DW	15.24	15.49	7.4	7.6	0.35	0.51	1.27	0.4	1.27	10.15	10.63	2.65
24	SOP	NS	14.7	15.3	5	5.6	0.35	0.51	1.27	0.55	1.05	7.4	8.2	2
24	SSOP	DB	7.9	8.5	5	5.6	0.22	0.38	0.65	0.55	0.95	7.4	8.2	2
24	TSSOP	PW	7.7	7.9	4.3	4.6	0.19	0.3	0.65	0.5	0.75	6.2	6.6	1.2
24	TVSOP	DGV	4.9	5.1	4.3	4.6	0.13	0.23	0.4	0.5	0.75	6.2	6.6	1.2
24	VFBGA/MicroStar Jr. BGA	ZQS	2.9	3.1	2.9	3.1	0.25	0.35	0.5	—	—	2.9	3.1	0.77
24	VQFN	RGE	3.85	4.15	3.85	4.15	0.18	0.3	0.5	0.3	0.5	3.85	4.15	1
24	VQFN	RHL	5.35	5.65	3.35	3.65	0.18	0.30	0.50	0.30	0.50	3.35	3.65	1
24	WQFN	RTW	3.85	4.15	3.85	4.15	0.18	0.3	0.5	0.3	0.5	3.85	4.15	0.8
25	WCSP/NanoStar	YFP	1.94	2.1	1.94	2.1	0.21	0.25	0.4	—	—	1.94	2.1	0.5
28	SOIC	DW	17.78	18.03	7.4	7.6	0.35	0.51	1.27	0.4	1.27	10.15	10.63	2.65
28	SSOP	DB	9.9	10.5	5	5.6	0.22	0.38	0.65	0.55	0.95	7.4	8.2	2
28	TSSOP	PW	9.6	9.8	4.3	4.5	0.19	0.3	0.65	0.5	0.75	6.2	6.6	1.2
28	WQFN	RHR	5.40	5.60	3.40	3.60	0.20	0.30	0.50	0.30	0.50	3.40	3.60	0.80
28	WCSP/NanoStar	YFF	2.73	2.79	1.53	1.59	0.20	0.30	0.40	—	—	1.53	1.59	0.63
29	WCSP/NanoStar	YFF	2.61	2.67	2.13	2.19	0.20	0.30	0.40	—	—	2.13	2.19	0.63
30	WCSP/NanoStar	YFC	2.54	2.6	2.44	2.5	0.21	0.25	0.4	—	—	2.44	2.5	0.63
32	UQFN	RGJ	4.85	5.15	4.85	5.15	0.18	0.3	0.5	0.3	0.5	4.85	5.15	0.6
32	VQFN	RHB	4.85	5.15	4.85	5.15	0.18	0.3	0.5	0.3	0.5	4.85	5.15	1
32	VQFN	RSM	3.85	4.15	3.85	4.15	0.15	0.25	0.4	0.3	0.5	3.85	4.15	1
32	WQFN	RTG	5.90	6.10	2.90	3.10	0.15	0.25	0.40	0.20	0.40	2.90	3.10	0.80
36	VQFN	RHH	5.85	6.15	5.85	6.15	0.18	0.3	0.5	0.45	0.65	5.85	6.15	1
38	TSSOP	DBT	9.6	9.8	4.3	4.5	0.17	0.27	0.5	0.5	0.75	6.2	6.6	1.2
42	WQFN	RUA	8.9	9.1	3.4	3.6	0.2	0.3	0.5	0.3	0.5	3.4	3.6	0.8
48	nfBGA	ZAH	4.9	5.1	4.9	5.1	0.25	0.35	0.5	—	—	4.9	5.1	1.2
48	SSOP	DL	15.75	16	7.39	7.59	0.2	0.34	0.64	0.51	1.02	10.03	10.67	2.79
48	TSSOP	DGG	12.4	12.6	6	6.2	0.17	0.27	0.5	0.5	0.75	7.9	8.3	1.2

Pin count	Package type	TI package designator	Body length (mm)		Body width (mm)		Lead width (mm)		Pitch (mm)	Lead foot (mm)		Pkg width (mm)		Height (mm)
			Min	Max	Min	Max	Min	Max	Nom	Min	Max	Min	Max	Max
48	TVSOP	DGV	9.6	9.8	4.3	7.59	0.13	0.23	0.4	0.5	0.75	6.2	4.6	1.2
48	VFBGA/MicroStar Jr. BGA	ZQL	6.9	7.1	4.4	4.5	0.35	0.45	0.65	—	—	4.4	6.6	1
48	VFBGA/MicroStar Jr. BGA	GQL	6.9	7.1	4.4	6.2	0.35	0.45	0.65	—	—	4.4	8.3	1
48	VFBGA/MicroStar Jr. BGA	ZQC	3.9	4.1	3.9	4.1	0.25	0.35	0.5	—	—	3.9	4.1	0.77
49	WCSP/NanoStar	YFF	2.73	2.79	2.73	2.79	0.20	0.30	0.40	—	—	2.73	2.79	0.63
54	TFBGA/MicroStar Jr. BGA	ZRD	7.9	8.1	5.4	5.6	0.45	0.55	0.8	—	—	5.4	5.6	1.2
56	SSOP	DL	18.29	18.54	7.39	7.59	0.2	0.34	0.64	0.51	1.02	10.03	10.67	2.79
56	TSSOP	DGG	13.9	14.1	6	6.2	0.17	0.27	0.5	0.5	0.75	7.9	8.3	1.2
56	TVSOP	DGV	11.2	11.4	4.3	4.5	0.13	0.23	0.4	0.5	0.75	6.2	6.6	1.2
56	VFBGA/MicroStar Jr. BGA	ZQL	6.9	7.1	4.4	4.6	0.35	0.45	0.65	—	—	4.4	4.6	1
56	VFBGA/MicroStar Jr. BGA	GQL	6.9	7.1	4.4	4.6	0.35	0.45	0.65	—	—	4.4	4.6	1
56	VQFN	RGQ	7.85	8.15	7.85	8.15	0.18	0.3	0.5	0.3	0.5	7.85	8.15	1
56	WQFN	RHU	10.85	11.15	4.85	5.15	0.18	0.3	0.5	0.3	0.5	4.85	5.15	0.8
64	TSSOP	DGG	16.9	17.1	6	6.2	0.17	0.27	0.5	0.5	0.75	7.9	8.3	1.2
80	TSSOP	DBB	16.9	17.1	6	6.2	0.13	0.23	0.4	0.45	0.75	7.9	8.3	1.2
81	WCSP/NanoStar	YFF	3.73	3.79	3.63	3.69	0.20	0.30	0.40	—	—	3.63	3.69	0.63
83	VFBGA/MicroStar Jr. BGA	ZRG	9.9	10.1	4.4	4.6	0.35	0.45	0.65	—	—	4.4	4.6	1
96	LFBGA/MicroStar BGA	GKE	13.4	13.6	5.4	5.6	0.45	0.55	0.8	—	—	5.4	5.6	1.4
96	LFBGA/MicroStar BGA	ZKE	13.4	13.6	5.4	5.6	0.45	0.55	0.8	—	—	5.4	5.6	1.4
96	MicroStar Jr. ZT BGA	ZRL	8.4	8.6	3.4	3.6	0.25	0.35	0.5	—	—	3.4	3.6	0.61
114	LFBGA/MicroStar BGA	GKF	15.9	16.1	5.4	5.6	0.45	0.55	0.8	—	—	5.4	5.6	1.4
114	LFBGA/MicroStar BGA	ZKF	15.9	16.1	5.4	5.6	0.45	0.55	0.8	—	—	5.4	5.6	1.4

Analog & Logic Packages

	QFP	QFN/SON	FBGA/CSP	PBGA	WCSP
Package					
Pin Count	32 to 208	6 to 64	6 to 361	252 to 672	2 to 81
Body Size	5 x 5 mm to 28 x 28 mm	1.5 x 1.5 mm to 9 x 9 mm	1.5 x 1.5 mm to 16 x 16 mm	17 x 17 mm to 35 x 35 mm	0.8 x 1.2 mm to 4 x 4 mm
Pitch	0.4 mm, 0.5 mm, 0.65 mm	0.4 mm, 0.5 mm, 0.65 mm	0.4 mm, 0.5 mm, 0.65 mm, 0.8 mm	1.0 mm, 1.27 mm	0.3 mm, 0.4 mm, 0.5 mm
Height	QFP = 2.7 mm to 4.1 mm LQFP = 1.4 mm TQFP = 1.0 mm	VQFN/VSON = 0.9 mm WQFN/WSON = 0.75 mm UQFN/USON = 0.55 mm X2QFN = 0.37 mm	MicroStar BGA™, MicroStar Junior, nFBGA = 1.0 mm to 1.5 mm Microstar WT = 0.8 mm Microstar ZT = 0.61 mm Microstar UT = 0.55 mm Microstar CSP = 0.4 mm	PBGA = 1.38 mm to 3.2 mm	PicoStar™ = 0.152 mm WCSP = 0.4 mm to 0.625 mm

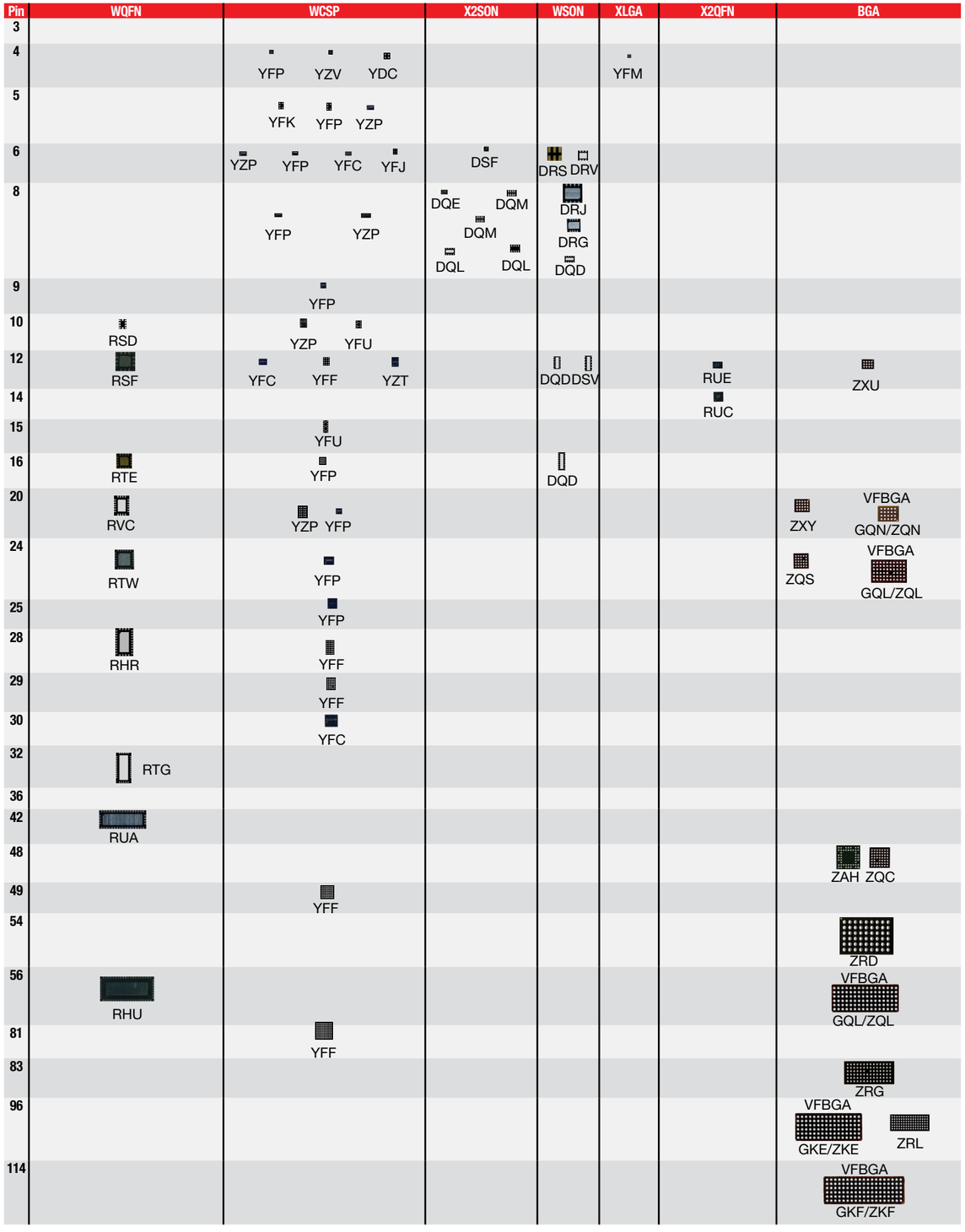
Analog & Logic Packages

Pin	TO	PDIP	SOIC	SOP	SSOP	QSOP	TSSOP
3	KC, KCS, LP, KTT, KVU						
5	KV, KTT						
8		P	D	PS	DCT		PW
8			D	NS	DB		PW
14		N	D				
16		NE	DW	NS	DB	DBQ	PW
18		N	DW	NS	DB	DBQ	PW
20		NT	DW	NS	DB	DBQ	PW
24			DW		DB, DL		PW
28							DBT
38					DL		DGG
48					DL		DGG
56					DL		DGG
64							DGG
80							DBB

Analog & Logic Packages

Pin	µSON	VSSOP	TVSOP	SOT	PiccoStar™	QFN	µQFN
3				DRT, SC70 DCK, PK, DBZ			
4				DCY, DZD			
5				DBV, DCK, DRT, DRL			
6	DRY			DCK, DCQ, DBV, DRL, DRT	YFM		
8		DGN, DCU, DDU, DGK		DCN			RSE
9							
10	DQA	DGS				DRC	RSE
12							RUT
14			DGV			RGY	
15							
16			DGV			RGT, RGY	RSV
20	DQS		DGV			RGW, RGY	
24			DGV			RGE, RHL	
25							
28							
29							
30							
32						RSM, RHB	RGJ
36						RHH	
42							
48							
49							
54			DGV				
56			DGV			RGQ	
81							
83							
96							
114							

Analog & Logic Packages



Analog & Logic Package Cross Reference

Package type	Pins	Package Designator											
		TI	ADI	Fairchild	IDT	Maxim	National	NXP	ON Sem	Pericom	Richtek	STM	Toshiba
LFBGA (MicroStar)	96	GKE/ZKE		G	BF			EC		NB			
	114	GKF/ZKF			BF			EC					
VSSOP	8	DCU		K8				DC	US	D			FK
	8	DDU											
	8	DGK	RM	MU		UA	MM			M / U			
	8	DGN				UA							
	8	DGS							MN				
NFBGA	48	ZAH											
	48	ZQC											
	54	ZRD											
	83	ZRG											
	96	ZRL											
PICOSTAR™	4	YFM											
PDIP	8	P	N	N		PA	P / N		N (Logic) P / PL (Analog)	P	N	N	P
	14, 16, 20	N	N	N, PC	P	PD, PE	DQR (14), P (16), PC (16/20), N (20)	N / P	N (Logic) P / PL (Analog)	P	N	X	
	24, 28	NT	N	N	PT			N2	N (Logic) P / PL (Analog)	P		F	
QFN	8, 12, 16	DQD						GU		ZJ		M	
	10	DRC						TK		ZE	QW		
	8	DRG										PU	
	8	DRJ							MN			PU	
	4	DRS											
	24	RGE						BS		ZD	QW	QT	
	32	RGJ											
	16	RGT											
	16	RGV			NDG	TE		BS					
	20	RGW				TP		BS					
	14, 16, 20, 24	RGY		BQ				BQ / BX	MN	ZH			
	32	RHB				TJ		BS		ZH	QW		
	36	RHH											
	20, 24	RHL								ZH			
	56	RHU				TN		HF		ZF		QT	
	12	RSF				TC							
	32	RSM											
	16	RTE								ZH			FTG
	32	RTG						HF		ZL			
	24	RTW				TG		HF					FTG
	16	RTZ											
	42	RUA				TO				ZH		QT	
	20	RVC											
QSOP	16, 20, 24	DBQ		QSC	PC			DS (16/20) DK (24)		Q		PT	
SOIC	8, 14, 16	D	RG	M, SC	DC (14), SO (16)	SA, SD, SE	MA / MX (8) CX (14) M (14/16) SC / SX (16)	D / T	D	W	S	D, MN	FN
	16, 20, 24, 28	DW	RW	SC, WM	SO, DC (20)	WE, WG, WI, WN, WP	SC, SX SJX, WM	D / T	DW	S		MT, XD	FW
SOP	14, 16, 20, 24	NS		SJ			SJ (20), LQ (24)						F
	8	PS											
SOT	5, 6	DBV	RJ	M5, M6	DZG	UK, CY, UR	M5 (5), MF (5/6), M6 (6)	GW	DF (Logic) SQ (Analog)	T	BR / J5 (5), E / J6 (6)	LT	
	Pi	DBZ		S3, CM		UR	M3				V		
	3, 5, 6	DCK	KS	P5, P6	DY	XK	M7 (5), MG (6)	GW	DF (Logic), SN (Analog)	C	U	CT	FU
	8	DCN											
	8	DCT									V8		
	4	DZD											
	4	DCY	KC	S		Z	MP, EMP		ST		G	Z	
	5, 6	DRL			DY				XV5 / XV6	TA			FE
	3, 5	DRT											FSV

Analog & Logic Package Cross Reference

Package type	Pins	Package Designator											
		TI	ADI	Fairchild	IDT	Maxim	National	NXP	ON Sem	Pericom	Richtek	STM	Toshiba
SSOP	14, 16, 20, 24, 28, 30, 38, 114	DB	RS	MSA, MSC		AG, AP	MSA	DB / TS	SD, DB (Analog)	H	A		FS
	16, 20, 24	DBQ						DS		Q			
	28, 48, 56	DL		SSC, MEA		UM		DL	DT (Logic)	V			
TO / POWER	3, 5	KC									T		
	3	KCS				CR	T / TA		T		T	CV	W
	3	KTE											
	5	KTG											
	2	KTP											
	3, 5	KTT		S / SM, S2S / S3S			TS / S		DS		M	T4	
	5	KV				CK	T / TA		T			T	W
	3	KVU		S / SM, CCS / D3S			TD / DT				L	DT, ZT	
	3	PK	RK								X		
	3	LP	T-3			CR	Z / ZA / R					ZR	
TSSOP	8, 14, 16, 20, 24, 28	PW	RU	MTC	PG	UD, UE, UP	MT	DP / PW	DT (Logic), DB (Analog)	L	C	TT, DW	FS, FT
	48, 56, 64	DGG	RV	MTD	PA	UM (48) UN (56)	MTD	DGG	DT (Logic), DA (Analog)	A		TT	FT
TVSOP	14, 16, 20, 24, 48, 56	DGV			PF			DGV		K			
	80	DBB			DF			DGB					
µQFN	10	DQA											
	8	DQE		L8				GF					
	8	DRF				TA				ZA	QW		
	10	DPZ				TB							
	8	DQL											
	8	DQM											
	20	DQS											
	6	DRV											
	6	DRY		L6				GM		ZA		M6	
	6	DSF						GS					
	8, 10	RSE						GM		XA			
	16	RSV						GU				QT	
	10	RSW						GU		ZM			
	14	RUC											
	8, 10	RUG							MU				
VFBGA (MicroStar Jr)	48	ZQC											
	24, 56	ZQL						EV					
	20	ZQN											
	54	ZRD											
	83	ZRG											
	96	ZRL											
	12	ZXU											
	20	ZXY											
WCSP (NanoStar)	29, 81	YFF	CB			BG (81)							
	4, 6, 8, 9, 16, 20, 25	YFP	CB	AC		BS (4), BT (6), BA (8/25), BL (9), BE (16), BP (20)			C			CS	WBG
	5, 6, 8, 10, 20	YZP	CB	AA		BK (5), BT (6), BA (8), BB (10), BP (20)	BL		C	GA / GB		CS	WBG
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