

Thiele-Small Parameters

for



Loudspeakers

The following listing was originally developed by Altec Lansing in the early 1980's, and was distributed as Technical Letter No. 267B.

Some Thiele-Small parameters are derived from mathematical formulae using information acquired during direct measurement of a loudspeaker. In the late 1980's, the author of this website, while working with Mr. Jerry K. Hubbard, then head of Altec Lansing's Acoustic Laboratory, discovered that a few of the original derivations were actually in error.

The following Thiele-Small parameters have been checked and corrected, where necessary, using the mathematical formulae given to the author by Mr. Hubbard, and include most of the newer models produced by Altec Lansing since the original publication of Technical Letter No. 267B.

Model Number:	Xmax (inch)	Re (ohms)	Vd (cu. in.)	Fs (Hz)	Vas (cu. ft.)	Ref (%)	Qts	Qms	Qes	Vid
309-8A	0.05	6.00	1.61	110.00	0.92	2.87	0.94	5.03	1.16	N/A
3124	0.25	6.60	19.60	26.00	6.60	1.10	0.29	2.92	0.32	0.20
3127	0.15	6.40	11.80	50.00	2.50	3.30	0.22	1.37	0.26	0.15
3154	0.25	6.40	31.90	25.00	13.90	1.50	0.32	2.12	0.38	0.23
3156	0.15	6.10	19.20	38.00	8.70	4.40	0.24	1.40	0.29	0.20
3182	0.50	6.40	88.40	18.00	35.00	1.10	0.40	1.81	0.51	0.30
3184	0.25	6.50	44.10	24.00	24.40	3.30	0.22	1.38	0.26	0.30
405-8B	0.06	6.90	0.60	108.00	0.12	0.70	0.52	3.22	0.62	0.00

405-8H	0.05	6.00	0.60	90.00	0.15	0.70	0.47	2.92	0.56	0.00
409-8D	0.06	6.90	1.95	91.00	0.61	0.71	1.54	11.50	1.78	N/A
409-8E	0.05	6.00	1.95	90.00	0.61	0.71	1.54	11.50	1.78	N/A
411A	0.28	6.80	35.70	18.30	31.76	1.40	0.33	2.71	0.37	0.20
414-8C	0.15	6.70	11.80	30.20	8.13	2.90	0.21	7.40	0.21	0.15
414-8E	0.15	6.40	11.80	30.30	7.91	2.90	0.19	7.31	0.20	0.15
416-8B	0.15	6.90	19.20	25.10	26.47	2.70	0.32	7.05	0.33	0.20
416-8C	0.15	6.40	19.20	23.90	22.74	3.30	0.25	6.10	0.26	0.20
417-16LF	0.05	11.50	3.90	47.70	3.78	2.70	0.38	3.59	0.42	0.15
418-8H	0.05	5.50	6.40	44.80	8.56	5.00	0.29	2.65	0.33	0.20
418-8LF	0.05	5.50	6.40	39.50	9.88	4.50	0.32	2.51	0.37	0.20
420A	0.15	4.60	19.20	22.60	28.20	1.70	0.47	6.59	0.51	0.20
421-8H	0.05	5.50	6.40	31.50	12.80	4.30	0.25	2.60	0.27	0.20
421-8H-II	0.05	5.50	6.40	38.70	9.23	5.40	0.24	2.30	0.27	0.20
421-8LF	0.05	5.50	6.40	27.50	20.34	4.10	0.25	2.75	0.28	0.20
421-16LF	0.05	11.50	6.40	27.00	21.20	4.20	0.25	2.79	0.27	0.20
425-8H-II	0.05	5.50	2.70	73.90	0.91	3.80	0.23	2.30	0.26	0.08
515B	0.18	12.00	23.00	24.70	19.70	4.60	0.17	7.50	0.17	0.22
515C	0.18	12.00	23.00	24.70	19.70	4.60	0.17	7.50	0.17	N/A
515E	0.18	12.00	23.00	22.90	23.50	4.00	0.19	7.50	0.19	N/A
515-8LFE	0.17	5.50	21.70	25.70	19.34	4.00	0.20	2.55	0.22	N/A

515-8G	0.17	6.20	22.40	37.00	12.40	6.00	0.27	5.00	0.28	N/A
515-16G	0.15	11.30	19.70	37.00	12.20	7.50	0.22	5.00	0.23	N/A
515-8GHP	0.12	5.60	15.80	37.00	12.10	8.60	0.19	4.50	0.20	N/A
5382A	0.05	7.20	1.71	100.00	0.69	N/A	0.80	6.60	0.92	N/A
5383A	0.05	6.80	0.51	96.00	0.19	N/A	0.35	2.98	0.39	N/A
5384A	0.05	7.20	1.71	100.00	0.69	N/A	0.80	6.60	0.92	N/A
5385A	0.05	6.80	0.51	96.00	0.19	N/A	0.35	2.98	0.39	N/A
604E	0.15	7.00	19.20	27.10	15.75	3.90	0.21	7.10	0.22	0.33
604-8G	0.15	7.00	19.20	25.80	22.05	4.00	0.25	8.30	0.26	0.33
604-8H	0.15	6.50	19.20	28.10	19.73	4.00	0.27	7.10	0.28	0.33
604-8K	0.15	6.40	19.20	28.50	14.58	4.30	0.20	7.50	0.21	0.24
605A	0.15	9.30	19.20	30.30	14.33	4.00	0.25	3.01	0.27	0.33
617-8A	0.05	6.40	3.90	28.80	8.76	3.40	0.17	6.06	0.17	0.22
619-8A	0.05	6.40	6.40	24.60	21.94	3.60	0.24	6.45	0.25	0.25
904-8A	0.13	5.20	16.20	30.50	14.18	6.00	0.16	1.83	0.18	0.24
917-8A	0.05	5.80	3.90	45.30	3.36	2.50	0.30	2.41	0.34	0.15
918-8A	0.05	5.10	6.40	32.60	13.16	5.40	0.21	2.27	0.23	0.20
920-8A	0.05	7.00	3.90	48.00	5.00	2.60	0.50	3.70	0.58	N/A
920-8B	0.05	5.10	3.90	48.00	3.00	2.30	0.36	2.60	0.42	N/A
921-8A	0.05	5.10	6.40	34.10	10.56	4.00	0.26	2.24	0.29	0.20
927-8A	0.35	7.30	46.00	22.90	17.52	1.80	0.27	2.13	0.32	0.20

950-8A	0.13	7.00	17.30	31.50	14.50	4.02	0.30	9.07	0.31	N/A
ER-10	0.05	6.50	2.70	75.00	0.95	3.40	0.29	3.00	0.32	N/A
ER-12	0.05	6.50	3.90	47.70	4.28	4.50	0.26	3.00	0.28	N/A
ER-12L	0.13	5.20	10.10	55.00	2.90	4.30	0.23	4.37	0.25	N/A
ER-12S	0.13	5.20	10.10	70.00	2.00	5.90	0.25	7.02	0.26	N/A
ER-15	0.05	5.20	6.60	42.10	7.67	5.60	0.26	3.00	0.28	N/A
ER-15B	0.13	5.20	10.10	43.00	8.00	4.30	0.30	12.89	0.31	N/A
ER-15L	0.13	5.20	10.10	43.00	8.70	6.20	0.24	4.96	0.25	N/A
SK-1	0.05	2.60	0.50	98.60	0.12	0.60	0.49	2.49	0.53	0.00
SW1	0.13	2.00	3.70	38.50	2.02	0.80	0.40	8.54	0.42	0.00
6 x 9-4A	0.08	2.60	2.30	56.80	1.60	1.20	0.57	3.25	0.69	0.00
6 x 9-4B	0.07	3.00	2.00	50.00	1.52	1.90	0.22	1.48	0.26	0.00
6 x 9-4C	0.08	2.80	2.30	56.90	1.50	0.90	0.63	2.92	0.80	0.00

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