

## Driver specifications, tweeters

Latest update: January 29, 2013

Model no.	Nom. size	Nom. imp.	Freq. range	Sensitivity	VC. diam.	$X_{max}$	$S_d$	$F_s$	$M_{ms}$	$B_{xl}$	$Q_{ms}$	$Q_{es}$	$Q_{ts}$	$V_{as}$	$R_{DC}$
	[inch.]	[ohm]	[kHz]	[dB@2.83V/1m]	[mm]	[mm]	[cm <sup>2</sup> ]	[Hz]	[g]	[N/A]	[-]	[-]	[-]	[lit.]	[ohm]
TW022WA01 & -02	22	4	2.5-30	88	22	±0.45	6.1	1,200	0.28	1.7	1.2	2.63	0.82	3.3	3.6
TW022WA03 & -04	22	4	2-30	89	22	±0.45	6.1	800	0.27	1.7	1.4	1.69	0.77	7.7	3.6
TW022WA05	22	4	2.5-25	91.5	22	±0.35	6.1	750	0.28	1.9	5.3	1.36	1.08	8.5	3.7
TW022WA06	22	4	2-25	90.5	22	±0.35	6.1	750	0.30	1.9	2.5	1.45	0.92	7.9	3.7
TW030WA01 & -03	30	4	2-25	94	30.4	±0.65	11.5	1,050	0.42	2.3	4.8	1.78	1.30	10.3	3.4
TW030WA02 & -04	30	4	2-25	94	30.4	±0.65	11.5	1,100	0.45	2.5	1.2	1.69	0.70	8.7	3.4
TW030WA05	30	4	1.5-25	91.5	30.4	±0.4	11.5	450	0.40	2.0	1.5	0.96	0.59	59	3.4
TW030WA06	30	4	1.5-25	91	30.4	±0.4	11.5	450	0.42	2.0	1.2	1.01	0.55	56	3.4
TW030WA07	30	8	1.5-25	89	30.4	±0.4	11.5	470	0.37	2.4	1.6	1.19	0.68	59	6.3
TW030WA08	30	8	1.5-25	88.5	30.4	±0.4	11.5	470	0.39	2.4	1.3	1.25	0.64	56	6.3
TW030WA09	30	4	2-27	92.5	30.4	±0.4	11.5	725	0.45	2.0	8.1	1.74	1.43	20	3.4
TW030WA10	30	8	2-27	90	30.4	±0.4	11.5	750	0.42	2.4	7.8	2.17	1.70	20	6.3

All specifications are measured at 25 °C (77 °F) and are before burn-in.

## Driver specifications, fullranges

Latest update: December 26, 2012

Model no.	Nom. size	Nom. imp.	Freq. range	Sensitivity	VC. diam.	X <sub>max</sub>	S <sub>d</sub>	F <sub>s</sub>	M <sub>ms</sub>	Bxl	Q <sub>ms</sub>	Q <sub>es</sub>	Q <sub>ts</sub>	V <sub>as</sub>	R <sub>DC</sub>
	[inch.]	[ohm]	[kHz]	[dB@2.83V/1m]	[mm]	[mm]	[cm <sup>2</sup> ]	[Hz]	[g]	[N/A]	[-]	[-]	[-]	[lit.]	[ohm]
FR070WA01	2¾	4	full range	86.5	22	±2	21	121	2.0	3.0	12.6	0.58	0.56	0.54	3.45
FR070WA02	2¾	8	full range	83.5	22	±2	21	124	1.9	3.6	12.3	0.73	0.69	0.54	6.4
FR070WA03	2¾	4	full range	86	22	±2	21	121	2.0	2.3	13.8	0.99	0.92	0.54	3.45
FR070WA04	2¾	8	full range	83	22	±2	21	124	1.9	2.9	13.4	1.13	1.04	0.54	6.4
FR084WA01	3¼	4	full range	87	22	±2.25	36	113	3.45	2.9	5.6	0.96	0.82	1.07	3.3
FR084WA02	3¼	8	full range	84	22	±2.25	36	114	3.35	3.65	5.3	1.10	0.92	1.07	6.1
FR090WA01	3½	4	full range	86.5	22	±2.25	36	113	3.45	2.75	6.0	1.03	0.88	1.07	3.2
FR090WA02	3½	8	full range	83.5	22	±2.25	36	114	3.35	3.4	5.9	1.27	1.04	1.07	6.1

All specifications are measured at 25 °C (77 °F) and are before burn-in.

## Driver specifications, mid/woofers

Latest update: November 30, 2013

Model no.	Nom. size	Nom. imp.	Freq. range	Sensitivity	VC. diam.	X <sub>max</sub>	S <sub>d</sub>	F <sub>s</sub>	M <sub>ms</sub>	Bxl	Q <sub>ms</sub>	Q <sub>es</sub>	Q <sub>ts</sub>	V <sub>as</sub>	R <sub>DC</sub>
	[inch.]	[ohm]	[kHz]	[dB@2.83V/1m]	[mm]	[mm]	[cm <sup>2</sup> ]	[Hz]	[g]	[N/A]	[-]	[-]	[-]	[lit.]	[ohm]
WF090WA01	3½	4	to 5k	86.5	22	±2.75	36	115	3.45	2.9	6.4	0.92	0.81	1.02	3.1
WF090WA02	3½	8	to 5k	84	22	±2.75	36	117	3.35	3.5	6.3	1.11	0.94	1.02	5.5
WF118WA01	4½	4	to 4k	87	32	±3	55	64	6.2	4.6	8.8	0.38	0.36	4.3	3.2
WF118WA02	4½	8	to 4k	84	32	±3	55	65	6.0	5.8	8.8	0.46	0.44	4.3	6.3
WF120BD03	4¾	4	to 4k	88.5	26	±4	54	70	6.55	4.5	5.9	0.46	0.42	3.25	3.2
WF120BD04	4¾	8	to 4k	86	26	±4	54	71.5	6.25	5.5	5.7	0.56	0.51	3.25	6.0
WF120BD05	4¾	4	to 3.5k	87	32	±4	54	52	7.3	4.1	7.9	0.45	0.43	5.3	3.2
WF120BD06	4¾	8	to 3.5k	84	32	±4	54	54	6.7	5.2	7.6	0.54	0.50	5.3	6.4
WF146WA01	5¾	4	to 3.5k	90	32	±3	95	56	10.4	5.1	7.0	0.45	0.42	10.0	3.2
WF146WA02	5¾	8	to 3.5k	87.5	32	±3	95	58	9.7	6.4	7.0	0.54	0.51	10.0	6.3
WF152BD03	6	4	to 3.5k	91	32	±4.5	93	55.5	11.0	5.8	8.9	0.36	0.35	9.2	3.2
WF152BD04	6	8	to 3.5k	88.5	32	±4.5	93	56.5	10.6	7.3	8.7	0.44	0.42	9.2	6.3
WF152BD05	6	4	to 3k	90	32	±4.5	93	50	13.5	6.35	10.3	0.34	0.33	9.2	3.2
WF152BD06	6	8	to 3k	87	32	±4.5	93	51.5	12.8	8.0	10.1	0.41	0.39	9.2	6.3
WF168WA01	6½	4	to 3k	91.5	32	±3	139	47.5	12.5	5.1	7.0	0.46	0.43	24.6	3.2
WF168WA02	6½	8	to 3k	89	32	±3	139	49	11.8	6.4	7.1	0.56	0.52	24.6	6.3
WF182BD03	7	4	to 2.5k	91	39	±5.5	131	39	16.7	6.75	11	0.30	0.29	24.4	3.3
WF182BD04	7	8	to 2.5k	88	39	±5.5	131	40	16.1	8.5	10.9	0.35	0.34	24.4	6.3
WF182BD07	7	4	to 2.5k	91	39	±5.5	131	39	16.7	6.75	11	0.30	0.29	24.4	3.3
WF182BD08	7	8	to 2.5k	88	39	±5.5	131	40	16.1	8.5	10.9	0.35	0.34	24.4	6.3
WF182BD09	7	4	to 2.5k	90	39	±5.5	131	33	23.4	6.5	10.9	0.37	0.35	24.3	3.2
WF182BD10	7	8	to 2.5k	87	39	±5.5	131	34	21.9	8.2	10.5	0.44	0.42	24.3	6.4
WF182BD11	7	4	to 2.5k	90	39	±5.5	131	33	23.4	6.5	10.9	0.37	0.35	24.3	3.2
WF182BD12	7	8	to 2.5k	87	39	±5.5	131	34	21.9	8.2	10.5	0.44	0.42	24.3	6.4

All specifications are measured at 25 °C (77 °F) and are before burn-in.

## Driver specifications, subwoofers

Latest update: November 30, 2013

Model no.	Nom. size	Nom. imp.	Freq. range	Sensitivity	VC. diam.	X <sub>max</sub>	S <sub>d</sub>	F <sub>s</sub>	M <sub>ms</sub>	Bxl	Q <sub>ms</sub>	Q <sub>es</sub>	Q <sub>ts</sub>	V <sub>as</sub>	R <sub>DC</sub>
	[inch.]	[ohm]	[Hz]	[dB@2.83V/1m]	[mm]	[mm]	[cm <sup>2</sup> ]	[Hz]	[g]	[N/A]	[-]	[-]	[-]	[lit.]	[ohm]
SW070WA01	2¾	4	to 4,000	84.5	26	±2.5	22	84	3.65	3.85	6.4	0.42	0.39	0.68	3.2
SW070WA02	2¾	8	to 4,000	81	26	±2.5	22	87	3.4	4.75	6.2	0.53	0.49	0.68	6.4
SW118WA01	4½	4	to 1,200	86	26	±4	49	51	7.7	4.7	9.3	0.36	0.35	4.3	3.2
SW118WA02	4½	8	to 1,200	83.5	26	±4	49	53	7.1	5.9	8.8	0.44	0.42	4.3	6.5
SW178WA01	7	8	to 600	85	39	±5	131	36	35	11.7	17.6	0.38	0.37	13.6	6.5
PR178WA01	7	passive	-	-	-	-	131	19.9-26	50-85	-	24	-	-	17	-
SW182BD01	7	4	to 500	85.5	39	±8	131	31	49	8.5	17.5	0.42	0.41	13	3.2
SW182BD02	7	8	to 500	83.5	39	±8	131	33	43	11.5	16.5	0.43	0.42	13	6.4
PR182BD01	7	passive	-	-	-	-	131	10.9-13.2	72-107	-	12	-	-	49	-
SW223BD01	8¾	4	to 1,000	87	51	±10.7	214	26	87	10.6	14.4	0.42	0.41	27.9	3.3
PR223BD01	8¾	passive	-	-	-	-	214	13.9-20.0	165-340	-	14.5	-	-	25	-
SW263WA01	10¼	8	to 300	84	51	±11.5	314	24	151	17.8	20	0.45	0.44	40.5	6.3
SW263WA03	10¼	4	to 300	87	51	±11.5	314	29.5	165	13.8	13	0.52	0.50	24.5	3.2
PR263WA01	10¼	passive	-	-	-	-	314	12-18.5	255-605	-	26	-	-	40.5	-
SW270WA01	10½	4	to 400	88	51	±11	312	26	88	9.7	7.6	0.49	0.46	58	3.2
SW310WA01	12¼	8	to 300	87	51	±11.5	513	28.5	180	18.1	11.5	0.62	0.59	65	6.3
SW310WA02	12¼	4	to 300	90	51	±11.5	513	27.5	194	14.3	11.5	0.53	0.50	65	3.2
PR310WA01	12¼	passive	-	-	-	-	513	12.5-19	270-620	-	13	-	-	97	-

All specifications are measured at 25 °C (77 °F) and are before burn-in.