SPECIFICATIONS

SW223BD02/03 8¾" die cast, alu cone subwoofers, 4/8 ohm

The 8¾" transducers SW223BD02 (4 ohm) and SW223BD03 (8 ohm) were designed specifically for high performance compact subwoofer applications where sound quality and low distortion are the priorities.

FEATURES

- Balanced Drive motor structure for optimal drive force symmetry resulting in largely reduced even order harmonic distortion
- Extremely large linear stroke, Xmax = ± 10.7 mm, ensuring low distortion at high output levels
- Very rigid black aluminium cone to ensure piston motion at high levels and for better heat transfer at high continuous power levels
- Rigid die cast alu chassis with extensive venting for lower air flow speed reducing audible distortion
- Heavy-duty black fiber glass voice coil former to reduce mechanical losses resulting in better dynamic performance and low-level details
- Reduced distortion and air noise by venting cavity under dust cap through holes in cone
- Large motor with 2" voice coil diameter for better control and power handling
- Built-in alu field-stabilizing ring for reduced distortion at high levels
- Low-loss suspension (high Qm) for better reproduction of details and dynamics
- Black plated cone and motor parts for better heat transfer to the surrounding air
- Conex spider for better durability under extreme conditions
- Gold plated terminals to ensure long-term trouble free connection

NOMINAL SPECIFICATIONS

Notes	Parameter	SW223BD02		SW223BD03		Unit
		Before burn-in	After burn-in	Before burn-in	After burn-in	
	Nominal size	8¾		8¾		[inch.]
	Nominal impedance	4		8		[ohm]
	Recommended max. upper frequency limit	1,000		1,000		[Hz]
1, 3	Sensitivity, 2.83V/1m	83		81		[dB]
2	Power handling, short term, IEC 268-5, no additional filtering	2,500		2,500		[W]
2	Power handling, long term, IEC 268-5, no additional filtering					[W]
2	Power handling, continuous, IEC 268-5, no additional filtering	200		200		[W]
	Effective radiating area, S_d	206		206		[cm²]
3, 6	Resonance frequency (free air, no baffle), F_s	24		25		[Hz]
	Moving mass, incl. air (free air, no baffle), M_{ms}	97		89		[g]
3	Force factor, Bxl	11.0		13.1		[N/A]
3, 6	Suspension compliance, C_{ms}	0.47		0.47		[mm/N]
3, 6	Equivalent air volume, V_{as}	28		28		[lit.]
3, 6	Mechanical resistance, R_{ms}	1.35		1.35		[Ns/m]
3, 6	Mechanical Q, Q_{ms}	10.7		10.2		[-]
3, 6	Electrical Q, Q_{es}	0.42		0.48		[-]
3, 6	Total Q, Q_{ts}	0.40		0.46		[-]
4	Voice coil resistance, R_{DC}	3.5		6.0		[ohm]
5	Voice coil inductance, L_e (measured at 1 kHz)	0.80		1.16		[mH]
	Voice coil inside diameter	51		51		[mm]
	Voice coil winding height	29.4		29.4		[mm]
	Air gap height	6		6		[mm]
	Theoretical linear motor stroke, Xmax	±11.7		±11.7		[mm]
	Magnet weight					[g]
	Total unit net weight excl. packaging	4.4		4.4		[kg]
3, 5	K_{rm}	84		88		[mohm]
3, 5	E_{rm}	0.37		0.40		[-]
3, 5	K_{xm}	20		36		[mH]
3, 5	E_{xm}	0.57		0.54		[-]

Note 1 *Measured in infinite baffle.*

Note 2 *Tested in free air (no cabinet).*

Note 3 *Measured using a semi-constant current source, nominal level 2 mA.*

Note 4 *Measured at 25 deg. C*

Note 5 *It is generally a rough simplification to assume that loudspeaker transducer voice coils exhibit the characteristics of an inductor. Instead it is a far more accurate approach to use the more advanced model often referred to as the "Wright empirical model", also used in LEAP-4 as the TSL model (www.linearx.com), involving parameters K_{rm}, E_{rm}, K_{xm}, and E_{xm}.* This more accurate transducer model is described in a technical paper **here at our web site.**

Note 6 After burn-in specifications are measured 12 hours after exiting the transducer by a 20 Hz sine wave for 2 hours at level 10/14.1 V_{RMS} (4/8 ohm version). The unit is not burned in before shipping.

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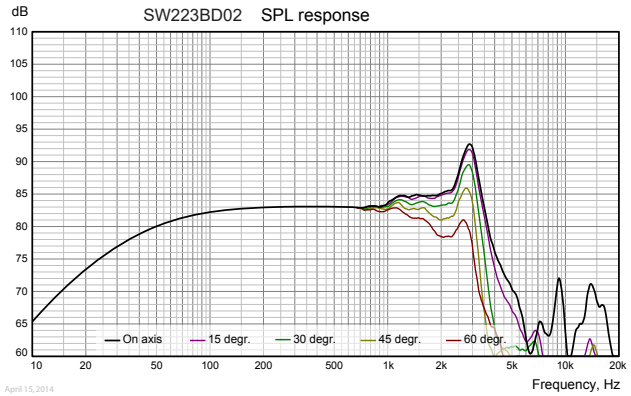
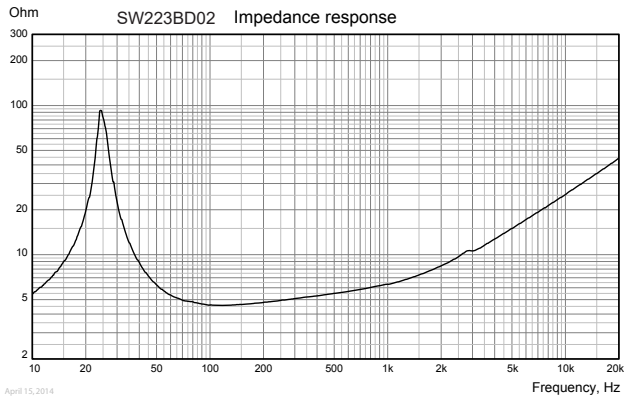
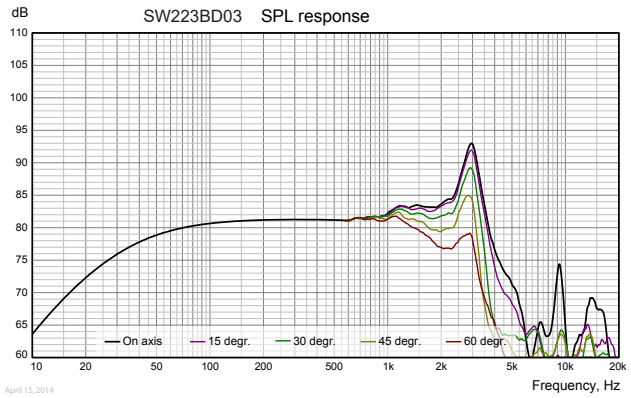


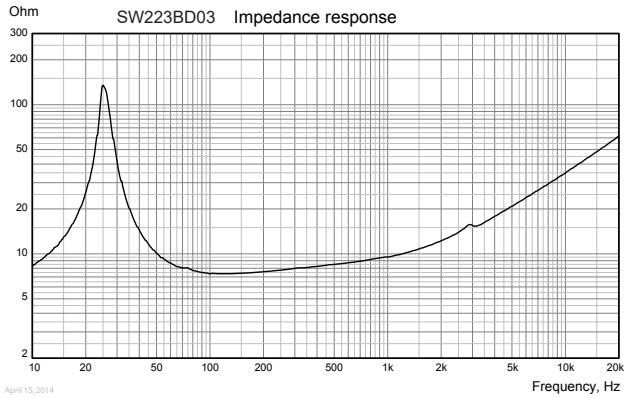
Measuring conditions, SPL
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Microphone distance: 1.0 m
Input signal: 2.83 VRMS stepped sine wave
Smoothing: 1/6 oct.



Measuring conditions, impedance
Driver mounting: Free air, no baffle, back side open (no cabinet)
Input signal: Stepped sine wave, semi-current-drive, nominal current 2 mA
Smoothing: None



Measuring conditions, SPL
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Microphone distance: 1.0 m
Input signal: 2.83 VRMS stepped sine wave
Smoothing: 1/6 oct.



Measuring conditions, impedance
Driver mounting: Free air, no baffle, back side open (no cabinet)
Input signal: Stepped sine wave, semi-current-drive, nominal current 2 mA
Smoothing: None

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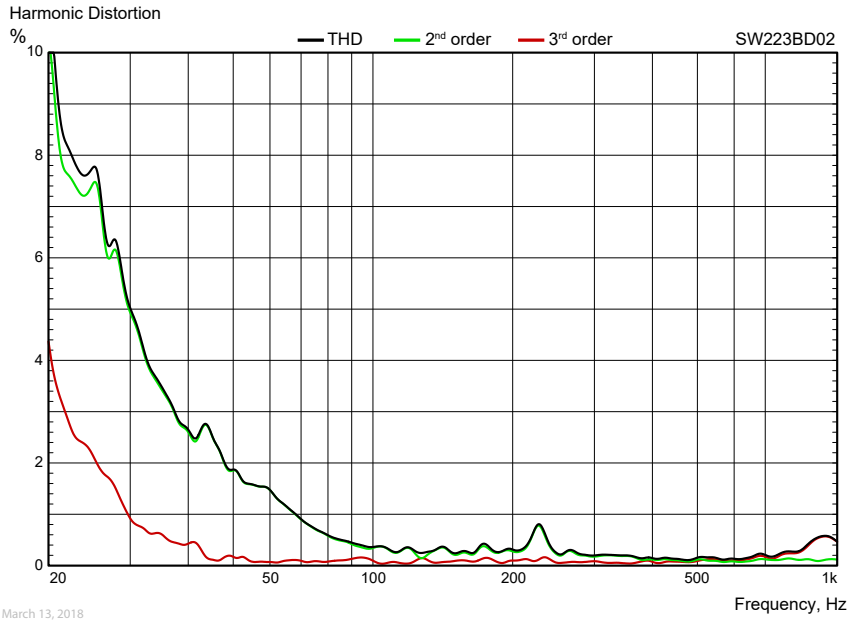
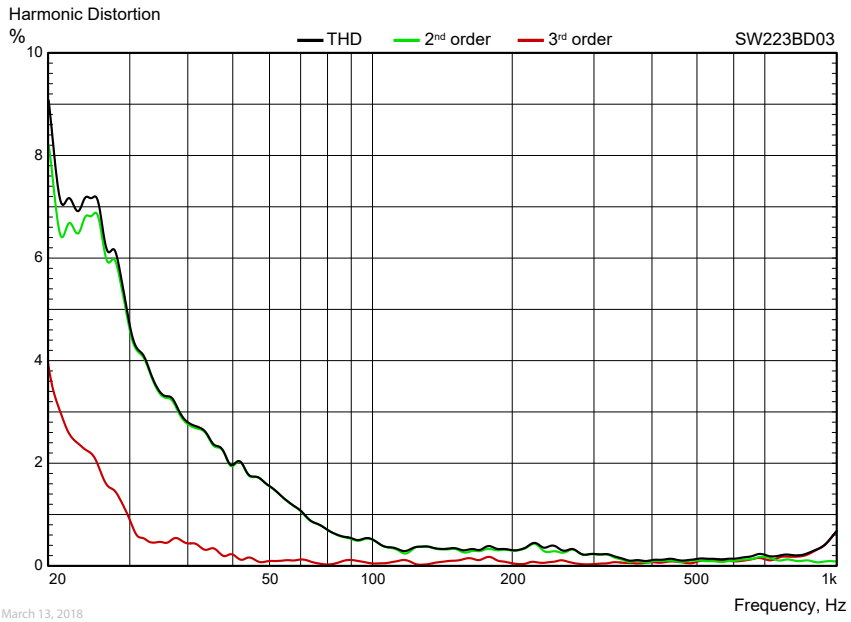
HARMONIC DISTORTION



Measuring conditions, Harmonic Distortion
Driver mounting: In sealed, heavily stuffed enclosure, internal volume 28 lit.
Microphone distance: 0.5 m
Input signal: Stepped sine wave, 8.95 VRMS (SW223BD02) / 12.65 VRMS (SW223BD03)
Smoothing: 1/12 oct.



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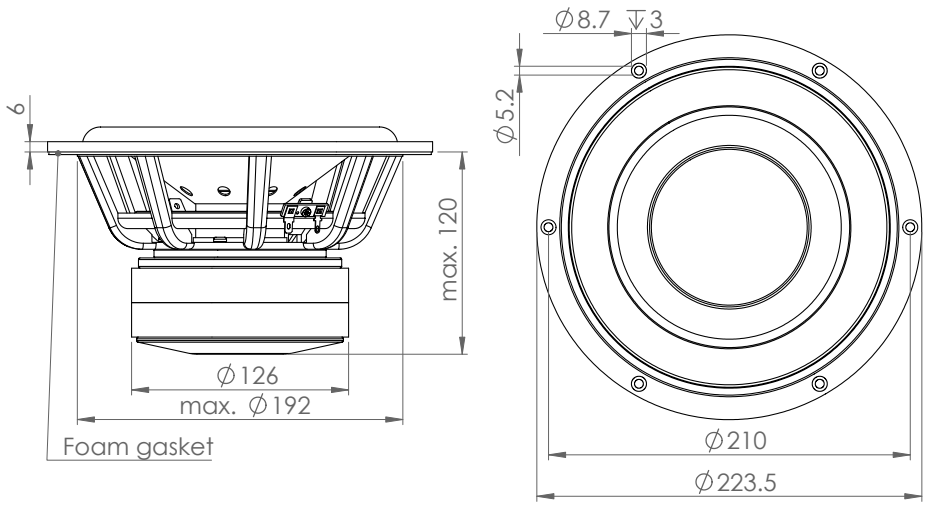
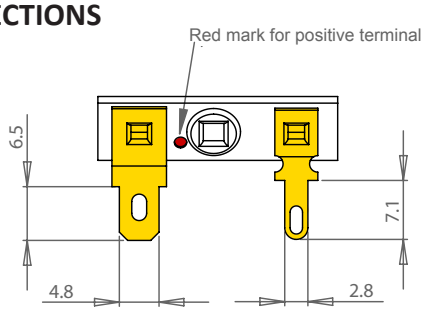
OUTLINE DRAWING (nominal dimensions)

Dimensions in mm



April 12, 2014

CONNECTIONS



Thickness, both terminals: 0.5 mm
Terminal plating: Gold

PACKAGING AND ORDERING INFORMATION

Part no. SW223BD02-01	4 ohm version, individual packaging (one piece per box)
Part no. SW223BD03-01	8 ohm version, individual packaging (one piece per box)

Latest update: Mar. 1, 2024