CHALLENGE ELECTRONICS

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ISO 9001/14001:2015 Certified

INDICATORS • SPEAKERS • SOUND TRANSDUCERS • ENCLOSURES • MICROPHONES • BATTERY ACCESSORIES

CS13-00W130-07-1

Rev. 4-2026
RoHS3 & REACH
Round Speakers

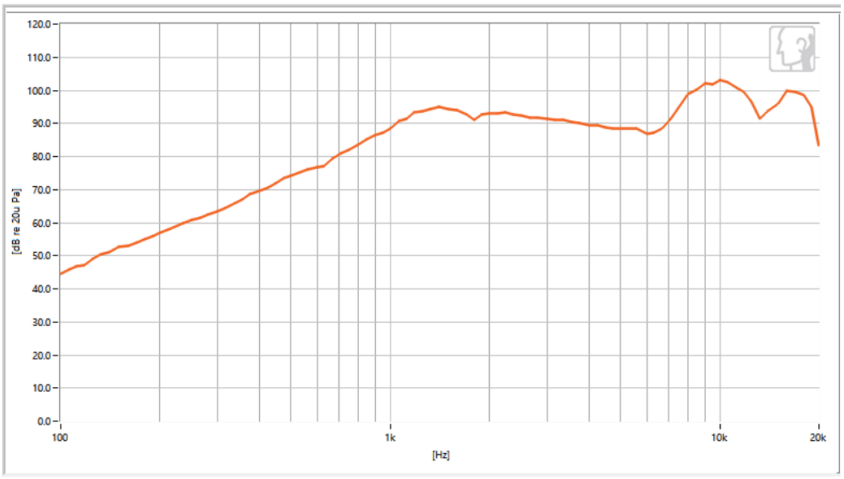
Operating Characteristics

ELECTRICAL

Rated Power	0.5 W
Short Term Max Power	1 W
Impedance	8 Ω ± 15 % 2000 Hz; 0.125 W

ACOUSTIC: Baffle Board

f_o	1,300 Hz ± 20 % 0.125 W
Freq. Range	1,040 to 20000 Hz
Rated SPL	90 ± 3 dB 3350 Hz; AVG; 0.5 W; 10 cm
Distortion	Max 10 % 2000 Hz; 0.1 W



Physical Characteristics

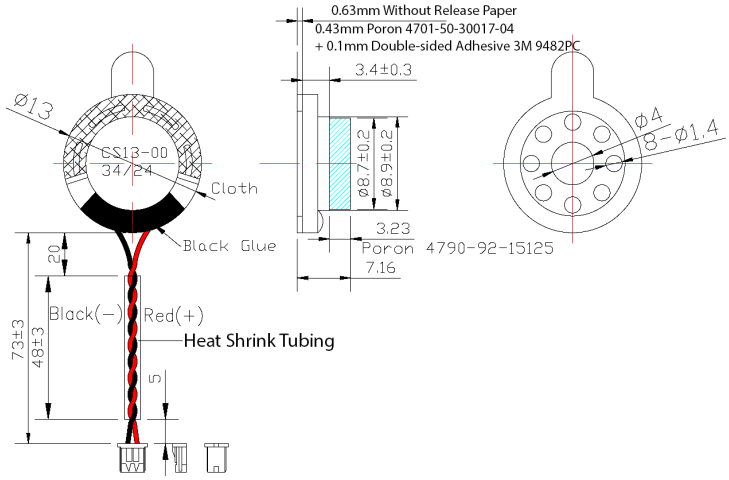
MATERIALS

Housing	PBT + SPCC
Cone	PET
Magnet	NdFeB
Wire	UL3302, 30 AWG
Connector	Molex 51021-0200 or equivalent

TEMPERATURE RANGES

Operating	-20 to +70 °C
Storage	-40 to +80 °C

Weight 1.2 g



General tolerance = ±0.5 mm and all measurements in mm unless otherwise noted.

Revision	Description	By	Date
3-2024	Updated minimum storage temperature from -30°C to -40°C.	JL	2024-08-28
4-2026	Updated to include TS Parameters and XMAX value	KG	2026-04-17

Warranty: For a period of one (1) year from date of shipping under normal operations conditions. This warranty does not apply to products damaged through misuse, abuse, improper installation, alteration, rework, or attempt to repair.

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Thiele Small Parameters

Electrical Parameters	Value	Unit	Description
Re	7.74	Ohm	electrical voice coil resistance at DC
Le	0.012	mH	frequency independent part of voice coil inductance
L2	0.005	mH	para-inductance of voice coil
R2	0.31	Ohm	electrical resistance due to eddy current losses
Cmes	220.69	µF	electrical capacitance representing moving mass
Lces	0.08	mH	electrical inductance representing driver compliance
Res	1.26	Ohm	resistance due to mechanical losses
fs	1162.7	Hz	driver resonance frequency
Mechanical Parameters	**Value**	**Unit**	**Description**
Mms	0.008	g	mechanical mass of driver diaphragm assembly including air load and voice coil
Mmd (Sd)	0.008	g	mechanical mass of voice coil and diaphragm without air load
Rms	0.03	kg/s	mechanical resistance of total-driver losses
Cms	2.267	mm/N	mechanical compliance of driver suspension
Kms	0.44	N/mm	mechanical stiffness of driver suspension
Bl	0.194	N/A	force factor (Bl product)
Lambda s	0.063	N/A	suspension creep factor
Loss Factors	**Value**	**Unit**	**Description**
Qtp	1.749	N/A	total Q-factor considering all losses
Qms	2.034	N/A	mechanical Q-factor of driver in free air considering Rms only
Qes	12.48	N/A	electrical Q-factor of driver in free air considering Re only
Qts	1.749	N/A	total Q-factor considering Re and Rms only
Other Parameters	**Values**	**Unit**	**Description**
Vas	0.0008	l	equivalent air volume of suspension
n0	0.01	%	reference efficiency (2 pi-radiation using Re)
Lm	72.12	dB	characteristic sound pressure level (SPL at 1m for 1W @ Re)
Lnom	72.26	dB	nominal sensitivity (SPL at 1m for 1W @ Zn)
rmse Z	0.69	%	root-mean-square fitting error of driver impedance Z(f)
rmse Hx	32.49	%	root-mean-square fitting error of transfer function Hx (f)
Series resistor	0	Ohm	resistance of series resistor
Sd	0.5	cm2	diaphragm area
XMAX	0.4	mm	maximum one-way linear excursion of a speaker cone before distortion increases

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