



Code: DR-8-030-8R-B2-C0001

REDCATT CX8F140F 8-inch hybrid coaxial loudspeaker driver: 150 W AES, 94 dB sensitivity, 8 Ω , 50.8 mm voice coil. Full T/S parameters, datasheet, 2D drawing and STEP CAD file.

KEY FEATURES

- ✓ LF and HF integrated ferrite-neodymium magnetic circuit
- ✓ Aluminum symmetrical horn
- ✓ Good off-axes frequency response

QUICK SPECS

Impedance
8 Ω

Sensitivity
94.00 dB

Voice Coil
LF: 50.8 mm / HF: 35.6 mm

Program Power
LF: 300 W / HF: 60 W

Magnet
Hybrid

 [Datasheet \(PDF\)](#)

Design Notes

The CX8F-140F is a high efficiency, (92.5dB 1watt / 1 meter) 8-inch coaxial speaker with very linear frequency response characteristics and high power handling capability. The mid-woofer utilizes REDCATT developed paper pulp cone that has proven its performance in many of our successful designs. The HF section was designed around our most successful dome assembly as used in 140FCD and has integrated symmetrical aluminum horn. The combination of used materials with our state of the art quality production yields in well performing driver even in the most demanding and extreme

REDCATT engineers have developed ferrite-neodymium based magnetic circuit, capable of delivering the highest level of performance in a small form factor. The combination of ferrite and neodymium delivers an excellent magnetic performance. The magnetic circuit design is optimized to generate the minimum amount of flux modulation, providing exceptional stability. Aluminum demodulation ring is assembled in the HF section.

Specifications

GENERAL SPECS

Nominal Diameter	8"
Rated Impedance	8 Ohm
Magnet	Hybrid
Basket Material	Steel

POWER HANDLING

AES Power	LF: 150 W / HF: 30 W
Continuous Power	LF: 300 W / HF: 60 W
Peak Power	LF: 600 W / HF: 120 W

VOICE COIL

Diameter	LF: 50.8 mm / HF: 35.6 mm
Winding Wire	CCAW
Former	Glass Fiber/kapton
Winding Height	12/2.5 mm

Qes	0.000
Qms	9.06
Qts	0.590
Vas	10.70 liters
Sd	213.80 cm ²
Mms	20.20 grams
Rms	1.20
Cms	0.1700
Bl	9.93 T·m
Le	0.470 mH
Sensitivity	94.00 dB

DESIGN DETAILS

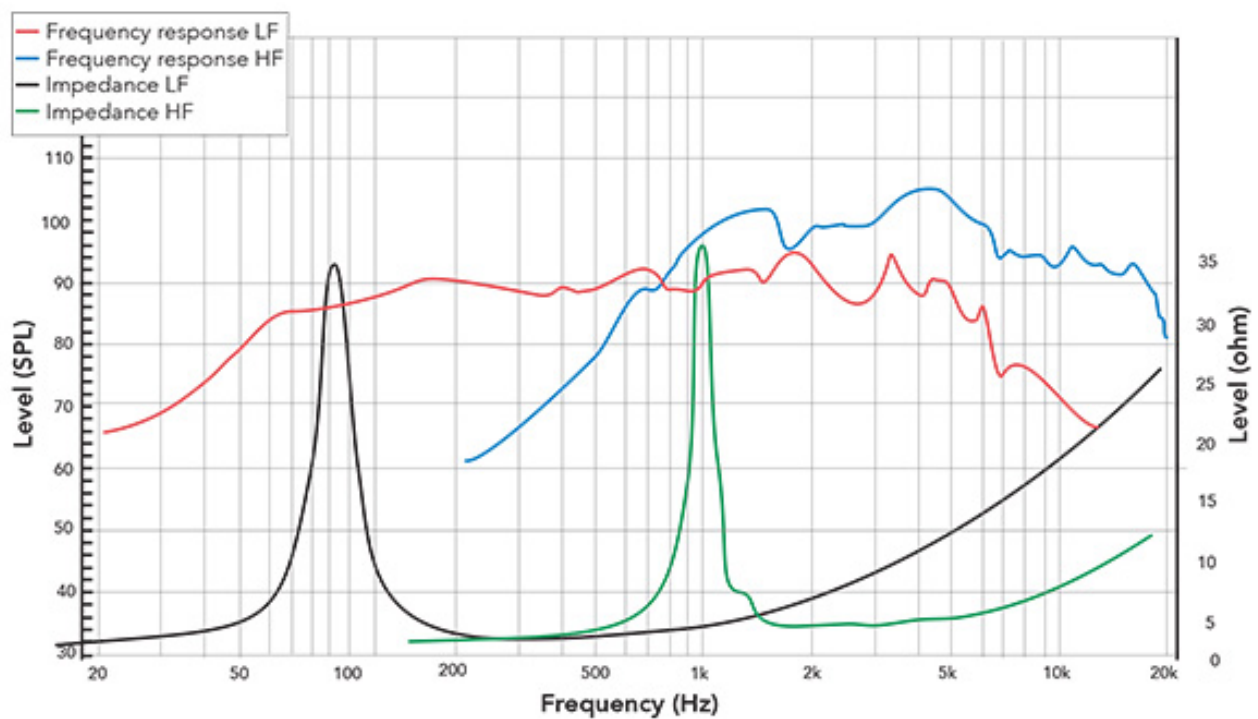
Surround Material	fabric/PEN
Cone/Dome Material	Paper CF/PEN
Spider	Nomex
T-Plate	8 mm
Xmax (peak)	2 mm
Xmech	10 mm
Overall Diameter	207.00 mm
Bolt Circle Diameter	197.20 mm
Baffle Cutout Dia.	178.00 mm
Mounting Holes	8
Depth (flange to rear)	107.50 mm
Net Weight	2.80 kg

DOWNLOADS

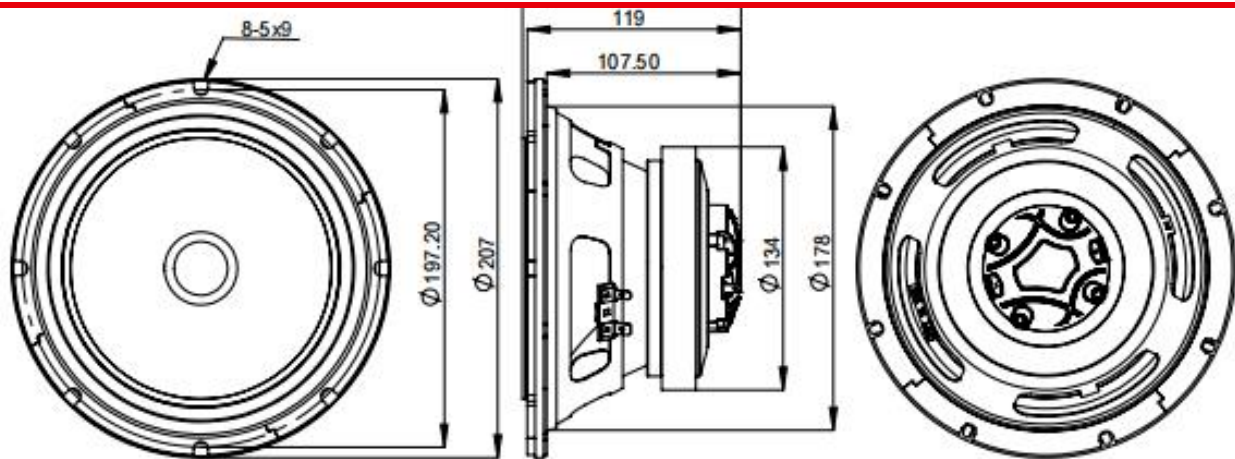
 Datasheet (PDF)

Covered by the REDCATT **3-year Limited Warranty**.

Frequency Response & Impedance



2D Drawing



Technical Summary

The CX8F-140FX8X8-374B is an 8-inch / 1.4-inch coaxial driver sharing the same hybrid ferrite-neodymium combined magnetic circuit topology as the CX6F140FX8X8-361C.

The LF

section uses a 50.8mm (2-inch) CCAW voice coil on a glass fiber former for high thermal conductivity and reduced moving mass - supporting 150W AES / 300W continuous LF power

handling - driving a REDCATT custom paper pulp cone with woven fabric surround and Nomex

spider. The HF section uses the same 35.6mm PEN dome assembly as the CX6F, driven by a

Kapton former with an aluminum demodulation ring in the HF magnetic gap to suppress intermodulation distortion. The principal construction difference from the CX6F is the integrated symmetrical aluminum horn on the HF section: rotationally symmetric around the

driver axis, it provides identical coverage angles in all planes, eliminates the separate waveguide joint, and delivers 2 dB higher HF sensitivity ($Lm_{HF} = 103$ dB) compared to

rear baffle mounting in PA and installed sound enclosures.

LF section T/S parameters: $F_s = 86$ Hz, $R_e = 5.6$ ohm, $Q_{es} = 0.63$, $Q_{ms} = 9.06$, $Q_{ts} = 0.59$,

$V_{as} = 10.7$ L, $S_d = 213.8$ cm², $M_{ms} = 20.2$ g, $B_l = 9.93$ T.m, $L_e = 0.47$ mH, $X_{max} = 2.0$ mm

(one-way), $V_d = 42.76$ cm³ - the largest volume displacement of all REDCATT drivers processed. LF 1W/1m sensitivity (L_m) = 92.44 dB, consistent with the 2.83V/1m measurement (94.0 dB) within 0.01 dB. Maximum LF SPL = 114.2 dB at 1 m (150W AES).

HF:

$F_{s_HF} = 1,000$ Hz, $R_{e_HF} = 5.5$ ohm, $L_{m_HF} = 103.0$ dB (with integrated horn), AES = 30W,

maximum HF SPL = 117.8 dB. The HF section is 10.56 dB more sensitive than the LF at 1W/1m;

an L-pad (passive) or ~10.5 dB DSP gain trim (active) is required for level matching.

LF cone beaming onset $f_{beam} = 1,327$ Hz is the binding crossover constraint - below the

HF dome's lower practical limit with horn loading (~1,200-1,300 Hz) - yielding a narrow practical crossover window of 1,400-1,600 Hz. LF inductance rolloff at $f_{Le} = 1,896$ Hz. LF Zobel: 5.6 ohm + 15.0 uF. Column array coherence limit: $f_{array} = 0.83$ kHz (207 mm OD)

- the lowest f_{array} of all drivers processed; above 0.83 kHz the 8" LF cones become independent radiators, creating a transition zone to horn-controlled coverage above the crossover at approximately 1.5 kHz.

Recommended LF/HF crossover: 1,400-1,600 Hz, 18-24 dB/octave (Linkwitz-Riley or Butterworth); active/DSP crossover preferred for slope accuracy and HF dome protection;

LF Zobel network essential before passive crossover components.

The CX8F-140FX8X8-374B is suited for professional PA cabinet and column speaker systems

requiring the highest LF acoustic output (114.2 dB max SPL) from a coaxial driver, with

cabinet orientation sensitivity and ensures consistent coverage angle in all planes; installed sound systems in large venues or outdoors where sustained 150W LF and 30W HF

power handling in extreme weather conditions is required; and bi-amplified column or cluster systems where the 8" format's 42.76 cm³ Vd, 9.93 T.m BI, and matched HF sensitivity (after 10.5 dB attenuation) provide maximum acoustic output per driver bay.

Recommended enclosure volumes are simulated results. For best enclosure volumes and tuning, we recommend secondary simulation and careful evaluation. Several rounds of samples and fine-tuning may be required for optimal results.

Enclosure Recommendations

LF enclosure alignments:

- Sealed (primary):

24.55 L / Qtc = 0.707 / f-3dB = 103 Hz (Butterworth - flattest sealed; large cabinet)

9.95 L / Qtc = 0.85 / f-3dB = 107 Hz (recommended for PA/installed sound)

5.71 L / Qtc = 1.00 / f-3dB = 115 Hz (compact)

3.41 L / Qtc = 1.20 / f-3dB = 129 Hz (very compact; subwoofer support required below ~120 Hz)

- Vented (secondary) - 75 mm port:

12 L / Fb = 70 Hz / ~170 mm physical port / 4.26 m/s peak port velocity

18 L / Fb = 60 Hz / ~150 mm physical port / 3.65 m/s peak port velocity

25 L / Fb = 52 Hz / ~141 mm physical port / 3.16 m/s peak port velocity

(Subsonic high-pass filter at Fb - 10 Hz mandatory; all velocities well within PA limits)

Frequently Asked Questions

What are the key features of the CX8F140F?



What applications is the CX8F140F suited for?



What are the power and sensitivity specs of the CX8F140F?



Related coaxial drivers

All coaxial drivers



Coax 10"

CX10F140F



Coax 6"

CX6F140F



Coax 12"

CX12F140F



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