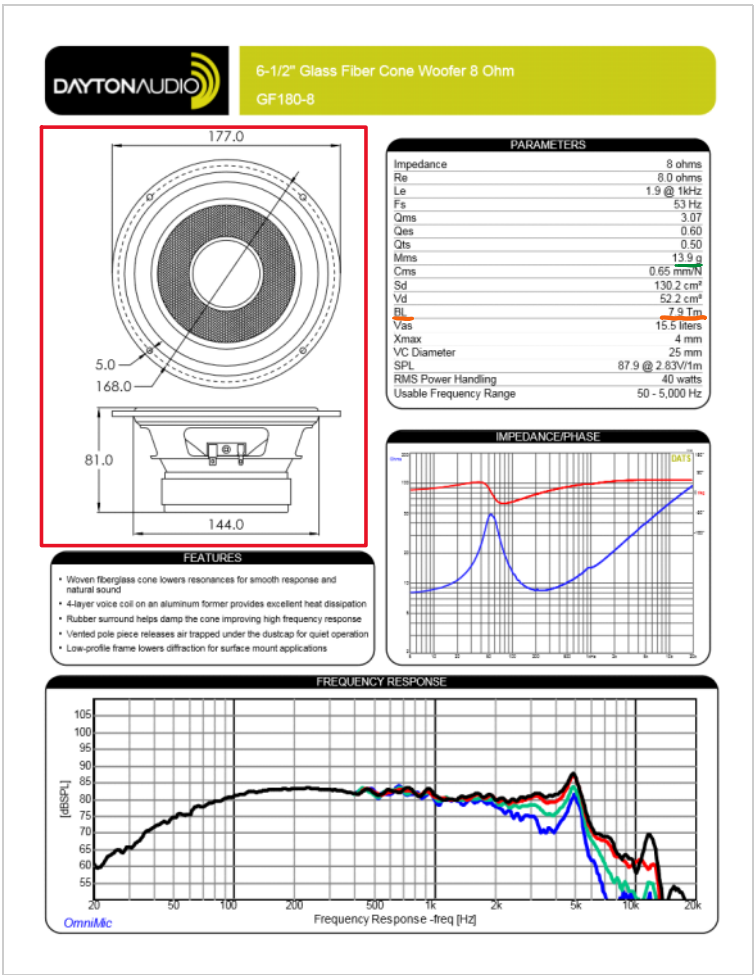
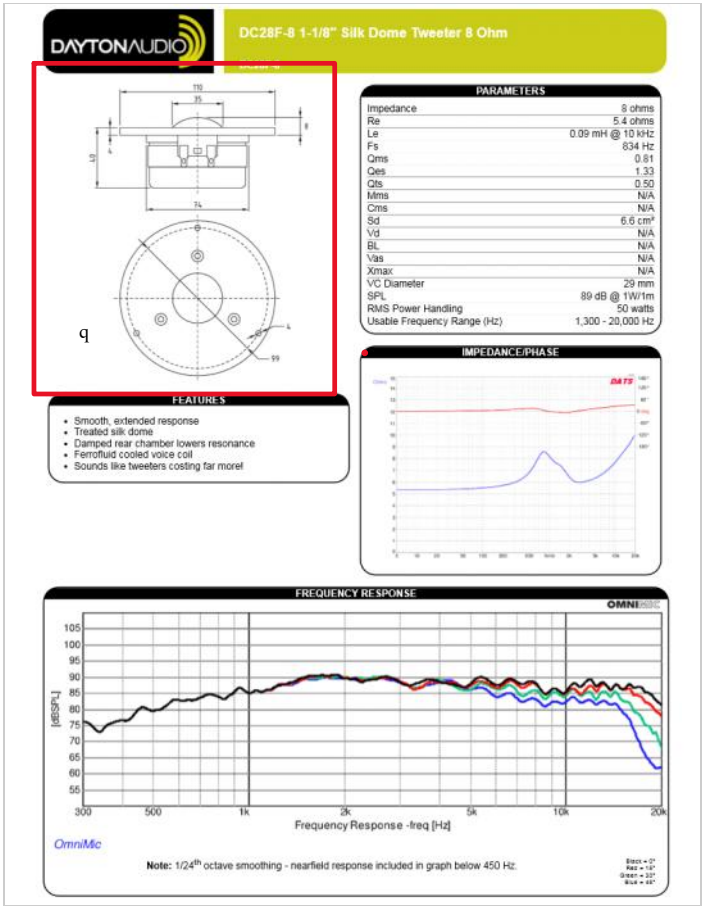
Driver +tweeter info

Monday, November 4, 2024 1:37 PM





Product Details

Brand	Dayton Audio
Model	GF180-8
Part Number	295-418
UPC	848791007927
Unit of Measure	Each
Weight	3.6

Product Specifications

Nominal Diameter	6-1/2"
Power Handling (RMS)	40 Watts
Power Handling (MAX)	80 Watts
Impedance	8Ω
Frequency Response	50 to 5,000Hz
Sensitivity	87.9dB 2.83V/1m
Voice Coil Diameter	1"

Thiele-Small Parameters

Resonant Frequency (Fs)	53Hz
DC Resistance (Re)	8Ω
Voice Coil Inductance (Le)	1.9mH
Mechanical Q (Qms)	3.07
Electromagnetic Q (Qes)	0.6
Total Q (Qts)	0.5
Compliance Equivalent Volume (Vas)	0.55ft³
Mechanical Compliance of Suspension (Cms)	0.65mm/N
BL Product (BL)	7.9T-m
Diaphragm Mass Inc. Airload (Mms)	13.9g
Maximum Linear Excursion (Xmax)	4mm
Surface Area of Cone (Sd)	130.2cm²

Materials of Construction

Cone Material	Fiberglass
Surround Material	Rubber
Voice Coil Wire Material	Copper
Voice Coil Former	Aluminum
Basket / Frame Material	Steel
Magnet Material	Ferrite

Mounting Information

Overall Outside Diameter	7"
Baffle Cutout Diameter	5.67"
Depth	3.19"
# Mounting Holes	4

Parts Express Staff Recommended Enclosure Volume

Sealed Volume	0.4ft³
Sealed F3	85Hz
Vented Volume	0.9ft³
Vented F3	40Hz

Product Details

Brand	Dayton Audio
Model	DC28F-8
Part Number	275-070
UPC	844632014130
Unit of Measure	Each
Weight	1

Product Specifications

Cone / Dome Diameter	1.125"
Cutout Diameter	2.91
Tweeter Type	Soft Dome
Power Handling (RMS)	50 Watts
Impedance	8Ω
Frequency Response	1,300 to 20,000Hz
Sensitivity	89dB 2.83V/1m

Thiele-Small Parameters

Resonant Frequency (Fs)	834Hz
DC Resistance (Re)	5.4Ω
Voice Coil Inductance (Le)	0.09mH
Mechanical Q (Qms)	0.81
Electromagnetic Q (Qes)	1.33
Total Q (Qts)	0.5

Mounting Information

Overall Outside Diameter	4.33"
Depth	1.53"

Loudspeaker cookbook

P65 - assuming $Q_L = 7$

$Q_{ts} = 0.50$

$f_3 = 40\ Hz$

$Q_{ts} = 0.5$

$h = 1.0$

$\alpha = 0.8622$

$\frac{f_3}{f_s} = 0.9137$

$f_B = H \cdot f_s$

$f_s = 43.78\ Hz$

$V_B = 0.9\ ft^3 \rightarrow 1555.2\ in^3$

$V_d = 52.2 cm^3 \rightarrow 5.22\ E\text{-}5\ m^3$

PVC pipe used in house plumbing is virtually the best, easiest to fabricate, and most readily available material for constructing speaker vents. It comes in a number of useful diameters (½, ¾, 1, 1.5, 2, 3, and 4") and can be easily cut for tuning. While you can construct rectangular vents out of wood, changing vent length for tuning is time-consuming. For that reason, we will discuss only tube-type vents.

For a tubular vent flush-mounted on a speaker baffle, calculate the length by:

$$L_v = \frac{1.463 \times 10^7 R^2}{f_B^2 V_B} - 1.463R$$

where: L_v = length in inches
f_B = tuning frequency in Hz
V_B = box volume in cubic inches
R = radius of the vent in inches

(1) $d_v \geq 39.37 \left(\frac{411.25 V_d}{\sqrt{f_B}}\right)^{1/2}$

where:

$d_v \geq$ minimum diameter of vent in inches
f_B = tuning frequency in Hz
V_d = cone displacement volume in cubic meters

As a general guideline[1] Small offers a somewhat more conservative formula (for the same units as above):

2. $d_v \geq 39.37 (f_B V_d)^{1/2}$

For a 10" woofer in a box tuned to 33.5Hz, the minimum vent diameter would be 3.57" in the first case, and 2.45" in the second. Since these figures are approximations, the formulas suggest a 3-4" port would be adequate. However,

$$\text{Length vent} = \frac{1.463 \cdot 10^7 R^2}{f_B^2 V_B} - 1.463R$$

$$2R \geq 39.37 (f_B V_d)^{1/2}$$

Diameter = 2 in?

Length = 3.45

$D_1 \geq 2.24$ in

$D_2 \geq 1.88$ in

∴ Diameter 2 in

$L_v = 3.45$ in

must be min 3" from back wall

If D = 2.5 → $L_v = 5.84$ ∴ box needs to be at least 9 inches deep

Cookbook later recommends 3" dia ports.