

# KEF DATA SHEET

## B139-B

### Specification Number SP1044

Low frequency unit with foil-stressed expanded plastic diaphragm and highly compliant surround, suitable for totally enclosed box, reflex, transmission line, horn and other specialised low frequency applications.

**Net weight:** 3.85 kg (8.56 lb)

**Nominal impedance:** 8Ω

**Nominal frequency range:** 20-1000 Hz

**Typical enclosure volumes:**

Totally enclosed box 30-40 litres (1-2 cu ft)

Reflex 60-140 litres (2-5 cu ft)

**Power handling:**

Continuous sine wave 20 V RMS (see note 1)

Programme 100 W (see note 2)

**Magnet:**

Flux density 0.85 T (8,500 gauss)

Total flux  $1.11 \times 10^{-3}$  Wb (111,000 Maxwells)

**Sensitivity:** Pink noise input for 96 dB SPL at 1 metre on axis 11 V RMS

**Voice coil:**

Diameter 55 mm (2 in)

Inductance 0.56 mH

Max continuous service temperature (30 min) 180°C

Max intermittent temperature (5 sec) 250°C

Thermal time constant 16 seconds

Thermal resistivity (temp rise per applied Watt) 4.5°C/W

Nominal DC Resistance,  $R_{DC}$  6.6Ω (tolerance  $\pm 10\%$ )

Typical production spread  $6.2 \pm 0.14$ Ω (see note 3)

Minimum impedance (in nominal frequency range) 6.7Ω at 160 Hz

**Diaphragm:**

Effective area,  $S_D$  354 cm<sup>2</sup> (55 sq in)

Effective moving mass,  $M_D$  43.5 gm (1.53 oz)

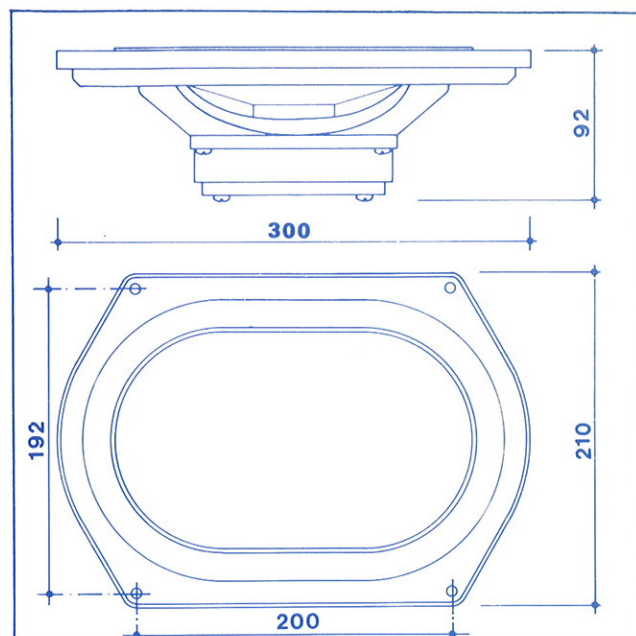
Max linear excursion,  $X_D$  6 mm peak-peak ( $\frac{1}{4}$  in)

Max damage limited excursion 12 mm peak-peak ( $\frac{1}{2}$  in)

**Free air resonance frequency,  $f_s$ :**

Nominal 25.0 Hz (tolerance  $\pm 5$  Hz)

Typical production spread  $25.0 \pm 2.4$  Hz (see note 3)



**Total mechanical resistance of suspension,  $R_{MS}$ :**  
1.24 mech Ω

**Suspension compliance,  $C_{MS}$ :**  $9.3 \times 10^{-4}$  m/N  
( $9.3 \times 10^{-7}$  cm/dyne)

**Equivalent volume of compliance,  $V_{AS}$ :** 164 litres  
(9,990 cu in)

**Force factor,  $Bl$ :** 12.3 N/A

**Damping:**

Mechanical  $Q_M$  5.5

Electrical  $Q_E$  0.4

Total  $Q_T$  0.37 (see note 4)

**Notes**

1 Continuous Power Rating ( $P_c$ ).

$$P_c = \frac{V^2}{R}$$

V is the RMS voltage which can be applied to the unit continuously without thermal overload of the voice coil. At low frequencies the continuous power rating of the speaker may be reduced because of limitations imposed on diaphragm excursion by the acoustic loading.

2 The programme rating of a unit is equal to the maximum programme rating of any system with which the unit may be safely used in conjunction with the recommended dividing network and enclosure.

The programme rating of any system is the undistorted power output of an amplifier with which the system may be satisfactorily operated on normal programme over an extended period of time.

3 "Typical production spread" is derived from statistical analysis of a large number of units, and is calculated to include 95% of all units.

$$Q_M = \frac{2\pi f_s M_D}{R_{MS}} \quad Q_E = \frac{2\pi f_s M_D}{(Bl)^2/R_{DC}} \quad \frac{1}{Q_T} = \frac{1}{Q_M} + \frac{1}{Q_E}$$

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KEF reserve the right to incorporate developments and amend the specification without prior notice, in line with continuous research and product improvement.

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