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<b>Q</b> .....	5
.....	8
.....	8
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.....	8



# Q

- 

, Q 가 (Underdamped)

(Damping)

<sup>1)</sup>

가 ( ) 가  
 가 Q , Q가  
 가

- $Q_{ms} = 10$  ,  $Q_{ms} = 3$  ,  $Q_{ms} = 0.5$   
 $Q_{ms}$  가  $Q_{ms}$  (eddy-current brakes) 가  
 $Q_{ms}$  가 )  
 $Q_{ms}$  가

$$Q_{ms} = \frac{2\pi \times f_s \times M_{ms}}{R_{ms}} = \frac{1}{R_{ms}} \sqrt{\frac{M_{ms}}{C_{ms}}}$$

- $Q_{es}$  - "Back-EMF" ( × )  
 가  $Q_{es}$  가  
 $Q_{es}$  가 0 가 0  
 $R_e$   $Q_{es}$  가  $Q_{es}$

$$Q_{ms} = \frac{2\pi \times f_s \times M_{ms} \times R_e}{Bl^2} = \frac{R_e}{Bl^2} \sqrt{\frac{M_{ms}}{C_{ms}}}$$

- $Q_{ts}$  -  $Q_{ms}$   $Q_{es}$  가  
 $1/Q_{ts} = 1/Q_{ms} + 1/Q_{es}$  Q  
 0.2 0.5  $Q_{ts}$

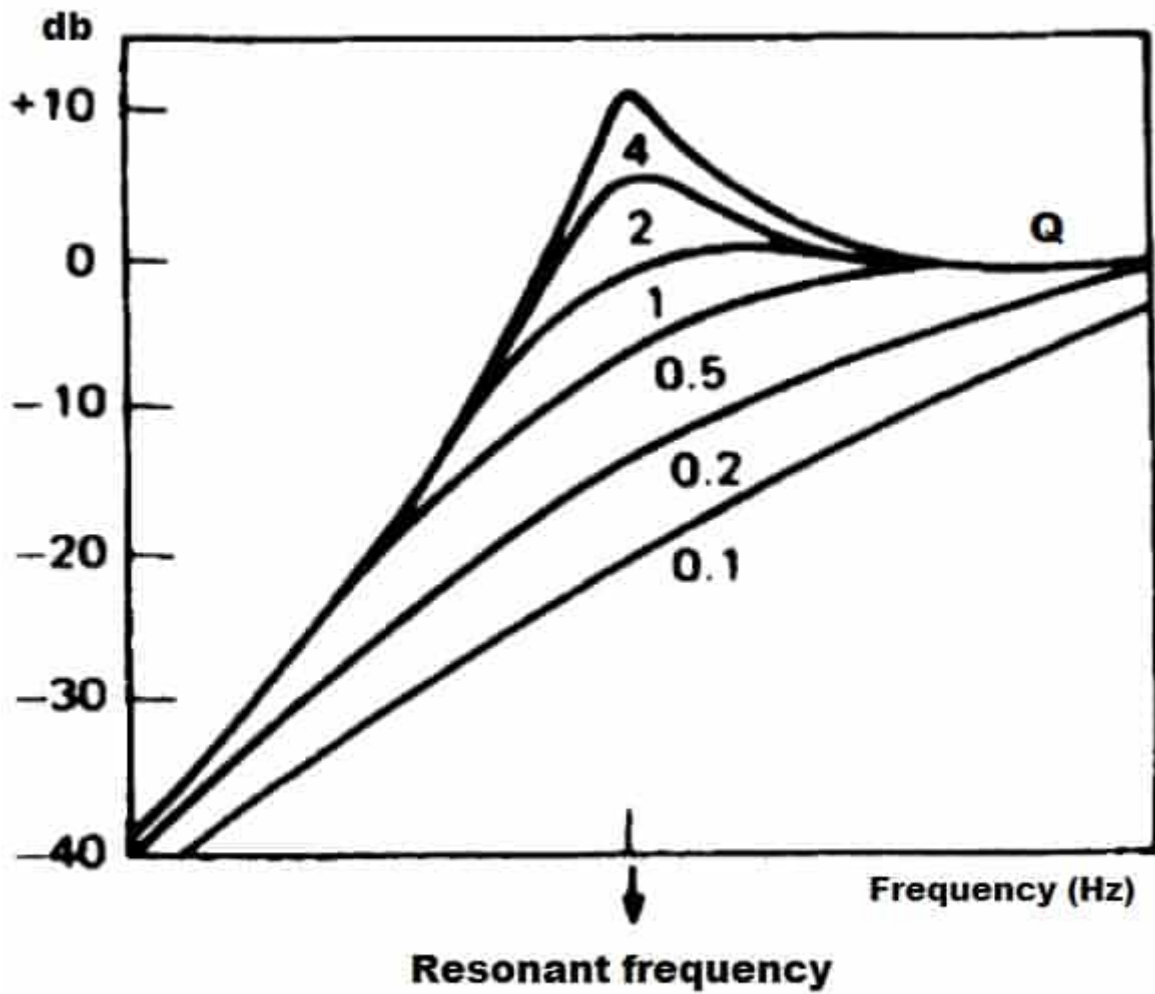
$$Q_{ts} = \frac{Q_{es} \times Q_{ms}}{Q_{es} + Q_{ms}}$$

•  $Q_{tc}$  -

가

가  
가  
가

$Q_{tc} = Q_{ts} + Q$



**How does Q affect the frequency response of a speaker.  
Replace Q with Qts for free air and Qtc for sealed box.**

$Q_{ts}$

0.6

$Q_{ts}$

$Q_{ts}$  0.7

$Q_{es}$

가  
가

Q



,  $F_s$  가 , 가 , .

1) , ,



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