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[Knowles](#)
[EM-23069-000](#)

For any questions, you can email us directly:
sales@integrated-circuit.com



EM SERIES

S T A N D A R D



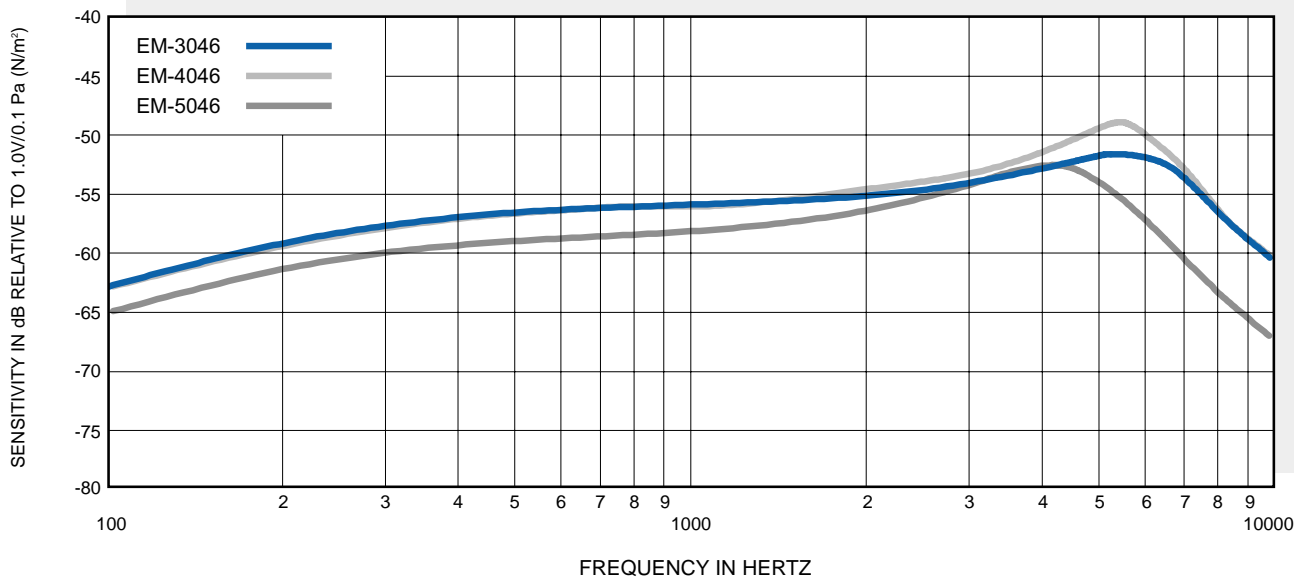
Actual Size

Features

- Electret condenser microphone
- Rugged construction to withstand severe environmental conditions
- Most popular Knowles microphone
- High resistance to mechanical shock
- Low vibration sensitivity
- Various responses available
- Ideal for ITC and CIC applications
- Available with RFI suppression



Standard Response



Open circuit sensitivity with 1.3VDC supply

Knowles

data sheet

Specification Data

Standard EM Series

Power Requirements

Supply Voltage (V_s) range: 0.9 to 10.0V _{DC} typical: 1.3V _{DC}	Quiescent Current Drain (@ $V_s = 1.3V_{DC}$) 21 μ A typical, 30 μ A for 5000 series 50 μ A maximum, 80 μ A for 5000 series
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Performance

Response/Sensitivity see curves, pages 1, 4-6 Sensitivity Range @ primary test frequency Ski Slope and Step responses: ± 4 dB all other responses: ± 3 dB Low Supply Voltage Sensitivity Loss (V_s reduced from 1.3 to 0.9V _{DC}) typical: 0.4dB maximum: 3.0dB Humidity Coefficient of Sensitivity typical: 0.03dB per %RH (in the absence of condensation) Output Impedance @ 1kHz range: 2.8 to 6.8k Ω nominal: 4.4k Ω <i>5000 Series</i> range: 2.0 to 4.0k Ω nominal: 2.8k Ω Acoustic Polarity Increased pressure at sound inlet causes a positive going voltage to appear at the output terminal, relative to the negative terminal	Power Supply Feedthrough Attenuation typical: 11dB, output-referred Load Voltage (V_L) range: 0.2 to 0.9V _{DC} typical: 0.4V _{DC} Output Noise Level (A-weighted) typical: -103dBV* maximum: -97.0dBV (Ski Slope models) Input-Referred Noise Level* (A-weighted, 1kHz ref.) typical: 28dB SPL maximum: 31dB SPL Input-Referred Vibration Sensitivity* (1g acceleration, 1kHz ref.) maximum: 66dB SPL Temperature Range operating: -17°C to 63°C storage: -40°C to 63°C ESD Tolerance MIL-STD-750 Class 1 rating EOS/ESD-S5.1-1993 Class 2 rating
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*For standard, damped and undamped models only

Mechanical

Weight 0.08 grams Dimensions See outline drawings, page 7	Case Material Type 305 stainless steel Solder Content Sn62Pb36Ag02
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Optional Soldering Fixture

Base: ET-3838
 Nest Plate: ET-804

Model Variations

Standard EM Series

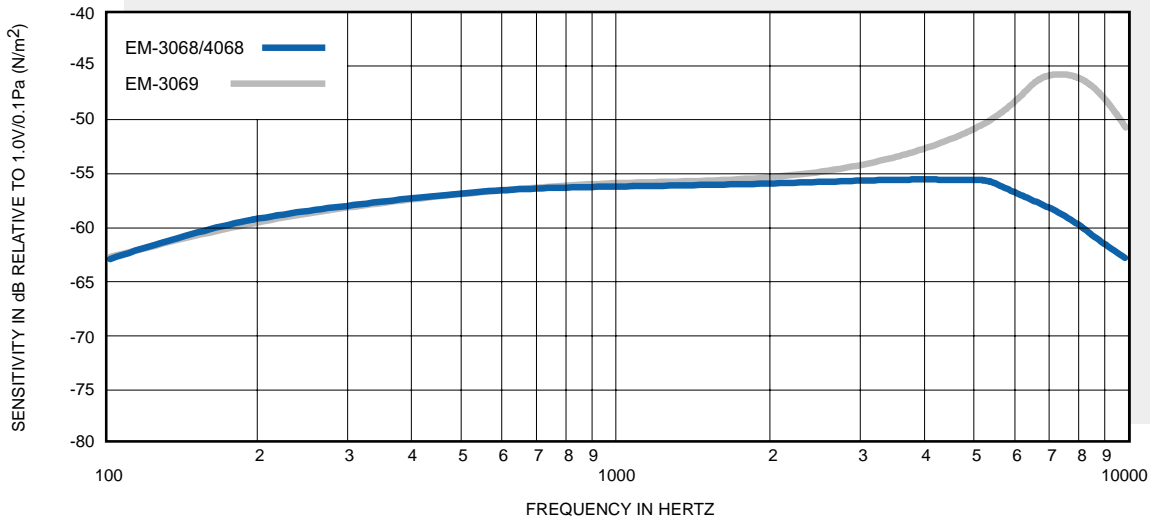
Model	Port	Response
EM-3046	12B	Standard
EM-3047	12B	6dB/octave Ski Slope
EM-3056	12KP	Standard
EM-3058	12B	Step
EM-3059	12B	12dB/octave Ski Slope
EM-3068	12B	Damped Peak
EM-3069	12Kn	Undamped Peak
EM-3070	12Kn	6dB/octave Ski Slope
EM-3084	12Kn	12dB/octave Ski Slope
EM-4046	12SL	Standard
EM-4047	12SL	6dB/octave Ski Slope
EM-4058	12SL	Step
EM-4059	12SL	12dB/octave Ski Slope
EM-4068	12SL	Damped Peak
EM-5046	12SL	Standard (Screenless, Shifted Peak)
EM-5047	12SL	6dB/octave Ski Slope (Shifted Peak)
EM-5059	12SL	12dB/octave Ski Slope (Shifted Peak)
EM-7012	12B	6dB/octave Ski Slope, Damped
EM-7013	12B	12dB/octave Ski Slope, Damped
EM-7079	12n	Undamped
EM-7080	12n	6dB/octave Ski Slope
EM-7131	12SL	6dB/octave Ski Slope, Damped
EM-7133	12SL	12dB/octave Ski Slope, Damped
EM-7451	12SL	6dB/octave Ski Slope, Damped
EM-7452	12SL	12dB/octave Ski Slope, Damped
EM-9867	12KP	6dB/octave Ski Slope
EM-9896	12KP	12dB/octave Ski Slope
EM-9932	12KP	Damped Peak

Microphones are also available with RFI suppression filters.

Other model variations available upon request. Contact Knowles Electronics for details.

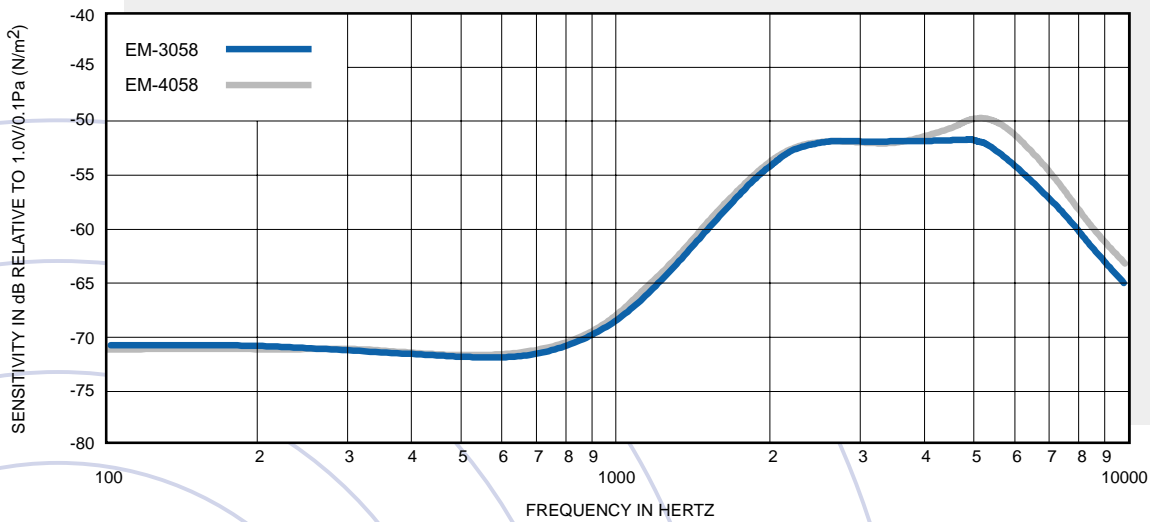


Damped and Undamped Peak Response



Open circuit sensitivity with 1.3VDC supply

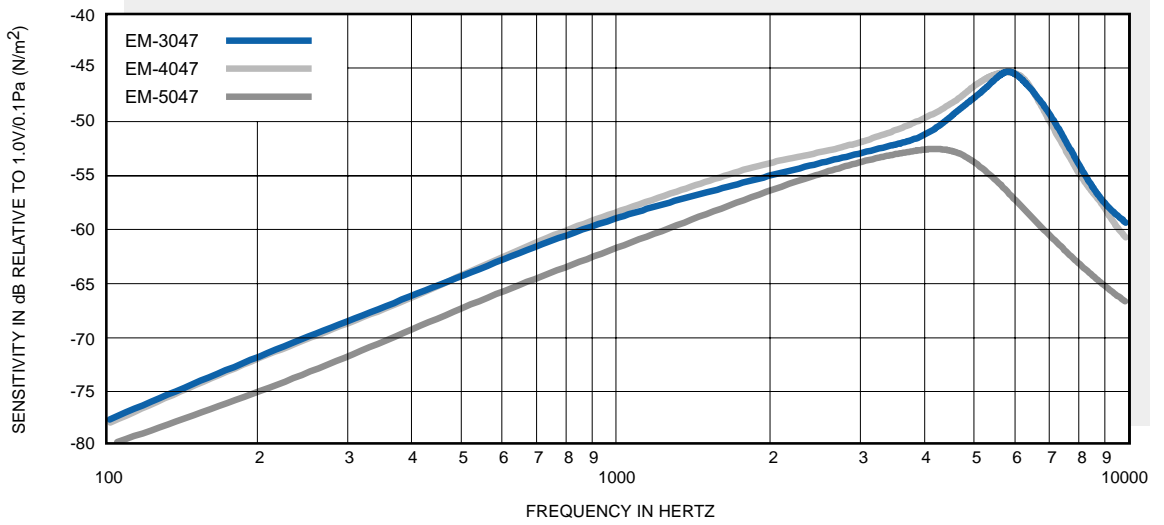
Step Response



Open circuit sensitivity with 1.3VDC supply

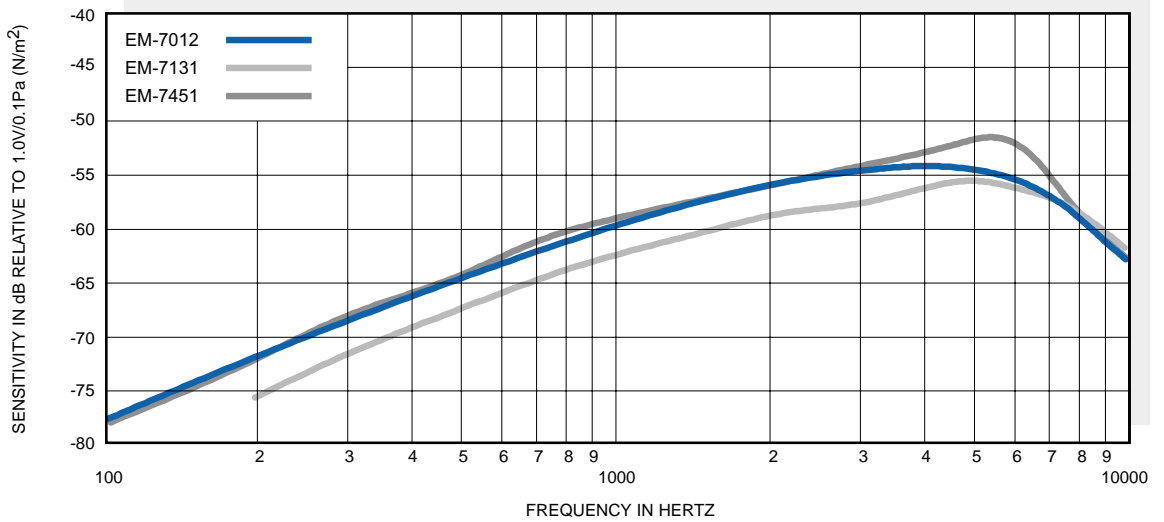


6dB/Octave Ski Slope Response



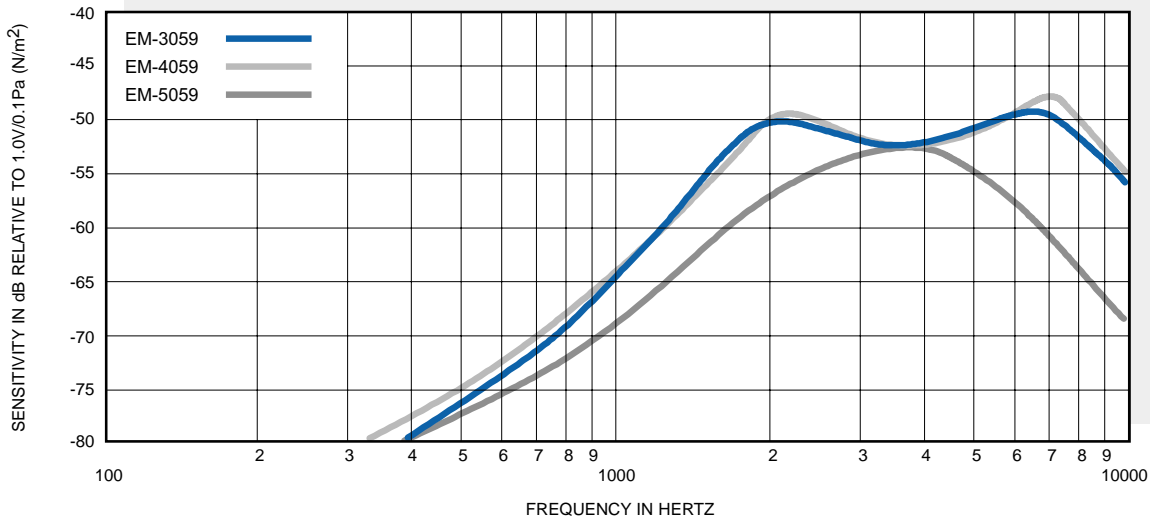
Open circuit sensitivity with 1.3VDC supply

6dB/Octave Ski Slope, Damped Response



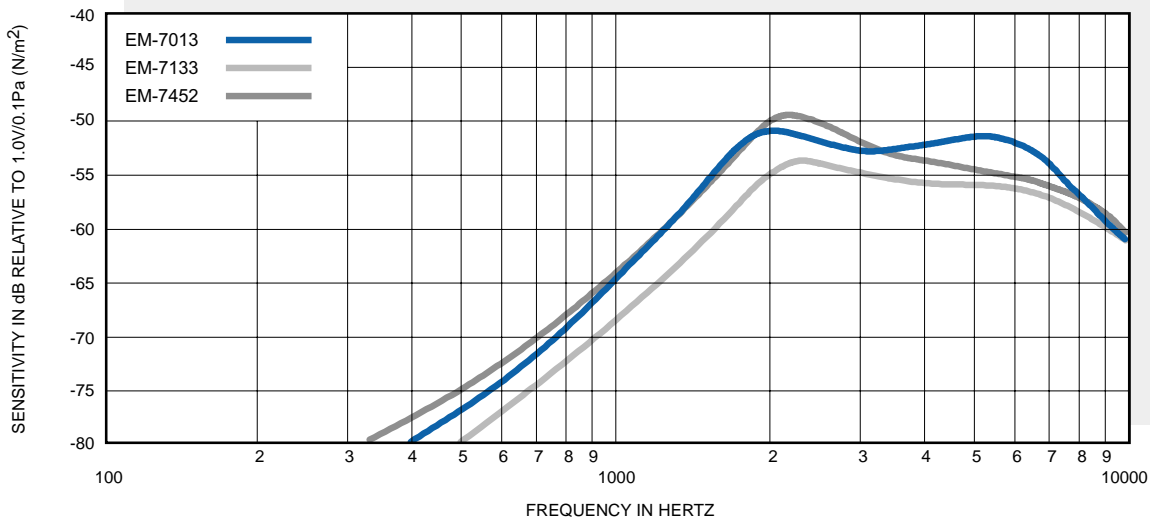
Open circuit sensitivity with 1.3VDC supply

12dB/Octave Ski Slope Response



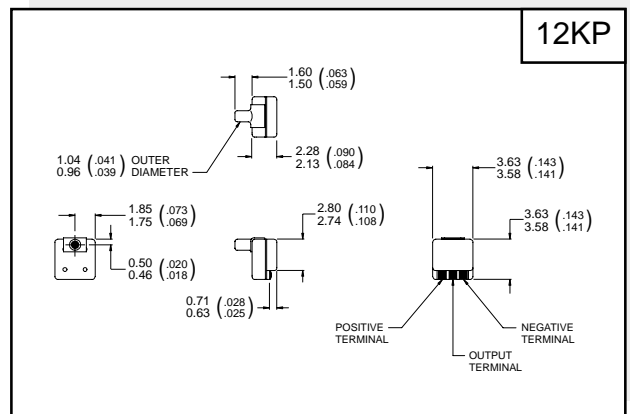
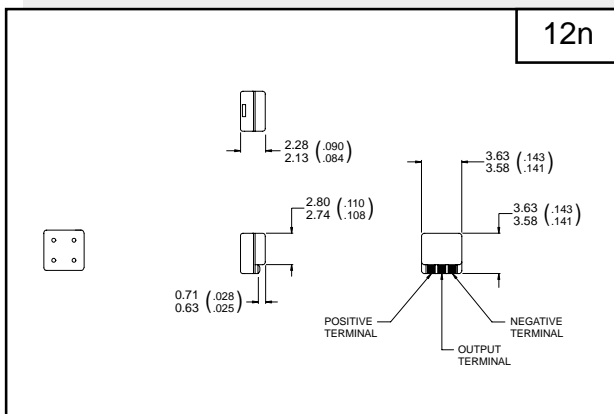
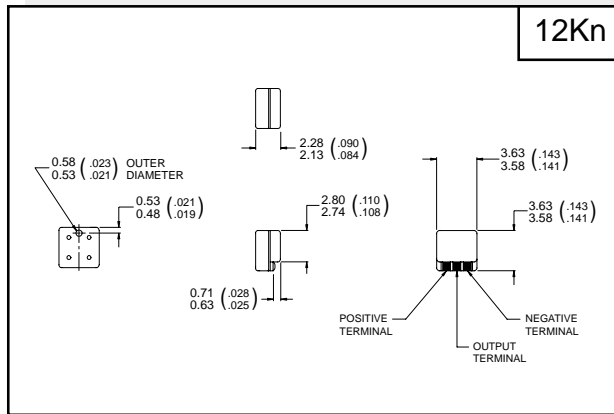
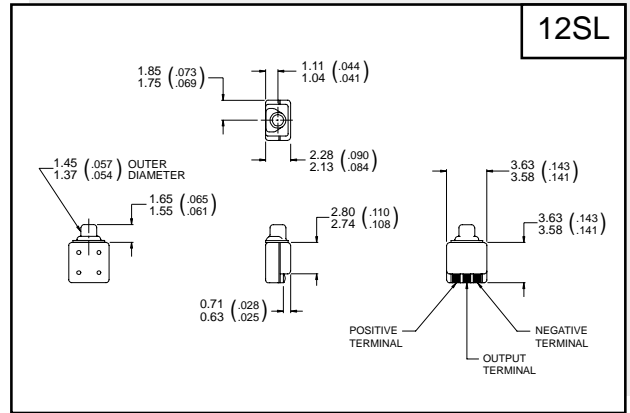
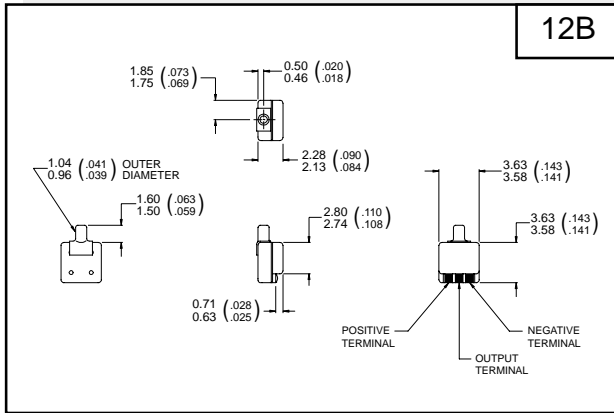
Open circuit sensitivity with 1.3VDC supply

12dB/Octave Ski Slope, Damped Response



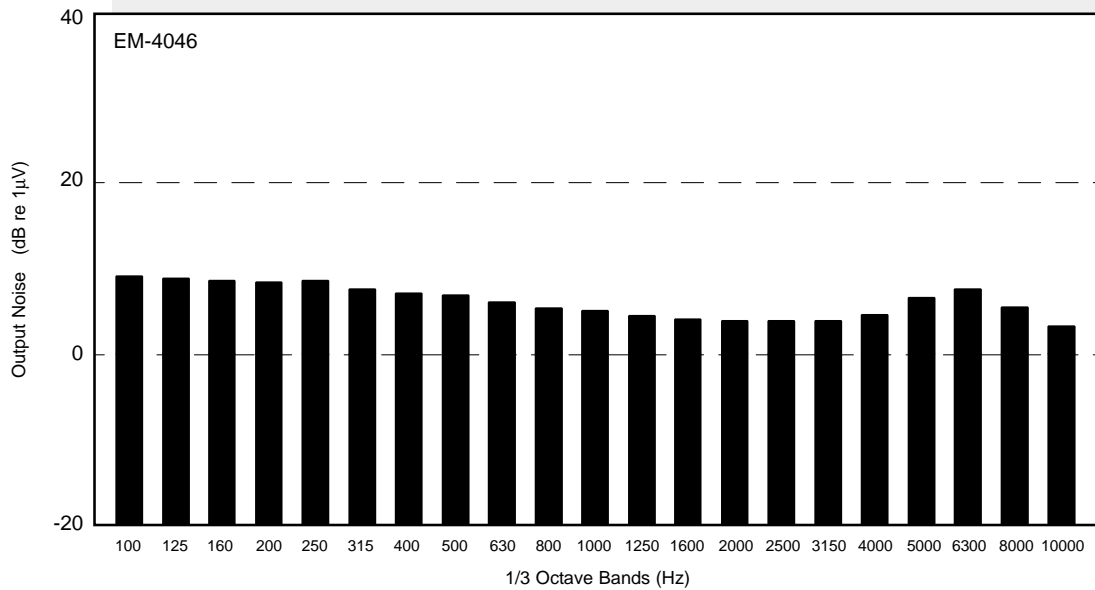
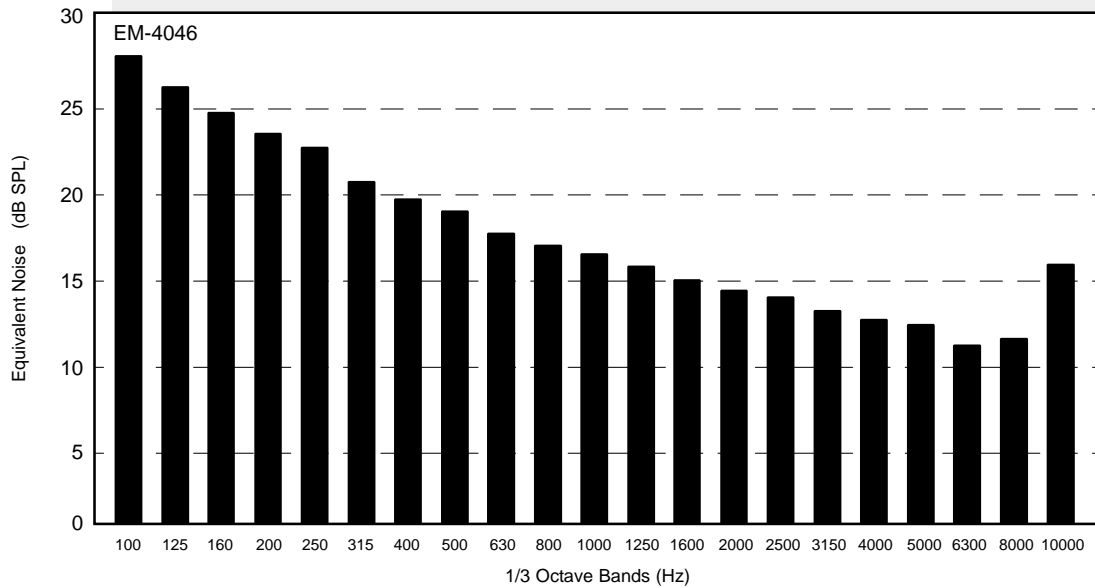
Open circuit sensitivity with 1.3VDC supply

Signal Port Locations



Dimensions in millimeters (inches)

1/3 Octave Equivalent Noise & Output Noise



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NOTE: Specifications are subject to change without notice. The information on this Data Sheet reflects typical applications. Specific test specifications defining each model are available by requesting Outline Drawing Sheets 1.1 and Performance Specifications Sheets 2.1 of that model number. Knowles' responsibility is limited to compliance with the Outline Drawing and the Performance Specification application to the subject model at time of manufacture.