

Panasonic® Electret Condenser Microphone Cartridges

Consists of a high voltage internal electret membrane, metal electrode and a Field Effect Transistor (FET). Doesn't need a high-voltage bias from the outside like ordinary condenser microphones. **Features:** Highly efficient electrical specification, pressure type operating principle, low impedance (2.2kΩ), omnidirectional back directivity and a high degree of reliability under

adverse shock, vibration and environmental tests. **Applications:** Telephone and telephone answering devices, tape recorders, intercoms, computer modems, completed microphones for recording, testing and monitoring, hearing aids, sonic controlled toys and sensors and others. All buzzers and microphones are non-washable.

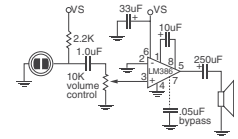
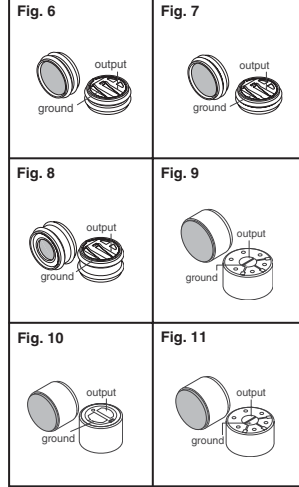


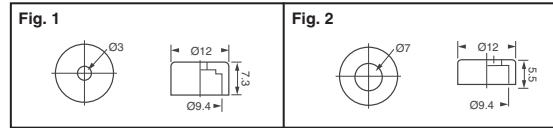
Fig.	Type	Physical Size (mm)	Sensitivity (0dB = 1V/Pa)	Frequency Range (Hz)	Operating Voltage Max./Std.	Current Consumption Max.	Sensitivity Reduction	S/N Ratio	Digi-Key Part No.	Price Each 1 10 100	Panasonic Part No.
1	Omni-directional	ø6.0 X 1.3	-44dB ±3dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P11957-ND†	2.83 2.51 2.03	WM-63GCT
1		ø6.0 X 1.3	-44dB ±3dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P11958-ND†	3.02 2.68 2.17	WM-63GNT
2		ø6.0 X 1.3	-44dB ±3dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P11961-ND	3.47 3.08 2.49	WM-63PRT
3	Omni-directional	ø6.0 X 2.2	-45dB ±4dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P9955-ND†	2.05 1.82 1.48	WM-64C
1		ø6.0 X 2.2	-45dB ±4dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P9958-ND†	2.03 1.81 1.46	WM-64K
1		ø6.0 X 2.2	-44dB ±3dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P11964-ND†	1.99 1.77 1.43	WM-64MCT
4		ø6.0 X 2.2	-44dB ±3dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P11965-ND†	2.11 1.88 1.52	WM-64MNT
5	Omni-directional	ø6.0 X 3.4	-35dB ±4dB	20-20k	10V/2V	0.5mA	within -3dB @ 1.5V	>62dB	P9925-ND	1.86 1.66 1.34	WM-61A
6	Omni-directional	ø7.7 X 3.0	-44dB ±3dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P11959-ND	4.97 4.41 3.56	WM-63GNT330
7		ø7.5 X 2.4	-44dB ±3dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P11960-ND	5.01 4.44 3.59	WM-63GNT335
8		ø7.7 X 4.0	-44dB ±3dB	20-16k	10V/2V	0.5mA	within -3dB @ 1.5V	>58dB	P11966-ND	3.90 3.47 2.80	WM-64MNT330A
9	Uni-directional	ø9.7 X 5.0	-47dB ±4dB	100-16k	10V/1.5V	0.5mA	within -3dB @ 1V	>60dB	P9961-ND	2.52 2.23 1.81	WM-55A103
10	Noise Canceling	ø6.0 X 5.0	-50dB ±4dB	100-12k	10V/2V	0.5mA	within -3dB @ 1.5V	>55dB	P9964-ND	2.11 1.88 1.52	WM-65A103
11		ø9.7 X 5.0	-54dB ±4dB	100-10k	10V/1.5V	0.5mA	within -3dB @ 1V	>58dB	P9897-ND	2.77 2.46 1.99	WM-55D103

† With built-in cap



Microphone Holders

Fig.	Digi-Key Part No.	1	10	100	500	Panasonic Part No.	Use With Panasonic Part No.
1	P9950-ND	.59	.50	.39	.28	M3CA0208A4	WM-55A103, WM-55D103, WM-56A103
2	P9952-ND	.59	.50	.39	.28	M3CA0207A4	WM-55A103, WM-55D103, WM-56A103

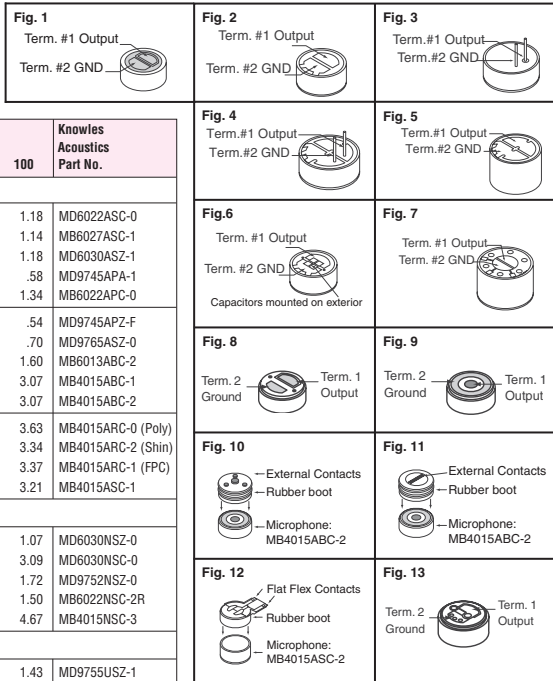


KNOWLES ACOUSTICS Electret Condenser Microphones

Applications: • Headsets • Corded and cordless telephones • PCs, PC tablets, laptops • PDAs, MP3 players • Automotive and automotive accessories • General electronics

Features: • Operating Temperature: -25° ~ 55°C • Highly efficient electrical specifications • Provide good acoustic performance and reliability under typical environmental conditions • Industry standard sizes • Omni, Uni, and Noise Canceling • Integrated RF filtering • Multiple terminations available - Solderless, Pin Type, and PCB

Fig.	Physical Size (mm)	Sensitivity @1KHz (dB re 1V/Pa)	Freq. Range (Hz)	Standard Operating Voltage	Maximum Operating Voltage	Max. Current (mA)	S/N Ratio	Built-in Capacitor	Digi-Key Part No.	Price Each 1 10 100	Knowles Acoustics Part No.
Omnidirectional											
1	ø6.0 x 2.2	-42 ±3	100 - 10K	2.0	10	0.500	>52dB	10pF, 33pF	423-1017-ND	1.62 1.46 1.18	MD6022ASC-0
1	ø6.0 x 2.7	-42 ±3	100 - 10K	2.0	10	0.500	>60dB	10pF, 33pF	423-1045-ND	1.58 1.42 1.14	MB6027ASC-1
2	ø6.0 x 3.0	-38 ±4	100 - 10K	3.0	10	0.500	>55dB	None	423-1018-ND	1.62 1.46 1.18	MD6030ASZ-1
3	ø9.7 x 4.5	-41 ±3	100 - 10K	2.0	10	0.500	>55dB	10pF	423-1024-ND	1.25 .80 .58	MD9745APA-1
3	ø6.0 x 2.2	-40 ±3	100 - 10K	2.0	10	0.500	>60dB	10pF, 33pF	423-1043-ND	1.86 1.68 1.34	MB6022APC-0
4	ø9.7 x 4.5	-44 ±2	100 - 10K	2.0	10	0.500	>55dB	None	423-1023-ND	.72 .66 .54	MD9745APZ-F
5	ø9.7 x 6.5	-42 ±4	100 - 10K	3.0	10	0.500	>55dB	None	423-1026-ND	.97 .87 .70	MD9765ASZ-0
9	ø6.0 x 1.3	-44 ±2	100 - 10K	2.0	10	0.500	>60dB	10pF, 33pF	423-1041-ND	2.19 1.98 1.60	MB6013ABC-2
9	ø4.0 x 1.5	-42 ±2	100 - 10K	2.0	10	0.500	>55dB	10pF, 33pF	423-1048-ND	3.47 3.13 3.07	MB4015ABC-1
9	ø4.0 x 1.5	-44 ±2	100 - 10K	2.0	10	0.500	>55dB	10pF, 33pF	423-1049-ND	3.47 3.13 3.07	MB4015ABC-2
10	ø4.0 x 1.5	-44 ±2	100 - 10K	2.0	10	0.500	>55dB	10pF, 33pF	423-1050-ND	4.12 3.71 3.63	MB4015ARC-0 (Poly)
11	ø4.0 x 1.5	-44 ±2	100 - 10K	2.0	10	0.500	>55dB	10pF, 33pF	423-1051-ND	3.79 3.41 3.34	MB4015ARC-2 (Shin)
12	ø4.0 x 1.5	-44 ±3	100 - 10K	2.0	10	0.500	>60dB	10pF, 33pF	423-1052-ND	3.82 3.44 3.37	MB4015ARC-1 (FPC)
13	ø4.0 x 1.5	-42 ±3	100 - 10K	2.0	10	0.500	>55dB	10pF, 33pF	423-1047-ND	3.64 3.28 3.21	MB4015ASC-1
Noise Canceling											
2	ø6.0 x 3.0	-39 ±4	300 - 6K	3.0	10	0.500	>55dB	None	423-1019-ND	1.46 1.32 1.07	MD6030NSZ-0
6	ø6.0 x 3.0	-37 ±4	300 - 6K	3.0	10	0.500	>55dB	10pF, 33pF	423-1020-ND	4.28 3.86 3.09	MD6030NSZ-0
7	ø9.7 x 5.2	-38 ±3	300 - 6K	3.0	10	0.500	>55dB	None	423-1027-ND	2.36 2.13 1.72	MD9752NSZ-0
8	ø6.0 x 2.2	-44 ±3	100 - 10K	2.0	10	0.500	>60dB	10pF, 33pF	423-1046-ND	2.73 1.85 1.50	MB6022NSC-2R
13	ø4.0 x 1.5	-46 ±3	100 - 10K	2.0	10	0.500	>55dB	10pF, 33pF	423-1053-ND	5.30 4.77 4.67	MB4015NSC-3
Unidirectional											
7	ø9.7 x 5.5	-44 ±2	100 - 10K	1.5	10	0.500	>55dB	None	423-1025-ND	2.69 1.77 1.43	MD9755USZ-1



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