

**PANASONIC type WM, MICROPHONE INSERTS (Electret)**

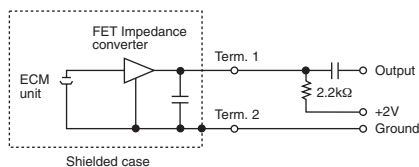
A comprehensive range of electret condenser microphones developed to meet the most exacting requirements of modern communication and audio designs. The devices are available with a wide choice of options including sizes, terminations, sensitivities and electrical characteristics. To aid product choice, a selection table is shown below with diagrams and dimensions on the following page.

- ◆ Choice of size and profile
- ◆ High quality
- ◆ Omni-directional (with noise cancelling versions also available)
- ◆ Wide selection of sensitivity
- ◆ Solder pad or pcb pin terminations

Nom. Size (mm)	Terminations	Sensitivity (dB) †		Impedance (Ω max.)	Directivity	Frequency Response (Hz)	Supply Voltage (10V max.)	Current Drain (mA max.)	Sensitivity Reduction (max.)	Signal/ Noise Ratio (dB)	Manf. Part No. & anglia Order Code	Diag. No.		
		Nom.	Tol.											
<b>ULTRA-MINIATURE (6mm nom. dia.)</b>														
<b>6 x 2</b>	PCB Pins	-44	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-64PCT</b>	1		
		-46	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-64PCX</b>	1		
<b>6 x 3</b>	PCB Pins	-40	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62PCU</b>	1		
		-44	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62BT</b>	2		
		-44	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62PCT</b>	1		
		-45	±4	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62B</b>	2		
		-45	±4	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62PC</b>	1		
		-46	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62PCX</b>	1		
	Solder Pads	-40	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62CCU</b>	3		
		-44	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62AT</b>	3		
		-44	±3	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62CCT</b>	3		
		-45	±4	2200	Omni-directional	20 - 16,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-62A</b>	3		
<b>6 x 5</b>	Solder Pads	-42	±3	2200	Omni-directional	20 - 20,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-60AY</b>	5		
		-44	±3	2200	Omni-directional	20 - 20,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-60AT</b>	5		
		-46	±3	2200	Omni-directional	20 - 20,000	2V	0.5	-3dB at 1.5V	>58dB	<b>WM-60AX</b>	5		
<b>SUB-MINIATURE (10mm nom. dia.)</b>														
<b>10 x 5</b>	PCB Pins	-40	±2	3000	Omni-directional	20 - 16,000	1.5V	0.3	-3dB at 1.1V	>60dB	<b>WM-52BP</b>	6		
		-40	±3	2200	Omni-directional	20 - 16,000	2.5V	0.6	-3dB at 2V	>60dB	<b>WM-54BU</b>	7		
		-42	±2	3000	Omni-directional	20 - 16,000	1.5V	0.3	-3dB at 1.1V	>60dB	<b>WM-52BH</b>	6		
		-42	±3	3000	Omni-directional	20 - 16,000	1.5V	0.3	-3dB at 1.1V	>60dB	<b>WM-52BY</b>	6		
		-42	±2	2200	Omni-directional	20 - 16,000	2.5V	0.6	-3dB at 2V	>60dB	<b>WM-54BH</b>	7		
		-42	±3	2200	Omni-directional	20 - 16,000	2.5V	0.6	-3dB at 2V	>60dB	<b>WM-54BY</b>	7		
		-44	±3	3000	Omni-directional	20 - 16,000	1.5V	0.3	-3dB at 1.1V	>60dB	<b>WM-52BT</b>	6		
		-44	±2	2200	Omni-directional	20 - 16,000	2.5V	0.6	-3dB at 2V	>60dB	<b>WM-54BM</b>	7		
		-44	±3	2200	Omni-directional	20 - 16,000	2.5V	0.6	-3dB at 2V	>60dB	<b>WM-54BT</b>	7		
		-46	±3	2200	Omni-directional	20 - 16,000	2.5V	0.6	-3dB at 2V	>60dB	<b>WM-54BX</b>	7		
		-54*	±4	680	Noise Cancelling	100 - 10,000	1.5V	0.5	-3dB at 1V	>58dB	<b>WM-55D103</b>	8		
		<b>10 x 7</b>	PCB Pins	-38	±2	1500	Omni-directional	20 - 16,000	1.5V	0.3	-2dB at 1V	>60dB	<b>WM-034DBR</b>	9
				-40	±2	1500	Omni-directional	20 - 16,000	1.5V	0.3	-2dB at 1V	>60dB	<b>WM-034DBP</b>	9
-42	±2			1500	Omni-directional	20 - 16,000	1.5V	0.3	-3dB at 1V	>60dB	<b>WM-034DBH</b>	9		
Solder Pads	-36		±2	1500	Omni-directional	20 - 16,000	1.5V	0.3	-2dB at 1V	>60dB	<b>WM-034DU</b>	10		
	-38		±2	1500	Omni-directional	20 - 16,000	1.5V	0.3	-2dB at 1V	>60dB	<b>WM-034DR</b>	10		
	-40		±2	1500	Omni-directional	20 - 16,000	1.5V	0.3	-2dB at 1V	>60dB	<b>WM-034DP</b>	10		
	-42		±2	1500	Omni-directional	20 - 16,000	1.5V	0.3	-3dB at 1V	>60dB	<b>WM-034DH</b>	10		
	-42		±3	2200	Omni-directional	20 - 16,000	4.5V	0.8	-3dB at 3V	>60dB	<b>WM-034CY</b>	10		
	-44		±2	1500	Omni-directional	20 - 16,000	1.5V	0.3	-3dB at 1V	>60dB	<b>WM-034DM</b>	10		
	-46		±3	2200	Omni-directional	20 - 16,000	4.5V	0.8	-3dB at 3V	>60dB	<b>WM-034CX</b>	10		

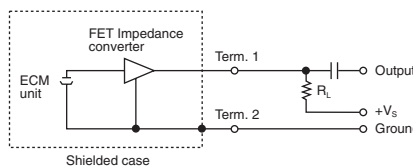
\* at 50cm  
† OdB=1V/Pa, 1kHz

**Schematic**



**Types Covered**

- WM-62PC
- WM-64PC
- WM-62CC



**Types Covered**

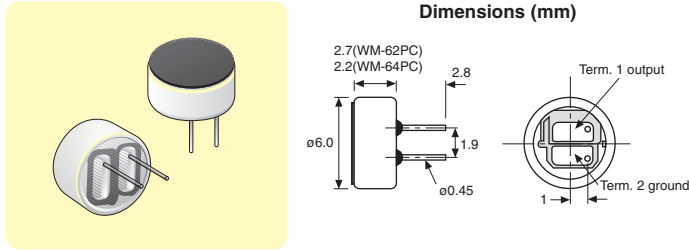
Types Covered	V <sub>s</sub>	R <sub>L</sub>
WM-62B	2V	2.2kΩ
WM-62A	2V	2.2kΩ
WM-66D	2V	2.2kΩ
WM-60A	2V	2.2kΩ
WM-52B	1.5V	3.0kΩ
WM-54B	2.5V	2.2kΩ
WM-55D	1.5V	680Ω
WM-034DB	1.5V	1.5kΩ
WM-034C	4.5V	2.2kΩ
WM-034D	1.5V	1.5kΩ

**Panasonic**

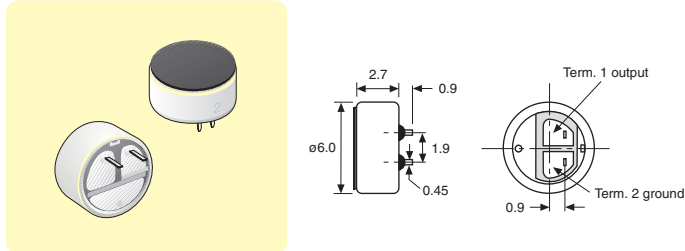
Other types available to special order

**ULTRA-MINIATURE (6mm nom. dia.)**

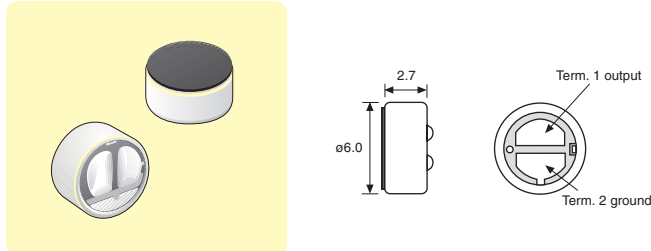
**Diagram 1 – WM-62PC/WM-64PC**



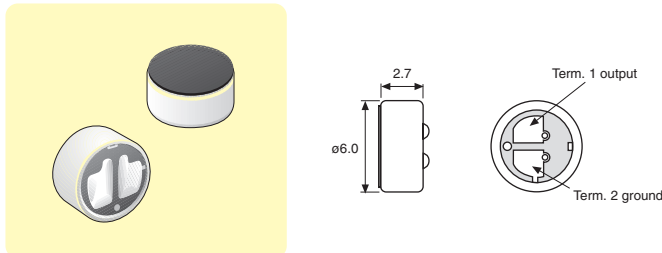
**Diagram 2 – WM-62B**



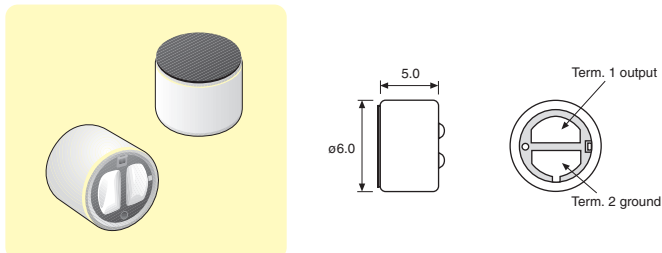
**Diagram 3 – WM-62CC/WM-62A**



**Diagram 4 – WM-66D**

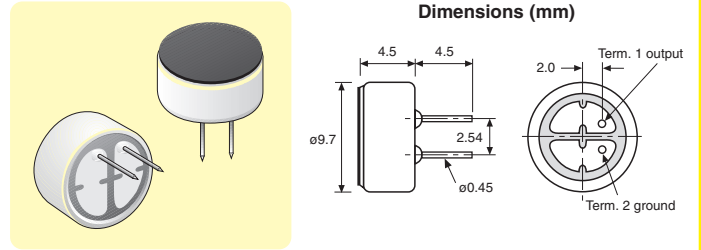


**Diagram 5 – WM-60A**

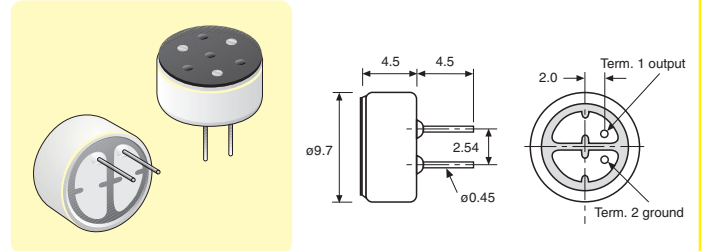


**SUB-MINIATURE (10mm nom. dia.)**

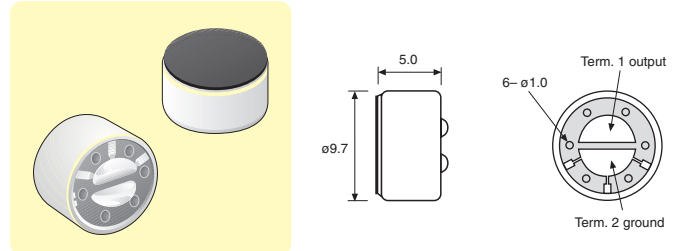
**Diagram 6 – WM-52B**



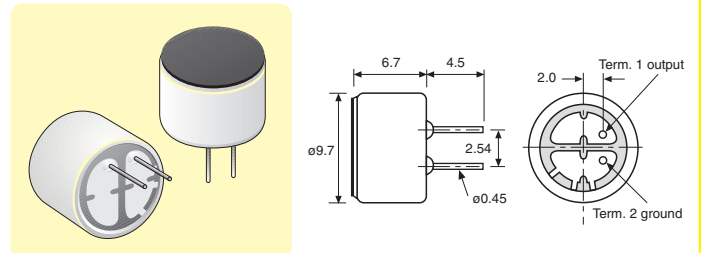
**Diagram 7 – WM-54B**



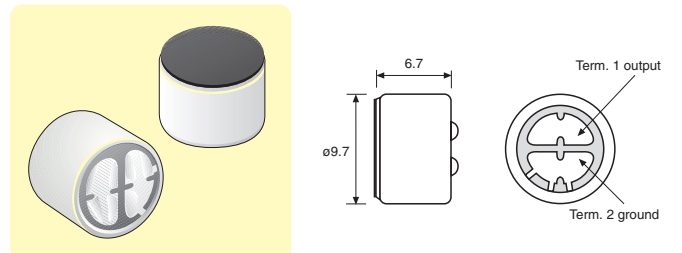
**Diagram 8 – WM-55D**



**Diagram 9 – WM-034DB**



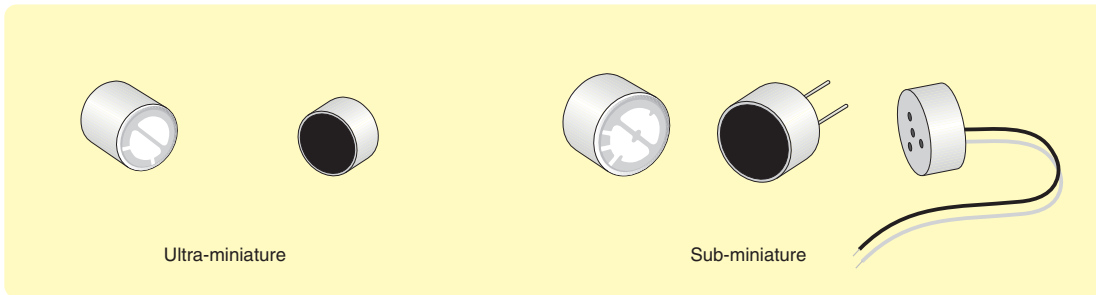
**Diagram 10 – WM-034C/WM-034D**



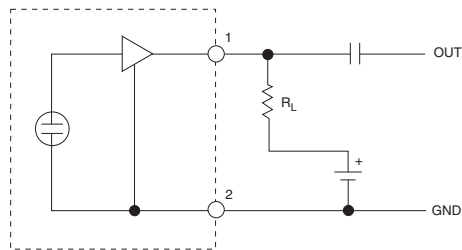
**MAGNETONE type OEM, MICROPHONE INSERTS (Electret)**

Omni-directional electret condenser microphone inserts available in two sizes: ultra-miniature, with a body diameter of 6mm and sub-miniature, with a body diameter of 9.7mm. Both sizes have the option of a standard or low profile body. Whilst all styles have solder pad terminations the sub-miniature size has an additional choice of termination method. All inserts are low impedance.

- ◆ Electret condenser microphone inserts
- ◆ Choice of size and profile
- ◆ Omni-directional
- ◆ Termination option on sub-miniature



Schematic



N.B. Sensitivity figures shown on the following page are measured in 'µbar'. To convert readings to 'Pascal' increase sensitivity by 20dB i.e. -58dB(0dB = 1V/µbar) = -38dB(0dB = 1V/Pa).

**ELECTRO-MAGNETIC & PIEZO-ELECTRIC SOUNDERS AND MINIATURE SPEAKERS**

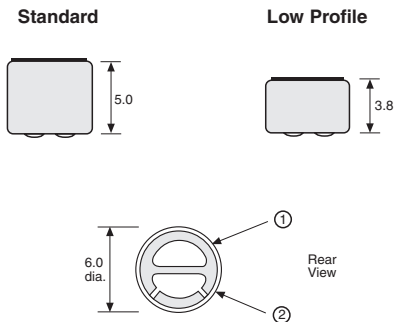
*refer to the Sounders section*

### ULTRA-MINIATURE

Option of standard or low profile 6mm dia. body, both with solder pad terminations. PCB pin and wire lead terminations are available to special order as well as other sensitivity levels.

**Specification**

Characteristic	Figure	Conditions
Frequency response	30Hz to 20kHz	
Sensitivity	-58dB $\pm$ 2dB	0dB = 1V/ $\mu$ bar, 1kHz $V_{CC} = 4.5V$ , $R_L = 2.2K\Omega$
Signal/noise ratio	> 30dB	
Sound pressure (SPL)	105dB max.	1kHz, 1mW, 3% distortion
Supply voltage	1.5V to 10Vdc	recommended voltage 4.5Vdc
Current drain	0.5mA max.	
Oper. temp. range	-30°C to +80°C (OEM601S) +60°C (OEM601SL)	

**Dimensions (mm) & Connections**

**Terminations**

Solder Pads

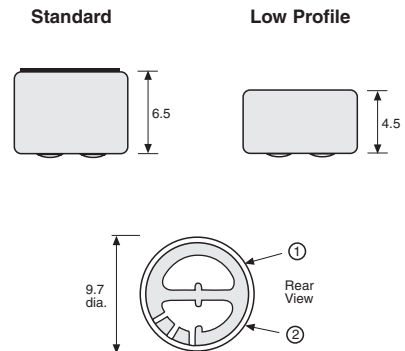
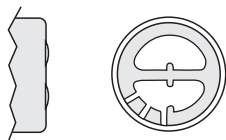
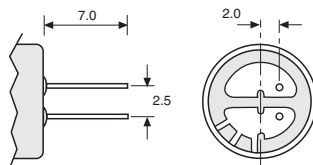
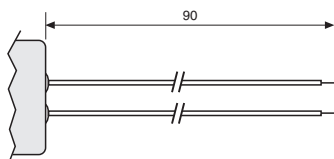
Manf. Part No. & anglia Order Code	
Standard	Low Profile
OEM601S	OEM601SL

### SUB-MINIATURE

Option of standard or low profile 9.7mm dia. body, both with choice of terminations as detailed below. Other sensitivity levels are available to special order.

**Specification**

Characteristic	Figure		Conditions
	Standard	Low Profile	
Frequency response	30Hz to 16kHz	20Hz to 16kHz	
Sensitivity	-58dB $\pm$ 2dB	-60dB $\pm$ 3dB	0dB = 1V/ $\mu$ bar, 1kHz $V_{CC} = 4.5V$ , $R_L = 2.2K\Omega$
Signal/noise ratio	> 40dB	> 40dB	
Sound pressure (SPL)	105dB max.	105dB max.	1kHz, 1mW, 3% distortion
Supply voltage	1.5V to 10Vdc	1.5 to 10Vdc	recommended voltage 4.5Vdc
Current drain	0.8mA max.	0.6mA max.	
Oper. temp. range	-30°C to +80°C		

**Dimensions (mm) & Connections**

**Termination Options**
**Solder Pads**

**PCB Pins**

**Wire Leads**

**Terminations**

 Solder Pads  
 PCB Pins  
 Wire Leads

Manf. Part No. & anglia Order Code	
Standard	Low Profile
OEM601	OEM631L
OEM602	OEM632L
OEM603	OEM633L