

Non-washable

MLT-HH series

MLT-03HH

As for non washable products, dip soldering should not be implemented.

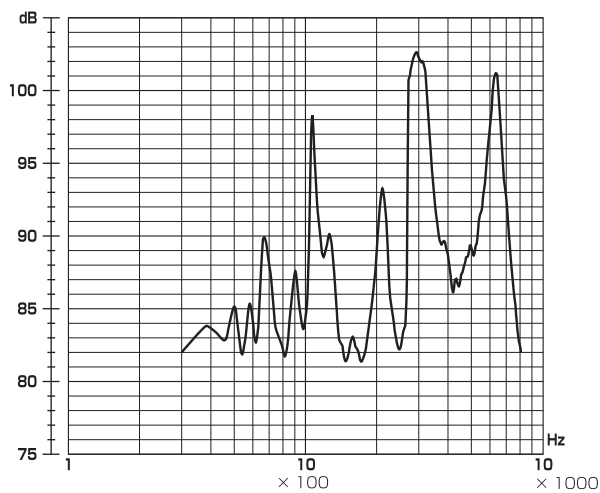
Reflow

Auto Mounting

Upper Sound Port

Patent

Frequency Response



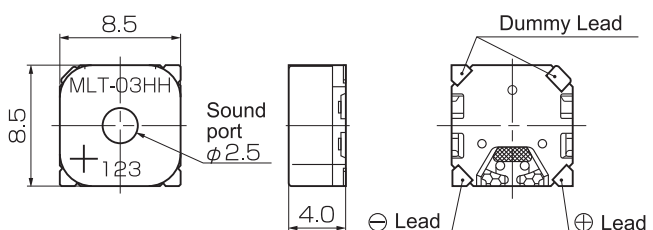
applied voltage : 3.6V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm with recommended cavity

Specifications

Type		MLT-03HH
Rated Voltage (V)		3.6
※ Mean Current Consumption (mA)		MAX100
Coil Resistance (Ω)		17 $\pm$ 3
※ SPL at MIN10cm (dBA)		MIN96(TYP102)
Rated Frequency (Hz)		3,000
Operating Voltage (V)		MAX4.5
Operating Temperature ($^{\circ}$ C)		-30 $\sim$ +70
Storage Temperature ($^{\circ}$ C)		-40 $\sim$ +85
Mass (g)		0.5

※Value applying rated voltage(2,670Hz, $\frac{1}{2}$ duty, square wave)Dimensions [size : 8.5 $\times$ 8.5 $\times$ 4mm]

unit : mm/housing material : LCP



Non-washable

MLT-G series

MLT-03GC

As for non washable products, dip soldering should not be implemented.

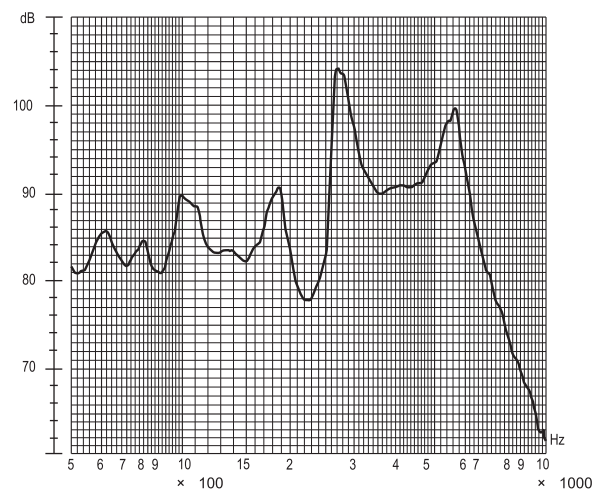
Reflow

Auto Mounting

Side Sound Port

Patent

Frequency Response



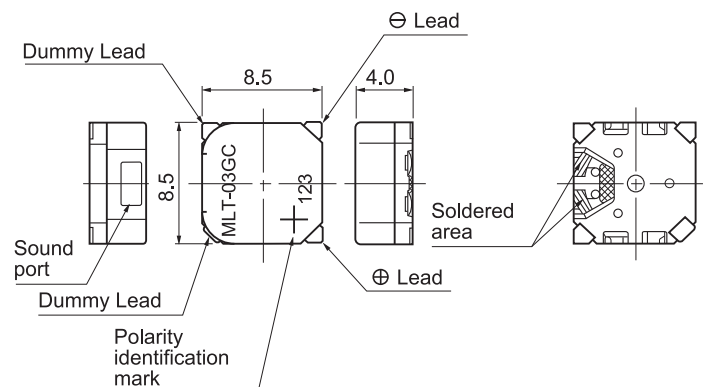
applied voltage : 3.6V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm with recommended cavity

Specifications

Type		MLT-03GC
Rated Voltage (V)		3.6
※ Mean Current Consumption (mA)		MAX100
Coil Resistance (Ω)		17 $\pm$ 3
※ SPL at MIN10cm (dBA)		MIN94(TYP103)
Rated Frequency (Hz)		2,700
Operating Voltage (V)		MAX4.5
Operating Temperature ($^{\circ}$ C)		-30 $\sim$ +70
Storage Temperature ($^{\circ}$ C)		-40 $\sim$ +85
Mass (g)		0.5

※Value applying rated voltage(2,700Hz, $\frac{1}{2}$ duty, square wave)Dimensions [size : 8.5 $\times$ 8.5 $\times$ 4mm]

unit : mm/housing material : LCP



Non-washable

NAT

series

Reflow type buzzer for Automotive



NAT-05A

NAT-12V

As for non washable products, dip soldering should not be implemented.

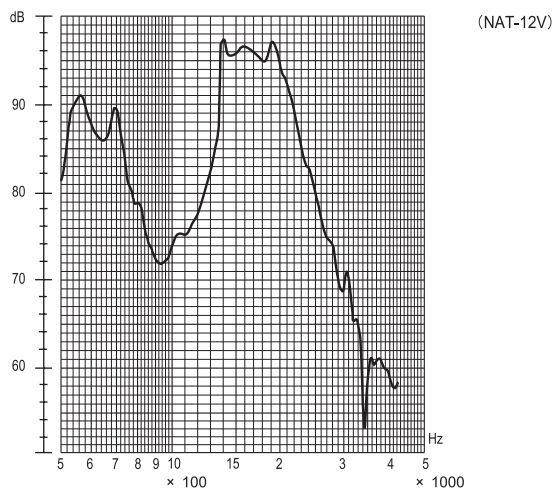
Reflow

Auto Mounting

Upper Sound Port

Patent

Frequency Response



applied voltage : 12V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

Specifications

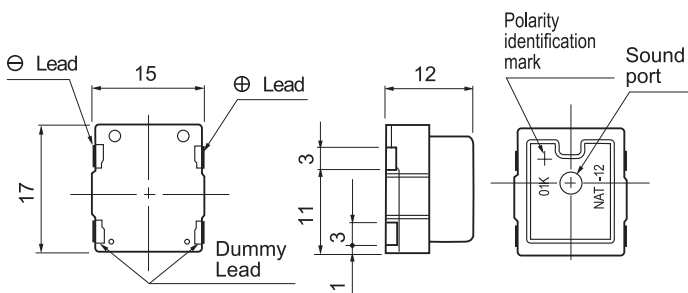
Type	NAT-05A	NAT-12V
Rated Voltage (V)	5	12
※ Mean Current Consumption (mA)	MAX80	MAX55
Coil Resistance (Ω)	30 $\pm$ 5	120 $\pm$ 10
※ SPL at MIN10cm (dBA)	MIN88(TYP95)	MIN88(TYP95)
Rated Frequency (Hz)	2,000	
Frequency Band (Hz)	1,700~2,300	
Operating Voltage (V)	MAX7	MAX16
Operating Temperature ($^{\circ}$ C)	-40~+85	
Storage Temperature ($^{\circ}$ C)	-40~+85	
Mass (g)	3	

※Value applying rated voltage(2000Hz, $\frac{1}{2}$ duty, square wave)

Dimensions [size : 15 $\times$ 17 $\times$ 12mm]

unit : mm/housing material : PA6T

(NAT-12V)



Non-washable

QMB-105

series

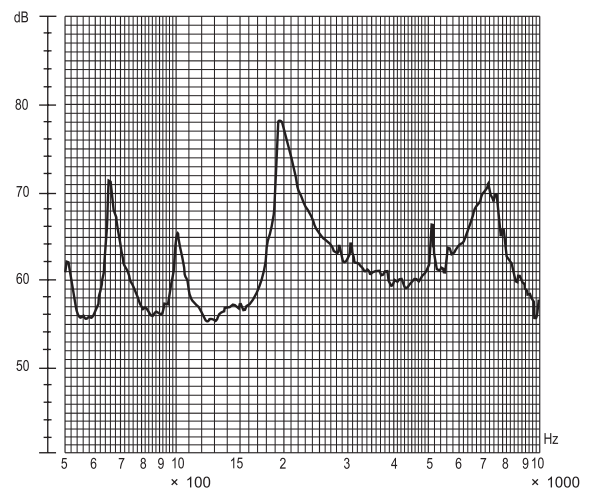


QMB-105P

As for non washable products, dip soldering should not be implemented.

Upper Sound Port

Frequency Response



applied voltage : 1.5V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

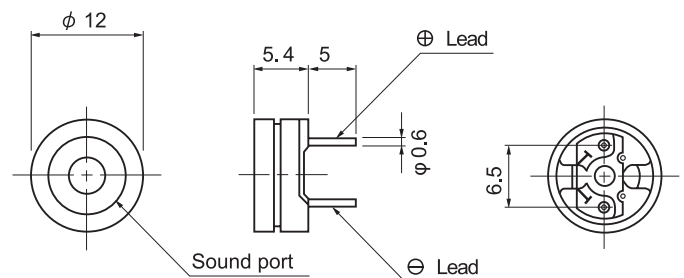
Specifications

Type	QMB-105P
Rated Voltage (V)	1.5
※ Mean Current Consumption (mA)	MAX10(TYP9.1)
Coil Resistance (Ω)	50 $\pm$ 7.5
※ SPL at MIN10cm (dBA)	MIN70(TYP77)
Rated Frequency (Hz)	2,048
Operating Voltage (V)	MAX2
Operating Temperature ($^{\circ}$ C)	-20~+60
Storage Temperature ($^{\circ}$ C)	-30~+70
Mass (g)	2

※Value applying rated voltage(2,048Hz, $\frac{1}{2}$ duty, square wave)

Dimensions [size : ϕ 12 $\times$ 5.4mm]

unit : mm/housing material : PPE-M



Magnetic Sounder

Non-washable type

Washable type

Magnetic Buzzer

Dynamic Speaker

Technical data

Non-washable

QMB-108

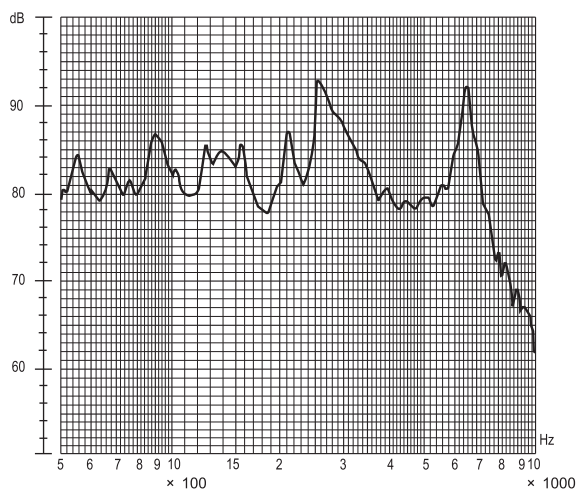
series

**QMB-108P**

As for non washable products, dip soldering should not be implemented.

Upper Sound Port

Frequency Response



applied voltage : 1.5V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

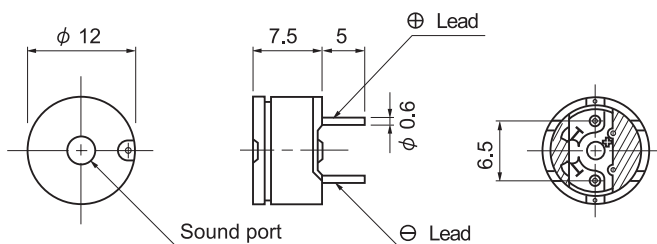
Specifications

Type	QMB-108P
Rated Voltage (V)	1.5
※ Mean Current Consumption (mA)	MAX60(TYP51)
Coil Resistance (Ω)	6.5 $\pm$ 1
※ SPL at MIN10cm (dBA)	MIN85(TYP90)
Rated Frequency (Hz)	2,743
Operating Voltage (V)	MAX2
Operating Temperature ($^{\circ}$ C)	-20 $\sim$ +60
Storage Temperature ($^{\circ}$ C)	-30 $\sim$ +70
Mass (g)	1.6

※Value applying rated voltage(2,743Hz, $\frac{1}{2}$ duty, square wave)

Dimensions [size : ϕ 12 $\times$ 7.5mm]

unit : mm/housing material : PPE-M



Non-washable

QMB-111

series

**QMB-111PN****QMB-111GPN****QMB-111PC**

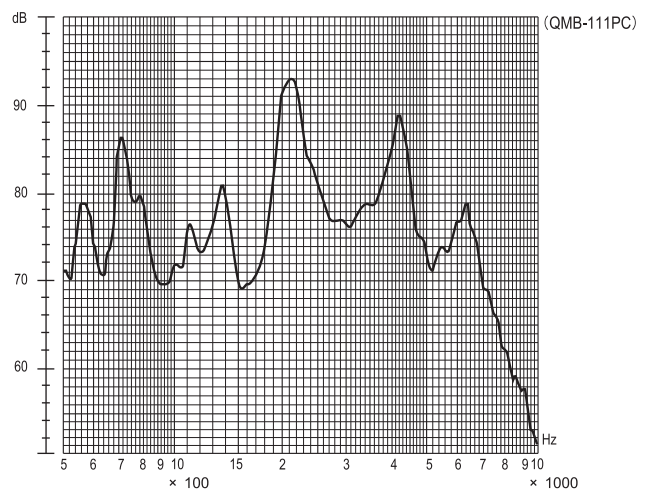
※) With lead wire is available (Standard length : 110mm, 60mmPN, GPN type)

As for non washable products, dip soldering should not be implemented.

Upper Sound Port

Patent

Frequency Response



applied voltage : 5V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

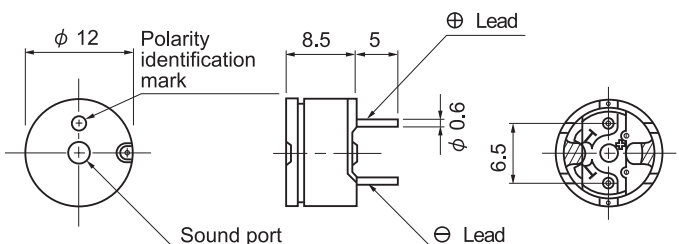
Specifications

Type	QMB-111PN	QMB-111GPN	QMB-111PC
Rated Voltage (V)	1.5		5
※ Mean Current Consumption (mA)	MAX10(TYP8.3)	MAX35(TYP26)	MAX40(TYP31)
Coil Resistance (Ω)	50 $\pm$ 7.5	16 $\pm$ 4.5	50 $\pm$ 7.5
※ SPL at MIN10cm (dBA)	MIN80(TYP87)	MIN85(TYP91)	MIN85(TYP92)
Rated Frequency (Hz)		2,048	2,000
Operating Voltage (V)		MAX2	MAX5
Operating Temperature ($^{\circ}$ C)		-20 $\sim$ +60	
Storage Temperature ($^{\circ}$ C)		-30 $\sim$ +70	
Mass (g)		2	

※Value applying rated voltage(rated frequency, $\frac{1}{2}$ duty, square wave)

Dimensions [size : ϕ 12 $\times$ 8.5mm]

unit : mm/housing material : PPE-M



Non-washable / Washable

QMX series



QMX-05

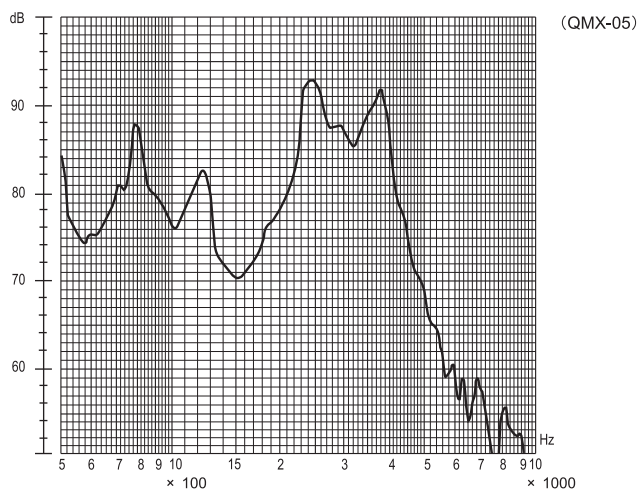
QMX-12

Dip

Wide Frequency

Upper Sound Port

Frequency Response



applied voltage : 5V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

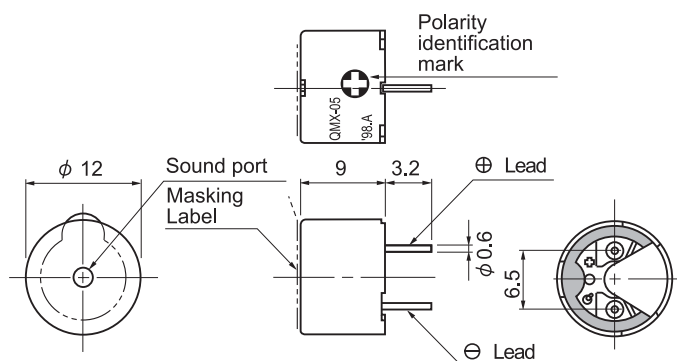
Specifications

Type	QMX-05	QMX-12
Rated Voltage (V)	5	12
※ Mean Current Consumption (mA)	MAX40(TYP33)	MAX40(TYP28)
Coil Resistance (Ω)	47 $\pm$ 5	140 $\pm$ 14
※ SPL at MIN10cm (dBA)	MIN85(TYP92)	
Rated Frequency (Hz)	2,400	
Operating Voltage (V)	MAX8	MAX15
Operating Temperature ($^{\circ}$ C)	-40 $\sim$ +85	
Storage Temperature ($^{\circ}$ C)	-40 $\sim$ +85	
Mass (g)	2	

※Value applying rated voltage(2,400Hz, $\frac{1}{2}$ duty, square wave)

Dimensions [size : ϕ 12 $\times$ 9mm]

unit : mm/housing material : PPE-M



Non-washable / Washable

HGP series



HGP-05AM

HGP-12AM

Dip

Wide Frequency

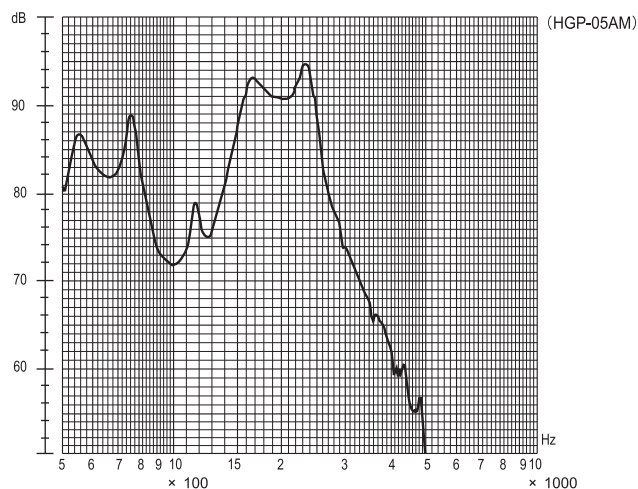
Low Frequency

Case Color : blue

Patent

Upper Sound Port

Frequency Response



applied voltage : 5V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

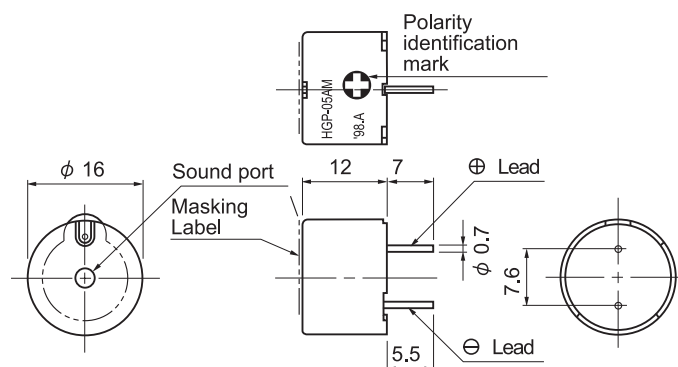
Specifications

Type	HGP-05AM	HGP-12AM
Rated Voltage (V)	5	12
※ Mean Current Consumption (mA)	MAX70(TYP55)	MAX50(TYP30)
Coil Resistance (Ω)	28 $\pm$ 6	135 $\pm$ 20
※ SPL at MIN10cm (dBA)	MIN85(TYP90)	MIN85(TYP91)
Frequency Band (Hz)	1,700 $\sim$ 2,200	
Operating Voltage (V)	MAX8	MAX15
Operating Temperature ($^{\circ}$ C)	-40 $\sim$ +90	
Storage Temperature ($^{\circ}$ C)	-40 $\sim$ +100	
Mass (g)	4	

※Value applying rated voltage(2,000Hz, $\frac{1}{2}$ duty, square wave)

Dimensions [size : ϕ 16 $\times$ 12mm]

unit : mm/housing material : PPE-M



Magnetic Sounder

Non-washable type

Washable type

Magnetic Buzzer

Dynamic Speaker

Technical data

Non-washable / Washable

RMX series

RMX-06

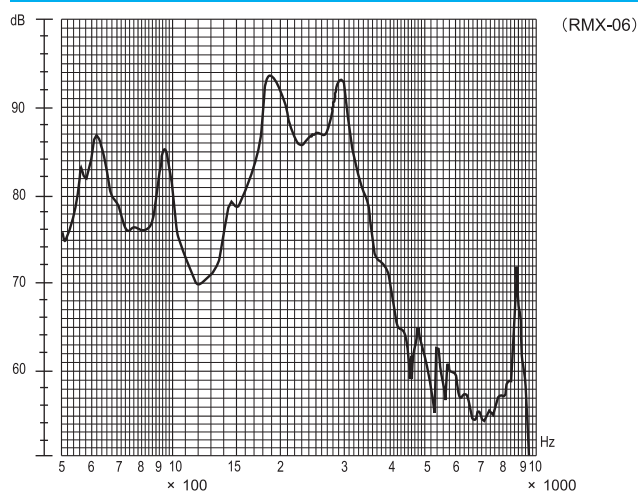
RMX-12Y

Dip

Wide Frequency

Upper Sound Port

Frequency Response



applied voltage : 6V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

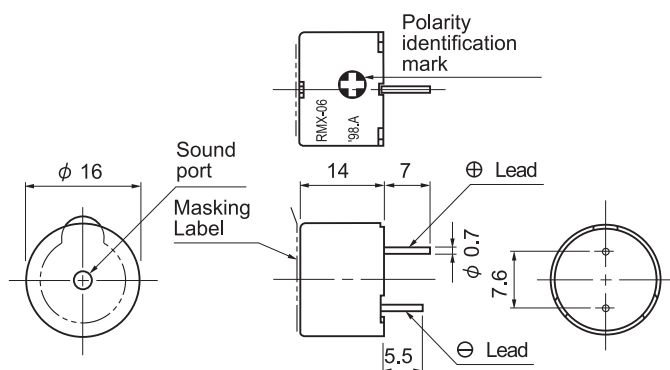
Specifications

Type	RMX-06	RMX-12Y
Rated Voltage (V)	6	12
※ Mean Current Consumption (mA)	MAX40(TYP33)	MAX40(TYP32)
Coil Resistance (Ω)	45 $\pm$ 7	115 $\pm$ 17
※ SPL at MIN10cm (dBA)	MIN85(TYP93)	MIN85(TYP96)
Frequency Band (Hz)	2,048	
Reproduced Frequency (Hz)	2,000~3,000	
Operating Voltage (V)	MAX12	MAX18
Operating Temperature ($^{\circ}$ C)	-40~+85	
Storage Temperature ($^{\circ}$ C)	-40~+85	
Mass (g)	5	

※Value applying rated voltage(2,048Hz, $\frac{1}{2}$ duty, square wave)

Dimensions [size : $\phi 16 \times 14$ mm]

unit : mm/housing material : PBT



Non-washable / Washable

QMB series

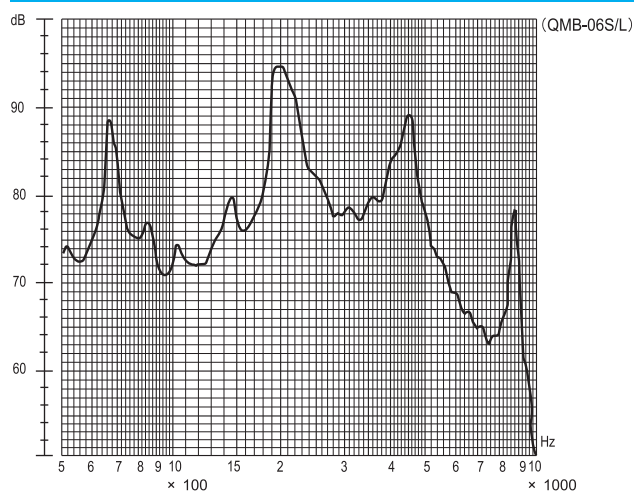
QMB-06S/L

QMB-12S/L

Dip

Upper Sound Port

Frequency Response



applied voltage : 6V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

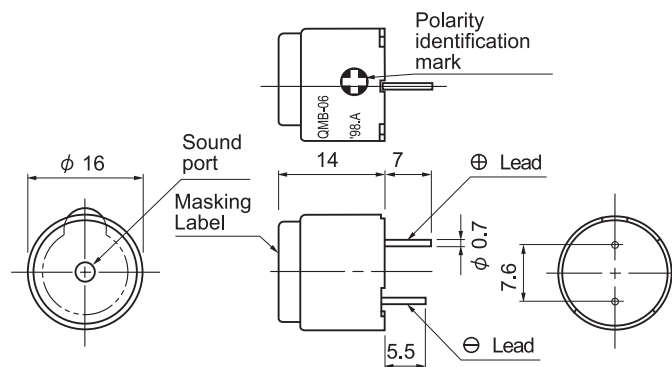
Specifications

Type	QMB-06S/L	QMB-12S/L
Rated Voltage (V)	6	12
※ Mean Current Consumption (mA)	MAX40(TYP35)	MAX40(TYP32)
Coil Resistance (Ω)	47 $\pm$ 7	115 $\pm$ 17
※ SPL at MIN10cm (dBA)	MIN85(TYP94)	MIN85(TYP97)
Rated Frequency (Hz)	2,048	
Operating Voltage (V)	MAX12	MAX18
Operating Temperature ($^{\circ}$ C)	-40~+100	
Storage Temperature ($^{\circ}$ C)	-40~+100	
Mass (g)	7	

※Value applying rated voltage(2,048Hz, $\frac{1}{2}$ duty, square wave)

Dimensions [size : $\phi 16 \times 14$ mm]

unit : mm/housing material : PPE-M



Washable

TMX-F series



TMX-12F

※) Please request label type if you need washable.

Dip

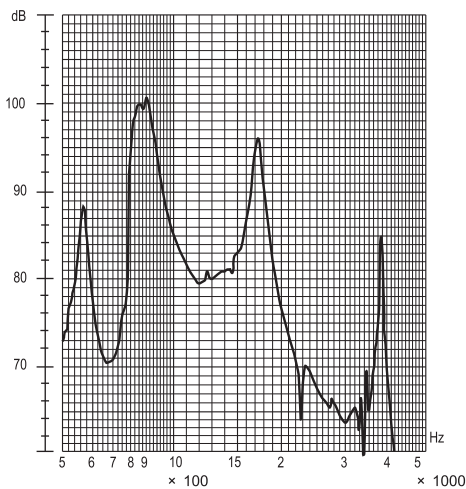
High SPL

Patent

Low Frequency

Upper Sound Port

Frequency Response



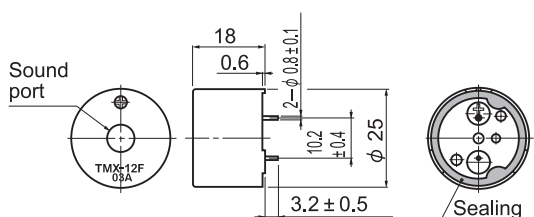
applied voltage : 12V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

Specifications

Type	TMX-12F
Rated Voltage (V)	12
※ Mean Current Consumption (mA)	MAX40
Coil Resistance (Ω)	180 $\pm$ 25
※ SPL at MIN10cm (dBA)	MIN95(TYP99)
Rated Frequency (Hz)	850
Operating Voltage (V)	MAX16
Operating Temperature ($^{\circ}$ C)	-40 $\sim$ +85
Storage Temperature ($^{\circ}$ C)	-40 $\sim$ +120
Mass (g)	9

※Value applying rated voltage(850Hz, $\frac{1}{2}$ duty, square wave)Dimensions [size : ϕ 25 $\times$ 18mm]

unit : mm/housing material : PPE-M



Washable

TMX-H series



TMX-03H

TMX-05H

TMX-12H

※) Please request label type if you need washable.

Dip

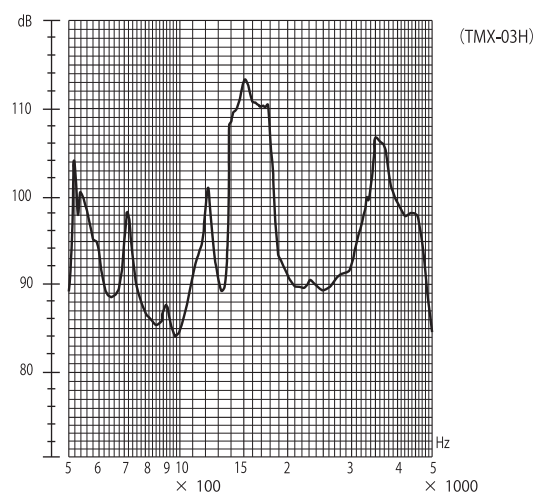
High SPL

Patent

Low Frequency

Upper Sound Port

Frequency Response



applied voltage : 12V, square wave : $\frac{1}{2}$ duty,
distance for measurement : 10cm

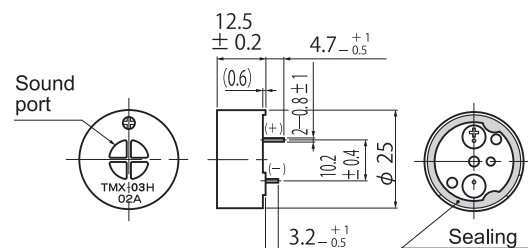
Specifications

Type	TMX-03H	TMX-05H	TMX-12H
Rated Voltage (V)	3.6	5	12
※ Mean Current Consumption (mA)	MAX300	MAX80	MAX55
Coil Resistance (Ω)	4.5±0.5	30±5	120±15
※ SPL at MIN10cm (dBA)	MIN106(TYP110)	MIN104(TYP110)	
Rated Frequency (Hz)	1,500		
Operating Voltage (V)	MAX5	MAX6	MAX16
Operating Temperature (°C)	−40∼+80	−40∼+85	
Storage Temperature (°C)	−40∼+80	−40∼+120	
Mass (g)	9		

※Value applying rated voltage(1,500Hz, $\frac{1}{2}$ duty, square wave)Dimensions [size : ϕ 25 $\times$ 12.5mm]

unit : mm/housing material : PPE-M

(TMX-03H)



Magnetic Sounder

Non-washable type

Washable type

Magnetic Buzzer

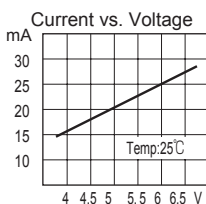
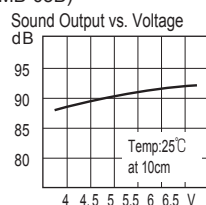
Dynamic Speaker

Technical data

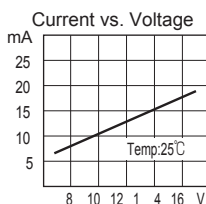
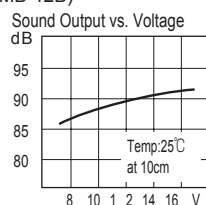
Electric Sound type (Non-washable / Washable)

TMB series**TMB-05B****TMB-12B****Dip****Low Consumption****Upper Sound Port****Characteristics**

(TMB-05B)



(TMB-12B)

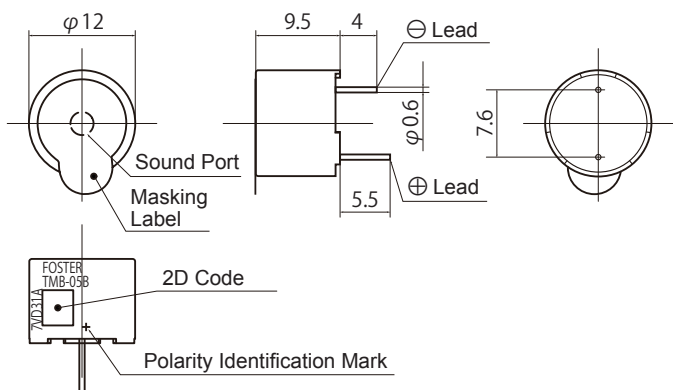
**Specifications**

Type	TMB-05B	TMB-12B
Rated Voltage (V)	5	12
Operating Voltage (V)	4~6.5	8~16
※ Mean Current Consumption (mA)	MAX30(TYP22)	MAX30(TYP15)
※ SPL at MIN10cm (dBA)	MIN85(TYP90)	
※ Basic Frequency (Hz)	2,300±300	
☆ Response Time (msec)	MAX50	
Operating Temperature (°C)	-40~+85	
Storage Temperature (°C)	-40~+105	
Mass (g)	2	

※ Value applying rated voltage ☆ Value applying min. operating voltage

Dimensions [size : $\phi 12 \times 9.5\text{mm}$]

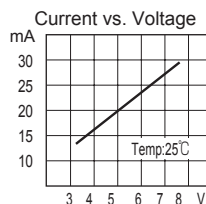
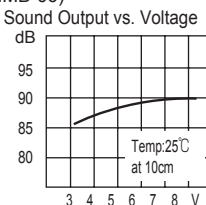
unit : mm / housing material : PPE (※) Longer pin is (+) polarity



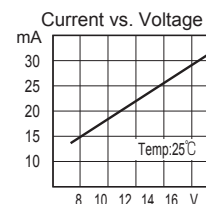
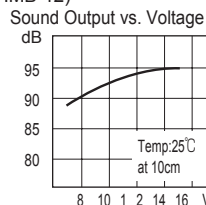
Electric Sound type (Non-washable / Washable)

HMB series**HMB-06****HMB-12****Dip****Low Consumption****Upper Sound Port****Characteristics**

(HMB-06)



(HMB-12)

**Specifications**

Type	HMB-06	HMB-12
Rated Voltage (V)	6	12
Operating Voltage (V)	4~7	8~16
※ Mean Current Consumption (mA)	MAX30(TYP27)	MAX30(TYP25)
※ SPL at MIN10cm (dBA)	MAX85(TYP90)	MAX85(TYP91)
※ Basic Frequency (Hz)	2,200±300	
☆ Response Time (msec)	MAX50	
Operating Temperature (°C)	-40~+85	
Storage Temperature (°C)	-40~+85	
Mass (g)	5	

※ Value applying rated voltage ☆ Value applying min. operating voltage

Dimensions [size : $\phi 16 \times 14.5\text{mm}$]

unit : mm / housing material : PPE-M (※) Longer pin is (+) polarity

