

◆Reflow type for Automobile (Non-washable)

Type	Model	Dimensions (mm)	Rated Voltage (V)	Operating Voltage (V)	Rated Frequency (Hz)	SPL (dBA) 〈MIN(10cm)〉	Frequency Band (Hz) 〈MIN80dB〉	Mean Current Consumption (mA) 〈MAX〉	Operating Temperature (°C)	Mass (g)	Page
NAT	NAT-05A	15×17×12	5	~7	2,000	88	1,700~2,300	80	-40~+85	3	17
	NAT-12V		12	~16	2,000	90	1,700~2,300	75	-40~+85	3	17



NAT-05A
NAT-12V

Buzzer

●Electric sound type (Washable) (Note 3)

Type	Model	Dimensions (mm)	Rated Voltage (V)	Operating Voltage (V)	Rated Frequency (Hz)	SPL (dBA) 〈MIN(10cm)〉	Mean Current Consumption (mA) 〈MAX〉	Operating Temperature (°C)	Mass (g)	Page
TMB	TMB-05	φ12×9.5	5	4~6.5	2,300±300	85	30	-40~+85	2	19
	TMB-12		12	8~16	2,300±300	85	30	-40~+85	2	19
HMB	HMB-06	φ16×14.5	6	4~7	2,200±300	85	30	-40~+85	5	19
	HMB-12		12	8~16	2,200±300	85	30	-40~+85	5	19



TMB-05
TMB-12



HMB-06
HMB-12

Dynamic Speaker

●Non-washable for Automobile

Type	Model	Dimensions (mm)	Nominal Input (W)	Max Input (W)	Impedance (Ω)	Resonance Frequency (Hz)	SPL (dBA) 〈MIN(10cm)〉	Operating Temperature (°C)	Preservation Temperature (°C)	Mass (g)	Page
SAC	SAC-30C	φ33.8×7	0.2	0.4	8±2	—	92	-40~+105	-40~+120	8.3	21
	SAC-30D	φ31.5×14.8	0.2	0.4	8±2	—	92	-40~+105	-40~+120	8.3	21
SAE	SAE-20A	20×20×4.5	0.5	0.8	8±1.6	850±100	95±3	-40~+85	-40~+105	3.0	22
NDT	NDT-03C	15×15×4	0.5	0.8	8±1.6	800±100	90±3	-30~+85	-40~+105	1.6	22



SAC-30C



SAC-30D



SAE-20A



NDT-03C

Note 1 : Please contact us for conditions. These are Non-washable.

Note 2 : (dBA) = dB(A-weighting)

Note 3 : Please refer to page 29.

Electric Sound type (Washable)

TMB series



TMB-05

TMB-12

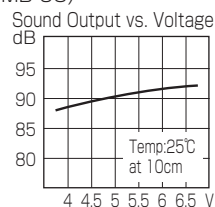
Dip

Low Consumption

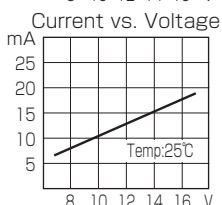
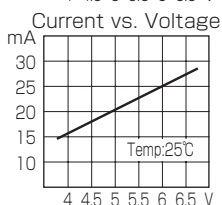
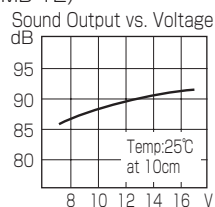
Upper Sound Port

Characteristics

(TMB-05)



(TMB-12)



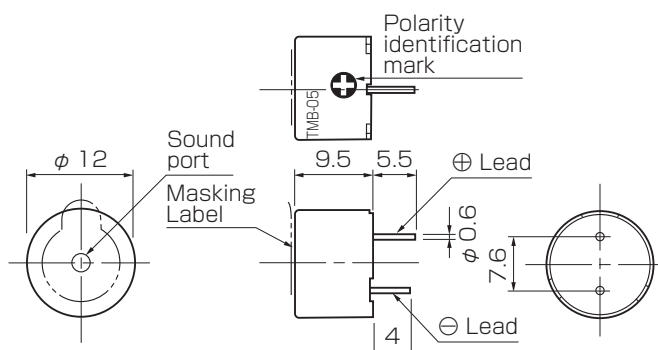
Specifications

Type	TMB-05	TMB-12
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~+85	
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-M (※)Longer pin is (+) polarity



Electric Sound type (Washable)

HMB series



HMB-06

HMB-12

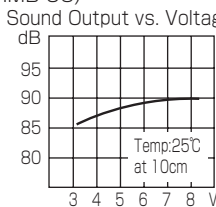
Dip

Low Consumption

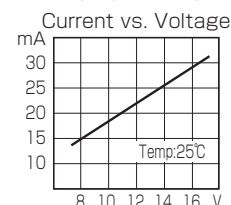
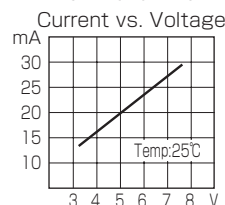
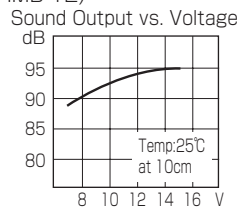
Upper Sound Port

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

