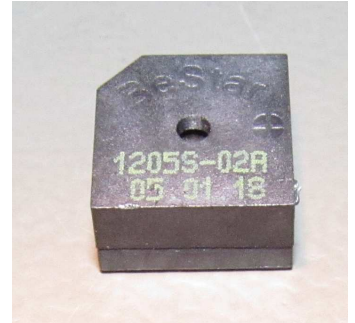


# BME 1205S-02 A

## MAGNETIC BUZZER

### CONTENT

1. Specifications
2. Drawing
3. Test Method
4. Reliability Test
5. Surface Mounting Condition
6. Packing
7. Notice
8. History Change Record



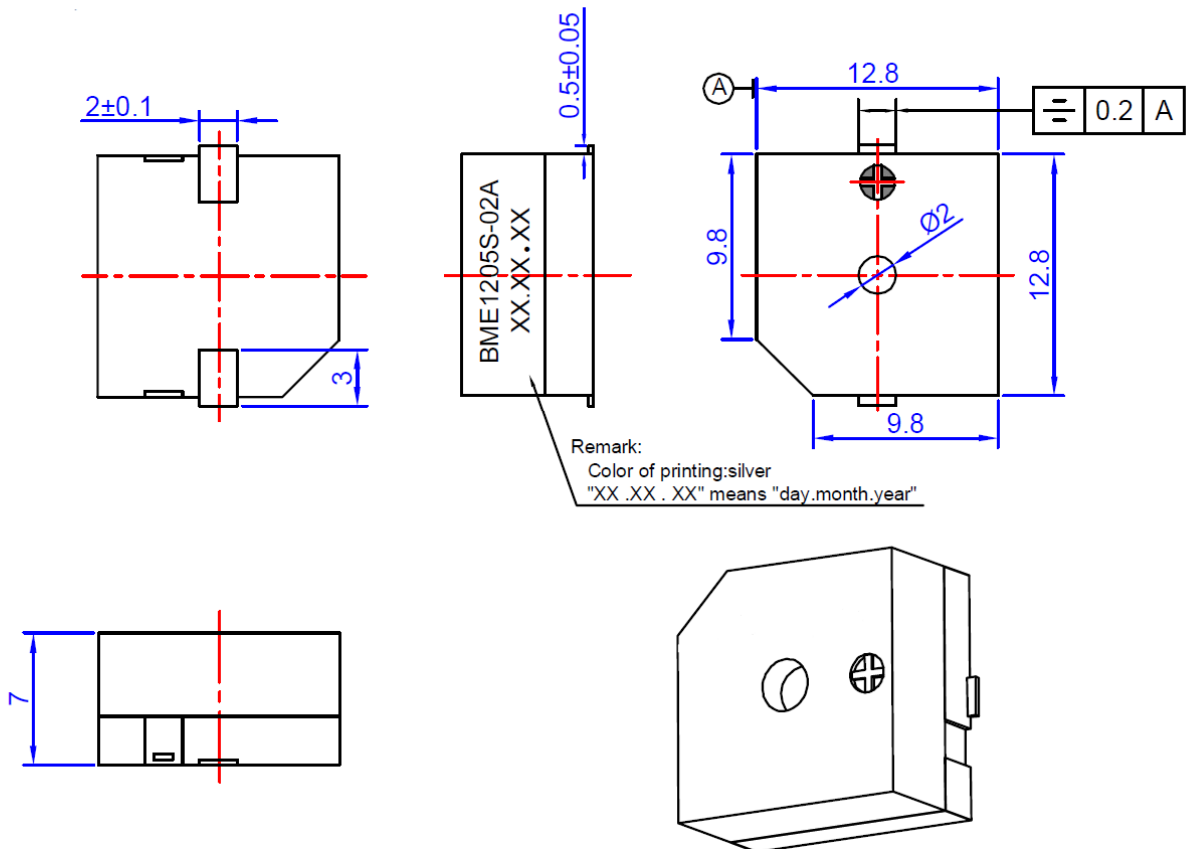
### 1. SPECIFICATIONS

Parameter	Unit	Conditions / Description	MIN	TYP	MAX
Operating Voltage	Vo-p		4		7
Rated Voltage	Vo-p			5	
SPL	dB	At 10cm, applying rated voltage (2400Hz, 1/2 duty, square wave)	90		98
Rated Current	mA	Applying rated voltage (2400Hz, 1/2 duty, square wave)			40
Resonance Frequency	Hz		2.200	2.400	2.600
Coil Resistance	$\Omega$		40	45	50
Impedance	$\Omega$	Applying 2400Hz, sine wave, measuring current 60 $\mu$ A		80	
Contact				SMD	
Housing Colour				BLACK	
Operating Temperature	$^{\circ}$ C		-40		+85
Storage Temperature	$^{\circ}$ C		-40		+90
Weight	g			2	

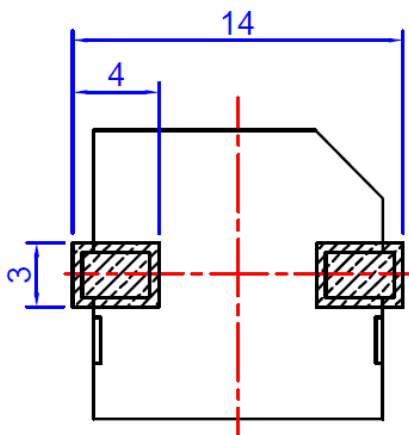
DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	BME 1205S-02 A	INDEX	A
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02				
CHANGED BY	Rabea Richter	DATE	2019.07.31				
DRAWING NO.	399963814						

## 2. DRAWING

### 2.1 DIMENSIONS

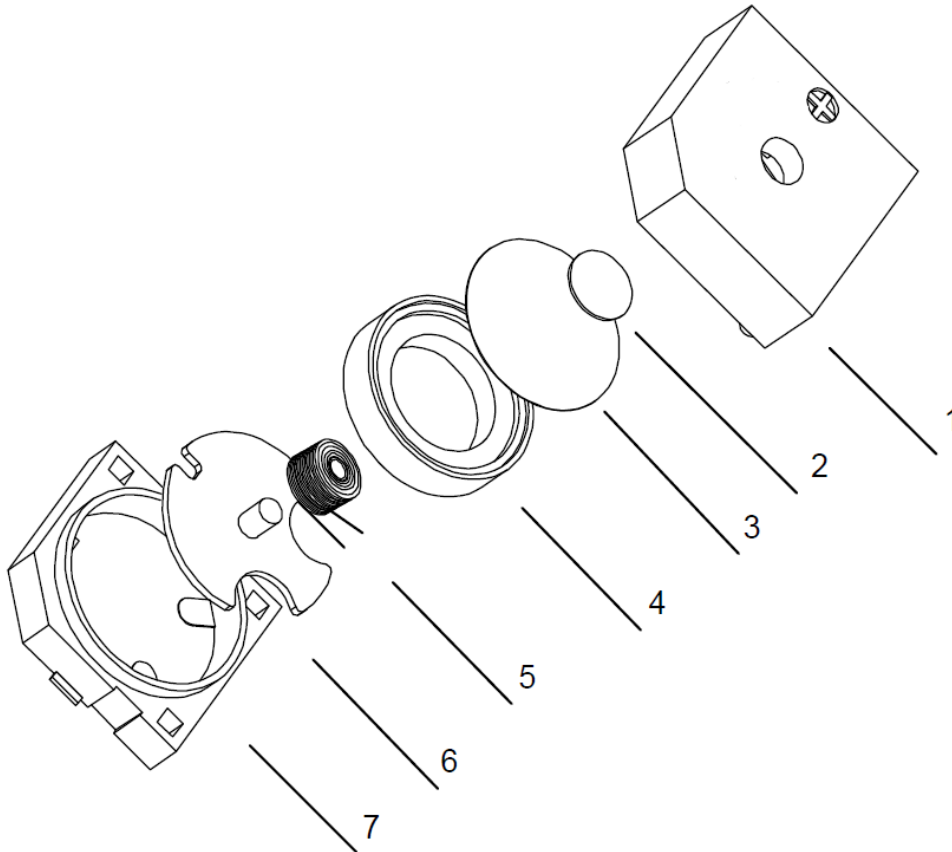


### 2.2 RECOMMENDED LAND PATTERN



DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	BME 1205S-02 A	INDEX	A
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02				
CHANGED BY	Rabea Richter	DATE	2019.07.31				
DRAWING NO.	399963814						

## 2.3 PART LIST



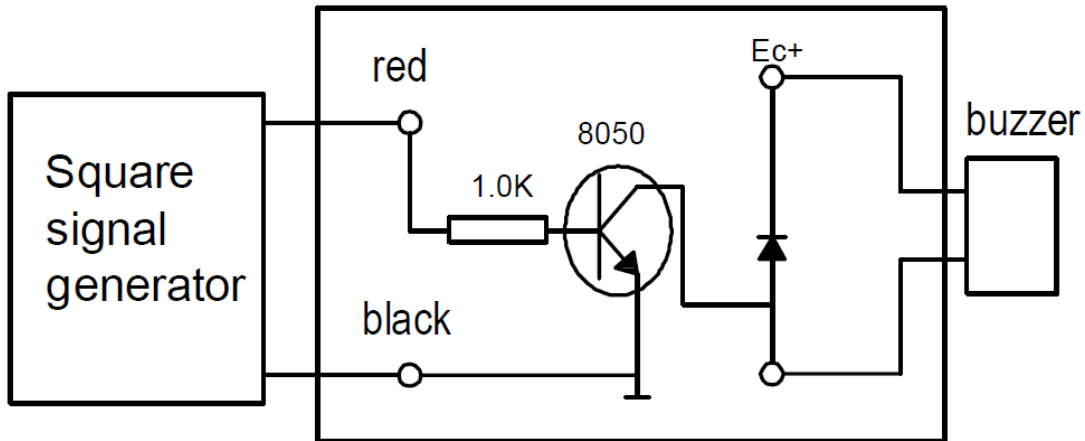
No.	Part Name	Material	
1	Cover	PPS	
2	Magnet Piece	SPCC	
3	Membrane	NiFe52	
4	Magnet Ring	HM-1618	
5	Voice Coil	Cu	
6	T-Yoke	DT4E+SPCC	
7	Housing	LCP+Cu	

DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	BME 1205S-02 A	INDEX	A
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02				
CHANGED BY	Rabea Richter	DATE	2019.07.31				
DRAWING NO.	399963814						

### 3. TEST METHOD

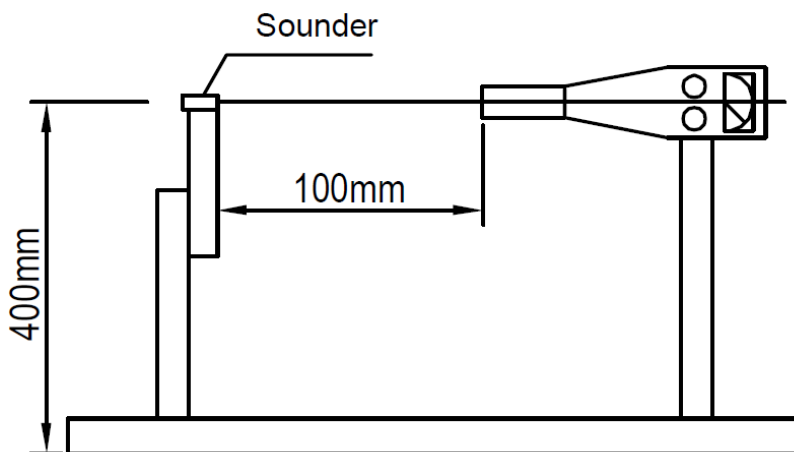
#### 3.1 RECOMMENDED CIRCUIT

The following are examples of externally driven circuits



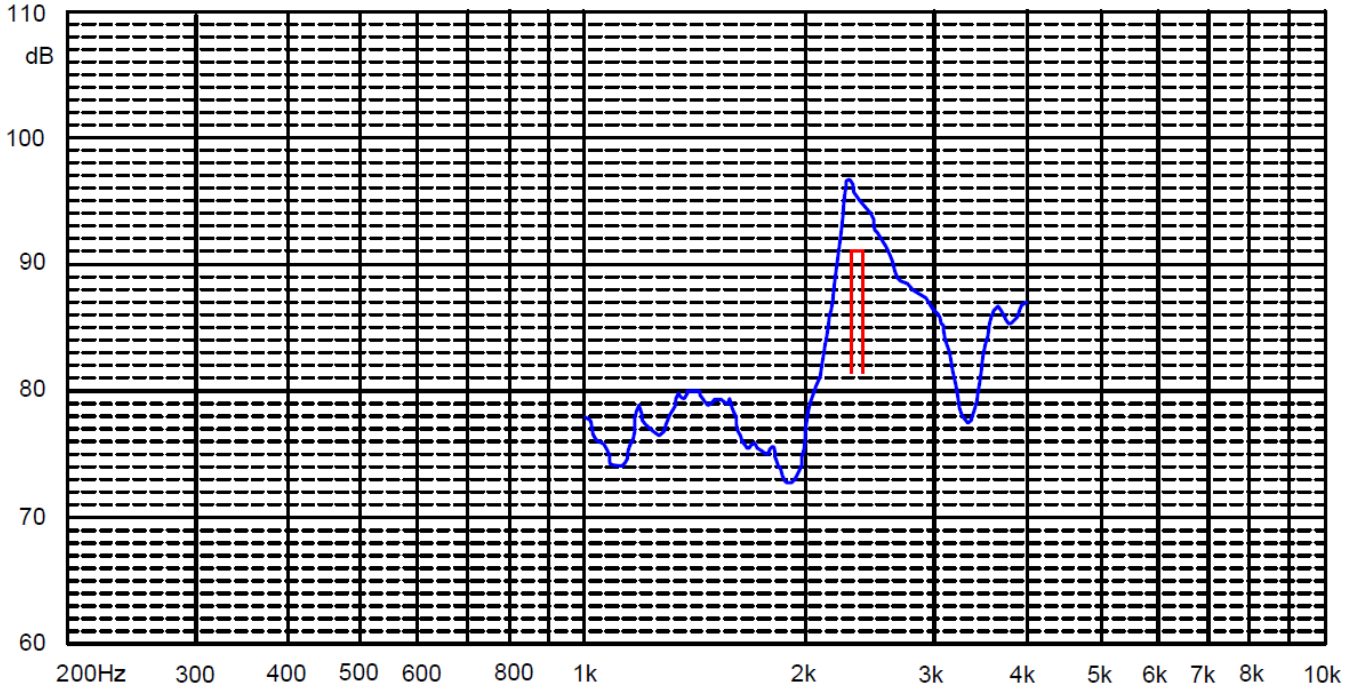
#### 3.2 STANDARD TEST FIXTURE

No reaction in space with in 400mm in all direction

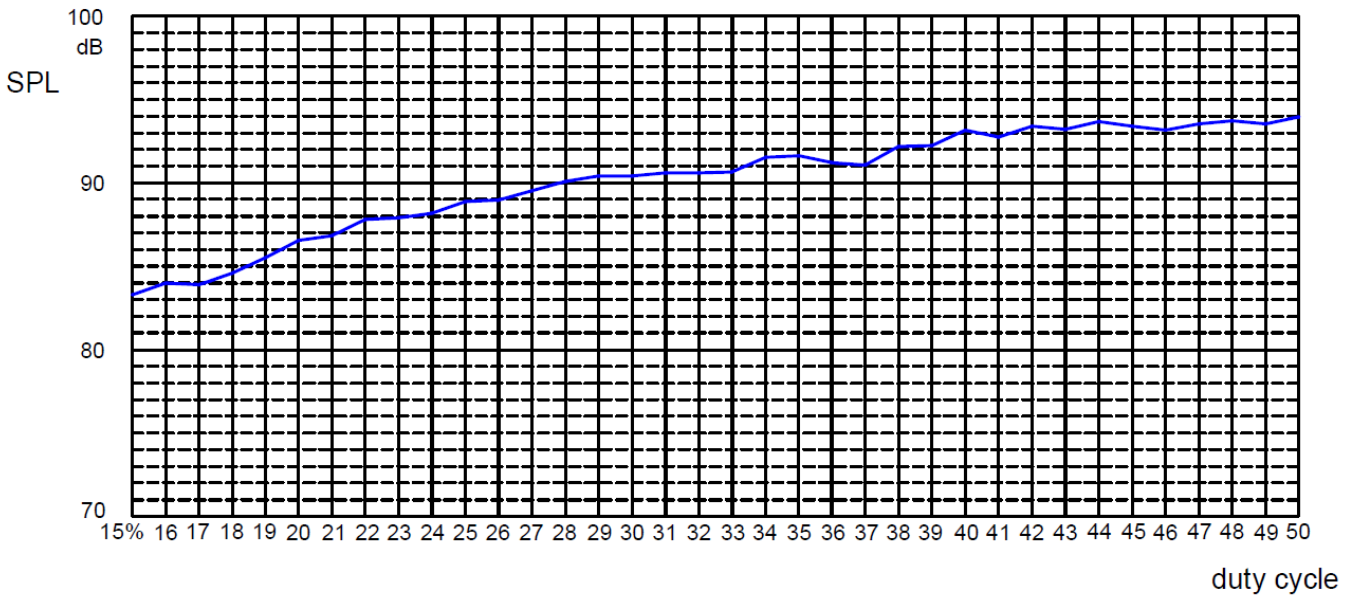


DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	BME 1205S-02 A	INDEX
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02			A
CHANGED BY	Rabea Richter	DATE	2019.07.31			
DRAWING NO.	399963814					

**3.3 FREQUENCY RESPONSE CURVE (Square wave, 5Vo-p, 1/2 duty, 10cm)**



**3.4 THE RELATIONSHIP BETWEEN DUTY CYCLE AND SPL (Square wave, 5Vo-p, 10cm)**



DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	BME 1205S-02 A	INDEX	A
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02				
CHANGED BY	Rabea Richter	DATE	2019.07.31				
DRAWING NO.	399963814						

### 3.5 RECOMMENDED SERIAL RESISTANCE

Supply Voltage	Recommended series resistance
6V	20 Ω
7V	35 Ω
8V	50 Ω
9V	70 Ω
10V	90 Ω
11V	105 Ω
12V	120 Ω

### 4. RELIABILITY TEST

#### 4.1 High Temperature Storage Test

Temperature +90°C  
Duration 48 hours

#### 4.2 Low Temperature Storage Test

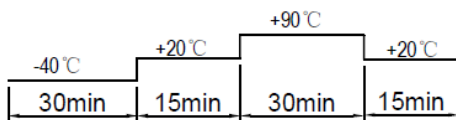
Temperature -40°C  
Duration 48 hours

#### 4.3 Life Test in normal Temperature

Power supply Rated voltage  
Duration 1.000 hours

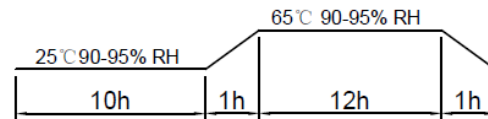
#### 4.4 Temperature Cycle Test

Cycle 5



#### 4.5 Humidity Cycle Test

Cycles 5



All these tests above should be measured after leaving normal temperature for 2 hours.

#### 4.6 Vibration Test

Vibration Frequency 10~55 Hz  
Amplitude 1.53mm  
Direction 3 (x, y, z)  
Duration 2 hours each direction (total 6 hours)

#### 4.7 Drop Test

Height 70cm (to 10mm thick wooden board)  
Direction 3 (x, y, z), 3 times each direction

#### 4.8 Solderability Test

Soldering temperature 250 ± 5°C  
Heat applying time 3 ± 0.5 sec.

**Notice:** All specification must be satisfied in this condition except SPL. SPL shall be 88dB or more.

DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	BME 1205S-02 A	INDEX	A
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02				
CHANGED BY	Rabea Richter	DATE	2019.07.31				
DRAWING NO.	399963814						

## 5. SURFACE MOUNTING CONDITION

In automated mounting of The SMD Sound Transducers on printed circuit boards, any bending, expanding and pulling forces or shocks against the SMD Sound Transducers shall be kept minimum to prevent them from electrical failures and mechanical damages of the devices.

Soldering (Reflow)

- 1) Solderings of The SMD Sound Transducers shall conform to the soldering conditions in the individual specifications.
- 2) The SMD Sound Transducers are designed for "Reflow Solderings"
- 3) In the reflow solderings, too high soldering temperatures and too large temperature gradient such as rapid heating or cooling may cause electrical failures and mechanical damages of the devices.

Following soldering conditions are recommend; Refer to Fig.1

Temperature profile for a lead-free reflow process

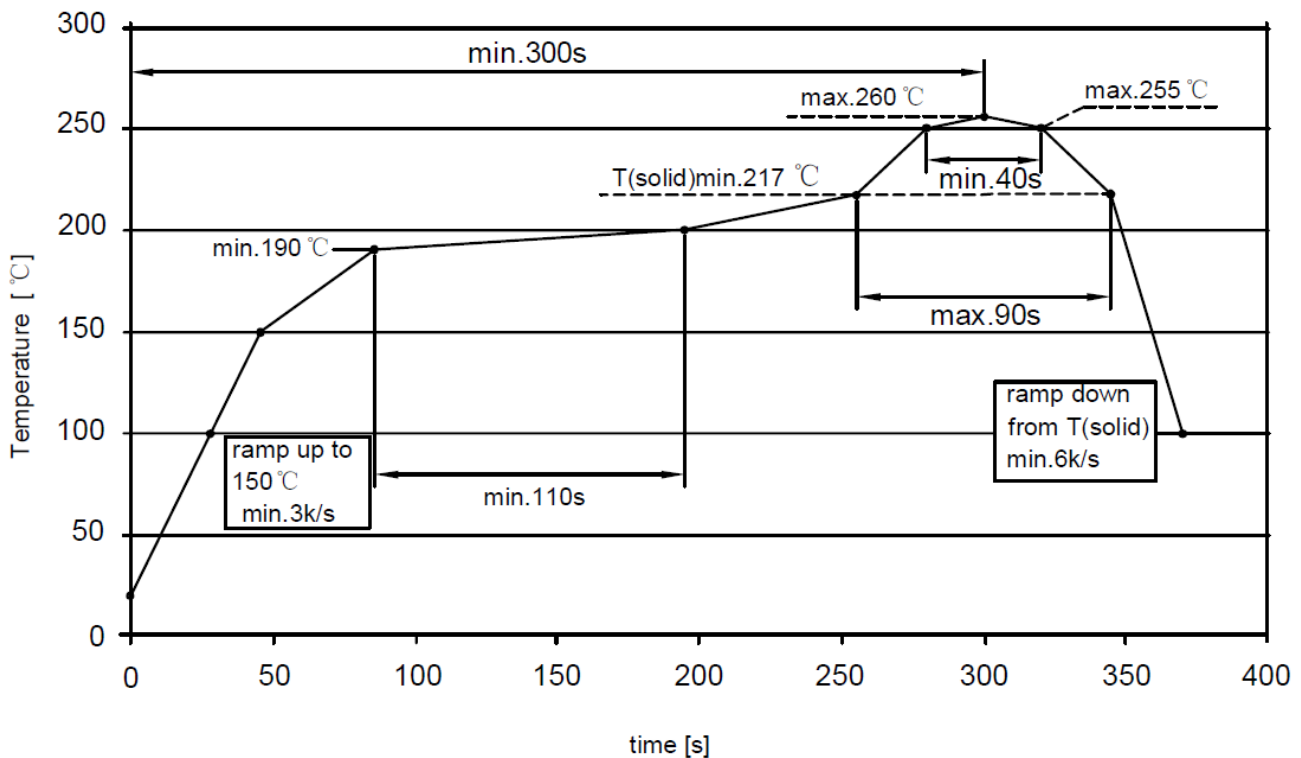


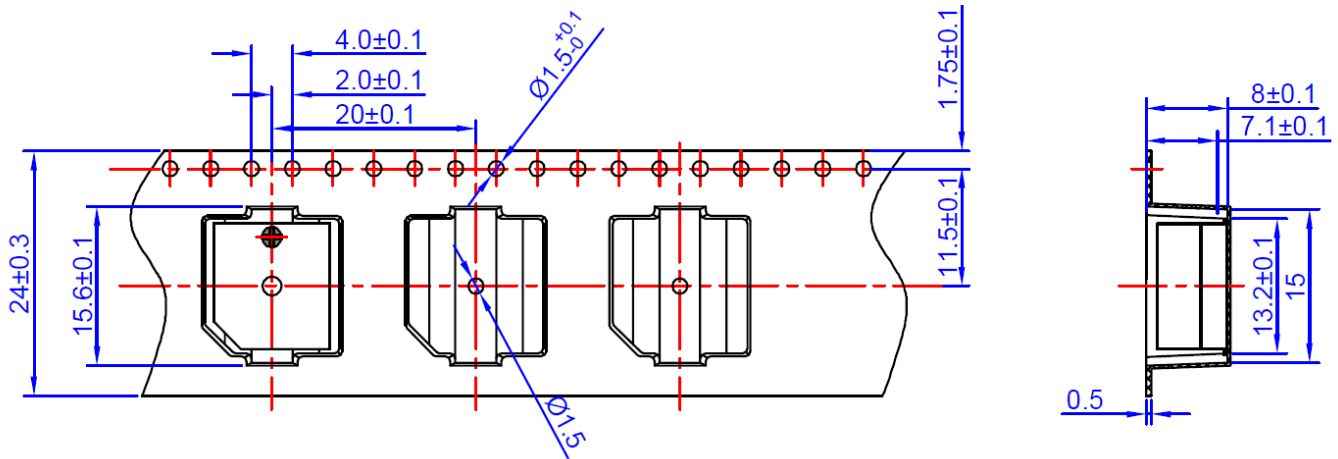
Fig. 1 Recommended soldering Temperature-Time profile (Reflow soldering)

DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	BME 1205S-02 A	INDEX	A
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02				
CHANGED BY	Rabea Richter	DATE	2019.07.31				
DRAWING NO.	399963814						

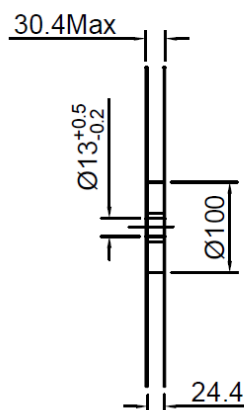
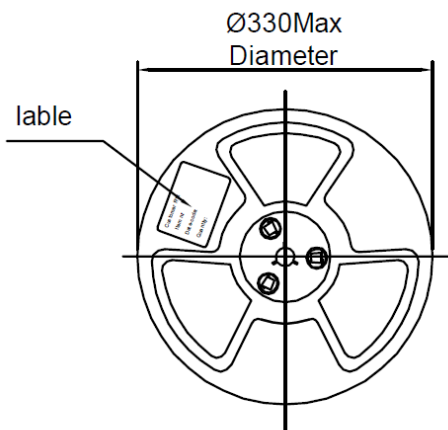
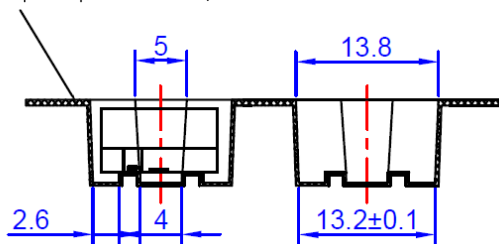
### 6. PACKING

#### 6.1 TAPE ON REEL PACKING

Dimensions of carrier tape

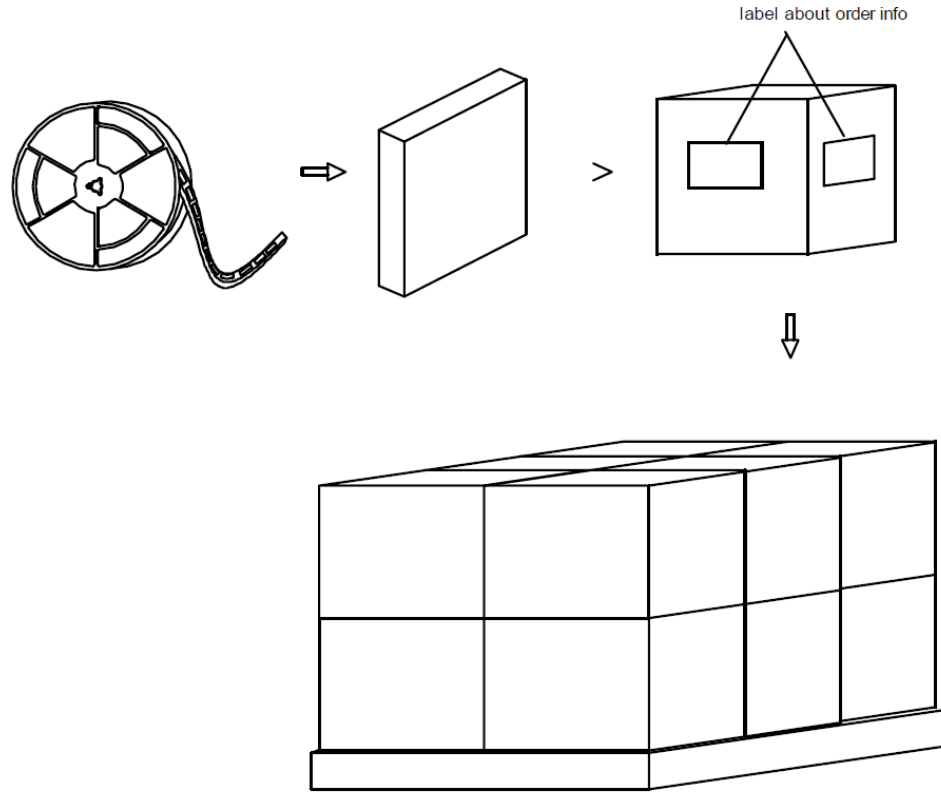


The cover film peel strength force 0.1-0.7N  
 The cover film peel speed 300mm/min.



DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	BME 1205S-02 A	INDEX	A
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02				
CHANGED BY	Rabea Richter	DATE	2019.07.31				
DRAWING NO.	399963814						





## 6.2 PACKING QUANTITY

400pcs per reel  
 5 reels per carton  
 2.000 pcs per carton in total  
 Carton size 38x28x37cm  
 12 cartons per tray  
 Tray size 85x77x74cm

DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	INDEX
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02	BME 1205S-02 A	A
CHANGED BY	Rabea Richter	DATE	2019.07.31		
DRAWING NO.	399963814				

## 7. Notice

7.1 The products mustn't be washed

7.2 Storage Condition

The products should be stored in a room, where the temperature/humidity is stable. And avoid such places where there are large temperature changes. Please store the products at the following conditions:

Temperature: -10 to + 40 C Humidity: 15 to 85% R.H.

7.3 Expire Date on Storage

Expire date (Shelf life) of the products is six months after delivery under the conditions of a sealed and an unopened package. Please use the products within six months after delivery.

If you store the products for a long time (more than six months), use them carefully, because the products may be degraded in the solderability and/or rusty. Please confirm solderability and characteristics for the products regularly.

7.4 Notice on Product Storage

(1) Please do not store the products in a chemical atmosphere (Acids, Alkali, Bases, Organic gas, Sulfides and so on), because the characteristics may be reduced in quality, and/or be degraded in the solderability due to the storage in a chemical atmosphere.

(2) Please use the products immediately after the package is opened, because the characteristics may be reduced in quality, and/or be degraded in the solderability due to storage under the poor condition.

7.5.1 Export Control <For customers outside The People's Republic of China>

No Grewus products should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, otherwise contribution to

(1) any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or  
(2) goods or systems specially designed or intended for military end-use or utilization by military end-users.

7.5.2 Please contact our sales representatives or product engineers before using the products in the specification or catalogue for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this specification.

a) Aircraft equipment or Aerospace equipment

b) Undersea equipment and Power plant equipment

c) Medical equipment and Transportation equipment (vehicles, trains, ships, etc.)

d) Traffic signal equipment, Disaster prevention / crime prevention equipment

e) Data-processing equipment including Application of similar complexity and/or reliability requirements to the applications listed above

7.5.3 Product specifications and catalogues are subject to change and our products in them may be discontinued without advanced notice.

Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

7.5.4 Please read rating and CAUTION (for storage, operating, rating, soldering, mounting and handling) in this specifications in order to prevent smoking and/or burning, etc.

7.5.5 Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or a third party's intellectual property rights and other related rights in consideration of your use of our products and/or information described or contained in our specifications and catalogues. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

7.5.6 No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.

DESIGNED BY	Ralf Hinnerichs	DATE	2009.07.02	PART NO.	<b>BME 1205S-02 A</b>	INDEX	<b>A</b>
RELEASED BY	Ralf Hinnerichs	DATE	2009.07.02				
CHANGED BY	Rabea Richter	DATE	2019.07.31				
DRAWING NO.	399963814						

**8. HISTORY CHANGE RECORD**

REV	CHANGE ITEMS		DATE
	BEFORE CHANGE	AFTER CHANGE	
1		Change printing	2012.05.16
2		Add Frequency Response, the relationship between the duty cycle and the SPL, recommended serial resistance, recommended land pattern and part list	2013.11.21
3	Old Layout	New Layout	2019.07.31

<b>DESIGNED BY</b>	Ralf Hinnerichs	<b>DATE</b>	2009.07.02	<b>PART NO.</b>	BME 1205S-02 A	<b>INDEX</b>	A
<b>RELEASED BY</b>	Ralf Hinnerichs	<b>DATE</b>	2009.07.02				
<b>CHANGED BY</b>	Rabea Richter	<b>DATE</b>	2019.07.31				
<b>DRAWING NO.</b>	399963814						