

# Piezoelectric Sound Components



## Piezoelectric Sounders External Drive SMD Type

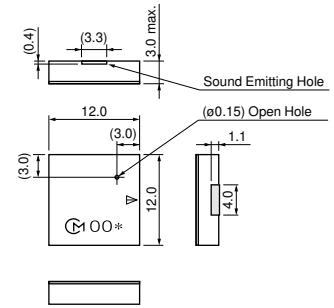
Taking advantage of extensive acoustic and mechanical design technology and high performance ceramics, Murata has developed SMD piezoelectric sounders that suit the thin, high-density design of electronic equipment.

### ■ Features

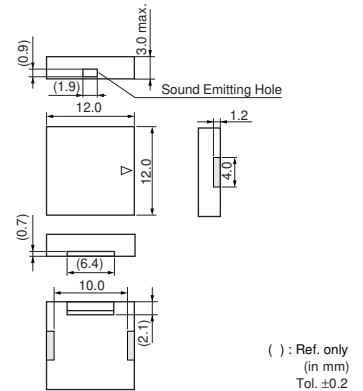
1. Small, thin and lightweight
2. High sound pressure level and clear sound
3. Reflowable
4. Tape & Reel supply



PKLCS1212E2000-R1



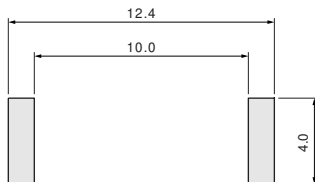
PKLCS1212E4001-R1



5

| Part Number       | Sound Pressure Level (dB)            | Operating Voltage Range (Vp-p) | Operating Temp. Range (°C) | Storage Temp. Range (°C) | Use                        |
|-------------------|--------------------------------------|--------------------------------|----------------------------|--------------------------|----------------------------|
| PKLCS1212E2000-R1 | 70 min.[3Vp-p,2kHz,square wave,10cm] | 25 max.                        | -20 to +70                 | -30 to +80               | For consumer electronics   |
| PKLCS1212E20A0-R1 | 70 min.[3Vp-p,2kHz,square wave,10cm] | 25 max.                        | -40 to +85                 | -40 to +85               | For automotive electronics |
| PKLCS1212E4001-R1 | 75 min.[3Vp-p,4kHz,square wave,10cm] | 25 max.                        | -20 to +70                 | -30 to +80               | For consumer electronics   |
| PKLCS1212E40A1-R1 | 75 min.[3Vp-p,4kHz,square wave,10cm] | 25 max.                        | -40 to +85                 | -40 to +85               | For automotive electronics |

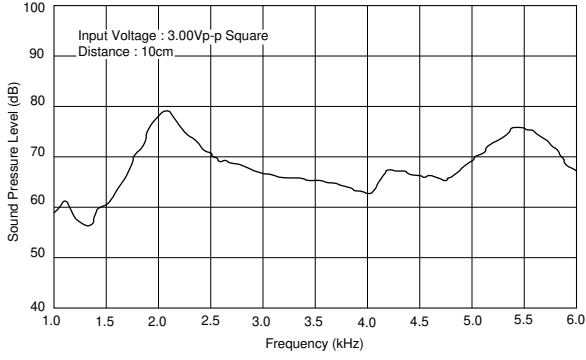
### ■ Standard Land Pattern Dimensions



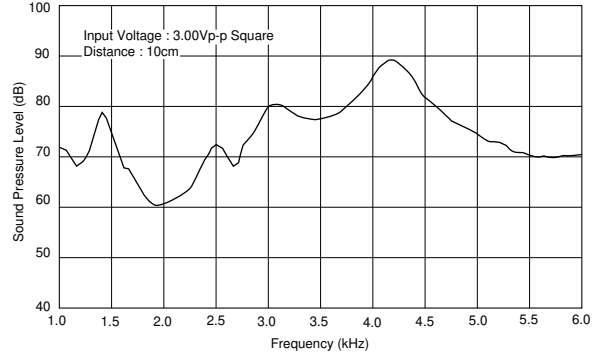
(in mm)

## ■ Freq. Response (Square Wave 3Vp-p, 10cm)

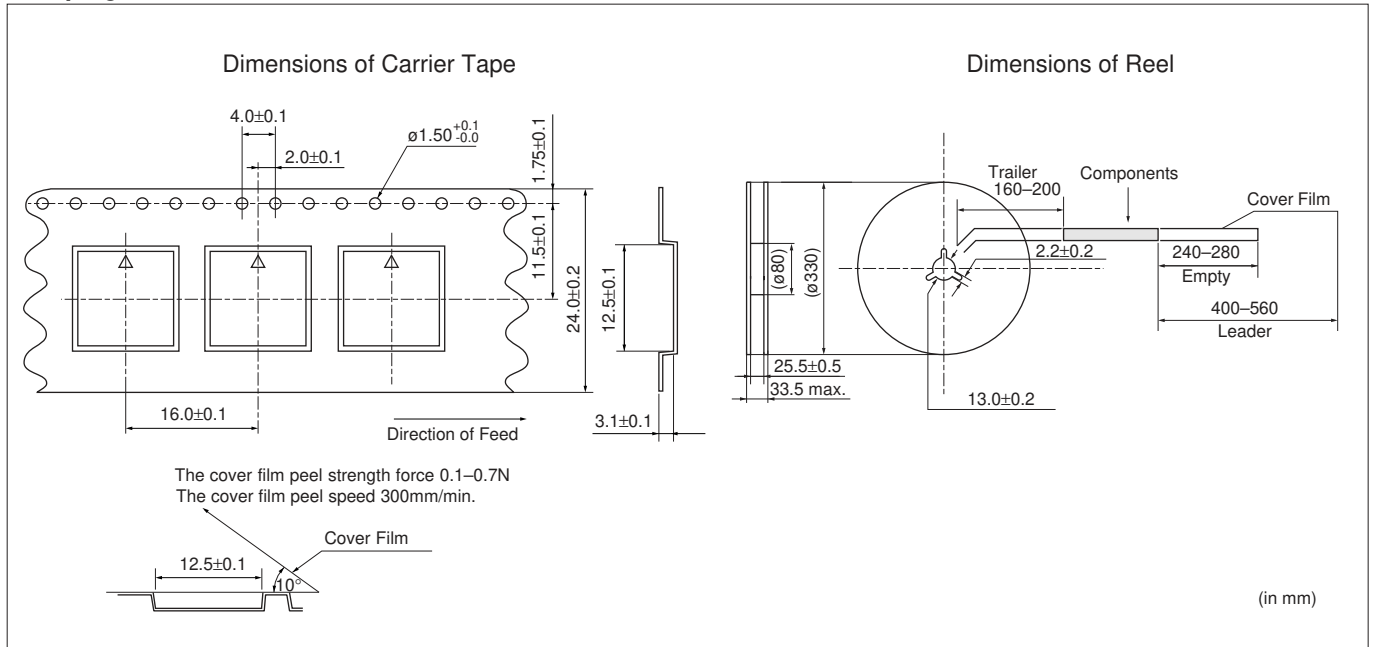
PKLCS1212E2000-R1



PKLCS1212E4001-R1



## ■ Taping Dimension

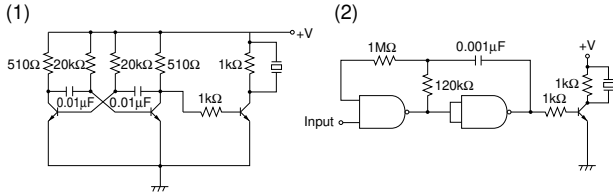


## Piezoelectric Sounders (External Drive SMD Type) Circuit/Notice

### ■ Circuit

The following are examples of externally driven circuits.

- (1) Unstable multi-vibrator using Tr.
- (2) Circuits using inverters or NAND gates.

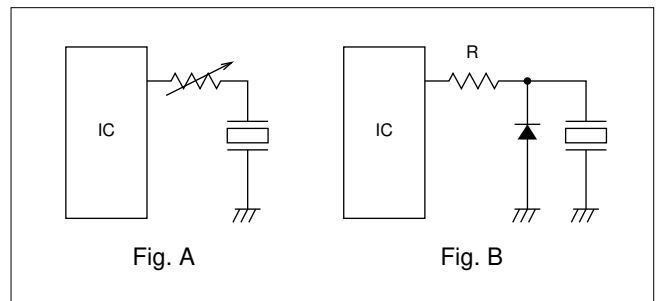


### ■ Notice (Soldering and Mounting)

Washing of the component is not acceptable, because it is not sealed.

### ■ Notice (Handling)

1. The component may be damaged if mechanical stress exceeding specifications is applied.
2. Take care to protect operating circuit from surge voltage resulting from excessive force, falling, shock or temperature change.
3. If DC voltage is applied to the component, silver migration may occur. Please pay full attention to avoid subjecting the component to DC voltage for long periods.
4. The resistor should be used as shown in Fig. A.  
A suitable resistance value should be chosen, preferably 1kΩ to 2kΩ. Instead of this measure, a diode may also be applied as shown in Fig. B.



5. Avoid excessive pulling of lead wire because wire may break or soldering point may come off.

5

## Piezoelectric Sounders/Piezoelectric Buzzers/Piezoelectric Ringers (PIEZORINGER®)

(Part Number)

|    |   |    |   |   |    |    |    |   |     |
|----|---|----|---|---|----|----|----|---|-----|
| PK | M | 13 | E | P | YH | 40 | 00 | P | -A0 |
| ①  | ② | ③  | ④ | ⑤ | ⑥  | ⑦  | ⑧  | ⑨ | ⑩   |

### ① Product ID

| Product ID |                                |
|------------|--------------------------------|
| PK         | Piezoelectric Sound Components |

### ② Product

| Code | Product         |
|------|-----------------|
| M    | Sounder, Ringer |
| B    | Buzzer          |

### ③ Outer Dimensions

Expressed by two figures in mm.

Ex.)

| Code | Outer Dimensions |
|------|------------------|
| 13   | ø12.6mm          |

### ④ Drive

| Code | Drive          |
|------|----------------|
| E    | External-Drive |
| S    | Self-Drive     |

### ⑤ Outer Electrode Style

| Code | Outer Electrode Style |
|------|-----------------------|
| P    | Pin Type              |
| W    | Lead Wire Type        |

### ⑥ Structure

| Code                       | Structure                      |
|----------------------------|--------------------------------|
| T <input type="checkbox"/> | Standing Type                  |
| P <input type="checkbox"/> | Flat Type Auto-assemble        |
| Y <input type="checkbox"/> | Flat Type/Available for Taping |
| C <input type="checkbox"/> | Flat Type/Semi-auto-assemble   |
| <input type="checkbox"/>   | Exclude above mentioned        |

means specification of outer electrode.

## SMD Piezoelectric Sounder

(Part Number)

|    |     |      |   |    |    |     |
|----|-----|------|---|----|----|-----|
| PK | LCS | 1212 | E | 40 | 01 | -R1 |
| ①  | ②   | ③    | ④ | ⑤  | ⑥  | ⑦   |

### ① Product ID

| Product ID |                                |
|------------|--------------------------------|
| PK         | Piezoelectric Sound Components |

### ② Product

| Code | Product     |
|------|-------------|
| LCS  | SMD Sounder |

### ③ Dimensions

| Code | Outer Dimensions |
|------|------------------|
| 1212 | □12mm            |

### ④ Drive

| Code | Drive          |
|------|----------------|
| E    | External Drive |

### ⑦ Oscillating Frequency Type

| Code | Oscillating Frequency Type   |
|------|--|
| 40   | Expressed resonant frequency by two-digit alphanumerics. The unit is in 100 hertz (Hz). In case of 4kHz (4000Hz), expressed as "40". |

### ⑧ Individual Specification Code

| Code | Individual Specification Code                               |
|------|---|
| 00   | Two digits express custom specification in characteristics. |

### ⑨ Special Quality Guarantee

| Code | Special Quality Guarantee |
|------|---------------------------|
| P    | Post Plated Terminal      |
| -    | Blank                     |

### ⑩ Packaging

| Code | Packaging     |
|------|---------------|
| -B0  | Bulk          |
| -A0  | Radial Taping |
| -M0  | Magazine      |

Radial taping or magazines are not available for all types.

Please contact us.

Packaging Code is blank in the case of types for which radial taping or magazines are not available.

### ⑤ Oscillating Frequency Type

| Code | Oscillating Frequency Type   |
|------|--|
| 40   | Expressed resonant frequency by two-digit alphanumerics. The unit is in 100 hertz (Hz). In case of 4kHz (4000Hz), expressed as "40". |

### ⑥ Individual Specification Code

| Code | Individual Specification Code                                 |
|------|---|
| 01   | Two digits express specific specification in characteristics. |

### ⑦ Packaging

| Code | Packaging      |
|------|----------------|
| -R1  | Plastic taping |