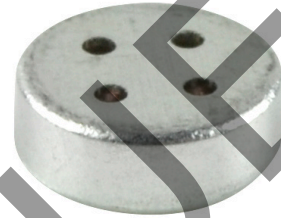


**MODEL:** CMC-4013-SMT-TR | **DESCRIPTION:** ELECTRET CONDENSER MICROPHONE**FEATURES**

- omnidirectional
- low profile
- surface mount
- tape and reel packaging

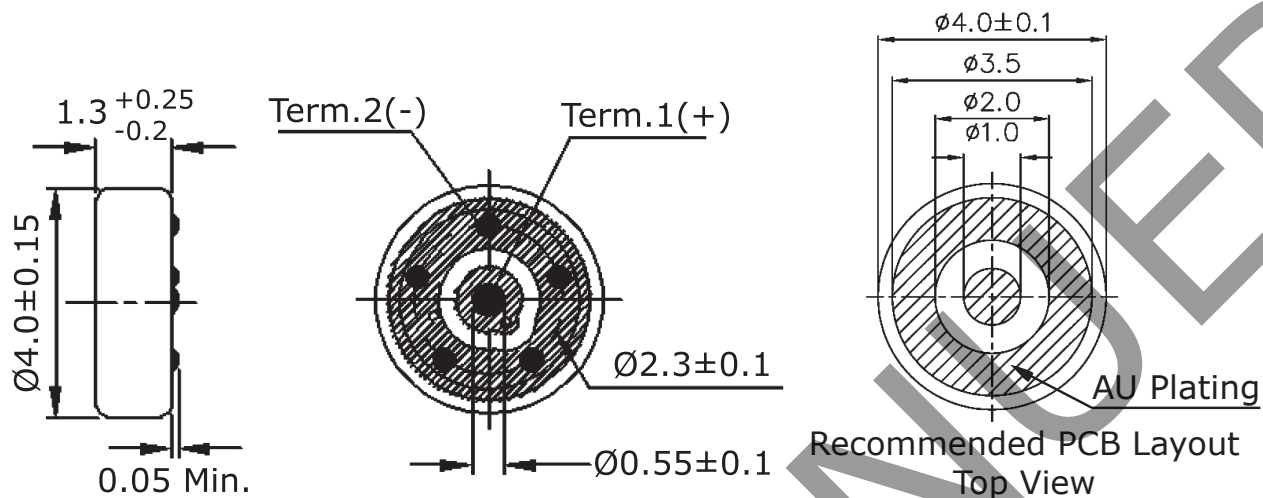
**SPECIFICATIONS**

| parameter                       | conditions/description              | min | typ | max    | units |
|---------------------------------|-------------------------------------|-----|-----|--------|-------|
| directivity                     | omnidirectional                     |     |     |        |       |
| sensitivity (S)                 | f = 1 kHz, 1 Pa, 0 dB = 1 V/Pa      | -45 | -42 | -39    | dB    |
| standard operating voltage (Vs) |                                     |     | 2   |        | Vdc   |
| max operating voltage           |                                     |     |     | 10     | Vdc   |
| output impedance (Zout)         | f = 1 kHz, 1 Pa                     |     | 2.2 |        | kΩ    |
| sensitivity reduction (ΔS-Vs)   | f = 1 kHz, 1 Pa, Vs = 2.0 ~ 1.5 Vdc |     | -3  |        | dB    |
| frequency (f)                   |                                     | 100 |     | 20,000 | Hz    |
| current consumption (IDSS)      | Vs = 2.0 Vdc, RL = 2.2 kΩ           |     |     | 0.5    | mA    |
| signal to noise ratio (S/N)     | f = 1 kHz, 1 Pa, A-weighted         |     | 58  |        | dB    |
| dimensions                      | Ø4.0 x 1.3                          |     |     |        | mm    |
| material                        | Al                                  |     |     |        |       |
| terminal                        | SMT type                            |     |     |        |       |
| weight                          |                                     |     |     | 0.04   | g     |
| operating temperature           |                                     | -20 |     | 70     | °C    |
| storage temperature             |                                     | -20 |     | 70     | °C    |
| RoHS                            | yes                                 |     |     |        |       |

Notes: 1. We use the "Pascal (Pa)" indication of sensitivity as per the recommendation of I.E.C. (International Electrotechnical Commission). The sensitivity of "Pa" will increase 20 dB compared to the "ubar" indication. Example: -60 dB (0 dB = 1 V/ubar) = -40 dB (1V/Pa)  
 2. All specifications measured at 5~35°C, humidity at 45~85%, under 86~106 kPa pressure, unless otherwise noted.

## MECHANICAL DRAWING

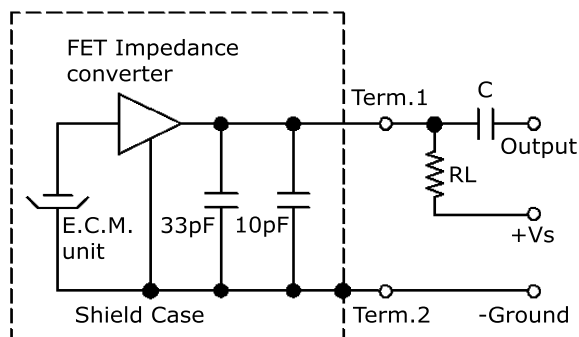
units: mm



## FREQUENCY RESPONSE CURVE



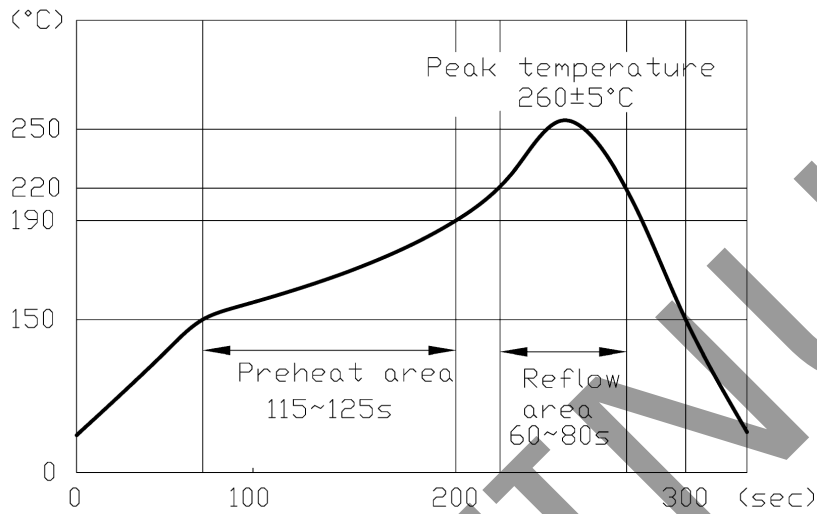
## MEASUREMENT CIRCUIT



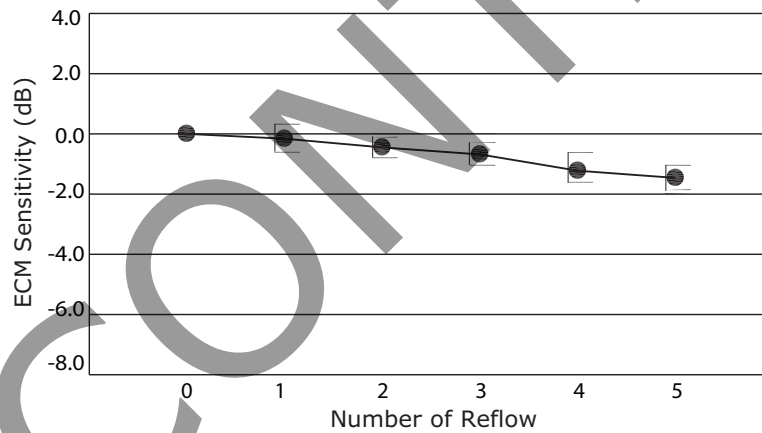
$RL = 2.2 \text{ k}\Omega$   
 $C = 1 \mu\text{F}$

## SOLDERABILITY

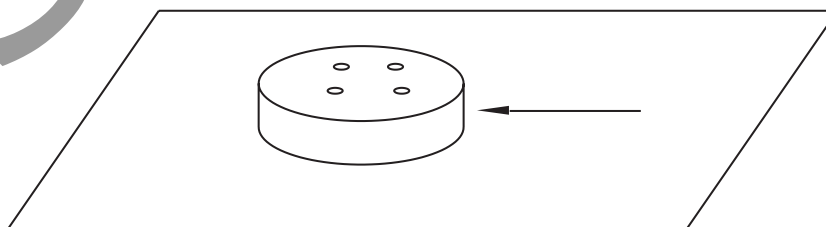
| parameter        | conditions/description       | min | typ | max | units |
|------------------|------------------------------|-----|-----|-----|-------|
| reflow soldering | see reflow soldering profile | 255 | 260 | 265 | °C    |



Number of Reflow vs. ECM Sensitivity



Horizontal Loading



Note: 1. When soldered to PCB, must have >10 N resistance to horizontal loading.

## PACKAGING

units: mm

Reel Size: Ø330 mm

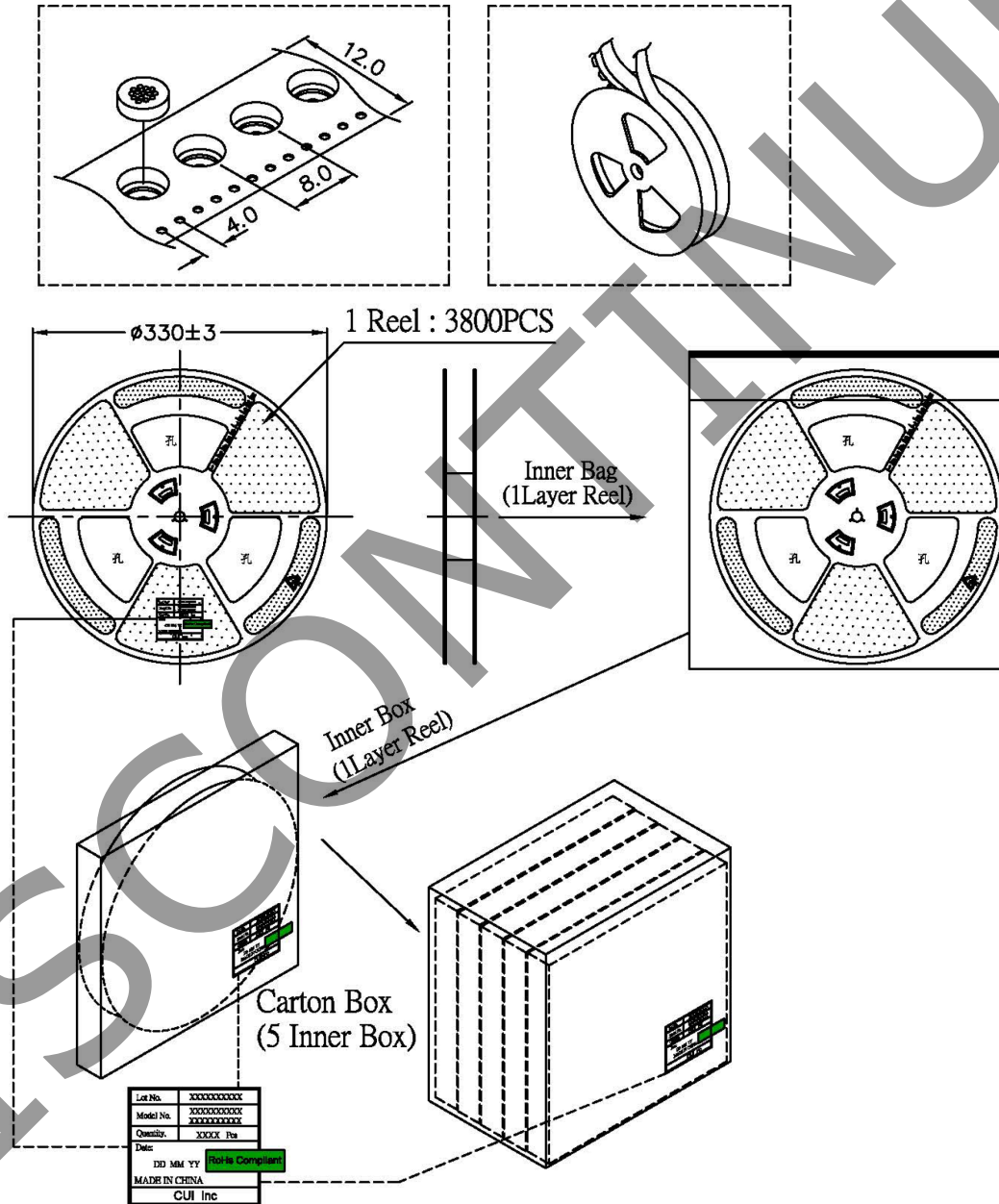
Inner Box Size: 340 x 340 x 30 mm

Carton Box Size: 340 x 170 x 340 mm

Reel QTY: 3,800 pcs per reel

Inner Box QTY: 3,800 pcs per box

Carton Box QTY: 19,000 pcs per carton



## REVISION HISTORY

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| rev. | description                   | date       |
|------|-------------------------------|------------|
| 1.0  | initial release               | 11/28/2016 |
| 1.01 | added packaging label to reel | 06/28/2019 |
| 1.02 | brand update                  | 01/09/2020 |

The revision history provided is for informational purposes only and is believed to be accurate.

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# CUI DEVICES

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