

**MODEL:** CLS0231MA-1-L152 | **DESCRIPTION:** SPEAKER**FEATURES**

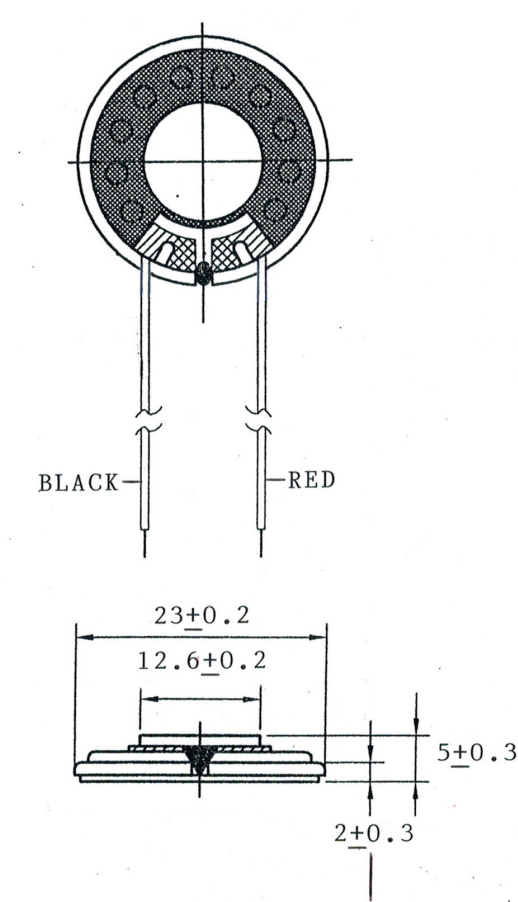
- 23 mm
- round frame
- 0.5 W
- 8  $\Omega$
- neodymium magnet
- PET cone
- wire leads

**SPECIFICATIONS**

| parameter               | conditions/description                         | min | typ | max    | units              |
|-------------------------|------------------------------------------------|-----|-----|--------|--------------------|
| input power             |                                                |     | 0.5 | 1.0    | W                  |
| impedance               | at 1.0 kHz, 1.0 V                              | 6.8 | 8   | 9.2    | $\Omega$           |
| resonant frequency [Fo] | at 1.0 V                                       | 536 | 670 | 804    | Hz                 |
| frequency response      |                                                | Fo  |     | 20,000 | Hz                 |
| sound pressure level    | at 1.0 W, 50 cm, avg at 0.8, 1.0, 1.2, 1.5 kHz | 86  | 89  | 92     | dB                 |
| buzz, rattle, etc.      | must be normal at sine wave                    |     |     | 2.0    | V                  |
| dimensions              | $\varnothing 23 \times 5$                      |     |     |        | mm                 |
| magnet                  | Nd-Fe-B                                        |     |     |        |                    |
| cone material           | PET                                            |     |     |        |                    |
| terminal                | wire leads                                     |     |     |        |                    |
| weight                  |                                                |     | 4.4 |        | g                  |
| operating temperature   |                                                | -25 |     | 60     | $^{\circ}\text{C}$ |
| hand soldering          | for maximum 3 seconds                          | 340 | 350 | 360    | $^{\circ}\text{C}$ |
| RoHS                    | yes                                            |     |     |        |                    |

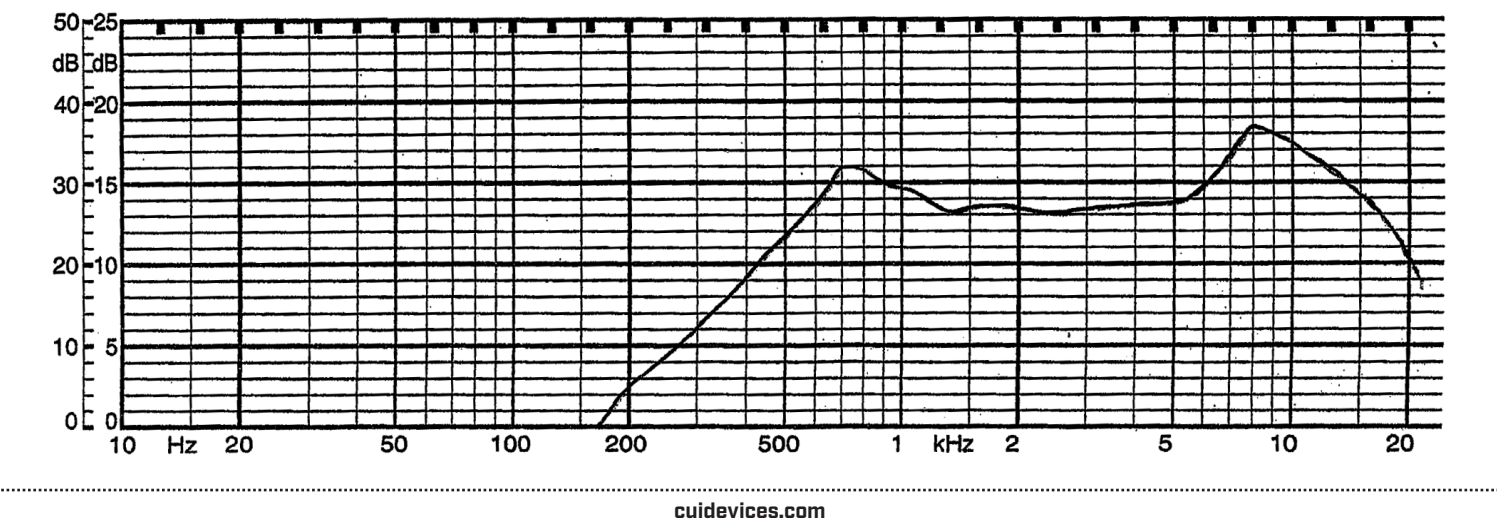
MECHANICAL DRAWING

units: mm  
wire: UL1007 28 AWG  
wire length: 152 mm



FREQUENCY RESPONSE CURVE

| parameter             | conditions/description |
|-----------------------|------------------------|
| potentiometer range   | 50 dB                  |
| rectifier             | RMS                    |
| lower limit frequency | 20 Hz                  |
| wr. speed             | 100 mm/sec             |
| zero level            | 60 dB                  |



## REVISION HISTORY

| rev. | description                  | date       |
|------|------------------------------|------------|
| 1.0  | initial release              | 07/03/2007 |
| 1.01 | updated datasheet            | 02/01/2010 |
| 1.02 | brand update                 | 06/12/2020 |
| 1.03 | logo, datasheet style update | 08/05/2022 |

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



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