

## TUNING FORK CRYSTAL UNIT (Cylinder Type)

RoHS compliant / Pb free

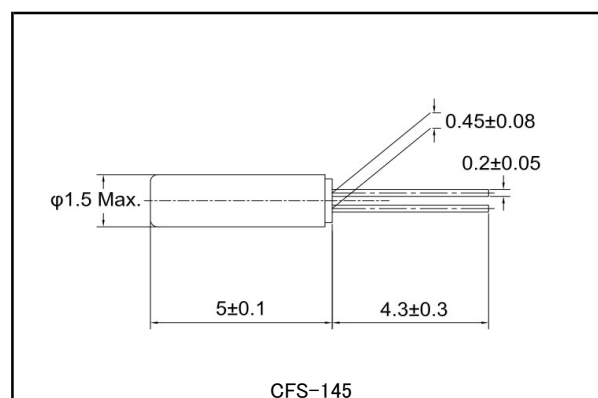
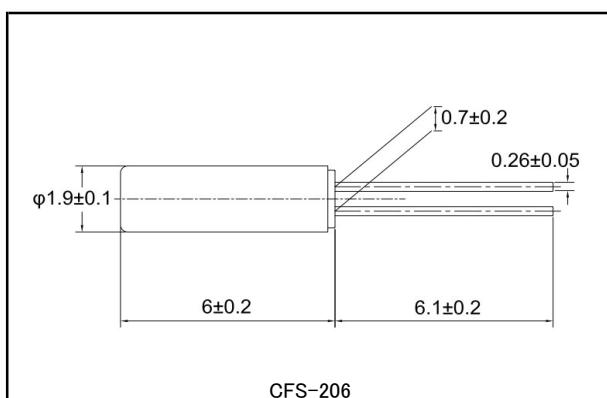
## CFS-206・CFS-145



### FEATURES

- Frequency range : 32.768kHz
- External dimensions (mm)  
CFS-206  $\Phi$  : 2.0 x L : 6.2  
CFS-145  $\Phi$  : 1.5 x L : 5.1
- Applications  
Watch / Clock / Security devices /  
Consumer products

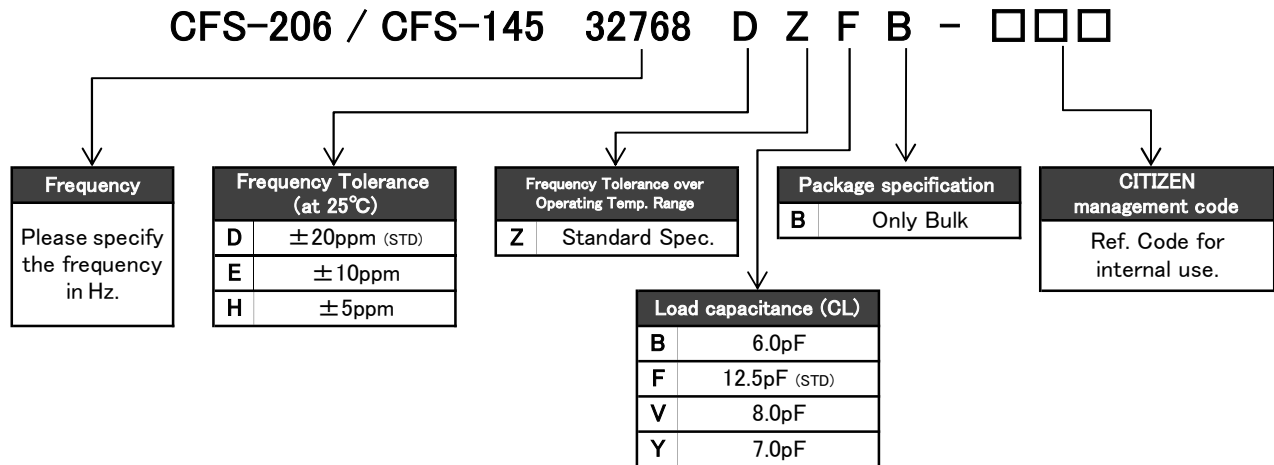
### DIMENSION [mm]



### STANDARD SPECIFICATIONS

| Item                         | Model            | CFS-206                                                 | CFS-145           | Conditions                      |
|------------------------------|------------------|---------------------------------------------------------|-------------------|---------------------------------|
| Nominal Frequency            | $f_0$            | 32.768kHz                                               |                   |                                 |
| Frequency Tolerance          | $\Delta f/f_0$   | $\pm 5\text{ppm} / \pm 10\text{ppm} / \pm 20\text{ppm}$ |                   | at 25°C                         |
| Load capacitance             | $C_L$            | 6.0pF / 7.0pF / 8.0pF / 12.5pF                          |                   | Please specify your requirement |
| Operating Temperature Range  | $T_{\text{OPR}}$ | -20°C ~ +70°C                                           |                   |                                 |
| Storage Temperature Range    | $T_{\text{STR}}$ | -40°C ~ +85°C                                           |                   |                                 |
| Turnover Temperature         | $T_M$            | 25°C ± 5°C                                              |                   |                                 |
| Temperature Coefficient      | $\beta$          | $-0.034 \pm 0.006\text{ppm}/^\circ\text{C}^2$           |                   |                                 |
| Motional (series) resistance | $R_1$            | 35K $\Omega$ Max.                                       | 40K $\Omega$ Max. | at 25°C                         |
| Level of drive               | $D_L$            | 1 $\mu\text{W}$ Max.                                    |                   |                                 |
| Aging (first year)           | $\Delta f/f_0$   | $\pm 3\text{ppm}$ Max.                                  |                   | 25°C ± 3°C                      |
| Shunt capacitance            | $C_0$            | 1.2pF Typ.                                              | 1.0pF Typ.        |                                 |

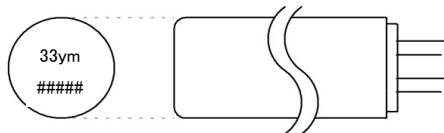
## ■ PART NUMBERING SYSTEM



\*Please contact us for specifications available.

## ■ Part Marking [standard]

### CFS-206



33 : Manufacture's ID Code

y : The last digit of production year

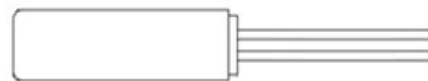
m : Production month (See Table.1)

# : Production Lot No.

Table.1

| Month | Jan | Feb | ... | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | ... | 9   | X   | Y   | Z   |

### CFS-145



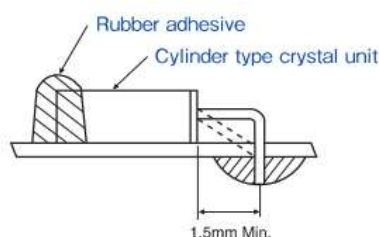
No marking

## ■ Handling Notes

### Mounting

Soldering the body of cylinder type crystal unit must be strictly avoided as it may cause significant deterioration in characteristics of the product.

Rubber adhesive is recommended for mounting.



### Bending Lead

Hold the body of crystal unit by hand, and the part to be bent with tweezers leaving more than 1.5mm of lead from the body case. (3.0mm is recommended)

Bend the lead 90° holding with the tweezers. Pulling the lead strongly may crack the hermetic seal glass at the root of the lead and may cause the airtightness and the characteristics to deteriorate.

