

**Piezo Diaphragm Series**

External-Driven Diaphragm Series

**External-Driven Diaphragm**

Clear Sound, High SPL, Power Consumption, Small and Lightweight ...

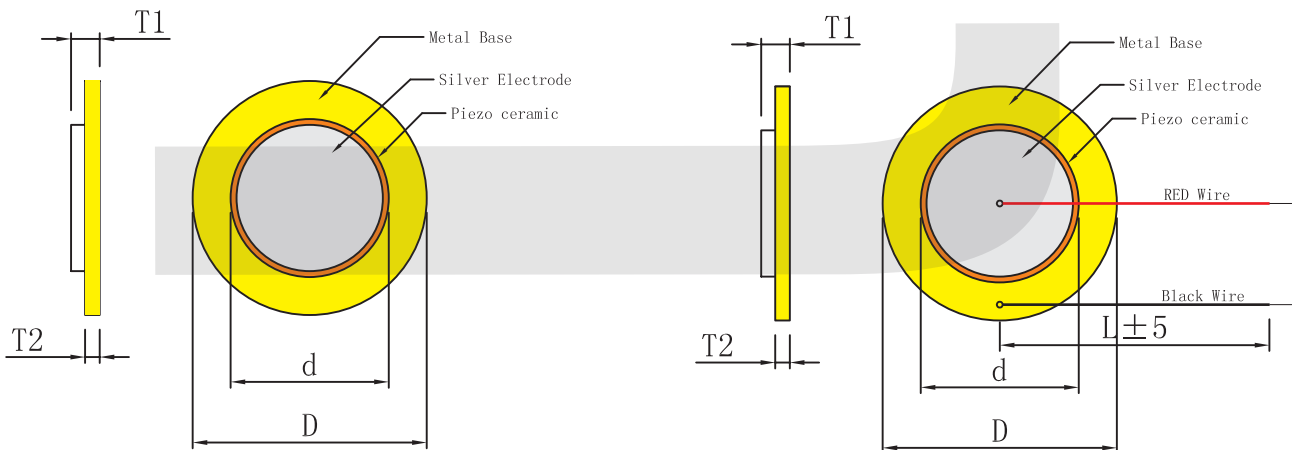
**Hide Technical Data**

Diameter: 9.9 mm to 56 mm  
 FT: Piezo Diaphragm  
 Material: T: Brass, N: Nickel-alloy, G: Stainless Steel  
 A (Shape): External-Driven Type

**Tolerance:**

D (Diameter):  $\pm 0.1\text{mm}$   
 d (Ceramic Dia):  $\pm 0.3\text{mm}$   
 T1 (Total Thickness):  $\pm 0.05\text{mm}$   
 T2 (Ceramic thickness):  $\pm 0.03\text{mm}$

Dimensions (Unit:mm)



**ORDER INFORMATION**

Product NO.: **KLS3- FT - 9.9 N - 7.5 A1**

Part Number \_\_\_\_\_  
 Piezo Diaphragm Series \_\_\_\_\_  
 Diameter \_\_\_\_\_  
 Material T:Brass,N:Nickel-alloy,G:Stainless Steel  
 Shape \_\_\_\_\_  
 Frequency \_\_\_\_\_

## Piezo Diaphragm Series

### External-Driven Diaphragm Series

| Order Code           | Shape | C (nF)     | Zr (Ω) | Fr (KHz)  | D (mm) | d (mm) | T1 (mm) | T2 (mm) | Metal |
|----------------------|-------|------------|--------|-----------|--------|--------|---------|---------|-------|
| KLS3-FT-9.9N-7.5A1   | A1    | 10nF ±30%  | 500    | 7.5 ±1.0  | 9.9    | 7      | 0.12    | 0.05    | Alloy |
| KLS3-FT-10.5N-10.0A1 | A1    | 5.5nF ±30% | 500    | 10.0 ±0.8 | 10.5   | 8      | 0.17    | 0.05    | Alloy |
| KLS3-FF-11N-6.5A1    | A1    | 10nF ±30%  | 500    | 6.5 ±0.5  | 11     | 8      | 0.12    | 0.05    | Alloy |
| KLS3-FT-11N-9.0A1    | A1    | 11nF ±30%  | 500    | 9.0 ±0.5  | 11     | 8      | 0.17    | 0.1     | Alloy |
| KLS3-FT-11G-10.0A1   | A1    | 9.5nF ±30% | 300    | 10 ±0.5   | 11     | 8      | 0.19    | 0.11    | Brass |
| KLS3-FT-11G-9.6A1    | A1    | 12nF ±30%  | 500    | 9.6 ±0.5  | 11     | 8      | 0.17    | 0.1     | SUS   |
| KLS3-FT-11T-9.6A1    | A1    | 12nF ±30%  | 500    | 9.6 ±0.5  | 11     | 8      | 0.17    | 0.1     | Brass |
| KLS3-FT-12.5T-8.5 A1 | A1    | 11nF ±30%  | 300    | 8.5 ±0.5  | 12.5   | 10     | 0.22    | 0.1     | Brass |
| KLS3-FT-12N-5.5A1    | A1    | 13nF ±30%  | 500    | 5.5 ±0.5  | 12     | 9      | 0.12    | 0.05    | Alloy |
| KLS3-FT-12N-6.0A1    | A1    | 13nF ±30%  | 500    | 6.0 ±0.5  | 12     | 9      | 0.12    | 0.05    | Alloy |
| KLS3-FT-12T-5.3A1    | A1    | 15nF ±30%  | 500    | 5.3 ±0.5  | 12     | 9      | 0.12    | 0.05    | Brass |
| KLS3-FT-12T-5.8A1    | A1    | 16nF ±30%  | 500    | 5.8 ±0.6  | 12     | 9.4    | 0.12    | 0.05    | Brass |
| KLS3-FT-12T-6.0A1    | A1    | 17nF ±30%  | 500    | 6.0 ±0.5  | 12     | 9      | 0.12    | 0.06    | Brass |
| KLS3-FT-12T-6.5A1    | A1    | 15nF ±30%  | 300    | 6.5 ±0.5  | 12     | 9      | 0.15    | 0.09    | Brass |
| KLS3-FT-12T-8.0A1    | A1    | 15nF ±30%  | 300    | 8.0 ±0.5  | 12     | 9      | 0.19    | 0.1     | Brass |
| KLS3-FT-12T-8.5A1    | A1    | 10nF_30%   | 300    | 8.5 ±0.7  | 12     | 9      | 0.2     | 0.08    | Brass |
| KLS3-FT-12T-9.05 A1  | A1    | 15nF ±30%  | 300    | 9.05 ±0.5 | 12     | 9      | 0.22    | 0.1     | Brass |
| KLS3-FT-12T-9.0A1    | A1    | 12nF ±30%  | 300    | 9.0 ±0.5  | 12     | 10     | 0.2     | 0.1     | Brass |
| KLS3-FT-13.5T-7.0 A1 | A1    | 12nF ±30%  | 300    | 7.0 ±0.5  | 13.5   | 9      | 0.22    | 0.1     | Brass |
| KLS3-FT-13N-4.5A1    | A1    | 15nF ±30%  | 500    | 4.5 ±0.5  | 13     | 9      | 0.12    | 0.05    | Alloy |
| KLS3-FT-13T-6.5A1    | A1    | 13nF ±30%  | 500    | 6.5 ±0.5  | 13     | 9      | 0.18    | 0.1     | Brass |
| KLS3-FT-14N-4.3A1    | A1    | 70nF ±30%  | 300    | 4.3 ±0.5  | 14     | 12     | 0.12    | 0.05    | Alloy |
| KLS3-FT-15N-4.2A1    | A1    | 34nF ±30%  | 500    | 3.5 ±0.5  | 15     | 12     | 0.13    | 0.05    | Alloy |
| KLS3-FT-15N-4.6A1    | A1    | 20nF ±30%  | 500    | 4.6 ±0.5  | 15     | 12     | 0.2     | 0.1     | Alloy |
| KLS3-FT-15T-10.0A1   | A1    | 9nF ±30%   | 300    | 10.0 ±0.5 | 15     | 11.3   | 0.37    | 0.2     | Brass |
| KLS3-FT-15T-3.5A1    | A1    | 35nF ±30%  | 300    | 3.5 ±0.5  | 15     | 12     | 0.12    | 0.05    | Brass |
| KLS3-FT-15T-4.5A1    | A1    | 12nF ±30%  | 300    | 4.5 ±0.5  | 15     | 9      | 0.2     | 0.1     | Brass |
| KLS3-FT-15T-5.8A1    | A1    | 10nF ±30%  | 800    | 5.8 ±0.5  | 15     | 9      | 0.21    | 0.09    | Brass |
| KLS3-FT-15T-6.0A1    | A1    | 15nF ±30%  | 300    | 6.0 ±0.5  | 15     | 12     | 0.22    | 0.1     | Brass |
| KLS3-FT-15T-6.0A1    | A1    | 10nF ±30%  | 300    | 6.0 ±0.5  | 15     | 11.3   | 0.22    | 0.1     | Brass |

## Piezo Diaphragm Series

### External-Driven Diaphragm Series

| Order Code          | Shape | C (nF)   | Zr (Ω) | Fr (KHz) | D (mm) | d (mm) | T1 (mm) | T2 (mm) | Metal |
|---------------------|-------|----------|--------|----------|--------|--------|---------|---------|-------|
| KLS3-FT-15T-6.0A1   | A1    | 11nF±30% | 300    | 6.0±0.5  | 15     | 10     | 0.22    | 0.1     | Brass |
| KLS3-FT-15T-6.0A1   | A1    | 9nF±30%  | 300    | 9.05±0.5 | 15     | 10     | 0.32    | 0.12    | Brass |
| KLS3-FT-17.2N-3.5A1 | A1    | 32nF±30% | 300    | 3.5±0.5  | 17.2   | 13.4   | 0.18    | 0.1     | Alloy |
| KLS3-FT-18T-3.6A1   | A1    | 15nF±30% | 300    | 3.6±0.5  | 18     | 12     | 0.2     | 0.08    | Brass |
| KLS3-FT-19.9T-3.6A1 | A1    | 20nF±30% | 300    | 3.6±0.5  | 20     | 14     | 0.22    | 0.1     | Brass |
| KLS3-FT-20G-7.5A1   | A1    | 12nF±30% | 300    | 7.5±0.5  | 20     | 15     | 0.45    | 0.23    | SUS   |
| KLS3-FT-20N-2.0A1   | A1    | 70nF±30% | 300    | 2.0±0.5  | 20     | 15     | 0.13    | 0.05    | Alloy |
| KLS3-FT-20N-2.6A1   | A1    | 24nF±30% | 300    | 2.6±0.5  | 20     | 15     | 0.15    | 0.05    | Alloy |
| KLS3-FF-20N-3.2A1   | A1    | 24nF±30% | 300    | 3.2±0.5  | 20     | 15     | 0.2     | 0.1     | Alloy |
| KLS3-FT-20T-2.5A1   | A1    | 70nF±30% | 300    | 2.5±0.5  | 20     | 15     | 0.15    | 0.08    | Brass |
| KLS3-FT-20T-3.0A1   | A1    | 30nF±30% | 300    | 3.0±0.3  | 20     | 15     | 0.19    | 0.1     | Brass |
| KLS3-FT-20T-3.4A1   | A1    | 20nF±30% | 300    | 3.4±0.5  | 20     | 15     | 0.22    | 0.1     | Brass |
| KLS3-FT-20T-3.6A1   | A1    | 21nF±30% | 300    | 3.6±0.5  | 20     | 15     | 0.22    | 0.1     | Brass |
| KLS3-FT-20T-3.8A1   | A1    | 19nF±30% | 300    | 3.8±0.5  | 20     | 15     | 0.26    | 0.13    | Brass |
| KLS3-FT-20T-4.0A1   | A1    | 20nF±30% | 300    | 4.0±0.5  | 20     | 15     | 0.22    | 0.14    | Brass |
| KLS3-FT-20T-4.0A1   | A1    | 26nF±30% | 300    | 4.0±0.5  | 20     | 15     | 0.26    | 0.14    | Brass |
| KLS3-FT-20T-4.8A1   | A1    | 16nF±30% | 300    | 4.8±0.5  | 20     | 15     | 0.3     | 0.15    | Brass |
| KLS3-FT-20T-5.5A1   | A1    | 15nF±30% | 300    | 5.5±0.5  | 20     | 15     | 0.37    | 0.2     | Brass |
| KLS3-FT-20T-6.0A1   | A1    | 13nF±30% | 300    | 6.0±0.5  | 20     | 15     | 0.42    | 0.2     | Brass |
| KLS3-FT-20T-6.5A1   | A1    | 15nF±30% | 300    | 6.5±0.5  | 20     | 15     | 0.42    | 0.25    | Brass |
| KLS3-FT-20T-7.2A1   | A1    | 12nF±30% | 300    | 7.2±0.5  | 20     | 15     | 0.47    | 0.25    | Brass |
| KLS3-FT-21G-3.3A1   | A1    | 26nF±30% | 300    | 3.3±0.5  | 21.5   | 15     | 0.21    | 0.1     | SUS   |
| KLS3-FT-21T-4.5A1   | A1    | 18nF±30% | 300    | 4.5±0.5  | 21     | 15     | 0.3     | 0.15    | Brass |
| KLS3-FT-22T-4.8A1   | A1    | 12nF±30% | 300    | 4.8±0.5  | 22     | 16.8   | 0.37    | 0.15    | Brass |
| KLS3-FT-27G-3.6A1   | A1    | 20nF±30% | 300    | 3.6±0.5  | 27     | 20     | 0.42    | 0.2     | SUS   |
| KLS3-FT-27T-2.0A1   | A1    | 50nF±30% | 300    | 2.0±0.5  | 27     | 20     | 0.2     | 0.1     | Brass |
| KLS3-FT-27T-2.3A1   | A1    | 45nF±30% | 300    | 2.3±0.5  | 27     | 20     | 0.22    | 0.1     | Brass |
| KLS3-FT-27T-2.5A1   | A1    | 45nF±30% | 300    | 2.5±0.5  | 27     | 20     | 0.26    | 0.14    | Brass |
| KLS3-FT-27T-2.8A1   | A1    | 20nF±30% | 300    | 2.8±0.5  | 27     | 20     | 0.32    | 0.1     | Brass |
| KLS3-FT-27T-3.5A1   | A1    | 30nF±30% | 300    | 3.5±0.5  | 27     | 20     | 0.37    | 0.2     | Brass |

**Piezo Diaphragm Series**

External-Driven Diaphragm Series

| Order Code         | Shape | C (nF)    | Zr (Ω) | Fr (KHz) | D (mm) | d (mm) | T1 (mm) | T2 (mm) | Metal |
|--------------------|-------|-----------|--------|----------|--------|--------|---------|---------|-------|
| KLS3-FT-27T-3.6A1  | A1    | 20nF±30%  | 300    | 3.6±0.5  | 27     | 20     | 0.42    | 0.2     | Brass |
| KLS3-FT-27T-4.0A1  | A1    | 23nF±30%  | 300    | 4.0±0.5  | 27     | 20     | 0.52    | 0.3     | Brass |
| KLS3-FT-27T-4.0A1  | A1    | 20nF±30%  | 300    | 4.0±0.5  | 27     | 20     | 0.47    | 0.25    | Brass |
| KLS3-FT-27T-4.6A1  | A1    | 20nF±30%  | 300    | 4.6±0.5  | 27     | 20     | 0.52    | 0.3     | Brass |
| KLS3-FT-30T-0.9A1  | A1    | 49nF±30%  | 300    | 0.9±0.5  | 30     | 20     | 0.16    | 0.05    | Brass |
| KLS3-FT-31G-1.6A1  | A1    | 45nF±30%  | 300    | 1.6±0.5  | 31     | 20     | 0.22    | 0.1     | SUS   |
| KLS3-FT-31N-1.4A1  | A1    | 45nF±30%  | 300    | 1.4±0.5  | 31     | 20     | 0.22    | 0.1     | Alloy |
| KLS3-FT-31T-1.4A1  | A1    | 45nF±30%  | 300    | 1.4±0.5  | 31     | 20     | 0.22    | 0.1     | Brass |
| KLS3-HFT-31T-1.4A1 | A1    | 70nF±T30% | 300    | 1.4±0.5  | 31     | 20     | 0.22    | 0.1     | Brass |
| KLS3-FT-32T-2.9A1  | A1    | 30nF±30%  | 300    | 2.9±0.5  | 32     | 25     | 0.42    | 0.2     | Brass |
| KLS3-FT-35T-1.8A1  | A1    | 70nF±30%  | 300    | 1.8±0.5  | 35     | 25     | 0.32    | 0.2     | Brass |
| KLS3-FT-35T-2.3A1  | A1    | 28nF±30%  | 300    | 2.3±0.5  | 35     | 25     | 0.42    | 0.2     | Brass |
| KLS3-FT-35T-2.6A1  | A1    | 28nF±30%  | 300    | 2.6±0.5  | 35     | 25     | 0.52    | 0.3     | Brass |
| KLS3-FT-38T-2.8A1  | A1    | 32nF±30%  | 300    | 2.8±0.2  | 38     | 25     | 0.73    | 0.47    | Brass |
| KLS3-FT-39T-2.4A1  | A1    | 32nF±30%  | 400    | 2.4±0.5  | 39     | 25     | 0.66    | 0.4     | Brass |
| KLS3-FT-41N-0.7A1  | A1    | 80nF±30%  | 800    | 0.7±0.5  | 41     | 25     | 0.22    | 0.1     | Alloy |
| KLS3-FT-41T-1.0A1  | A1    | 80nF±30%  | 800    | 1.0±0.5  | 41     | 25     | 0.22    | 0.1     | Brass |
| KLS3-FT-41T-1.2A1  | A1    | 75nF±30%  | 800    | 1.2±0.5  | 41     | 25     | 0.27    | 0.15    | Brass |
| KLS3-FT-43T-0.8A1  | A1    | 75nF±30%  | 800    | 0.8±0.5  | 43     | 25     | 0.22    | 0.1     | Brass |
| KLS3-FT-45T-0.7A1  | A1    | 80nF±30%  | 300    | 0.7±0.5  | 45     | 25     | 0.22    | 0.1     | Brass |
| KLS3-FT-50T-1.8A1  | A1    | 75nF±30%  | 300    | 1.8±0.5  | 50     | 25     | 0.22    | 0.1     | Brass |
| KLS3-FT-50T-2.1A1  | A1    | 75nF±30%  | 300    | 2.1±0.5  | 50     | 25     | 0.27    | 0.15    | Brass |
| KLS3-FT-50T-2.7A1  | A1    | 35nF±30%  | 300    | 2.7±0.5  | 50     | 25     | 0.42    | 0.2     | Brass |
| KLS3-FT-50T-3.0A1  | A1    | 28nF±30%  | 300    | 3.0±0.5  | 50     | 25     | 0.42    | 0.2     | Brass |
| KLS3-FT-55G-3.2A1  | A1    | 30nF±30%  | 300    | 3.2±0.5  | 55     | 25     | 0.42    | 0.2     | SUS   |