

ECHO-PIEZOELECTRIC CERAMIC ELEMENT

● External Drive (General Type)

| Model No. | Resonant Frequency (kHz) | Resonant Impedance (Ω) max. | Static Capacitance (pF) | Shape | Dimensions(mm) | | | | Plate Material |
|-------------|--------------------------|--------------------------------------|-------------------------|-------|----------------|----------------|-----------------|-----------------|----------------|
| | | | | | D ± 0.1 | d ± 0.2 | T ± 0.05 | t ± 0.02 | |
| EB-12B-16E | 16.5 \pm 1.0 | 800 | 6000 | A | 12 | 9 | 0.45 | 0.25 | Brass |
| EB-13BL-13E | 13.0 \pm 1.0 | 500 | 9000 | B | 24 \times 13 | 11 | 0.45 | 0.25 | Brass |
| EB-15BH-12E | 12.5 \pm 1.0 | 600 | 9000 | C | 15(12) | 11 | 0.45 | 0.25 | Brass |
| EB-15B-10E | 10 \pm 1.0 | 400 | 9000 | A | 15 | 11 | 0.45 | 0.25 | Brass |
| EB-18B-90E | 9.0 \pm 0.7 | 300 | 15000 | A | 18 | 15 | 0.5 | 0.25 | Brass |
| EB-18S-95E | 9.5 \pm 0.7 | 300 | 15000 | A | 18 | 15 | 0.5 | 0.25 | SUS |
| EB-20B-70E | 7.0 \pm 0.7 | 250 | 15000 | A | 20 | 15 | 0.5 | 0.25 | Brass |
| EB-20S-75E | 7.5 \pm 0.7 | 250 | 15000 | A | 20 | 15 | 0.5 | 0.25 | SUS |
| EB-27B-30E | 3.0 \pm 0.5 | 300 | 35000 | A | 27 | 20 | 0.38 | 0.15 | Brass |
| EB-27B-42E | 4.2 \pm 0.5 | 200 | 25000 | A | 27 | 20 | 0.5 | 0.25 | Brass |
| EB-27S-46E | 4.6 \pm 0.5 | 200 | 25000 | A | 27 | 20 | 0.5 | 0.25 | SUS |
| EB-30B-29E | 2.9 \pm 0.5 | 300 | 25000 | A | 30 | 20 | 0.5 | 0.25 | Brass |
| EB-31B-29E | 2.9 \pm 0.5 | 300 | 25000 | A | 31 | 20 | 0.5 | 0.25 | Brass |
| EB-31S-30E | 3.0 \pm 0.5 | 300 | 25000 | A | 31 | 20 | 0.5 | 0.25 | SUS |
| EB-35B-26E | 2.6 \pm 0.5 | 250 | 40000 | A | 35 | 25 | 0.5 | 0.25 | Brass |
| EB-35S-28E | 2.8 \pm 0.5 | 250 | 40000 | A | 35 | 25 | 0.5 | 0.25 | SUS |
| EB-38B-20E | 2.0 \pm 0.5 | 500 | 40000 | A | 38 | 25 | 0.5 | 0.25 | Brass |
| EB-41B-15E | 1.5 \pm 0.5 | 400 | 40000 | A | 41 | 25 | 0.5 | 0.25 | Brass |
| EB-42B-14E | 1.4 \pm 0.5 | 500 | 40000 | A | 42 | 25 | 0.5 | 0.25 | Brass |
| EB-50B-32E | 3.2 \pm 0.5 | 200 | 40000 | A | 50 | 25 | 0.5 | 0.25 | Brass |
| EB-50B-13E | 1.3 \pm 0.5 | 300 | 60000 | A | 50 | 30 | 0.5 | 0.25 | Brass |
| EB-50BD-14E | 1.4 \pm 0.5 | 300 | 60000 | D | 50 | 30 | 0.5 | 0.25 | Brass |

ECHO-PIEZOELECTRIC CERAMIC ELEMENT

● External Drive (Thin Type)

| Model No. | Resonant | Resonant | Static | Shape | Dimensions(mm) | | | | Plate Material |
|--------------|--------------------|--------------------------------|---------------------|-------|----------------|----------------|-----------------|-----------------|----------------|
| | Frequency (kHz) | Impedance (Ω) max. | Capacitance (pF) | | D ± 0.1 | d ± 0.2 | T ± 0.05 | t ± 0.02 | |
| EB-12B-85TE | 8.5 \pm 0.6 | 600 | 13000 | A | 12 | 9 | 0.22 | 0.1 | Brass |
| EB-15BH-70TE | 7.0 \pm 0.5 | 600 | 13000 | C | 15(12) | 11 | 0.22 | 0.1 | Brass |
| EB-15B-63TE | 6.3 \pm 0.5 | 600 | 15000 | A | 15 | 11 | 0.22 | 0.1 | Brass |
| EB-20B-39TE | 3.9 \pm 0.3 | 400 | 25000 | A | 20 | 15 | 0.22 | 0.1 | Brass |
| EB-21B-35TE | 3.5 \pm 0.3 | 250 | 60000 | A | 21 | 20 | 0.22 | 0.1 | Brass |
| EB-25B-27TE | 2.7 \pm 0.3 | 300 | 60000 | A | 25 | 20 | 0.22 | 0.1 | Brass |
| EB-27B-26TE | 2.6 \pm 0.3 | 200 | 60000 | A | 27 | 20 | 0.22 | 0.1 | Brass |
| EB-27B-25TE | 2.5 \pm 0.3 | 200 | 100000 | A | 27 | 25 | 0.22 | 0.1 | Brass |
| EB-30B-18TE | 1.8 \pm 0.3 | 500 | 60000 | A | 30 | 20 | 0.22 | 0.1 | Brass |
| EB-30S-19TE | 1.9 \pm 0.3 | 500 | 60000 | A | 30 | 20 | 0.22 | 0.1 | SUS |
| EB-31B-17TE | 1.7 \pm 0.3 | 800 | 60000 | A | 31 | 20 | 0.22 | 0.1 | Brass |
| EB-31S-19TE | 1.9 \pm 0.3 | 800 | 60000 | A | 31 | 20 | 0.22 | 0.1 | SUS |
| EB-31B-23TE | 2.3 \pm 0.3 | 200 | 100000 | A | 31 | 25 | 0.22 | 0.1 | Brass |
| EB-35B-15TE | 1.5 \pm 0.3 | 300 | 100000 | A | 35 | 25 | 0.22 | 0.1 | Brass |
| EB-35S-15TE | 1.5 \pm 0.3 | 300 | 100000 | A | 35 | 25 | 0.22 | 0.1 | SUS |
| EB-38B-15TE | 1.5 \pm 0.3 | 1000 | 100000 | A | 38 | 25 | 0.22 | 0.1 | Brass |
| EB-41B-26TE | 2.6 \pm 0.3 | 300 | 60000 | A | 41 | 20 | 0.22 | 0.1 | Brass |
| EB-41B-13TE | 1.3 \pm 0.3 | 1200 | 100000 | A | 41 | 25 | 0.22 | 0.1 | Brass |
| EB-41S-14TE | 1.4 \pm 0.3 | 1200 | 100000 | A | 41 | 25 | 0.22 | 0.1 | SUS |
| EB-42B-12TE | 1.2 \pm 0.3 | 1200 | 100000 | A | 42 | 25 | 0.22 | 0.1 | Brass |
| EB-45B-11TE | 1.1 \pm 0.3 | 1400 | 100000 | A | 45 | 25 | 0.22 | 0.1 | Brass |
| EB-50B-20TE | 2.0 \pm 0.3 | 500 | 100000 | A | 50 | 25 | 0.22 | 0.1 | Brass |
| EB-50B-14TE | 1.4 \pm 0.3 | 1000 | 160000 | A | 50 | 30 | 0.22 | 0.1 | Brass |

ECHO-PIEZOELECTRIC CERAMIC ELEMENT

● Self-Drive (General Type)

| Model No. | Resonant Frequency | Resonant Impedance | Static Capacitance | Shape | Dimensions(mm) | | | | Plate Material |
|------------|--------------------|--------------------|--------------------|-------|----------------|----------------|-----------------|-----------------|----------------|
| | (kHz) | (Ω) max. | (pF) | | D ± 0.1 | d ± 0.2 | T ± 0.05 | t ± 0.02 | |
| EB-20B-70S | 7.0 \pm 0.7 | 250 | 15000 | E/K/L | 20 | 15 | 0.5 | 0.25 | Brass |
| EB-22B-48S | 4.8 \pm 0.5 | 800 | 12000 | J | 22 | 16.8 | 0.38 | 0.20 | Brass |
| EB-27B-42S | 4.2 \pm 0.5 | 200 | 25000 | E/H | 27 | 20 | 0.5 | 0.25 | Brass |
| EB-27S-46S | 4.6 \pm 0.5 | 200 | 25000 | E | 27 | 20 | 0.5 | 0.25 | SUS |
| EB-27B-30S | 3.0 \pm 0.5 | 300 | 35000 | E | 27 | 20 | 0.38 | 0.15 | Brass |
| EB-35B-26S | 2.6 \pm 0.5 | 250 | 40000 | E/F/G | 35 | 25 | 0.5 | 0.25 | Brass |
| EB-35S-28S | 2.8 \pm 0.5 | 250 | 40000 | E/F/G | 35 | 25 | 0.5 | 0.25 | SUS |
| EB-38B-20S | 2.0 \pm 0.5 | 500 | 40000 | E | 38 | 25 | 0.5 | 0.25 | Brass |

● Self-Drive (Thin Type)

| Model No. | Resonant Frequency | Resonant Impedance | Static Capacitance | Shape | Dimensions(mm) | | | | Plate Material |
|-------------|--------------------|--------------------|--------------------|-------|----------------|----------------|-----------------|-----------------|----------------|
| | (kHz) | (Ω) max. | (pF) | | D ± 0.1 | d ± 0.2 | T ± 0.05 | t ± 0.02 | |
| EB-12B-70TS | 7.0 \pm 0.7 | 1600 | 9000 | L | 12 | 9 | 0.17 | 0.1 | Brass |
| EB-15B-65TS | 6.5 \pm 0.5 | 600 | 12000 | L | 15 | 11 | 0.22 | 0.1 | Brass |
| EB-18B-38TS | 3.8 \pm 0.5 | 1500 | 16000 | L | 18 | 12 | 0.22 | 0.1 | Brass |
| EB-20S-36TS | 3.6 \pm 0.5 | 400 | 25000 | E/L | 20 | 15 | 0.22 | 0.1 | Brass |
| EB-21B-34TS | 3.4 \pm 0.5 | 600 | 25000 | K | 21 | 14.3 | 0.22 | 0.1 | Brass |
| EB-27B-26TS | 2.6 \pm 0.5 | 300 | 60000 | E | 27 | 20 | 0.22 | 0.1 | Brass |
| EB-35S-16TS | 1.6 \pm 0.3 | 300 | 100000 | E | 35 | 25 | 0.22 | 0.1 | SUS |