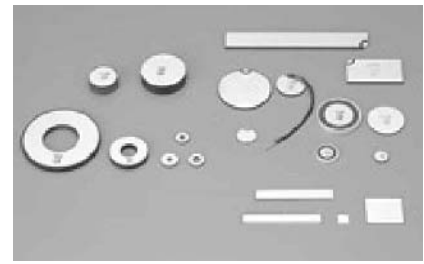


For High Power Applications

- High Reliability through use of Tamura's Piezo Material Technology
- Thin Design
- Low Output Voltage warning terminal
- ON/OFF Terminal

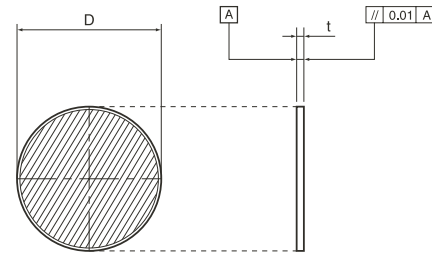


Contact Tamura for Custom Designs

Electrical Data

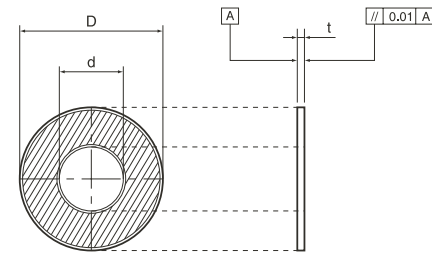
| Part # | Diameter (mm) | Thickness (mm) | Frequency1 (kHz) | kp(%) | Frequency2 (kHz) | kt(%) | Capacitance (pF) |
|--------|---------------|----------------|------------------|-------|------------------|-------|------------------|
| TDSE20 | 20.0 | 2.05 | 111.0 | 49 | 1010 | 45 | 1800 |
| TDSE25 | 25.0 | 2.05 | 87.5 | 49 | 1010 | 45 | 2800 |
| TDSE28 | 28.0 | 2.05 | 79.0 | 49 | 1010 | 45 | 3400 |
| TDSE40 | 40.7 | 2.05 | 54.0 | 60 | 1010 | 45 | 7100 |
| | 40.7 | 2.55 | 54.0 | 60 | 800 | 40 | 5600 |
| TDSE43 | 42.7 | 2.05 | 50.5 | 62 | 1010 | 45 | 7800 |
| | 42.7 | 11.2 | 50.5 | 68 | 200 | 31 | 1500 |
| TDSE70 | 71.5 | 20.5 | 31.0 | 62 | 1010 | 45 | 22000 |

Mechanical Dimensions



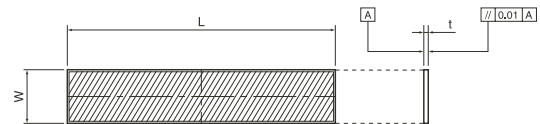
※ "t" means the thickness and "A" means the parallel tolerance of ceramic before silver electrode is printed.

| Part # | Outside Diameter (mm) | Inside Diameter (mm) | Thickness (mm) | Frequency (kHz) | Coupling Coefficient | Capacitance (pF) |
|----------|-----------------------|----------------------|----------------|-----------------|----------------------|------------------|
| TBLE1507 | 15.2 | 6.6 | 2.00 | 100 | 42 | 840 |
| TBLE3015 | 30.0 | 14.7 | 5.00 | 48 | 42 | 1300 |
| TBLE3515 | 35.0 | 14.7 | 5.30 | 44 | 42 | 1850 |
| TBLE5023 | 50.0 | 23.0 | 6.00 | 30 | 41 | 3000 |
| TBLE6030 | 60.0 | 30.0 | 6.30 | 25 | 42 | 3900 |
| TBLE7032 | 70.0 | 32.0 | 6.50 | 21.5 | 44 | 5400 |



※ "t" means the thickness and "A" means the parallel tolerance of ceramic before silver electrode is printed.

| Part # | Length (mm) | Width (mm) | Thickness (mm) | Coupling | Frequency (kHz) | Capacitance (pF) |
|----------|-------------|------------|----------------|----------|-----------------|------------------|
| TPE17535 | 175.0 | 35.0 | 2.55 | 40 | 800 | 27.5 |
| TPE20025 | 200.0 | 25.0 | 2.55 | 40 | 800 | 22.5 |
| TPE8080 | 80.0 | 80.0 | 2.55 | 40 | 800 | 29.0 |



※ "t" means the thickness and "A" means the parallel tolerance of ceramic before silver electrode is printed.

TAMURA CORPORATION

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Bolt-Clamped Langevin Transducers

For Pressure Sensor type applications

TAMURA's bolt-clamped langevin type (BLT) transducers are capable of generating stabilized ultrasonic waves against the fluctuations of temperature, input power and load fluctuation, using high strength and large amplitude piezoelectric ceramic material.



| Items | TBL4535D-28HB □ TBL4535D-28HN □ | TBL6035D-28HN □ | TBL4535D-40HB □ TBL4535D-40HN □ |
|--------------------------------------|---|-----------------|------------------------------------|
| Dimensions(mm) Specifications | | | |
| Resonance frequency (kHz) | 28 | | 40 |
| Resonance impedance (Ω) | below 30 | | below 40 |
| Static capacitance (pF) | 3500 or 3800 | | |
| Allowable input power (W) | 70(Using one BLT only) / 50(Using two BLT's and more) | | |
| Allowable operating temperature (°C) | below 120 | | |

※ In case with the bolts, groove processing is not provided.

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