

2-PIEZO LAYER BENDING MOTORS HIGH PERFORMANCE - USING 5A4E PIEZOCERAMIC

DESCRIPTION: HIGH PERFORMANCE BENDING MOTORS

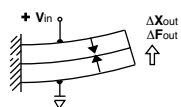
Composite reinforced (CL) bending elements are available for use in applications requiring the highest performance. These elements provide higher motion, higher force, and higher response in the same size package. They are constructed of 5A4E piezoceramic and are X-poled for series bending operation.

Custom sizes, configurations and mounting options upon request*. Maximum size: 2.65" (67.3mm) long x 2.65" (67.3mm) wide.

Delivery: Typically stocked for "off-the-shelf" delivery.

PERFORMANCE: 5A4E - HIGH PERFORMANCE BENDER (Cantilever Mount)

VALUES TO BE USED AS GUIDELINES

| PART NUMBERS HIGH PERFORMANCE BENDERS | WEIGHT (Grams) | STIFFNESS (N/m) | CAPACITANCE (nF) (Series Operation) | RATED VOLTAGE (Vp) (Series Operation) | RESONANT FREQUENCY ① (Hz) | FREE DEFLECTION ① (µm) | BLOCKED FORCE ① (N) | PRICE & ORDERING INFORMATION | | | | | | |
|--|----------------|---------------------|--|--|------------------------------|---------------------------|------------------------|------------------------------|-------|------|------|--|--|--|
| | | | | | | | | 1 pc. | 5 | 25 | 100 | | | |
|  <p>X-poled for series bending operation (2 wire)</p> | | | | | | | | UNIT PRICE | | | | | | |
| .015" (.38mm) THICK | | | | | | | | | | | | | | |
| T215-A4CL-103X | .22 | 1.0x10 ² | 6 | ± 120 | 275 | ± 370 | ± .04 | \$75 | \$40 | \$20 | \$13 | | | |
| T215-A4CL-203X | .45 | 2.0x10 ² | 11 | ± 120 | 275 | ± 370 | ± .09 | \$80 | \$55 | \$28 | \$16 | | | |
| T215-A4CL-303X | .90 | 4.0x10 ² | 22 | ± 120 | 275 | ± 370 | ± .17 | \$90 | \$65 | \$33 | \$25 | | | |
| T215-A4CL-503X | 4.5 | 1.3x10 ² | 110 | ± 120 | 68 | ± 1480 | ± .23 | \$160 | \$115 | \$82 | \$72 | | | |
| .019" (.48mm) THICK | | | | | | | | | | | | | | |
| T219-A4CL-103X | .32 | 2.6x10 ² | 4 | ± 180 | 360 | ± 305 | ± .08 | \$75 | \$35 | \$17 | \$10 | | | |
| T219-A4CL-203X | .64 | 5.2x10 ² | 8 | ± 180 | 360 | ± 305 | ± .16 | \$80 | \$45 | \$22 | \$13 | | | |
| T219-A4CL-303X | 1.3 | 1.0x10 ³ | 16 | ± 180 | 360 | ± 305 | ± .31 | \$90 | \$55 | \$28 | \$20 | | | |
| T219-A4CL-503X | 6.4 | 3.2x10 ² | 76 | ± 180 | 90 | ± 1,220 | ± .39 | \$130 | \$100 | \$77 | \$65 | | | |
| .023" (.58mm) THICK | | | | | | | | | | | | | | |
| T223-A4CL-103X | .34 | 3.9x10 ² | 4 | ± 180 | 425 | ± 254 | ± .10 | \$80 | \$37 | \$18 | \$11 | | | |
| T223-A4CL-203X | .68 | 8.3x10 ² | 8 | ± 180 | 425 | ± 254 | ± .21 | \$90 | \$48 | \$24 | \$14 | | | |
| T223-A4CL-303X | 1.4 | 1.7x10 ³ | 16 | ± 180 | 425 | ± 254 | ± .42 | \$100 | \$60 | \$30 | \$22 | | | |
| T223-A4CL-503X | 6.8 | 5.2x10 ² | 80 | ± 180 | 106 | ± 1,016 | ± .53 | \$150 | \$110 | \$82 | \$70 | | | |
| .034" (.86mm) THICK | | | | | | | | | | | | | | |
| T234-A4CL-103X | .48 | 1.1x10 ³ | 2.7 | ± 250 | 620 | ± 160 | ± .18 | \$100 | \$45 | \$25 | \$15 | | | |
| T234-A4CL-203X | .97 | 2.2x10 ³ | 5.5 | ± 250 | 620 | ± 160 | ± .36 | \$110 | \$60 | \$35 | \$18 | | | |
| T234-A4CL-303X | 1.9 | 4.5x10 ³ | 11 | ± 250 | 620 | ± 160 | ± .72 | \$125 | \$70 | \$40 | \$25 | | | |
| T234-A4CL-503X | 9.7 | 1.4x10 ³ | 55 | ± 250 | 152 | ± 640 | ± .89 | \$175 | \$130 | \$90 | \$75 | | | |

① -103, -203, and -303 performance based on 1.0" bending length. -503 performance based on 2.0" bending length.

* Quick-Mounts and Double-Quick-Mounts for High Performance elements are wired for series operation.

Suitable for cryogenic use.

ROHS: Compliant.

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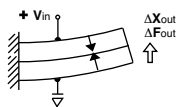
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PERFORMANCE: 5H4E - HIGH PERFORMANCE BENDER (Cantilever Mount)

VALUES TO BE USED AS GUIDELINES

| PART NUMBERS HIGH PERFORMANCE BENDERS | WEIGHT (Grams) | STIFFNESS (N/m) | CAPACITANCE (nF) (Series Operation) | RATED VOLTAGE (Vp) (Series Operation) | RESONANT FREQUENCY ① (Hz) | FREE DEFLECTION ① (µm) | BLOCKED FORCE ① (N) | PRICE & ORDERING INFORMATION | | | | |
|--|----------------|---------------------|--|--|------------------------------|---------------------------|------------------------|------------------------------|-------|------|------|--|
| | | | | | | | | 1 pc. | 5 | 25 | 100 | |
| | | | | | | | | UNIT PRICE | | | | |
|  <p>X-poled for series bending operation (2 wire)</p> | | | | | | | | | | | | |
| .015" (.38mm) THICK | | | | | | | | | | | | |
| T215-H4CL-103X | .22 | 1.2x10 ² | 9 | ± 80 | 270 | ± 370 | ± .045 | \$75 | \$40 | \$20 | \$13 | |
| T215-H4CL-203X | .45 | 2.2x10 ² | 17 | ± 80 | 270 | ± 370 | ± .08 | \$80 | \$55 | \$28 | \$16 | |
| T215-H4CL-303X | .90 | 4.6x10 ² | 35 | ± 80 | 270 | ± 370 | ± .17 | \$90 | \$65 | \$33 | \$25 | |
| T215-H4CL-503X | 4.5 | 1.6x10 ² | 175 | ± 80 | 68 | ± 1,480 | ± .23 | \$160 | \$115 | \$82 | \$72 | |
| .019" (.48mm) THICK | | | | | | | | | | | | |
| T219-H4CL-103X | .32 | 2.6x10 ² | 6.5 | ± 120 | 350 | ± 305 | ± .08 | \$75 | \$35 | \$17 | \$10 | |
| T219-H4CL-203X | .64 | 5.2x10 ² | 13 | ± 120 | 350 | ± 305 | ± .16 | \$80 | \$45 | \$22 | \$13 | |
| T219-H4CL-303X | 1.3 | 1.0x10 ³ | 26 | ± 120 | 350 | ± 305 | ± .31 | \$90 | \$55 | \$28 | \$20 | |
| T219-H4CL-503X | 6.4 | 3.2x10 ² | 130 | ± 120 | 88 | ± 1,220 | ± .39 | \$130 | \$100 | \$77 | \$65 | |
| .023" (.58mm) THICK | | | | | | | | | | | | |
| T223-H4CL-103X | .34 | 4.0x10 ² | 6.5 | ± 120 | 440 | ± 270 | ± .11 | \$80 | \$37 | \$18 | \$11 | |
| T223-H4CL-203X | .68 | 8.1x10 ² | 13 | ± 120 | 440 | ± 270 | ± .22 | \$90 | \$48 | \$24 | \$14 | |
| T223-H4CL-303X | 1.4 | 1.6x10 ³ | 26 | ± 120 | 440 | ± 270 | ± .44 | \$100 | \$60 | \$30 | \$22 | |
| T223-H4CL-503X | 6.8 | 5.1x10 ² | 130 | ± 120 | 110 | ± 1,080 | ± .55 | \$150 | \$110 | \$82 | \$70 | |
| .034" (.86mm) THICK | | | | | | | | | | | | |
| T234-H4CL-103X | .48 | 1.1x10 ³ | 4.5 | ± 170 | 600 | ± 165 | ± .18 | \$100 | \$45 | \$25 | \$15 | |
| T234-H4CL-203X | .97 | 2.2x10 ³ | 9 | ± 170 | 600 | ± 165 | ± .36 | \$110 | \$60 | \$35 | \$18 | |
| T234-H4CL-303X | 1.9 | 4.3x10 ³ | 18 | ± 170 | 600 | ± 165 | ± .71 | \$125 | \$70 | \$40 | \$25 | |
| T234-H4CL-503X | 9.7 | 1.3x10 ³ | 88 | ± 170 | 150 | ± 660 | ± .89 | \$175 | \$130 | \$90 | \$75 | |

① -103, -203, and -303 performance based on 1.0" bending length. -503 performance based on 2.0" bending length.

* Quick-Mounts and Double-Quick-Mounts for High Performance elements are wired for series operation.

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