

**Inductors**  
For General Applications  
Radial

ELF Series ELF0505 Type

**FEATURES**

- The ELF series inductors are available in 4 form factors ranging from 0505 to 1010.
- Because they are magnetically shielded, these parts can be used in high-density mounting configurations.
- With a miniature winding construction, these inductors nonetheless achieve high Q characteristics.
- Available in tape packaging to support automated mounting machines.

**APPLICATIONS**

Televisions, VCRs, personal computers, and other electronic equipment.

**SPECIFICATIONS**

|                             |                                                   |
|-----------------------------|---------------------------------------------------|
| Operating temperature range | −20 to +80°C<br>[Including self-temperature rise] |
| Storage temperature range   | −40 to +80°C [Unit of products]                   |
| Terminal tensile strength   | 24.5N min.                                        |

**PRODUCT IDENTIFICATION**

|     |      |     |     |     |     |
|-----|------|-----|-----|-----|-----|
| ELF | 0505 | RA- | 1R0 | K   | -3  |
| (1) | (2)  | (3) | (4) | (5) | (6) |

(1)Series name

(2)Dimensions

|      |                               |
|------|-------------------------------|
| 0505 | ø5.5×5.5mm (lead pitch 5mm)   |
| 0607 | ø6.6×7mm (lead pitch 5mm)     |
| 0708 | ø7.7×8mm (lead pitch 5mm)     |
| 1010 | ø10.5×10.5mm (lead pitch 5mm) |

(3)Packaging style

|    |           |
|----|-----------|
| RA | Ammo-pack |
| RR | Reel      |

(4)Inductance value

|     |        |
|-----|--------|
| R22 | 0.22μH |
| 1R0 | 1μH    |

(5)Inductance tolerance

|   |      |
|---|------|
| J | ±5%  |
| K | ±10% |
| M | ±20% |

(6)TDK internal code

(Some products may not have this number. See the main body for details.)

**PACKAGING STYLE AND QUANTITIES**

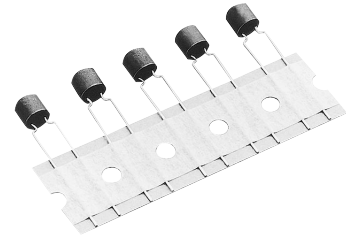
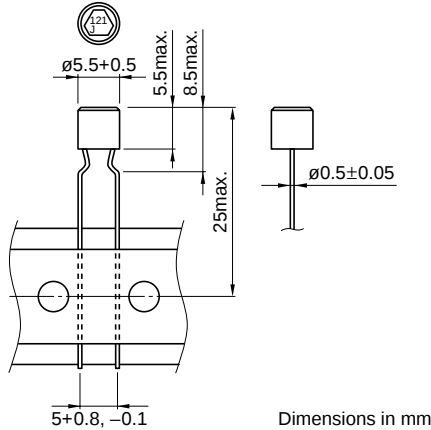
|                 |           |                 |
|-----------------|-----------|-----------------|
| Packaging style | Type      | Quantity        |
| Ammo-pack       | ELF0505RA | 2000 pieces     |
|                 | ELF0607RA | 1000 pieces     |
|                 | ELF0708RA | 1000 pieces     |
| Taping          | ELF1010RR | 300 pieces/reel |

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### AMMO-PACK TAPING STYLE SHAPES AND DIMENSIONS



### ELECTRICAL CHARACTERISTICS

| Inductance<br>(μH) | Inductance<br>tolerance | Q min. | Test<br>frequency<br>L, Q (MHz) | Self-resonant<br>frequency<br>(MHz)ref. | DC<br>resistance<br>(Ω)max. | Rated current (mA)*1max.         |                              | Part No.           |
|--------------------|-------------------------|--------|---------------------------------|-----------------------------------------|-----------------------------|----------------------------------|------------------------------|--------------------|
|                    |                         |        |                                 |                                         |                             | Based on<br>inductance<br>change | Based on<br>temperature rise |                    |
| 0.22               | ±20, ±10%               | 45     | 25.2                            | 500                                     | 0.15                        | 600                              | 895                          | ELF0505RA-R22X*2-3 |
| 0.27               | ±20, ±10%               | 45     | 25.2                            | 470                                     | 0.15                        | 600                              | 895                          | ELF0505RA-R27X-3   |
| 0.33               | ±20, ±10%               | 45     | 25.2                            | 340                                     | 0.15                        | 600                              | 895                          | ELF0505RA-R33X-3   |
| 0.39               | ±20, ±10%               | 45     | 25.2                            | 290                                     | 0.15                        | 600                              | 895                          | ELF0505RA-R39X-3   |
| 0.47               | ±20, ±10%               | 45     | 25.2                            | 250                                     | 0.15                        | 600                              | 895                          | ELF0505RA-R47X-3   |
| 0.56               | ±20, ±10%               | 45     | 25.2                            | 210                                     | 0.15                        | 600                              | 895                          | ELF0505RA-R56X-3   |
| 0.68               | ±20, ±10%               | 45     | 25.2                            | 180                                     | 0.15                        | 600                              | 895                          | ELF0505RA-R68X-3   |
| 0.82               | ±20, ±10%               | 45     | 25.2                            | 135                                     | 0.15                        | 600                              | 895                          | ELF0505RA-R82X-3   |
| 1                  | ±20, ±10%               | 50     | 7.96                            | 125                                     | 0.15                        | 600                              | 895                          | ELF0505RA-1R0X-3   |
| 1.2                | ±20, ±10%               | 50     | 7.96                            | 110                                     | 0.16                        | 600                              | 865                          | ELF0505RA-1R2X-3   |
| 1.5                | ±20, ±10%               | 50     | 7.96                            | 99                                      | 0.19                        | 600                              | 795                          | ELF0505RA-1R5X-3   |
| 1.8                | ±20, ±10%               | 50     | 7.96                            | 88                                      | 0.2                         | 600                              | 775                          | ELF0505RA-1R8X-3   |
| 2.2                | ±20, ±10%               | 50     | 7.96                            | 79                                      | 0.23                        | 600                              | 720                          | ELF0505RA-2R2X-3   |
| 2.7                | ±20, ±10%               | 50     | 7.96                            | 70                                      | 0.26                        | 600                              | 680                          | ELF0505RA-2R7X-3   |
| 3.3                | ±20, ±10%               | 50     | 7.96                            | 63                                      | 0.29                        | 600                              | 645                          | ELF0505RA-3R3X-3   |
| 3.9                | ±20, ±10%               | 50     | 7.96                            | 58                                      | 0.32                        | 590                              | 610                          | ELF0505RA-3R9X-3   |
| 4.7                | ±20, ±10%               | 50     | 7.96                            | 53                                      | 0.36                        | 540                              | 575                          | ELF0505RA-4R7X-3   |
| 5.6                | ±20, ±10%               | 40     | 7.96                            | 49                                      | 0.4                         | 500                              | 550                          | ELF0505RA-5R6X-3   |
| 6.8                | ±20, ±10%               | 40     | 7.96                            | 45                                      | 0.44                        | 455                              | 520                          | ELF0505RA-6R8X-3   |
| 8.2                | ±20, ±10%               | 35     | 7.96                            | 41                                      | 0.5                         | 395                              | 490                          | ELF0505RA-8R2X-3   |
| 10                 | ±10, ±5%                | 50     | 2.52                            | 37                                      | 0.8                         | 380                              | 385                          | ELF0505RA-100X-3   |
| 12                 | ±10, ±5%                | 50     | 2.52                            | 34                                      | 0.89                        | 350                              | 365                          | ELF0505RA-120X-3   |
| 15                 | ±10, ±5%                | 50     | 2.52                            | 31                                      | 1.02                        | 320                              | 345                          | ELF0505RA-150X-3   |
| 18                 | ±10, ±5%                | 50     | 2.52                            | 28                                      | 1.14                        | 290                              | 325                          | ELF0505RA-180X-3   |
| 22                 | ±10, ±5%                | 50     | 2.52                            | 25                                      | 1.3                         | 265                              | 305                          | ELF0505RA-220X-3   |
| 27                 | ±10, ±5%                | 50     | 2.52                            | 23                                      | 1.46                        | 240                              | 285                          | ELF0505RA-270X-3   |
| 33                 | ±10, ±5%                | 50     | 2.52                            | 21                                      | 1.65                        | 220                              | 270                          | ELF0505RA-330X-3   |
| 39                 | ±10, ±5%                | 50     | 2.52                            | 19                                      | 1.83                        | 200                              | 255                          | ELF0505RA-390X-3   |
| 47                 | ±10, ±5%                | 45     | 2.52                            | 17.5                                    | 2.05                        | 185                              | 240                          | ELF0505RA-470X-3   |
| 56                 | ±10, ±5%                | 50     | 2.52                            | 16                                      | 2.3                         | 170                              | 230                          | ELF0505RA-560X-3   |

\*1 Rated current: Value obtained when current flows and the temperature has risen to 20°C or when DC current flows and the initial value of inductance has fallen by 10%, whichever is smaller.

\*2 X: Please specify inductance tolerance, M(±20%) or K(±10%) or J(±5%)

- Test equipment L, Q: YHP4340A Q METER, or equivalent  
Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER, or equivalent  
SRF: TAKEDA RIKEN TR-4100 TRACKING SCOPE, or equivalent

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### AMMO-PACK TAPING STYLE

### ELECTRICAL CHARACTERISTICS

| Inductance<br>( $\mu$ H) | Inductance<br>tolerance | Q min. | Test<br>frequency<br>L, Q (MHz) | Self-resonant<br>frequency<br>(MHz)ref. | DC<br>resistance<br>( $\Omega$ )max. | Rated current (mA)*1max.         |                              | Part No.          |
|--------------------------|-------------------------|--------|---------------------------------|-----------------------------------------|--------------------------------------|----------------------------------|------------------------------|-------------------|
|                          |                         |        |                                 |                                         |                                      | Based on<br>inductance<br>change | Based on<br>temperature rise |                   |
| 68                       | $\pm 10, \pm 5\%$       | 45     | 2.52                            | 14.5                                    | 2.6                                  | 155                              | 215                          | ELF0505RA-680X*23 |
| 82                       | $\pm 10, \pm 5\%$       | 45     | 2.52                            | 13                                      | 3.1                                  | 145                              | 195                          | ELF0505RA-820X-3  |
| 100                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 12                                      | 3.3                                  | 130                              | 190                          | ELF0505RA-101X-3  |
| 120                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 11                                      | 4.7                                  | 120                              | 160                          | ELF0505RA-121X-3  |
| 150                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 10                                      | 5.4                                  | 108                              | 150                          | ELF0505RA-151X-3  |
| 180                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 9.2                                     | 5.6                                  | 99                               | 145                          | ELF0505RA-181X-3  |
| 220                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 8.4                                     | 6.9                                  | 90                               | 130                          | ELF0505RA-221X-3  |
| 270                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 7.6                                     | 7.8                                  | 82                               | 125                          | ELF0505RA-271X-3  |
| 330                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 6.9                                     | 8.9                                  | 75                               | 115                          | ELF0505RA-331X-3  |
| 390                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 6.4                                     | 13                                   | 69                               | 96                           | ELF0505RA-391X-3  |
| 470                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 5.8                                     | 14.8                                 | 63                               | 90                           | ELF0505RA-471X-3  |
| 560                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 5.3                                     | 16.5                                 | 58                               | 85                           | ELF0505RA-561X-3  |
| 680                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 5                                       | 18.5                                 | 53                               | 81                           | ELF0505RA-681X-3  |
| 820                      | $\pm 10, \pm 5\%$       | 40     | 0.796                           | 4.7                                     | 26                                   | 48                               | 68                           | ELF0505RA-821X-3  |
| 1000                     | $\pm 10, \pm 5\%$       | 30     | 0.252                           | 4.4                                     | 31                                   | 44                               | 62                           | ELF0505RA-102X-3  |
| 1200                     | $\pm 10, \pm 5\%$       | 30     | 0.252                           | 4.1                                     | 37                                   | 40                               | 57                           | ELF0505RA-122X-3  |

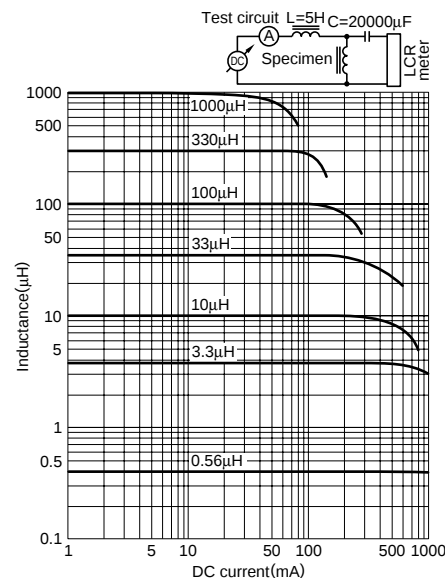
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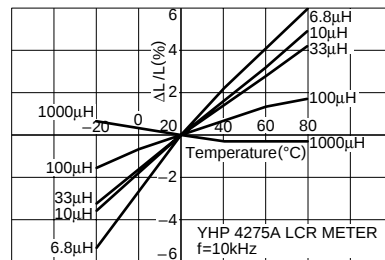
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### TYPICAL ELECTRICAL CHARACTERISTICS

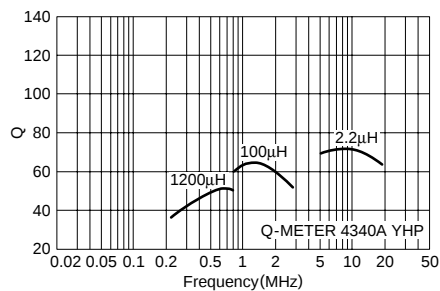
#### INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



#### INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



#### Q vs. FREQUENCY CHARACTERISTICS



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传真：0755-83376182 (0) 13823648918 MSN: [SUNS8888@hotmail.com](mailto:SUNS8888@hotmail.com)

邮编：518033 E-mail:[szss20@163.com](mailto:szss20@163.com) QQ: 195847376

深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529 25059422

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上海分公司：上海市北京东路 668 号上海赛格电子市场 D125 号

TEL: 021-28311762 56703037 13701955389 FAX: 021-56703037

西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)

西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382