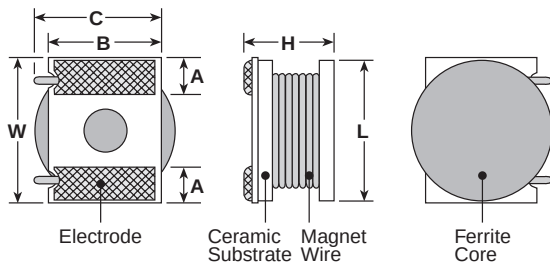


## features

- Low DC resistance and high allowable current are realized by the original construction and wiring technology
- Automatic surface mounting is applicable
- Excellent solderability and endurance environment
- Suitable for reflow soldering
- Products meet EU RoHS requirements
- AEC-Q200 Qualified

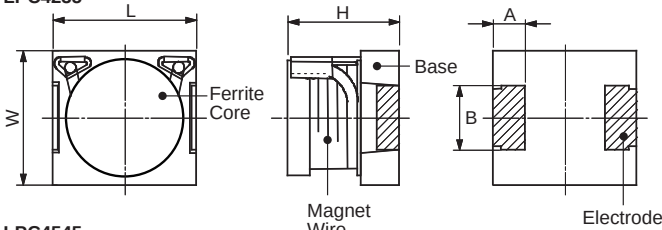
## dimensions and construction

LPC4045

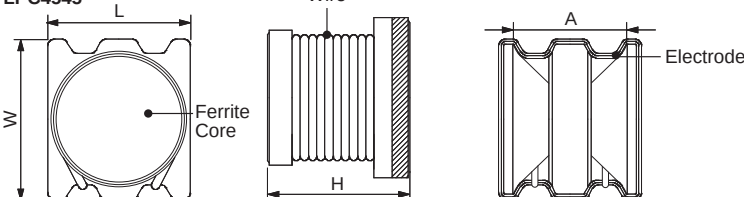


| Size | Dimensions inches (mm)                         |                                      |                                      |                                      |                                      |                     |
|------|------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------------|
|      | L                                              | W                                    | H Max.                               | A                                    | B                                    | C                   |
| 4045 | $\phi .157 \pm .008$<br>( $\phi 4.0 \pm 0.2$ ) | $.177 \pm .008$<br>( $4.5 \pm 0.2$ ) | $.169 \pm .009$<br>( $4.3 \pm 0.2$ ) | $.039 \pm .112$<br>( $1.0 \pm 0.3$ ) | $.118 \pm .008$<br>( $3.0 \pm 0.2$ ) | $.138$<br>( $3.5$ ) |
| 4235 | $.177 \pm .008$<br>( $4.5 \pm 0.2$ )           | $.165 \pm .008$<br>( $4.2 \pm 0.2$ ) | $.138$ Max.<br>( $3.5$ Max.)         | $.039 \pm .008$<br>( $1.0 \pm 0.2$ ) | $.079 \pm .008$<br>( $2.0 \pm 0.2$ ) | —                   |
| 4545 | $.161 \pm .012$<br>( $4.1 \pm 0.3$ )           | $.181 \pm .016$<br>( $4.6 \pm 0.4$ ) | $.181$ Max.<br>( $4.6$ Max.)         | $.126 \pm .012$<br>( $3.2 \pm 0.3$ ) | —                                    | —                   |

LPC4235



LPC4545



## ordering information

| LPC  | 4235                 | T                                                                | TM                                                           | 221                          | K                              |
|------|----------------------|------------------------------------------------------------------|--------------------------------------------------------------|------------------------------|--------------------------------|
| Type | Size                 | Termination Material                                             | Packaging                                                    | Nominal Inductance           | Tolerance                      |
|      | 4045<br>4235<br>4545 | A: SnAg (4045 only)<br>T: Sn (4235 only)<br>C: Sn/Cu (4545 only) | TM: taping (4235)<br>TE: taping (4545)<br>TED: taping (4045) | 3 digits<br>221: 220 $\mu$ H | K: $\pm 10\%$<br>M: $\pm 20\%$ |

For further information on packaging, please refer to Appendix A.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

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## applications and ratings

| Part Designation | Nominal Inductance (μH) | Inductance Tolerance | Self Resonant Frequency Minimum (MHz) | DC Resistance Maximum (Ω) | Allowable DC Current Maximum (Amps) |
|------------------|-------------------------|----------------------|---------------------------------------|---------------------------|-------------------------------------|
| LPC4045ATED1R0M  | 1.0                     | M: ±20%              | 90.0                                  | 0.015                     | 3.10                                |
| LPC4045ATED1R5M  | 1.5                     |                      | 70.0                                  | 0.020                     | 2.80                                |
| LPC4045ATED2R2M  | 2.2                     |                      | 55.0                                  | 0.023                     | 2.50                                |
| LPC4045ATED3R3M  | 3.3                     |                      | 45.0                                  | 0.044                     | 1.80                                |
| LPC4045ATED4R7M  | 4.7                     |                      | 35.0                                  | 0.062                     | 1.45                                |
| LPC4045ATED6R8M  | 6.8                     |                      | 25.0                                  | 0.075                     | 1.30                                |
| LPC4045ATED100K  | 10                      | K: ±10%              | 23.5                                  | 0.10                      | 1.02                                |
| LPC4045ATED150K  | 15                      |                      | 18.5                                  | 0.15                      | 0.84                                |
| LPC4045ATED220K  | 22                      |                      | 14.0                                  | 0.21                      | 0.70                                |
| LPC4045ATED330K  | 33                      |                      | 12.0                                  | 0.41                      | 0.52                                |
| LPC4045ATED470K  | 47                      |                      | 10.5                                  | 0.52                      | 0.46                                |
| LPC4045ATED680K  | 68                      |                      | 8.0                                   | 0.67                      | 0.40                                |
| LPC4045ATED101K  | 100                     |                      | 6.3                                   | 0.92                      | 0.28                                |
| LPC4045ATED151K  | 150                     |                      | 5.2                                   | 1.80                      | 0.25                                |
| LPC4045ATED221K  | 220                     |                      | 3.9                                   | 2.25                      | 0.18                                |
| LPC4045ATED331K  | 330                     |                      | 3.0                                   | 4.27                      | 0.15                                |
| LPC4045ATED471K  | 470                     |                      | 2.7                                   | 5.23                      | 0.14                                |
| LPC4045ATED681K  | 680                     |                      | 2.2                                   | 6.67                      | 0.12                                |
| LPC4235TTM R82M  | 0.82                    | M: ±20%              | 146.6                                 | 0.017                     | 3.34                                |
| LPC4235TTM 1R0M  | 1.0                     |                      | 125.1                                 | 0.020                     | 3.27                                |
| LPC4235TTM 1R2M  | 1.2                     |                      | 114.7                                 | 0.023                     | 3.10                                |
| LPC4235TTM 1R5M  | 1.5                     |                      | 101.4                                 | 0.031                     | 2.53                                |
| LPC4235TTM 2R2M  | 2.2                     |                      | 78.8                                  | 0.039                     | 2.28                                |
| LPC4235TTM 3R3M  | 3.3                     |                      | 66.7                                  | 0.070                     | 1.63                                |
| LPC4235TTM 4R7M  | 4.7                     | K: ±10%              | 52.0                                  | 0.090                     | 1.44                                |
| LPC4235TTM 6R8M  | 6.8                     |                      | 43.5                                  | 0.109                     | 1.29                                |
| LPC4235TTM 100K  | 10                      |                      | 33.5                                  | 0.190                     | 0.91                                |
| LPC4235TTM 150K  | 15                      |                      | 29.1                                  | 0.230                     | 0.87                                |
| LPC4235TTM 220K  | 22                      |                      | 21.7                                  | 0.366                     | 0.69                                |
| LPC4235TTM 330K  | 33                      |                      | 13.9                                  | 0.542                     | 0.52                                |
| LPC4235TTM 470K  | 47                      |                      | 12.0                                  | 0.688                     | 0.47                                |
| LPC4235TTM 680K  | 68                      |                      | 12.7                                  | 1.30                      | 0.34                                |
| LPC4235TTM 101K  | 100                     |                      | 10.4                                  | 1.66                      | 0.31                                |
| LPC4235TTM 151K  | 150                     |                      | 7.5                                   | 2.96                      | 0.22                                |
| LPC4235TTM 221K  | 220                     |                      | 6.7                                   | 3.77                      | 0.20                                |
| LPC4545CTE 1R0M  | 1.0                     | M: ±20%              | 90.0                                  | 0.015                     | 3.66                                |
| LPC4545CTE 1R5M  | 1.5                     |                      | 65.0                                  | 0.02                      | 3.21                                |
| LPC4545CTE 2R2M  | 2.2                     |                      | 50.0                                  | 0.023                     | 2.96                                |
| LPC4545CTE 3R3M  | 3.3                     |                      | 40.0                                  | 0.044                     | 2.19                                |
| LPC4545CTE 4R7M  | 4.7                     |                      | 35.0                                  | 0.062                     | 1.81                                |
| LPC4545CTE 6R8M  | 6.8                     |                      | 25.0                                  | 0.075                     | 1.60                                |
| LPC4545CTE 100K  | 10                      | K: ±10%              | 23.0                                  | 0.1                       | 1.43                                |
| LPC4545CTE 150K  | 15                      |                      | 15.0                                  | 0.15                      | 1.04                                |
| LPC4545CTE 220K  | 22                      |                      | 13.0                                  | 0.21                      | 0.88                                |
| LPC4545CTE 330K  | 33                      |                      | 10.0                                  | 0.41                      | 0.60                                |
| LPC4545CTE 470K  | 47                      |                      | 9.0                                   | 0.52                      | 0.53                                |
| LPC4545CTE 680K  | 68                      |                      | 7.5                                   | 0.67                      | 0.49                                |
| LPC4545CTE 101K  | 100                     |                      | 5.5                                   | 0.92                      | 0.41                                |
| LPC4545CTE 151K  | 150                     |                      | 5.0                                   | 1.8                       | 0.29                                |
| LPC4545CTE 221K  | 220                     |                      | 4.0                                   | 2.25                      | 0.26                                |
| LPC4545CTE 331K  | 330                     |                      | 2.5                                   | 4.27                      | 0.19                                |
| LPC4545CTE 471K  | 470                     |                      | 2.0                                   | 5.23                      | 0.17                                |
| LPC4545CTE 681K  | 680                     |                      | 1.8                                   | 6.67                      | 0.15                                |
| LPC4545CTE 152K  | 1500                    |                      | 1.3                                   | 17.04                     | 0.10                                |
| LPC4545CTE 222K  | 2200                    |                      | 0.9                                   | 35.0                      | 0.07                                |

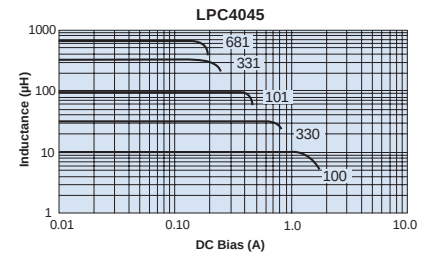
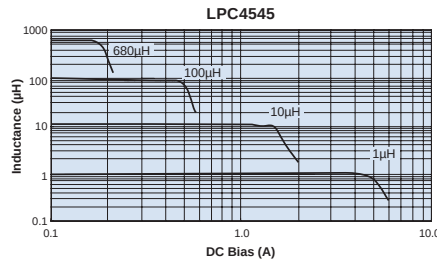
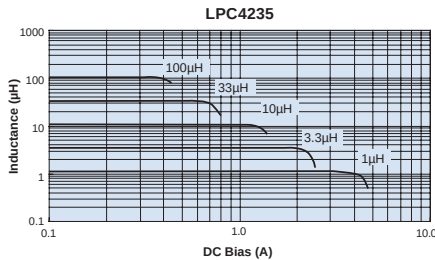
Allowable current is a DC Current which causes initial inductance to decrease by 10%. Or coil temperature to rise by 40°C, whichever is smaller

Operating Temperature Range: -40°C ~ +125°C LPC4235: Test Report +155°C is available

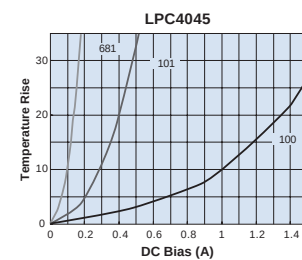
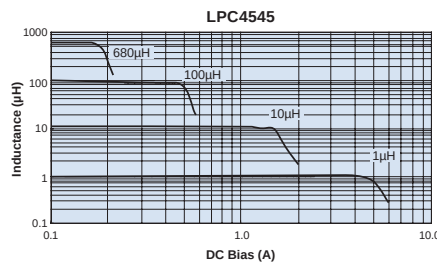
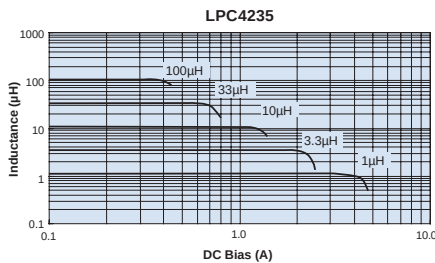
The operating temperature range of the coil (ambient temperature + self heating) must remain at +125°C or less

### environmental applications

#### DC Bias Characteristics



#### Surface Temperature Rise



#### Performance Characteristics

| Parameter                   | Performance Requirements $\Delta L/L$ |             | Test Method                                                                                                                                                                                  |
|-----------------------------|---------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                             | Limit                                 | Typical     |                                                                                                                                                                                              |
| High Temperature Exposure   | $\pm 5\%$                             | $\pm 1.3\%$ | LPC4045: $+85^\circ\text{C} \pm 2^\circ\text{C}$ , 500 hours<br>LPC4235, LPC4545: $+125^\circ\text{C} \pm 2^\circ\text{C}$ , 1000 hours                                                      |
| Low Temperature Exposure    | $\pm 5\%$                             | $\pm 1.3\%$ | LPC4045: $-40^\circ\text{C} \pm 2^\circ\text{C}$ , 500 hours<br>LPC4235, LPC4545: $-40^\circ\text{C}$ , 1000 hours                                                                           |
| Moisture Exposure           | $\pm 5\%$                             | $\pm 1.6\%$ | LPC4045: $+40^\circ\text{C}$ , 90 - 95% RH, 500 hours<br>LPC4235, LPC4545: $+40^\circ\text{C} \pm 2^\circ\text{C}$ , 90 - 95% RH, 1000 hours                                                 |
| Rapid Change of Temperature | $\pm 5\%$                             | $\pm 1.3\%$ | LPC4045: $-40^\circ\text{C}$ (30 minutes)/ $+85^\circ\text{C}$ (30 minutes), 100 cycles<br>LPC4235, LPC4545: $-40^\circ\text{C}$ (30 minutes)/ $+125^\circ\text{C}$ (30 minutes), 100 cycles |

Surface Temperature Rise graphs and additional environmental applications can be found at [www.koaspeer.com](http://www.koaspeer.com)

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