

## PS Series Shielded SMD Power Inductors



### Features

- Low profile
- Magnetic shielded
- SMT type, suitable for reflow soldering.

### Application:

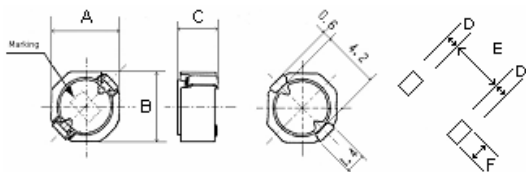
- Portable communication equipment
- Notebook Computer
- DC/DC converters etc.

### Part Number System

|    |      |   |     |   |   |
|----|------|---|-----|---|---|
| PS | 5020 | — | 150 | M | T |
| ①  | ②    |   | ③   | ④ | ⑤ |

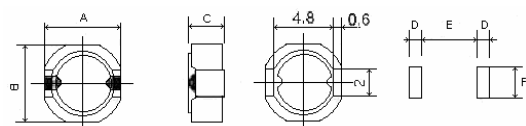
| ①<br>Code | ②<br>Dimensions<br>(L×W×T) (mm) | ③<br>(μH)<br>Inductance | ④<br>Tolerance | ⑤<br>Packaging Style |
|-----------|---------------------------------|-------------------------|----------------|----------------------|
| PS        | 5020                            | 5.0×5.0×2.0             | 150 15         | T Tape&Reel          |
|           | 5030                            | 5.0×5.0×3.0             | 101 100        | B Bulk               |
|           | 6020                            | 6.0×6.0×2.0             | 102 1000       |                      |
|           | 6030                            | 6.0×6.0×3.0             |                |                      |

### Dimensions



(Unit): mm

| Part | A       | B       | C      | D       | E       | F       |
|------|---------|---------|--------|---------|---------|---------|
| 5020 | 5.0±0.3 | 5.0±0.3 | 2.0max | 1.0±0.3 | 3.6±0.3 | 2.0±0.3 |
| 5030 | 5.0±0.3 | 5.0±0.3 | 3.0max | 1.0±0.3 | 3.6±0.3 | 2.0±0.3 |



(Unit): mm

| Part | A       | B       | C      | D       | E       | F       |
|------|---------|---------|--------|---------|---------|---------|
| 6020 | 6.0±0.3 | 6.0±0.3 | 2.0max | 1.0±0.3 | 4.6±0.3 | 2.6±0.3 |
| 6030 | 6.0±0.3 | 6.0±0.3 | 3.0max | 1.0±0.3 | 4.6±0.3 | 2.6±0.3 |

### Electrical Characteristics

#### PS5020

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(mΩ) | Isat (A) | Irms (A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(mΩ) | Isat (A) | Irms (A) |
|-------------|-------|-----------|------------|-------------|----------|----------|-------------|-------|-----------|------------|-------------|----------|----------|
| PS5020-1R2M | 1.2   | ±20%      | 100kHz     | 44          | 2.87     | 2.87     | PS5020-150M | 15    | ±20%      | 100kHz     | 210         | 0.85     | 0.90     |
| PS5020-2R2M | 2.2   | ±20%      | 100kHz     | 59          | 2.17     | 2.05     | PS5020-220M | 22    | ±20%      | 100kHz     | 275         | 0.74     | 0.82     |
| PS5020-3R3M | 3.3   | ±20%      | 100kHz     | 73          | 1.79     | 1.81     | PS5020-330M | 33    | ±20%      | 100kHz     | 455         | 0.59     | 0.60     |
| PS5020-4R7M | 4.7   | ±20%      | 100kHz     | 87          | 1.52     | 1.53     | PS5020-470M | 47    | ±20%      | 100kHz     | 730         | 0.49     | 0.44     |
| PS5020-6R8M | 6.8   | ±20%      | 100kHz     | 105         | 1.27     | 1.37     | PS5020-680M | 68    | ±20%      | 100kHz     | 935         | 0.40     | 0.41     |
| PS5020-100M | 10    | ±20%      | 100kHz     | 150         | 1.02     | 1.09     | PS5020-101M | 100   | ±20%      | 100kHz     | 1500        | 0.31     | 0.31     |

## PS5030

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(mΩ) | Isat (A) | Irms (A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(mΩ) | Isat (A) | Irms (A) |
|-------------|-------|-----------|------------|-------------|----------|----------|-------------|-------|-----------|------------|-------------|----------|----------|
| PS5030-1R2M | 1.2   | ±20%      | 100kHz     | 20          | 5.17     | 4.07     | PS5030-150M | 15    | ±20%      | 100kHz     | 142         | 1.40     | 1.37     |
| PS5030-2R2M | 2.2   | ±20%      | 100kHz     | 27          | 3.90     | 3.30     | PS5030-220M | 22    | ±20%      | 100kHz     | 208         | 1.15     | 1.01     |
| PS5030-3R3M | 3.3   | ±20%      | 100kHz     | 34          | 3.15     | 2.83     | PS5030-330M | 33    | ±20%      | 100kHz     | 257         | 0.96     | 0.94     |
| PS5030-4R7M | 4.7   | ±20%      | 100kHz     | 45          | 2.49     | 2.51     | PS5030-470M | 47    | ±20%      | 100kHz     | 352         | 0.83     | 0.80     |
| PS5030-6R8M | 6.8   | ±20%      | 100kHz     | 68          | 2.01     | 2.06     | PS5030-680M | 68    | ±20%      | 100kHz     | 525         | 0.68     | 0.65     |
| PS5030-100M | 10    | ±20%      | 100kHz     | 90          | 1.77     | 1.76     | PS5030-101M | 100   | ±20%      | 100kHz     | 801         | 0.58     | 0.55     |

Inductance drop 30% typ.at rated Isat. Irms:  $\Delta T=40^{\circ}\text{C}$  rise typ. at Irms.

## PS6020

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(mΩ) | Isat (A) | Irms (A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(mΩ) | Isat (A) | Irms (A) |
|-------------|-------|-----------|------------|-------------|----------|----------|-------------|-------|-----------|------------|-------------|----------|----------|
| PS6020-1R0M | 1.0   | ±20%      | 100kHz     | 16          | 3.84     | 3.50     | PS6020-120M | 12    | ±20%      | 100kHz     | 153         | 1.10     | 0.99     |
| PS6020-1R5M | 1.5   | ±20%      | 100kHz     | 21          | 2.99     | 2.94     | PS6020-150M | 15    | ±20%      | 100kHz     | 179         | 0.82     | 0.94     |
| PS6020-2R2M | 2.2   | ±20%      | 100kHz     | 28          | 2.33     | 2.47     | PS6020-180M | 18    | ±20%      | 100kHz     | 207         | 0.90     | 0.83     |
| PS6020-3R3M | 3.3   | ±20%      | 100kHz     | 47          | 1.97     | 1.99     | PS6020-220M | 22    | ±20%      | 100kHz     | 253         | 0.74     | 0.80     |
| PS6020-4R7M | 4.7   | ±20%      | 100kHz     | 65          | 1.54     | 1.59     | PS6020-270M | 27    | ±20%      | 100kHz     | 330         | 0.65     | 0.65     |
| PS6020-6R8M | 6.8   | ±20%      | 100kHz     | 74          | 1.45     | 1.49     | PS6020-330M | 33    | ±20%      | 100kHz     | 455         | 0.60     | 0.59     |
| PS6020-8R2M | 8.2   | ±20%      | 100kHz     | 102         | 1.23     | 1.25     | PS6020-390M | 39    | ±20%      | 100kHz     | 473         | 0.56     | 0.55     |
| PS6020-100M | 10    | ±20%      | 100kHz     | 118         | 1.09     | 1.22     | PS6020-470M | 47    | ±20%      | 100kHz     | 542         | 0.52     | 0.50     |

## PS6030

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(mΩ) | Isat (A) | Irms (A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(mΩ) | Isat (A) | Irms (A) |
|-------------|-------|-----------|------------|-------------|----------|----------|-------------|-------|-----------|------------|-------------|----------|----------|
| PS6030-1R0M | 1.0   | ±20%      | 100kHz     | 11          | 3.59     | 4.03     | PS6030-220M | 22    | ±20%      | 100kHz     | 95          | 0.77     | 1.23     |
| PS6030-1R5M | 1.5   | ±20%      | 100kHz     | 13          | 2.93     | 3.63     | PS6030-270M | 27    | ±20%      | 100kHz     | 120         | 0.70     | 1.08     |
| PS6030-2R2M | 2.2   | ±20%      | 100kHz     | 16          | 2.42     | 3.30     | PS6030-330M | 33    | ±20%      | 100kHz     | 140         | 0.63     | 0.99     |
| PS6030-3R3M | 3.3   | ±20%      | 100kHz     | 21          | 1.89     | 2.83     | PS6030-390M | 39    | ±20%      | 100kHz     | 150         | 0.58     | 0.95     |
| PS6030-4R7M | 4.7   | ±20%      | 100kHz     | 27          | 1.66     | 2.45     | PS6030-470M | 47    | ±20%      | 100kHz     | 185         | 0.53     | 0.84     |
| PS6030-6R8M | 6.8   | ±20%      | 100kHz     | 32          | 1.45     | 2.20     | PS6030-560M | 56    | ±20%      | 100kHz     | 220         | 0.48     | 0.76     |
| PS6030-100M | 10    | ±20%      | 100kHz     | 49          | 1.14     | 1.77     | PS6030-680M | 68    | ±20%      | 100kHz     | 270         | 0.44     | 0.69     |
| PS6030-120M | 12    | ±20%      | 100kHz     | 52          | 1.04     | 1.70     | PS6030-820M | 82    | ±20%      | 100kHz     | 330         | 0.40     | 0.61     |
| PS6030-150M | 15    | ±20%      | 100kHz     | 62          | 0.93     | 1.55     | PS6030-101M | 100   | ±20%      | 100kHz     | 415         | 0.36     | 0.54     |
| PS6030-180M | 18    | ±20%      | 100kHz     | 74          | 0.85     | 1.41     | PS6030-151M | 150   | ±20%      | 100kHz     | 615         | 0.31     | 0.42     |

Inductance drop 30% typ.at rated Isat. Irms:  $\Delta T=40^{\circ}\text{C}$  rise typ. at Irms.

## PIO Series SMD Power Inductors



### Features

Various high power surface mountable type inductors are superior to high saturation

### Applications

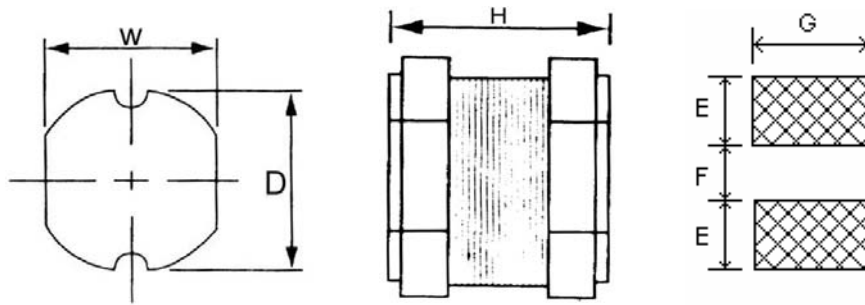
- Portable communication equipment, Notebook Computer
- LCD television
- DC/DC converters.

## Part Number System for PIO Series Power Inductors

|     |    |   |     |   |   |
|-----|----|---|-----|---|---|
| PIO | 54 | — | 150 | M | T |
| ①   | ②  |   | ③   | ④ | ⑤ |

| ①<br>Code | ②<br>Dimensions<br>(L×W×T) (mm) | ③<br>(μH)<br>Inductance | ④<br>Tolerance | ⑤<br>Packaging Style |
|-----------|---------------------------------|-------------------------|----------------|----------------------|
| PIO       | 43                              | 4.5×4.0×3.2             | 150 15         | T Tape&Reel          |
|           | 54                              | 5.8×5.2×4.5             | 101 100        |                      |
|           | 73                              | 7.8×7.0×3.5             | 102 1000       | B Bulk               |
|           | 75                              | 7.8×7.0×5.0             |                |                      |
|           | 104                             | 10.0×9.0×4.0            | K ±10%         |                      |
|           | 105                             | 10.0×9.0×5.4            | L ±15%         |                      |
|           |                                 |                         | M ±20%         |                      |

## Dimensions



(Unit of measure): mm

|          | PIO43   | PIO54   | PIO73   | PIO75   | PIO104   | PIO105   |
|----------|---------|---------|---------|---------|----------|----------|
| <b>D</b> | 4.5±0.3 | 5.8±0.3 | 7.8±0.3 | 7.8±0.3 | 10.0±0.3 | 10.0±0.3 |
| <b>H</b> | 3.2±0.3 | 4.5±0.3 | 3.5±0.4 | 5.0±0.4 | 4.0±0.4  | 5.4±0.3  |
| <b>W</b> | 4.0±0.3 | 5.2±0.3 | 7.0±0.3 | 7.0±0.3 | 9.0±0.3  | 9.0±0.3  |
| <b>E</b> | 2.1±0.3 | 2.5±0.3 | 3.3±0.3 | 3.3±0.3 | 4.4±0.3  | 4.4±0.3  |
| <b>F</b> | 1.0±0.3 | 1.1±0.3 | 1.4±0.3 | 1.4±0.3 | 1.8±0.3  | 1.8±0.3  |
| <b>G</b> | 4.0±0.3 | 5.8±0.3 | 8.0±0.3 | 8.0±0.3 | 10.0±0.3 | 10.0±0.3 |

## Electrical Characteristics

### PIO43

| Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) | Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) |
|-------------|------|---------------|------------------------|-------------|------|---------------|------------------------|
| PIO43-1R0M  | 1.0  | 0.045         | 3.50                   | PIO43-100M  | 10   | 0.180         | 1.10                   |
| PIO43-1R5M  | 1.5  | 0.055         | 2.85                   | PIO43-120M  | 12   | 0.210         | 1.00                   |
| PIO43-1R8M  | 1.8  | 0.060         | 2.80                   | PIO43-150M  | 15   | 0.235         | 0.85                   |
| PIO43-2R2M  | 2.2  | 0.070         | 2.40                   | PIO43-180M  | 18   | 0.330         | 0.80                   |
| PIO43-2R7M  | 2.7  | 0.075         | 2.30                   | PIO43-220M  | 22   | 0.360         | 0.70                   |
| PIO43-3R3M  | 3.3  | 0.085         | 2.25                   | PIO43-270M  | 27   | 0.520         | 0.65                   |
| PIO43-3R9M  | 3.9  | 0.090         | 1.70                   | PIO43-330K  | 33   | 0.540         | 0.60                   |
| PIO43-4R7M  | 4.7  | 0.105         | 1.65                   | PIO43-390K  | 39   | 0.580         | 0.55                   |
| PIO43-5R6M  | 5.6  | 0.120         | 1.60                   | PIO43-470K  | 47   | 0.840         | 0.48                   |
| PIO43-6R8M  | 6.8  | 0.130         | 1.40                   | PIO43-560K  | 56   | 0.930         | 0.46                   |
| PIO43-8R2M  | 8.2  | 0.145         | 1.30                   | PIO43-680K  | 68   | 1.110         | 0.44                   |

## PIO54

| Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) | Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) |
|-------------|------|---------------|------------------------|-------------|------|---------------|------------------------|
| PIO54-100M  | 10   | 0.10          | 1.65                   | PIO54-560K  | 56   | 0.40          | 0.70                   |
| PIO54-120M  | 12   | 0.12          | 1.55                   | PIO54-680K  | 68   | 0.45          | 0.65                   |
| PIO54-150M  | 15   | 0.14          | 1.40                   | PIO54-820K  | 82   | 0.60          | 0.60                   |
| PIO54-180M  | 18   | 0.15          | 1.25                   | PIO54-101K  | 100  | 0.70          | 0.55                   |
| PIO54-220M  | 22   | 0.18          | 1.10                   | PIO54-121K  | 120  | 0.85          | 0.45                   |
| PIO54-270M  | 27   | 0.20          | 0.95                   | PIO54-151K  | 150  | 1.10          | 0.43                   |
| PIO54-330L  | 33   | 0.22          | 0.90                   | PIO54-181K  | 180  | 1.35          | 0.40                   |
| PIO54-390L  | 39   | 0.30          | 0.80                   | PIO54-221K  | 220  | 1.55          | 0.35                   |
| PIO54-470L  | 47   | 0.35          | 0.75                   |             |      |               |                        |

## PIO73

| Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) | Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) |
|-------------|------|---------------|------------------------|-------------|------|---------------|------------------------|
| PIO73-100M  | 10   | 0.080         | 2.10                   | PIO73-680K  | 68   | 0.330         | 0.75                   |
| PIO73-120M  | 12   | 0.090         | 1.80                   | PIO73-820K  | 82   | 0.405         | 0.70                   |
| PIO73-150M  | 15   | 0.095         | 1.70                   | PIO73-101K  | 100  | 0.480         | 0.65                   |
| PIO73-180M  | 18   | 0.110         | 1.40                   | PIO73-121K  | 120  | 0.535         | 0.60                   |
| PIO73-220M  | 22   | 0.130         | 1.35                   | PIO73-151K  | 150  | 0.750         | 0.55                   |
| PIO73-270M  | 27   | 0.145         | 1.25                   | PIO73-181K  | 180  | 1.020         | 0.50                   |
| PIO73-330L  | 33   | 0.170         | 1.05                   | PIO73-221K  | 220  | 1.200         | 0.45                   |
| PIO73-390L  | 39   | 0.215         | 0.95                   | PIO73-271K  | 270  | 1.305         | 0.37                   |
| PIO73-470L  | 47   | 0.250         | 0.90                   | PIO73-331K  | 330  | 1.495         | 0.35                   |
| PIO73-560K  | 56   | 0.280         | 0.80                   |             |      |               |                        |

## PIO75

| Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) | Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) |
|-------------|------|---------------|------------------------|-------------|------|---------------|------------------------|
| PIO75-100M  | 10   | 0.07          | 2.55                   | PIO75-820K  | 82   | 0.35          | 0.95                   |
| PIO75-120M  | 12   | 0.08          | 2.40                   | PIO75-101K  | 100  | 0.40          | 0.78                   |
| PIO75-150M  | 15   | 0.09          | 2.00                   | PIO75-121K  | 120  | 0.45          | 0.73                   |
| PIO75-180M  | 18   | 0.10          | 1.95                   | PIO75-151K  | 150  | 0.60          | 0.70                   |
| PIO75-220M  | 22   | 0.11          | 1.70                   | PIO75-181K  | 180  | 0.70          | 0.60                   |
| PIO75-270M  | 27   | 0.12          | 1.55                   | PIO75-221K  | 220  | 0.95          | 0.55                   |
| PIO75-330M  | 33   | 0.13          | 1.40                   | PIO75-271K  | 270  | 1.10          | 0.50                   |
| PIO75-390M  | 39   | 0.15          | 1.35                   | PIO75-331K  | 330  | 1.25          | 0.45                   |
| PIO75-470L  | 47   | 0.17          | 1.25                   | PIO75-391K  | 390  | 1.75          | 0.40                   |
| PIO75-560K  | 56   | 0.23          | 1.10                   | PIO75-471K  | 470  | 1.95          | 0.35                   |
| PIO75-680K  | 68   | 0.25          | 1.00                   |             |      |               |                        |

## PIO104

| Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) | Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) |
|-------------|------|---------------|------------------------|-------------|------|---------------|------------------------|
| PIO104-100M | 10   | 0.05          | 2.90                   | PIO104-820K | 82   | 0.25          | 1.00                   |
| PIO104-120M | 12   | 0.06          | 2.80                   | PIO104-101K | 100  | 0.30          | 0.95                   |
| PIO104-150M | 15   | 0.07          | 2.30                   | PIO104-121K | 120  | 0.40          | 0.90                   |
| PIO104-180M | 18   | 0.08          | 2.15                   | PIO104-151K | 150  | 0.50          | 0.80                   |
| PIO104-220M | 22   | 0.09          | 2.10                   | PIO104-181K | 180  | 0.62          | 0.70                   |
| PIO104-270M | 27   | 0.10          | 1.90                   | PIO104-221K | 220  | 0.72          | 0.65                   |
| PIO104-330L | 33   | 0.12          | 1.85                   | PIO104-271K | 270  | 0.95          | 0.57                   |
| PIO104-390L | 39   | 0.15          | 1.45                   | PIO104-331K | 330  | 1.10          | 0.55                   |
| PIO104-470L | 47   | 0.17          | 1.35                   | PIO104-391K | 390  | 1.20          | 0.50                   |
| PIO104-560K | 56   | 0.20          | 1.30                   | PIO104-471K | 470  | 1.52          | 0.45                   |
| PIO104-680K | 68   | 0.22          | 1.20                   | PIO104-561K | 560  | 1.90          | 0.40                   |

## PIO105

| Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) | Part Number | (μH) | DCR(Ω)<br>MAX | Rated DC<br>Current(A) |
|-------------|------|---------------|------------------------|-------------|------|---------------|------------------------|
| PIO105-100M | 10   | 0.06          | 3.80                   | PIO105-101K | 100  | 0.33          | 1.15                   |
| PIO105-120M | 12   | 0.07          | 3.40                   | PIO105-121K | 120  | 0.40          | 1.00                   |
| PIO105-150M | 15   | 0.08          | 2.90                   | PIO105-151K | 150  | 0.45          | 0.95                   |
| PIO105-180M | 18   | 0.09          | 2.65                   | PIO105-181K | 180  | 0.60          | 0.85                   |
| PIO105-220M | 22   | 0.10          | 2.50                   | PIO105-221K | 220  | 0.70          | 0.75                   |
| PIO105-270M | 27   | 0.11          | 2.25                   | PIO105-271K | 270  | 0.95          | 0.70                   |
| PIO105-330L | 33   | 0.12          | 2.00                   | PIO105-331K | 330  | 1.10          | 0.60                   |
| PIO105-390L | 39   | 0.13          | 1.90                   | PIO105-391K | 390  | 1.20          | 0.55                   |
| PIO105-470L | 47   | 0.15          | 1.70                   | PIO105-471K | 470  | 1.45          | 0.50                   |

## PIO105 continued

| Part Number | ( $\mu$ H) | DCR( $\Omega$ )<br>MAX | Rated DC<br>Current(A) | Part Number | ( $\mu$ H) | DCR( $\Omega$ )<br>MAX | Rated DC<br>Current(A) |
|-------------|------------|------------------------|------------------------|-------------|------------|------------------------|------------------------|
| PIO105-560K | 56         | 0.19                   | 1.60                   | PIO105-561K | 560        | 1.90                   | 0.48                   |
| PIO105-680K | 68         | 0.22                   | 1.45                   | PIO105-681K | 680        | 2.25                   | 0.45                   |
| PIO105-820K | 82         | 0.25                   | 1.30                   | PIO105-821K | 820        | 2.50                   | 0.40                   |

Inductance tolerance: K:  $\pm 10\%$  L:  $\pm 15\%$  M:  $\pm 20\%$

Measurement Freq(L): 1.0 $\mu$ H~8.2 $\mu$ H(7.96MHz) 10 $\mu$ H~82 $\mu$ H(2.52MHz) 100 $\mu$ H~680 $\mu$ H(1KHz)

Rated Current applied when inductance drop not more than 10% or temperature rise  $\Delta t \leq 40^\circ\text{C}$  whichever is lower.

## MS Series SMD Power Inductors



### Features

- High saturation current
- Magnetic shielded
- SMT type, suitable for reflow soldering.

### Application:

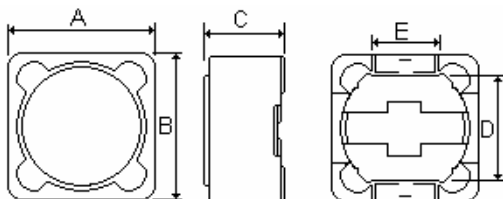
- OEM equipment, Notebook Computer
- LCD televisions
- DC/DC converters etc

## PART NUMBER

| MS   |  | 1 2 7                      |               | — | 1 0 1 |                 | M | T         |   |                 |  |
|------|--|----------------------------|---------------|---|-------|-----------------|---|-----------|---|-----------------|--|
| ①    |  | ②                          |               |   | ③     |                 | ④ | ⑤         |   |                 |  |
| ①    |  | ②                          |               |   |       | ③               |   | ④         |   | ⑤               |  |
| Code |  | Dimensions<br>(L×W×T) (mm) |               |   |       | Inductance (μH) |   | Tolerance |   | Packaging Style |  |
| MS   |  | 62                         | 6.2×6.2×3.4   |   | 150   | 15              | K | ±10%      | T | Tape&Reel       |  |
|      |  | 73                         | 7.3×7.3×3.4   |   |       |                 |   |           |   |                 |  |
|      |  | 74                         | 7.4×7.4×4.5   |   | 101   | 100             | M | ±20%      | B | Bulk            |  |
|      |  | 124                        | 12.0×12.0×4.5 |   | 102   | 1000            |   |           |   |                 |  |
|      |  | 125                        | 12.0×12.0×6.0 |   |       |                 |   |           |   |                 |  |
|      |  | 127                        | 12.0×12.0×8.0 |   |       |                 |   |           |   |                 |  |

## Dimensions

(Unit): mm



| Part # | A    | B    | C   | D   | E   |
|--------|------|------|-----|-----|-----|
| MS62   | 6.2  | 6.2  | 3.0 |     |     |
| MS73   | 7.3  | 7.3  | 3.4 | 5.8 | 2.0 |
| MS74   | 7.3  | 7.3  | 4.5 | 5.8 | 2.0 |
| MS124  | 12.0 | 12.0 | 4.5 | 7.6 | 5.0 |
| MS125  | 12.0 | 12.0 | 6.0 | 7.6 | 5.0 |
| MS127  | 12.0 | 12.0 | 8.0 | 7.6 | 5.0 |

## Electrical Characteristics

### MS73

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) |
|-------------|-------|-----------|------------|------------|--------|-------------|-------|-----------|------------|------------|--------|
| MS73-100MT  | 10    | ±20%      | 1kHz       | 0.072      | 1.68   | MS73-121MT  | 120   | ±20%      | 1kHz       | 0.890      | 0.49   |
| MS73-120MT  | 12    | ±20%      | 1kHz       | 0.098      | 1.52   | MS73-151MT  | 150   | ±20%      | 1kHz       | 1.270      | 0.43   |
| MS73-150MT  | 15    | ±20%      | 1kHz       | 0.130      | 1.33   | MS73-181MT  | 180   | ±20%      | 1kHz       | 1.450      | 0.39   |
| MS73-180MT  | 18    | ±20%      | 1kHz       | 0.140      | 1.20   | MS73-221MT  | 220   | ±20%      | 1kHz       | 1.650      | 0.35   |
| MS73-220MT  | 22    | ±20%      | 1kHz       | 0.190      | 1.07   | MS73-271MT  | 270   | ±20%      | 1kHz       | 2.310      | 0.32   |
| MS73-270MT  | 27    | ±20%      | 1kHz       | 0.210      | 0.96   | MS73-331MT  | 330   | ±20%      | 1kHz       | 2.620      | 0.28   |
| MS73-330MT  | 33    | ±20%      | 1kHz       | 0.240      | 0.91   | MS73-391MT  | 390   | ±20%      | 1kHz       | 2.940      | 0.26   |
| MS73-390MT  | 39    | ±20%      | 1kHz       | 0.320      | 0.77   | MS73-471MT  | 470   | ±20%      | 1kHz       | 4.180      | 0.24   |
| MS73-470MT  | 47    | ±20%      | 1kHz       | 0.360      | 0.76   | MS73-561MT  | 560   | ±20%      | 1kHz       | 4.670      | 0.22   |
| MS73-560MT  | 56    | ±20%      | 1kHz       | 0.470      | 0.68   | MS73-681MT  | 680   | ±20%      | 1kHz       | 5.730      | 0.19   |
| MS73-680MT  | 68    | ±20%      | 1kHz       | 0.520      | 0.61   | MS73-821MT  | 820   | ±20%      | 1kHz       | 6.540      | 0.18   |
| MS73-820MT  | 82    | ±20%      | 1kHz       | 0.690      | 0.57   | MS73-102MT  | 1000  | ±20%      | 1kHz       | 9.440      | 0.16   |
| MS73-101MT  | 100   | ±20%      | 1kHz       | 0.790      | 0.50   |             |       |           |            |            |        |

### MS74

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) |
|-------------|-------|-----------|------------|------------|--------|-------------|-------|-----------|------------|------------|--------|
| MS74-100MT  | 10    | ±20%      | 1kHz       | 0.049      | 1.84   | MS74-121MT  | 120   | ±20%      | 1kHz       | 0.660      | 0.52   |
| MS74-120MT  | 12    | ±20%      | 1kHz       | 0.058      | 1.71   | MS74-151MT  | 150   | ±20%      | 1kHz       | 0.880      | 0.46   |
| MS74-150MT  | 15    | ±20%      | 1kHz       | 0.081      | 1.47   | MS74-181MT  | 180   | ±20%      | 1kHz       | 0.980      | 0.42   |
| MS74-180MT  | 18    | ±20%      | 1kHz       | 0.091      | 1.31   | MS74-221MT  | 220   | ±20%      | 1kHz       | 1.170      | 0.36   |
| MS74-220MT  | 22    | ±20%      | 1kHz       | 0.110      | 1.23   | MS74-271MT  | 270   | ±20%      | 1kHz       | 1.640      | 0.34   |
| MS74-270MT  | 27    | ±20%      | 1kHz       | 0.150      | 0.12   | MS74-331MT  | 330   | ±20%      | 1kHz       | 1.860      | 0.32   |
| MS74-330MT  | 33    | ±20%      | 1kHz       | 0.170      | 0.96   | MS74-391MT  | 390   | ±20%      | 1kHz       | 2.850      | 0.29   |
| MS74-390MT  | 39    | ±20%      | 1kHz       | 0.230      | 0.91   | MS74-471MT  | 470   | ±20%      | 1kHz       | 3.010      | 0.26   |
| MS74-470MT  | 47    | ±20%      | 1kHz       | 0.260      | 0.88   | MS74-561MT  | 560   | ±20%      | 1kHz       | 3.620      | 0.23   |
| MS74-560MT  | 56    | ±20%      | 1kHz       | 0.350      | 0.75   | MS74-681MT  | 680   | ±20%      | 1kHz       | 4.630      | 0.22   |
| MS74-680MT  | 68    | ±20%      | 1kHz       | 0.380      | 0.69   | MS74-821MT  | 820   | ±20%      | 1kHz       | 5.200      | 0.20   |
| MS74-820MT  | 82    | ±20%      | 1kHz       | 0.430      | 0.61   | MS74-102MT  | 1000  | ±20%      | 1kHz       | 6.000      | 0.18   |
| MS74-101MT  | 100   | ±20%      | 1kHz       | 0.610      | 0.60   |             |       |           |            |            |        |

### MS124

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) |
|-------------|-------|-----------|------------|------------|--------|-------------|-------|-----------|------------|------------|--------|
| MS124-3R9MT | 3.9   | ±20%      | 100kHz     | 0.015      | 6.50   | MS124-470MT | 47    | ±20%      | 100kHz     | 0.150      | 1.90   |
| MS124-4R7MT | 4.7   | ±20%      | 100kHz     | 0.018      | 5.70   | MS124-560MT | 56    | ±20%      | 100kHz     | 0.190      | 1.80   |
| MS124-6R8MT | 6.8   | ±20%      | 100kHz     | 0.023      | 4.90   | MS124-680MT | 68    | ±20%      | 100kHz     | 0.220      | 1.50   |
| MS124-100MT | 10    | ±20%      | 100kHz     | 0.028      | 4.50   | MS124-820MT | 82    | ±20%      | 100kHz     | 0.260      | 1.30   |
| MS124-120MT | 12    | ±20%      | 100kHz     | 0.038      | 4.00   | MS124-101MT | 100   | ±20%      | 100kHz     | 0.308      | 1.20   |
| MS124-150MT | 15    | ±20%      | 100kHz     | 0.050      | 3.20   | MS124-121MT | 120   | ±20%      | 100kHz     | 0.380      | 1.10   |
| MS124-180MT | 18    | ±20%      | 100kHz     | 0.057      | 3.10   | MS124-151MT | 150   | ±20%      | 100kHz     | 0.530      | 0.95   |
| MS124-220MT | 22    | ±20%      | 100kHz     | 0.066      | 2.90   | MS124-181MT | 180   | ±20%      | 100kHz     | 0.620      | 0.85   |
| MS124-270MT | 27    | ±20%      | 100kHz     | 0.080      | 2.80   | MS124-221MT | 220   | ±20%      | 100kHz     | 0.700      | 0.80   |
| MS124-330MT | 33    | ±20%      | 100kHz     | 0.097      | 2.70   | MS124-271MT | 270   | ±20%      | 100kHz     | 0.876      | 0.60   |
| MS124-390MT | 39    | ±20%      | 100kHz     | 0.132      | 2.10   | MS124-331MT | 330   | ±20%      | 100kHz     | 0.990      | 0.50   |

### MS125

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) |
|-------------|-------|-----------|------------|------------|--------|-------------|-------|-----------|------------|------------|--------|
| MS125-1R3MT | 1.3   | ±20%      | 7.96MHz    | 0.012      | 8.00   | MS125-680MT | 68    | ±20%      | 1kHz       | 0.120      | 1.50   |
| MS125-2R1MT | 2.1   | ±20%      | 7.96MHz    | 0.014      | 7.00   | MS125-820MT | 82    | ±20%      | 1kHz       | 0.140      | 1.40   |
| MS125-3R1MT | 3.1   | ±20%      | 7.96MHz    | 0.017      | 6.00   | MS125-101MT | 100   | ±20%      | 1kHz       | 0.160      | 1.30   |
| MS125-4R4MT | 4.4   | ±20%      | 7.96MHz    | 0.020      | 5.00   | MS125-121MT | 120   | ±20%      | 1kHz       | 0.170      | 1.10   |
| MS125-5R8MT | 5.8   | ±20%      | 7.96MHz    | 0.021      | 4.40   | MS125-151MT | 150   | ±20%      | 1kHz       | 0.230      | 1.00   |
| MS125-7R5MT | 7.5   | ±20%      | 7.96MHz    | 0.024      | 4.20   | MS125-181MT | 180   | ±20%      | 1kHz       | 0.290      | 0.90   |
| MS125-100MT | 10    | ±20%      | 1kHz       | 0.025      | 4.00   | MS125-221MT | 220   | ±20%      | 1kHz       | 0.400      | 0.80   |
| MS125-120MT | 12    | ±20%      | 1kHz       | 0.027      | 3.50   | MS125-271MT | 270   | ±20%      | 1kHz       | 0.460      | 0.75   |
| MS125-150MT | 15    | ±20%      | 1kHz       | 0.030      | 3.30   | MS125-331MT | 330   | ±20%      | 1kHz       | 0.510      | 0.68   |
| MS125-180MT | 18    | ±20%      | 1kHz       | 0.034      | 3.00   | MS125-391MT | 390   | ±20%      | 1kHz       | 0.690      | 0.65   |
| MS125-220MT | 22    | ±20%      | 1kHz       | 0.036      | 2.80   | MS125-471MT | 470   | ±20%      | 1kHz       | 0.770      | 0.58   |
| MS125-270MT | 27    | ±20%      | 1kHz       | 0.051      | 2.30   | MS125-561MT | 560   | ±20%      | 1kHz       | 0.860      | 0.54   |

## MS125 continued

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) |
|-------------|-------|-----------|------------|------------|--------|-------------|-------|-----------|------------|------------|--------|
| MS125-330MT | 33    | ±20%      | 1kHz       | 0.057      | 2.10   | MS125-681MT | 680   | ±20%      | 1kHz       | 1.200      | 0.48   |
| MS125-390MT | 39    | ±20%      | 1kHz       | 0.068      | 2.00   | MS125-821MT | 820   | ±20%      | 1kHz       | 1.340      | 0.43   |
| MS125-470MT | 47    | ±20%      | 1kHz       | 0.075      | 1.80   | MS125-102MT | 1000  | ±20%      | 1kHz       | 1.530      | 0.40   |
| MS125-560MT | 56    | ±20%      | 1kHz       | 0.110      | 1.70   |             |       |           |            |            |        |

## MS127

| Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) | Part Number | L(μH) | Tolerance | Test Freq. | Max DCR(Ω) | IDC(A) |
|-------------|-------|-----------|------------|------------|--------|-------------|-------|-----------|------------|------------|--------|
| MS127-1R2MT | 1.2   | ±20%      | 100kHz     | 0.007      | 9.80   | MS127-680MT | 68    | ±20%      | 1kHz       | 0.140      | 2.10   |
| MS127-2R4MT | 2.4   | ±20%      | 100kHz     | 0.0115     | 8.00   | MS127-820MT | 82    | ±20%      | 1kHz       | 0.160      | 1.95   |
| MS127-3R5MT | 3.5   | ±20%      | 100kHz     | 0.0135     | 7.50   | MS127-101MT | 100   | ±20%      | 1kHz       | 0.220      | 1.70   |
| MS127-4R7MT | 4.7   | ±20%      | 100kHz     | 0.0158     | 6.80   | MS127-121MT | 120   | ±20%      | 1kHz       | 0.250      | 1.60   |
| MS127-6R1MT | 6.1   | ±20%      | 100kHz     | 0.0176     | 6.60   | MS127-151MT | 150   | ±20%      | 1kHz       | 0.280      | 1.42   |
| MS127-7R6MT | 7.6   | ±20%      | 100kHz     | 0.0200     | 5.90   | MS127-181MT | 180   | ±20%      | 1kHz       | 0.350      | 1.30   |
| MS127-100MT | 10    | ±20%      | 1kHz       | 0.0216     | 5.40   | MS127-221MT | 220   | ±20%      | 1kHz       | 0.390      | 1.16   |
| MS127-120MT | 12    | ±20%      | 1kHz       | 0.0243     | 4.90   | MS127-271MT | 270   | ±20%      | 1kHz       | 0.560      | 1.06   |
| MS127-150MT | 15    | ±20%      | 1kHz       | 0.0270     | 4.50   | MS127-331MT | 330   | ±20%      | 1kHz       | 0.640      | 0.95   |
| MS127-180MT | 18    | ±20%      | 1kHz       | 0.0392     | 3.90   | MS127-391MT | 390   | ±20%      | 1kHz       | 0.700      | 0.88   |
| MS127-220MT | 22    | ±20%      | 1kHz       | 0.0432     | 3.60   | MS127-471MT | 470   | ±20%      | 1kHz       | 0.980      | 0.79   |
| MS127-270MT | 27    | ±20%      | 1kHz       | 0.0459     | 3.40   | MS127-561MT | 560   | ±20%      | 1kHz       | 1.070      | 0.73   |
| MS127-330MT | 33    | ±20%      | 1kHz       | 0.0648     | 3.00   | MS127-681MT | 680   | ±20%      | 1kHz       | 1.460      | 0.67   |
| MS127-390MT | 39    | ±20%      | 1kHz       | 0.0729     | 2.75   | MS127-821MT | 820   | ±20%      | 1kHz       | 1.640      | 0.60   |
| MS127-470MT | 47    | ±20%      | 1kHz       | 0.1000     | 2.50   | MS127-102MT | 1000  | ±20%      | 1kHz       | 1.820      | 0.55   |
| MS127-560MT | 56    | ±20%      | 1kHz       | 0.110      | 2.35   |             |       |           |            |            |        |

Inductance drop 25% typ.,  $\Delta T=40^{\circ}\text{C}$  rise typ. at rated Current.

## BTC Coils



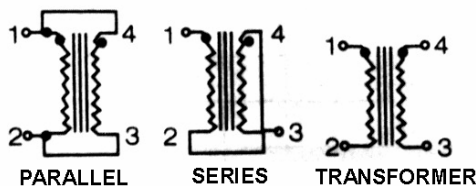
### Features:

- Higher Frequency
- High Saturation Material
- Low EMI Radiation
- Low DC Resistance

### Application:

- DC-DC Conversion (Paraller Mode)
- Isolation/Coupling (Transformer)
- Input Filter (Serial Mode)
- EMI/RFI Suppression

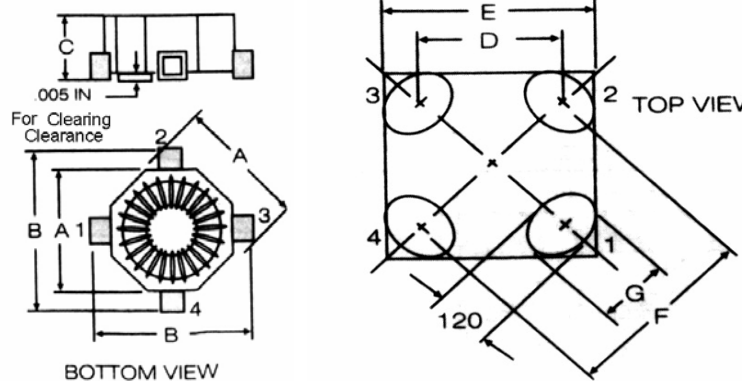
### CONNECTION DIAGRAMS



| Case Size | A    | B    | C    | D    | E    | F    | G    |
|-----------|------|------|------|------|------|------|------|
| BTC-01    | .350 | .450 | .165 | .277 | .422 | .392 | .145 |
| BTC-02    | .350 | .450 | .235 | .277 | .422 | .392 | .145 |
| BTC-03    | .450 | .550 | .190 | .348 | .492 | .492 | .160 |
| BTC-04    | .450 | .550 | .250 | .348 | .492 | .492 | .160 |

Dimensions in inches, typical

### MECHANICAL DIAGRAM · RECOMENDED LAYOUT



## Electrical Characteristics

| Part Number | PARALLEL                        |       |              | SERIES                          |       |              |
|-------------|---------------------------------|-------|--------------|---------------------------------|-------|--------------|
|             | Open Circuit Inductance $\mu$ H | IDC A | DCR $\Omega$ | Open Circuit Inductance $\mu$ H | IDC A | DCR $\Omega$ |
| BTC-R47-01  | 0.42                            | 5.50  | 0.006        | 1.67                            | 2.75  | 0.022        |
| BTC-R68-01  | 0.60                            | 5.10  | 0.007        | 2.40                            | 2.55  | 0.025        |
| BTC-1R0-01  | 1.07                            | 4.50  | 0.008        | 4.28                            | 2.25  | 0.032        |
| BTC-2R0-01  | 2.02                            | 3.40  | 0.014        | 8.08                            | 1.70  | 0.054        |
| BTC-5R0-01  | 4.83                            | 2.00  | 0.041        | 19.31                           | 1.00  | 0.161        |
| BTC-8R0-01  | 8.08                            | 1.80  | 0.052        | 32.33                           | 0.90  | 0.208        |
| BTC-100-01  | 9.62                            | 1.70  | 0.057        | 38.48                           | 0.85  | 0.227        |
| BTC-150-01  | 15.03                           | 1.40  | 0.087        | 60.12                           | 0.70  | 0.348        |
| BTC-200-01  | 20.46                           | 1.00  | 0.159        | 81.83                           | 0.50  | 0.634        |
| BTC-250-01  | 25.40                           | 0.96  | 0.177        | 101.60                          | 0.48  | 0.708        |
| BTC-330-01  | 32.33                           | 0.80  | 0.251        | 129.32                          | 0.40  | 1.001        |
| BTC-500-01  | 50.52                           | 0.70  | 0.316        | 202.07                          | 0.35  | 1.263        |
| BTC-680-01  | 68.40                           | 0.66  | 0.373        | 273.61                          | 0.33  | 1.490        |
| BTC-101-01  | 99.01                           | 0.54  | 0.557        | 396.06                          | 0.27  | 2.227        |
| BTC-151-01  | 150.72                          | 0.44  | 0.844        | 602.87                          | 0.22  | 3.376        |
| BTC-201-01  | 198.41                          | 0.36  | 1.208        | 793.65                          | 0.18  | 4.831        |
| BTC-301-01  | 299.87                          | 0.32  | 1.525        | 1199.46                         | 0.16  | 6.100        |

| Part Number | PARALLEL                        |       |              | SERIES                          |       |              |
|-------------|---------------------------------|-------|--------------|---------------------------------|-------|--------------|
|             | Open Circuit Inductance $\mu$ H | IDC A | DCR $\Omega$ | Open Circuit Inductance $\mu$ H | IDC A | DCR $\Omega$ |
| BTC-R47-02  | 0.54                            | 5.90  | 0.006        | 2.18                            | 2.95  | 0.024        |
| BTC-R68-02  | 0.85                            | 5.40  | 0.008        | 3.40                            | 2.70  | 0.029        |
| BTC-1R0-02  | 1.22                            | 5.00  | 0.009        | 4.90                            | 2.50  | 0.034        |
| BTC-2R0-02  | 2.18                            | 3.90  | 0.014        | 8.70                            | 1.95  | 0.056        |
| BTC-5R0-02  | 4.90                            | 2.50  | 0.032        | 19.58                           | 1.25  | 0.128        |
| BTC-8R0-02  | 7.65                            | 2.30  | 0.040        | 30.60                           | 1.15  | 0.159        |
| BTC-100-02  | 9.83                            | 2.10  | 0.045        | 39.30                           | 1.05  | 0.179        |
| BTC-150-02  | 14.99                           | 1.60  | 0.085        | 59.98                           | 0.80  | 0.339        |
| BTC-200-02  | 19.58                           | 1.50  | 0.097        | 78.34                           | 0.75  | 0.387        |
| BTC-250-02  | 24.79                           | 1.40  | 0.109        | 99.14                           | 0.70  | 0.436        |
| BTC-330-02  | 32.67                           | 1.30  | 0.126        | 130.70                          | 0.65  | 0.503        |
| BTC-500-02  | 49.10                           | 0.82  | 0.306        | 196.38                          | 0.41  | 1.221        |
| BTC-680-02  | 68.85                           | 0.76  | 0.362        | 275.40                          | 0.38  | 1.447        |
| BTC-101-02  | 99.14                           | 0.62  | 0.541        | 396.58                          | 0.31  | 2.162        |
| BTC-151-02  | 148.10                          | 0.56  | 0.666        | 592.42                          | 0.28  | 2.661        |
| BTC-201-02  | 201.59                          | 0.46  | 0.951        | 806.34                          | 0.23  | 3.804        |
| BTC-301-02  | 300.42                          | 0.42  | 1.176        | 1201.70                         | 0.21  | 4.703        |

| Part Number | PARALLEL                        |       |              | SERIES                          |       |              |
|-------------|---------------------------------|-------|--------------|---------------------------------|-------|--------------|
|             | Open Circuit Inductance $\mu$ H | IDC A | DCR $\Omega$ | Open Circuit Inductance $\mu$ H | IDC A | DCR $\Omega$ |
| BTC-R47-03  | 0.46                            | 6.20  | 0.007        | 1.85                            | 3.10  | 0.025        |
| BTC-R68-03  | 0.67                            | 5.70  | 0.008        | 2.66                            | 2.85  | 0.029        |
| BTC-1R0-03  | 0.91                            | 5.40  | 0.009        | 3.63                            | 2.70  | 0.033        |
| BTC-2R0-03  | 1.85                            | 4.60  | 0.012        | 7.40                            | 2.30  | 0.045        |
| BTC-5R0-03  | 4.74                            | 3.20  | 0.023        | 18.94                           | 1.60  | 0.090        |
| BTC-8R0-03  | 8.16                            | 2.80  | 0.030        | 32.63                           | 1.40  | 0.119        |
| BTC-100-03  | 9.79                            | 2.70  | 0.033        | 39.15                           | 1.35  | 0.132        |
| BTC-150-03  | 14.50                           | 2.20  | 0.050        | 58.02                           | 1.10  | 0.198        |
| BTC-200-03  | 20.15                           | 1.50  | 0.111        | 80.59                           | 0.75  | 0.443        |
| BTC-250-03  | 25.33                           | 1.40  | 0.125        | 101.31                          | 0.70  | 0.499        |
| BTC-330-03  | 32.63                           | 1.30  | 0.143        | 130.54                          | 0.65  | 0.571        |
| BTC-500-03  | 50.02                           | 0.92  | 0.277        | 200.10                          | 0.46  | 1.108        |
| BTC-680-03  | 68.84                           | 0.84  | 0.328        | 275.35                          | 0.42  | 1.312        |
| BTC-101-03  | 101.31                          | 0.68  | 0.502        | 405.22                          | 0.34  | 2.005        |
| BTC-151-03  | 149.85                          | 0.64  | 0.621        | 599.40                          | 0.32  | 2.484        |
| BTC-201-03  | 200.10                          | 0.60  | 0.732        | 800.38                          | 0.30  | 2.925        |
| BTC-301-03  | 298.39                          | 0.50  | 0.926        | 1193.55                         | 0.25  | 3.702        |

| Part Number | PARALLEL                           |          |                 | SERIES                             |          |                 |
|-------------|------------------------------------|----------|-----------------|------------------------------------|----------|-----------------|
|             | Open Circuit<br>Inductance $\mu$ H | IDC<br>A | DCR<br>$\Omega$ | Open Circuit<br>Inductance $\mu$ H | IDC<br>A | DCR<br>$\Omega$ |
| BTC-R47-04  | 0.49                               | 7.90     | 0.005           | 1.95                               | 3.95     | 0.019           |
| BTC-R68-04  | 0.76                               | 7.20     | 0.006           | 3.05                               | 3.60     | 0.023           |
| BTC-1R0-04  | 1.10                               | 5.90     | 0.009           | 4.39                               | 2.95     | 0.034           |
| BTC-2R0-04  | 1.95                               | 4.60     | 0.014           | 7.81                               | 2.30     | 0.055           |
| BTC-5R0-04  | 5.15                               | 3.30     | 0.027           | 20.62                              | 1.65     | 0.107           |
| BTC-8R0-04  | 7.81                               | 3.00     | 0.033           | 31.23                              | 1.50     | 0.131           |
| BTC-100-04  | 9.88                               | 2.50     | 0.047           | 39.53                              | 1.25     | 0.187           |
| BTC-150-04  | 14.76                              | 2.30     | 0.057           | 59.05                              | 1.15     | 0.228           |
| BTC-200-04  | 20.62                              | 1.90     | 0.085           | 82.47                              | 0.95     | 0.337           |
| BTC-250-04  | 25.65                              | 1.60     | 0.116           | 102.60                             | 0.80     | 0.462           |
| BTC-330-04  | 33.21                              | 1.30     | 0.166           | 132.86                             | 0.65     | 0.663           |
| BTC-500-04  | 48.80                              | 1.20     | 0.202           | 195.20                             | 0.60     | 0.805           |
| BTC-680-04  | 67.37                              | 1.10     | 0.238           | 269.50                             | 0.55     | 0.952           |
| BTC-101-04  | 99.09                              | 0.72     | 0.565           | 396.38                             | 0.36     | 2.259           |
| BTC-151-04  | 149.45                             | 0.64     | 0.696           | 597.80                             | 0.32     | 2.784           |
| BTC-201-04  | 200.11                             | 0.60     | 0.810           | 800.44                             | 0.30     | 3.240           |
| BTC-301-04  | 298.93                             | 0.54     | 1.003           | 1195.72                            | 0.27     | 4.011           |