

## Molding Power Inductors---SPH Series



### Feature

- Shielded construction.
- Handles high transient current spikes without saturation.
- Ultra low buzz noise, due to composite construction.
- 100% Pb lead (Pb) free meet RoHS standard.
- Operating temperature range  $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$  (Including self - temperature rise).

### Application

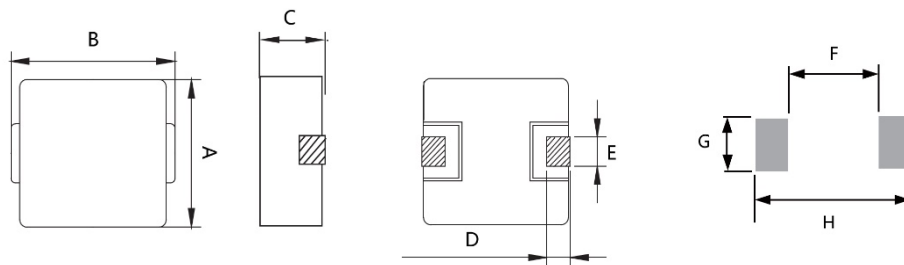
- PAD/Notebook/Desktop/Sever application.
- Low profile, high current power supplies.
- Battery powered devices.
- DC/DC converter for Filed Programmable Gate Array (FPGA).

### Production identification

SPH  
①
4020  
②
S  
③
-
2R2  
④
M  
⑤
I  
⑥

- ① Series name
- ② Size:  $4.1 \times 4.6 \times 2.0\text{mm}$
- ③ S: Standard product
- ④ Inductance:  $2.2\mu\text{H}$
- ⑤ Tolerance:  $\pm 20\%$
- ⑥ Packing

### Series Shape and Dimensions (Unit: mm)



| Series  | A              | B              | C             | D              | E             | F   | G   | H   | SPQ  |
|---------|----------------|----------------|---------------|----------------|---------------|-----|-----|-----|------|
| SPH4010 | $4.1 \pm 0.2$  | $4.1 \pm 0.2$  | $0.8 \pm 0.2$ | $0.8 \pm 0.2$  | $1.8 \pm 0.2$ | 2.2 | 2.2 | 4.4 | 3000 |
| SPH4012 | $4.4 \pm 0.35$ | $4.2 \pm 0.25$ | $1.0 \pm 0.2$ | $0.8 \pm 0.3$  | $2.0 \pm 0.3$ | 2.2 | 2.5 | 5.2 | 3000 |
| SPH4020 | $4.2 \pm 0.25$ | $4.4 \pm 0.35$ | $1.8 \pm 0.2$ | $0.8 \pm 0.3$  | $2.0 \pm 0.3$ | 2.2 | 2.5 | 4.8 | 3000 |
| SPH5018 | $5.2 \pm 0.2$  | $5.4 \pm 0.35$ | $1.6 \pm 0.2$ | $1.2 \pm 0.2$  | $2.2 \pm 0.3$ | 2.2 | 2.5 | 6.0 | 2000 |
| SPH5030 | $5.2 \pm 0.2$  | $5.4 \pm 0.35$ | $2.8 \pm 0.2$ | $1.2 \pm 0.2$  | $2.2 \pm 0.3$ | 2.2 | 2.5 | 6.0 | 2000 |
| SPH6010 | $6.1 \pm 0.3$  | $6.1 \pm 0.3$  | $0.8 \pm 0.2$ | $1.75 \pm 0.2$ | $4.0 \pm 0.3$ | 2.8 | 4.5 | 7.5 | 1500 |
| SPH6015 | $7.0 \pm 0.3$  | $6.6 \pm 0.2$  | $1.3 \pm 0.2$ | $1.6 \pm 0.3$  | $3.0 \pm 0.3$ | 3.7 | 3.5 | 8.4 | 1500 |
| SPH6018 | $7.0 \pm 0.3$  | $6.6 \pm 0.2$  | $1.6 \pm 0.2$ | $1.6 \pm 0.3$  | $3.0 \pm 0.3$ | 3.7 | 3.5 | 8.4 | 1500 |
| SPH6024 | $7.0 \pm 0.3$  | $6.6 \pm 0.2$  | $2.2 \pm 0.2$ | $1.6 \pm 0.3$  | $3.0 \pm 0.3$ | 3.7 | 3.5 | 8.4 | 1500 |
| SPH6030 | $7.0 \pm 0.3$  | $6.6 \pm 0.3$  | $2.8 \pm 0.2$ | $1.6 \pm 0.3$  | $3.0 \pm 0.2$ | 3.7 | 3.5 | 8.4 | 1500 |

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### Series Shape and Dimensions (Unit: mm)

| Series  | A          | B          | C       | D       | E           | F    | G    | H    | SPQ  |
|---------|------------|------------|---------|---------|-------------|------|------|------|------|
| SPH6040 | 7.0±0.3    | 6.6±0.3    | 3.8±0.2 | 1.6±0.3 | 3.0±0.2     | 3.7  | 3.5  | 8.4  | 1500 |
| SPH6050 | 7.0±0.3    | 6.6±0.3    | 4.8±0.2 | 1.6±0.3 | 3.0±0.2     | 3.7  | 3.5  | 8.4  | 1500 |
| SPH1030 | 11.2±0.3   | 10.0±0.3   | 2.8±0.2 | 2.0±0.5 | 3.0±0.5     | 5.4  | 4.1  | 13.6 | 500  |
| SPH1040 | 11.2±0.3   | 10.0±0.3   | 3.8±0.2 | 2.0±0.5 | 3.0±0.3     | 5.4  | 4.1  | 13.6 | 500  |
| SPH1050 | 11.2±0.3   | 10.5±1.0   | 4.8±0.2 | 2.0±0.5 | 3.0±0.3     | 5.4  | 4.1  | 13.6 | 500  |
| SPH1340 | 13.45±0.35 | 12.8±0.5   | 3.8±0.2 | 2.0±0.5 | 3.8/5.0±0.3 | 8.0  | 5.5  | 14.5 | 500  |
| SPH1350 | 13.45±0.35 | 12.6±0.3   | 4.8±0.2 | 2.0±0.5 | 3.8/5.0±0.3 | 8.0  | 5.5  | 14.5 | 500  |
| SPH1360 | 13.45±0.35 | 12.6±0.3   | 5.8±0.2 | 2.0±0.5 | 5.0±0.3     | 8.0  | 5.5  | 14.5 | 500  |
| SPH1365 | 13.45±0.35 | 12.6±0.3   | 6.3±0.2 | 2.0±0.5 | 5.0±0.3     | 8.0  | 5.5  | 14.5 | 500  |
| SPH1770 | 17.15±0.35 | 17.15±0.35 | 6.8±0.2 | 2.5±0.5 | 11.9±0.3    | 11.2 | 12.8 | 18.2 | 300  |

### SPH4010 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH4010S-100MT | 10              | 20             | 336          | 1.8          | 1.5          |

### SPH4012 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH4012S-R15MT | 0.15            | 20             | 9            | 15.0         | 7.5          |
| SPH4012S-R22MT | 0.22            | 20             | 11           | 11.0         | 7.0          |
| SPH4012S-R33MT | 0.33            | 20             | 19           | 8.4          | 6.5          |
| SPH4012S-R47MT | 0.47            | 20             | 21           | 6.8          | 6.0          |
| SPH4012S-R68MT | 0.68            | 20             | 36           | 6.0          | 4.7          |
| SPH4012S-1R0MT | 1.0             | 20             | 47           | 5.5          | 4.5          |
| SPH4012S-1R5MT | 1.5             | 20             | 75           | 4.0          | 3.2          |
| SPH4012S-2R2MT | 2.2             | 20             | 83.5         | 3.0          | 2.7          |
| SPH4012S-4R7MT | 4.7             | 20             | 195          | 2.2          | 1.8          |

### SPH4020 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH4020S-R10MT | 0.1             | 20             | 4            | 22.0         | 13.0         |
| SPH4020S-R22MT | 0.22            | 20             | 6.6          | 12.5         | 9.5          |
| SPH4020S-R33MT | 0.33            | 20             | 11           | 12.0         | 10.0         |
| SPH4020S-R47MT | 0.47            | 20             | 14           | 9.5          | 7.5          |
| SPH4020S-R56MT | 0.56            | 20             | 16           | 9.0          | 7.0          |
| SPH4020S-R68MT | 0.68            | 20             | 18           | 8.0          | 7.0          |
| SPH4020S-1R0MT | 1.0             | 20             | 27           | 7.0          | 6.0          |

## Molding Power Inductors---SPH Series



### SPH4020 Electrical Characteristics

| Part Number    | Inductance<br>( $\mu$ H) | Tolerance<br>( $\pm$ %) | DCR Max<br>(m $\Omega$ ) | Isat Max<br>(A) | Irms Max<br>(A) |
|----------------|--------------------------|-------------------------|--------------------------|-----------------|-----------------|
| SPH4020S-1R2MT | 1.2                      | 20                      | 27                       | 6.5             | 6.0             |
| SPH4020S-1R5MT | 1.5                      | 20                      | 46                       | 5.5             | 5.0             |
| SPH4020S-2R2MT | 2.2                      | 20                      | 58                       | 5.0             | 4.5             |
| SPH4020S-3R3MT | 3.3                      | 20                      | 87                       | 3.5             | 3.3             |
| SPH4020S-4R7MT | 4.7                      | 20                      | 105                      | 3.0             | 2.8             |
| SPH4020S-6R8MT | 6.8                      | 20                      | 175                      | 2.5             | 2.4             |
| SPH4020S-100MT | 10                       | 20                      | 282                      | 2.0             | 1.6             |

### SPH5018 Electrical Characteristics

| Part Number    | Inductance<br>( $\mu$ H) | Tolerance<br>( $\pm$ %) | DCR Max<br>(m $\Omega$ ) | Isat Max<br>(A) | Irms Max<br>(A) |
|----------------|--------------------------|-------------------------|--------------------------|-----------------|-----------------|
| SPH5018S-R47MT | 0.47                     | 20                      | 9                        | 15.5            | 10.5            |
| SPH5018S-R56MT | 0.56                     | 20                      | 10                       | 15.0            | 9.5             |
| SPH5018S-R68MT | 0.68                     | 20                      | 13.8                     | 11.2            | 8.9             |
| SPH5018S-1R0MT | 1.0                      | 20                      | 17                       | 9.0             | 8.0             |
| SPH5018S-1R5MT | 1.5                      | 20                      | 26                       | 8.0             | 7.5             |
| SPH5018S-2R2MT | 2.2                      | 20                      | 35                       | 6.5             | 5.0             |
| SPH5018S-3R3MT | 3.3                      | 20                      | 58                       | 5.0             | 4.5             |
| SPH5018S-4R7MT | 4.7                      | 20                      | 85                       | 4.0             | 3.5             |
| SPH5018S-6R8MT | 6.8                      | 20                      | 120                      | 3.4             | 2.8             |
| SPH5018S-100MT | 10                       | 20                      | 155                      | 3.0             | 2.5             |

### SPH5030 Electrical Characteristics

| Part Number    | Inductance<br>( $\mu$ H) | Tolerance<br>( $\pm$ %) | DCR Max<br>(m $\Omega$ ) | Isat Max<br>(A) | Irms Max<br>(A) |
|----------------|--------------------------|-------------------------|--------------------------|-----------------|-----------------|
| SPH5030S-R10MT | 0.1                      | 20                      | 3.0                      | 30.0            | 25.0            |
| SPH5030S-R20MT | 0.2                      | 20                      | 3.9                      | 20.0            | 14.0            |
| SPH5030S-R33MT | 0.33                     | 20                      | 5.5                      | 18.0            | 14.0            |
| SPH5030S-R47MT | 0.47                     | 20                      | 8.5                      | 15.0            | 11.0            |
| SPH5030S-R68MT | 0.68                     | 20                      | 12                       | 11.5            | 9.0             |
| SPH5030S-1R0MT | 1.0                      | 20                      | 14                       | 10.0            | 8.5             |
| SPH5030S-1R2MT | 1.2                      | 20                      | 16                       | 9.5             | 8.5             |
| SPH5030S-1R5MT | 1.5                      | 20                      | 25                       | 9.0             | 8.2             |
| SPH5030S-2R2MT | 2.2                      | 20                      | 29                       | 7.0             | 7.0             |
| SPH5030S-3R3MT | 3.3                      | 20                      | 38                       | 6.0             | 5.5             |
| SPH5030S-4R7MT | 4.7                      | 20                      | 60                       | 4.6             | 4.5             |
| SPH5030S-6R8MT | 6.8                      | 20                      | 90                       | 3.6             | 3.5             |
| SPH5030S-100MT | 10                       | 20                      | 125                      | 3.5             | 3.2             |

## Molding Power Inductors---SPH Series



### SPH6010 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH6010S-4R7MT | 4.7             | 20             | 172          | 2.8          | 2.2          |
| SPH6010S-6R8MT | 6.8             | 20             | 197          | 2.5          | 2.0          |
| SPH6010S-100MT | 10              | 20             | 310          | 2.1          | 1.6          |

### SPH6015 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH6015S-R47MT | 0.47            | 20             | 8.5          | 16.0         | 10.0         |
| SPH6015S-R56MT | 0.56            | 20             | 11           | 14.0         | 9.0          |
| SPH6015S-R68MT | 0.68            | 20             | 12           | 12.0         | 8.5          |
| SPH6015S-R82MT | 0.82            | 20             | 17           | 10.0         | 8.0          |
| SPH6015S-1R0MT | 1.0             | 20             | 21           | 9.0          | 6.0          |
| SPH6015S-2R2MT | 2.2             | 20             | 54           | 7.0          | 3.8          |
| SPH6015S-3R3MT | 3.3             | 20             | 63           | 5.5          | 3.5          |
| SPH6015S-4R7MT | 4.7             | 20             | 85           | 5.0          | 3.2          |
| SPH6015S-6R8MT | 6.8             | 20             | 135          | 4.0          | 2.5          |
| SPH6015S-100MT | 10              | 20             | 175          | 3.0          | 2.0          |

### SPH6018 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH6018S-R10MT | 0.1             | 20             | 2.3          | 38.0         | 25.0         |
| SPH6018S-R22MT | 0.22            | 20             | 3.5          | 24.0         | 22.0         |
| SPH6018S-R47MT | 0.47            | 20             | 8.4          | 18.0         | 11.5         |
| SPH6018S-R68MT | 0.68            | 20             | 12           | 16.5         | 9.5          |
| SPH6018S-1R0MT | 1.0             | 20             | 16           | 12.0         | 8.5          |
| SPH6018S-1R5MT | 1.5             | 20             | 26           | 9.2          | 8.0          |
| SPH6018S-2R2MT | 2.2             | 20             | 35           | 8.0          | 7.0          |
| SPH6018S-3R3MT | 3.3             | 20             | 50           | 6.0          | 4.5          |
| SPH6018S-4R7MT | 4.7             | 20             | 62           | 5.0          | 4.0          |
| SPH6018S-6R8MT | 6.8             | 20             | 110          | 4.5          | 3.0          |
| SPH6018S-100MT | 10              | 20             | 155          | 4.0          | 2.3          |
| SPH6018S-220MT | 22              | 20             | 350          | 2.3          | 1.8          |

#### Notes:

1. Irms: DC current that will causes the temperature rise ( $\Delta t=40^{\circ}\text{C}$ ) from  $25^{\circ}\text{C}$  ambient.
2. Isat: DC current at which the inductance drops approximate 30% from it's value without current.

## Molding Power Inductors---SPH Series



### SPH6024 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH6024S-R22MT | 0.22            | 20             | 3            | 34.0         | 21.0         |
| SPH6024S-R33MT | 0.33            | 20             | 4.1          | 24.5         | 18.0         |
| SPH6024S-R47MT | 0.47            | 20             | 5.1          | 22.0         | 15.0         |
| SPH6024S-R56MT | 0.56            | 20             | 6.5          | 17.0         | 13.0         |
| SPH6024S-R68MT | 0.68            | 20             | 7            | 16.0         | 12.0         |
| SPH6024S-1R0MT | 1.0             | 20             | 13.5         | 15.0         | 9.0          |
| SPH6024S-1R5MT | 1.5             | 20             | 20           | 13.5         | 8.2          |
| SPH6024S-2R2MT | 2.2             | 20             | 28           | 10.0         | 7.0          |
| SPH6024S-3R3MT | 3.3             | 20             | 39           | 8.0          | 5.5          |
| SPH6024S-4R7MT | 4.7             | 20             | 50           | 6.5          | 5.0          |
| SPH6024S-6R8MT | 6.8             | 20             | 70           | 6.0          | 4.0          |
| SPH6024S-100MT | 10              | 20             | 101          | 4.0          | 3.1          |
| SPH6024S-150MT | 15              | 20             | 160          | 3.3          | 2.5          |
| SPH6024S-220MT | 22              | 20             | 230          | 2.5          | 2.0          |

### SPH6030 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH6030S-R22MT | 0.22            | 20             | 3            | 34.0         | 24.0         |
| SPH6030S-R33MT | 0.33            | 20             | 3.5          | 25.0         | 21.0         |
| SPH6030S-R47MT | 0.47            | 20             | 4.1          | 20.0         | 18.0         |
| SPH6030S-R56MT | 0.56            | 20             | 4.5          | 18.0         | 16.5         |
| SPH6030S-R68MT | 0.68            | 20             | 5.3          | 17.0         | 16.0         |
| SPH6030S-R82MT | 0.82            | 20             | 6.0          | 16.0         | 14.0         |
| SPH6030S-1R0MT | 1.0             | 20             | 7.4          | 15.0         | 12.0         |
| SPH6030S-1R5MT | 1.5             | 20             | 12.1         | 12.0         | 12.0         |
| SPH6030S-2R2MT | 2.2             | 20             | 15           | 10.0         | 9.5          |
| SPH6030S-3R3MT | 3.3             | 20             | 22           | 9.5          | 8.5          |
| SPH6030S-4R7MT | 4.7             | 20             | 33           | 9.0          | 6.0          |
| SPH6030S-5R6MT | 5.6             | 20             | 42           | 6.5          | 5.5          |
| SPH6030S-6R8MT | 6.8             | 20             | 48           | 6.0          | 5.0          |
| SPH6030S-8R2MT | 8.2             | 20             | 60           | 5.5          | 5.0          |
| SPH6030S-100MT | 10              | 20             | 68           | 5.5          | 4.5          |
| SPH6030S-150MT | 15              | 20             | 113          | 4.0          | 3.0          |
| SPH6030S-220MT | 22              | 20             | 170          | 3.0          | 2.5          |
| SPH6030S-330MT | 33              | 20             | 270          | 2.5          | 2.0          |
| SPH6030S-470MT | 47              | 20             | 385          | 2.0          | 1.5          |

## Molding Power Inductors---SPH Series



### SPH6040 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH6040S-R68MT | 0.68            | 20             | 4.8          | 19.0         | 17.0         |
| SPH6040S-1R0MT | 1.0             | 20             | 6.6          | 16.0         | 13.5         |
| SPH6040S-1R5MT | 1.5             | 20             | 10           | 12.5         | 12.4         |
| SPH6040S-2R2MT | 2.2             | 20             | 14           | 11.0         | 10.0         |
| SPH6040S-3R3MT | 3.3             | 20             | 20           | 9.5          | 8.5          |
| SPH6040S-4R7MT | 4.7             | 20             | 30           | 9.0          | 6.5          |
| SPH6040S-6R8MT | 6.8             | 20             | 45           | 6.5          | 5.5          |
| SPH6040S-100MT | 10              | 20             | 65           | 6.0          | 4.8          |
| SPH6040S-150MT | 15              | 20             | 95           | 4.5          | 3.7          |
| SPH6040S-220MT | 22              | 20             | 125          | 4.0          | 3.3          |
| SPH6040S-330MT | 33              | 20             | 240          | 3.0          | 2.2          |
| SPH6040-470MT  | 47              | 20             | 320          | 2.5          | 1.8          |

### SPH6050 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH6050S-R47MT | 0.47            | 20             | 3.9          | 21.0         | 20.0         |
| SPH6050S-R68MT | 0.68            | 20             | 4.5          | 18.0         | 16.5         |
| SPH6050S-1R0MT | 1.0             | 20             | 6.6          | 16.0         | 12.0         |
| SPH6050S-1R5MT | 1.5             | 20             | 10           | 13.0         | 9.5          |
| SPH6050S-2R2MT | 2.2             | 20             | 12.5         | 11.0         | 9.0          |
| SPH6050S-3R3MT | 3.3             | 20             | 22           | 10.0         | 8.5          |
| SPH6050S-4R7MT | 4.7             | 20             | 29           | 8.0          | 6.0          |
| SPH6050S-6R8MT | 6.8             | 20             | 41           | 6.3          | 5.8          |
| SPH6050S-8R2MT | 8.2             | 20             | 48           | 5.5          | 5.5          |
| SPH6050S-100MT | 10              | 20             | 60           | 5.3          | 4.5          |
| SPH6050S-150MT | 15              | 20             | 90           | 4.0          | 3.1          |
| SPH6050S-220MT | 22              | 20             | 140          | 3.5          | 2.6          |
| SPH6050S-330MT | 33              | 20             | 190          | 3.0          | 2.3          |
| SPH6050S-470MT | 47              | 20             | 230          | 2.6          | 2.0          |

#### Notes:

1. Irms: DC current that will causes the temperature rise ( $\Delta t=40^{\circ}\text{C}$ ) from  $25^{\circ}\text{C}$  ambient.
2. Isat: DC current at which the inductance drops approximate 30% from it's value without current.

## Molding Power Inductors---SPH Series



### SPH1030 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH1030S-R22MT | 0.22            | 20             | 1.2          | 50.0         | 33.0         |
| SPH1030S-R33MT | 0.33            | 20             | 1.6          | 32.0         | 23.0         |
| SPH1030S-R36MT | 0.36            | 20             | 1.6          | 28.0         | 23.0         |
| SPH1030S-R47MT | 0.47            | 20             | 2.5          | 26.0         | 22.0         |
| SPH1030S-R82MT | 0.82            | 20             | 3.7          | 23.0         | 18.0         |
| SPH1030S-1R0MT | 1.0             | 20             | 6            | 21.0         | 15.0         |
| SPH1030S-2R2MT | 2.2             | 20             | 9            | 14.0         | 11.0         |
| SPH1030S-3R3MT | 3.3             | 20             | 16           | 12.0         | 9.0          |
| SPH1030S-4R7MT | 4.7             | 20             | 24           | 10.0         | 7.0          |
| SPH1030S-8R2MT | 8.2             | 20             | 45           | 7.0          | 5.0          |

### SPH1040 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH1040S-R15MT | 0.15            | 20             | 0.65         | 75.0         | 45.0         |
| SPH1040S-R22MT | 0.22            | 20             | 1            | 60.0         | 35.0         |
| SPH1040S-R30MT | 0.3             | 20             | 1.1          | 45.0         | 35.0         |
| SPH1040S-R36MT | 0.36            | 20             | 1.2          | 45.0         | 30.0         |
| SPH1040S-R47MT | 0.47            | 20             | 1.7          | 40.0         | 30.0         |
| SPH1040S-R56MT | 0.56            | 20             | 1.8          | 33.0         | 25.0         |
| SPH1040S-R68MT | 0.68            | 20             | 2.4          | 30.0         | 23.0         |
| SPH1040S-R80MT | 0.8             | 20             | 2.7          | 29.0         | 23.0         |
| SPH1040S-1R0MT | 1.0             | 20             | 3.3          | 28.0         | 19.0         |
| SPH1040S-1R5MT | 1.5             | 20             | 4.2          | 24.0         | 16.0         |
| SPH1040S-2R2MT | 2.2             | 20             | 7            | 16.5         | 12.0         |
| SPH1040S-3R3MT | 3.3             | 20             | 11.8         | 16.0         | 11.0         |
| SPH1040S-4R7MT | 4.7             | 20             | 20           | 13.0         | 9.0          |
| SPH1040S-6R8MT | 6.8             | 20             | 25           | 12.0         | 8.5          |
| SPH1040S-8R2MT | 8.2             | 20             | 27           | 9.0          | 8.0          |
| SPH1040S-100MT | 10              | 20             | 30           | 8.5          | 7.8          |
| SPH1040S-150MT | 15              | 20             | 45           | 7.0          | 6.5          |
| SPH1040S-220MT | 22              | 20             | 66           | 5.5          | 5.0          |
| SPH1040S-330MT | 33              | 20             | 92           | 4.8          | 4.4          |
| SPH1040S-470MT | 47              | 20             | 145          | 3.5          | 3.3          |
| SPH1040S-680MT | 68              | 20             | 195          | 3.0          | 2.5          |
| SPH1040S-101MT | 100             | 20             | 340          | 2.3          | 2.0          |

## Molding Power Inductors---SPH Series



### SPH1050 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH1050S-R22MT | 0.22            | 20             | 0.8          | 65.0         | 37.0         |
| SPH1050S-1R0MT | 1.0             | 20             | 3            | 30.0         | 23.0         |
| SPH1050S-1R5MT | 1.5             | 20             | 3.8          | 25.0         | 21.0         |
| SPH1050S-2R2MT | 2.2             | 20             | 6            | 19.0         | 15.0         |
| SPH1050S-3R3MT | 3.3             | 20             | 10           | 16.0         | 13.0         |
| SPH1050S-4R7MT | 4.7             | 20             | 14           | 15.0         | 11.0         |
| SPH1050S-5R6MT | 5.6             | 20             | 17           | 14.0         | 9.5          |
| SPH1050S-6R8MT | 6.8             | 20             | 18.5         | 14.0         | 9.0          |
| SPH1050S-100MT | 10              | 20             | 28           | 10.0         | 8.0          |
| SPH1050S-150MT | 15              | 20             | 42           | 7.5          | 6.5          |
| SPH1050S-220MT | 22              | 20             | 50           | 6.0          | 5.5          |
| SPH1050S-330MT | 33              | 20             | 86           | 5.2          | 4.8          |
| SPH1050S-470MT | 47              | 20             | 127          | 4.5          | 3.7          |
| SPH1050S-101MT | 100             | 20             | 290          | 2.8          | 2.1          |

### SPH1340 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH1340S-R22MT | 0.22            | 20             | 0.9          | 50.0         | 42.0         |
| SPH1340S-R47MT | 0.47            | 20             | 2.0          | 48.0         | 33.0         |
| SPH1340S-R68MT | 0.68            | 20             | 3.5          | 47.0         | 28.0         |
| SPH1340S-R82MT | 0.82            | 20             | 4.5          | 40.0         | 28.0         |
| SPH1340S-1R0MT | 1.0             | 20             | 7.5          | 35.0         | 24.0         |
| SPH1340S-1R5MT | 1.5             | 20             | 9.5          | 30.5         | 20.0         |
| SPH1340S-2R2MT | 2.2             | 20             | 11.5         | 26.0         | 18.0         |
| SPH1340S-3R3MT | 3.3             | 20             | 13.0         | 21.0         | 15.0         |
| SPH1340S-4R7MT | 4.7             | 20             | 14.5         | 18.0         | 13.0         |
| SPH1340S-6R8MT | 6.8             | 20             | 20.0         | 14.0         | 9.0          |
| SPH1340S-100MT | 10.0            | 20             | 25.0         | 10.0         | 8.0          |
| SPH1340S-150MT | 15.0            | 20             | 39.0         | 7.5          | 6.5          |
| SPH1340S-220MT | 22.0            | 20             | 58           | 6.0          | 4.5          |

#### Notes:

1. Irms: DC current that will causes the temperature rise ( $\Delta t=40^{\circ}\text{C}$ ) from  $25^{\circ}\text{C}$  ambient.
2. Isat: DC current at which the inductance drops approximate 30% from it's value without current.



## Molding Power Inductors---SPH Series



### SPH1350 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH1350S-R22MT | 0.22            | 20             | 0.7          | 75.0         | 50.0         |
| SPH1350S-R36MT | 0.36            | 20             | 0.85         | 50.0         | 42.0         |
| SPH1350S-R50MT | 0.50            | 20             | 1.15         | 48.0         | 38.0         |
| SPH1350S-R68MT | 0.68            | 20             | 1.55         | 46.0         | 33.0         |
| SPH1350S-R82MT | 0.82            | 20             | 1.67         | 39.0         | 30.0         |
| SPH1350S-1R0MT | 1.0             | 20             | 2.2          | 35.0         | 26.0         |
| SPH1350S-1R5MT | 1.5             | 20             | 3.2          | 33.0         | 23.0         |
| SPH1350S-2R2MT | 2.2             | 20             | 5.0          | 24.0         | 15.0         |
| SPH1350S-3R3MT | 3.3             | 20             | 7            | 22.0         | 14.0         |
| SPH1350S-4R7MT | 4.7             | 20             | 9            | 20.0         | 13.0         |
| SPH1350S-6R8MT | 6.8             | 20             | 18           | 16.0         | 12.0         |
| SPH1350S-8R2MT | 8.2             | 20             | 20           | 13.0         | 9.5          |
| SPH1350S-100MT | 10              | 20             | 22           | 12.0         | 9.0          |
| SPH1350S-150MT | 15              | 20             | 30           | 10.0         | 8.0          |
| SPH1350S-220MT | 22              | 20             | 58           | 6.5          | 4.5          |
| SPH1350S-330MT | 33              | 20             | 84           | 6.0          | 3.5          |
| SPH1350S-470MT | 47              | 20             | 130          | 5.0          | 3.0          |

### SPH1360 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH1360S-4R7MT | 4.7             | 20             | 9            | 24.0         | 15.0         |
| SPH1360S-5R6MT | 5.6             | 20             | 11           | 22.5         | 13.0         |
| SPH1360S-6R8MT | 6.8             | 20             | 13.5         | 19.0         | 12.0         |
| SPH1360S-8R2MT | 8.2             | 20             | 16           | 13.5         | 11.0         |
| SPH1360S-100MT | 10              | 20             | 20.7         | 12.5         | 10.0         |
| SPH1360S-120MT | 12              | 20             | 23           | 10.0         | 9.0          |
| SPH1360S-150MT | 15              | 20             | 29           | 9.0          | 8.5          |
| SPH1360S-180MT | 18              | 20             | 35           | 8.0          | 7.5          |
| SPH1360S-220MT | 22              | 20             | 39.5         | 7.5          | 7.0          |
| SPH1360S-270MT | 27              | 20             | 56           | 6.5          | 6.0          |
| SPH1360S-330MT | 33              | 20             | 75           | 6.0          | 5.5          |
| SPH1360S-470MT | 47              | 20             | 90           | 5.5          | 5.0          |
| SPH1360S-680MT | 68              | 20             | 140          | 4.5          | 4.0          |
| SPH1360S-101MT | 100             | 20             | 200          | 3.5          | 3.0          |
| SPH1360S-121MT | 120             | 20             | 235          | 3.2          | 2.0          |
| SPH1360S-151MT | 150             | 20             | 350          | 2.7          | 1.5          |

## Molding Power Inductors---SPH Series



### SPH1365 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH1365S-4R7MT | 4.7             | 20             | 8.5          | 24.0         | 16.0         |
| SPH1365S-5R6MT | 5.6             | 20             | 10.5         | 22.5         | 14.0         |
| SPH1365S-6R8MT | 6.8             | 20             | 12           | 19.0         | 13.0         |
| SPH1365S-8R2MT | 8.2             | 20             | 14           | 16.0         | 12.0         |
| SPH1365S-100MT | 10              | 20             | 16.5         | 15.0         | 11.0         |
| SPH1365S-150MT | 15              | 20             | 26           | 11.0         | 9.5          |
| SPH1365S-220MT | 22              | 20             | 36           | 9.0          | 8.0          |
| SPH1365S-330MT | 33              | 20             | 65           | 8.0          | 6.5          |
| SPH1365S-470MT | 47              | 20             | 70           | 6.8          | 5.5          |
| SPH1365S-680MT | 68              | 20             | 120          | 5.2          | 4.8          |
| SPH1365S-820MT | 82              | 20             | 135          | 4.5          | 4.0          |
| SPH1365S-101MT | 100             | 20             | 170          | 4.0          | 3.5          |

### SPH1770 Electrical Characteristics

| Part Number    | Inductance (μH) | Tolerance (±%) | DCR Max (mΩ) | Isat Max (A) | Irms Max (A) |
|----------------|-----------------|----------------|--------------|--------------|--------------|
| SPH1770S-2R2MT | 2.2             | 20             | 2.5          | 34.0         | 29.0         |
| SPH1770S-3R3MT | 3.3             | 20             | 3.95         | 30.0         | 24.0         |
| SPH1770S-4R7MT | 4.7             | 20             | 4.75         | 24.0         | 21.0         |
| SPH1770S-6R8MT | 6.8             | 20             | 7.5          | 22.0         | 17.0         |
| SPH1770S-8R2MT | 8.2             | 20             | 8.7          | 20.0         | 13.0         |
| SPH1770S-100MT | 10              | 20             | 9.9          | 19.0         | 12.0         |
| SPH1770S-150MT | 15              | 20             | 17           | 14.5         | 11.0         |
| SPH1770S-220MT | 22              | 20             | 23           | 11.5         | 8.5          |
| SPH1770S-330MT | 33              | 20             | 37           | 10.0         | 8.0          |
| SPH1770S-470MT | 47              | 20             | 47           | 7.5          | 6.0          |
| SPH1770S-680MT | 68              | 20             | 85           | 6.5          | 5.2          |
| SPH1770S-101MT | 100             | 20             | 130          | 5.0          | 3.7          |

#### Notes:

1. Irms: DC current that will causes the temperature rise ( $\Delta t=40^{\circ}\text{C}$ ) from  $25^{\circ}\text{C}$  ambient.
2. Isat: DC current at which the inductance drops approximate 30% from it's value without current.

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