



# INDEX

SHAPES AND DIMENSIONS..... 1

PART NUMBER CODE ..... 2

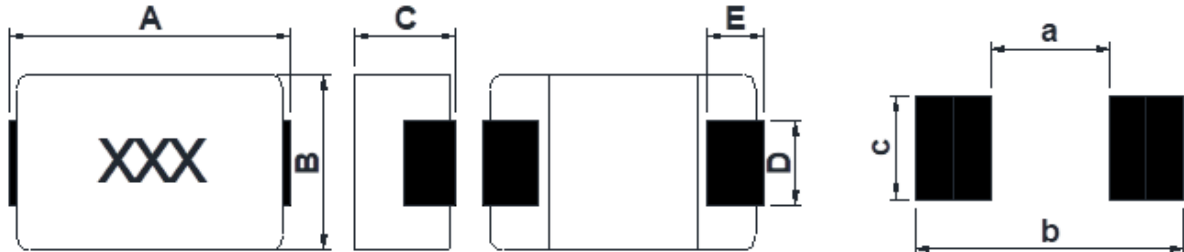
ELECTRICAL CHARACTERISTICS ..... 2

REEL DIMENSIONS AND PACKAGING QUANTITY ..... 6



## Shielded SMT Power Inductor SPI106-168 L Series

### ■ SHAPES AND DIMENSIONS



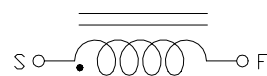
Unit: mm

Recommend PAD Layout

| P/N       | A          | B         | C Max. | D         | E         | a Typ. | b Typ. | c Typ. |
|-----------|------------|-----------|--------|-----------|-----------|--------|--------|--------|
| SPI1063L  | 10.10±0.50 | 5.50±0.50 | 3.0    | 2.80±0.50 | 2.20±0.50 | 4.8    | 10.8   | 3.5    |
| SPI1064L  | 10.10±0.50 | 5.50±0.50 | 4.0    | 2.80±0.50 | 2.20±0.50 | 4.8    | 10.8   | 3.5    |
| SPI1065L  | 10.10±0.50 | 5.50±0.50 | 5.0    | 2.80±0.50 | 2.20±0.50 | 4.8    | 10.8   | 3.5    |
| SPI1074L  | 10.10±0.50 | 7.00±0.50 | 4.0    | 2.50±0.50 | 2.00±0.50 | 5.5    | 12.5   | 3.5    |
| SPI1075L  | 10.10±0.50 | 7.00±0.50 | 5.0    | 2.50±0.50 | 2.00±0.50 | 5.5    | 12.5   | 3.5    |
| SPI1084L  | 11.30±0.50 | 8.30±0.50 | 4.0    | 4.40±0.50 | 2.20±0.50 | 5.0    | 12.5   | 5.0    |
| SPI1085L  | 11.30±0.50 | 8.30±0.50 | 5.0    | 4.40±0.50 | 2.20±0.50 | 5.0    | 12.5   | 5.0    |
| SPI1087L  | 11.30±0.50 | 8.30±0.50 | 7.0    | 4.40±0.50 | 2.20±0.50 | 5.0    | 12.5   | 5.0    |
| SPI1174L  | 11.20±0.50 | 7.20±0.50 | 4.0    | 2.80±0.50 | 2.20±0.50 | 5.5    | 12.5   | 3.5    |
| SPI1175L  | 11.20±0.50 | 7.20±0.50 | 5.0    | 2.80±0.50 | 2.20±0.50 | 5.5    | 12.5   | 3.5    |
| SPI1384L  | 12.80±0.50 | 8.00±0.50 | 4.0    | 3.50±0.50 | 2.50±0.50 | 6.0    | 14.5   | 5.0    |
| SPI1385L  | 12.80±0.50 | 8.00±0.50 | 5.0    | 3.50±0.50 | 2.50±0.50 | 6.0    | 14.5   | 5.0    |
| SPI1685L  | 17.50 MAX  | 8.70±0.30 | 5.0    | 4.00±0.50 | 3.00±0.50 | 9.0    | 18.0   | 5.5    |
| SPI1075DL | 10.10±0.50 | 7.00±0.50 | 5.0    | 3.50±0.50 | 2.20±0.50 | 5.5    | 12.5   | 3.5    |
| SPI1076DL | 10.10±0.50 | 7.00±0.50 | 6.0    | 3.50±0.50 | 2.20±0.50 | 5.5    | 12.5   | 3.5    |
| SPI1274L  | 12.20±0.50 | 6.90±0.50 | 4.0    | 4.00±0.50 | 2.40±0.50 | 6.0    | 14.0   | 5.0    |
| SPI1275L  | 12.20±0.50 | 6.90±0.50 | 5.0    | 4.00±0.50 | 2.40±0.50 | 6.0    | 14.0   | 5.0    |

Marking : XXX = Inductance

Equivalent circuit





## ■ PART NUMBER CODE

**SPI**   **1064**   **L**   -   **R12**   **M**   **A**  
**1**        **2**        **3**                    **4**        **5**        **6**

1. Series Name
2. Size Code
3. Type Code
4. Inductance(R=Decimal Point) Unit :  $\mu\text{H}$  ; R12 = 0.12 $\mu\text{H}$
5. Inductance tolerance: "M" $\pm 20\%$
6. Soldering : A=Lead Free

## ■ ELECTRICAL CHARACTERISTICS

### 1. SPI106-L

| Part Number    | Inductance<br>( $\mu\text{H}$ ) $\pm 20\%$ | DCR @25°C<br>(m $\Omega$ )<br>Max. | Saturation<br>Current<br>(A) Max. | Temperature<br>Rise Current<br>(A) Max. |
|----------------|--|------------------------------------|-----------------------------------|---|
| SPI1063L-R12MA | 0.12                                       | 1.04                               | 70                                | 35                                      |
| SPI1063L-R15MA | 0.15                                       | 1.04                               | 60                                | 35                                      |
| SPI1064L-R10MA | 0.10                                       | 0.75                               | 120                               | 45                                      |
| SPI1064L-R12MA | 0.12                                       | 0.75                               | 100                               | 40                                      |
| SPI1064L-R15MA | 0.15                                       | 0.75                               | 80                                | 35                                      |
| SPI1064L-R18MA | 0.18                                       | 0.75                               | 60                                | 30                                      |
| SPI1064L-R36MA | 0.36                                       | 1.60                               | 50                                | 24                                      |
| SPI1065L-R24MA | 0.24                                       | 1.05                               | 60                                | 37                                      |
| SPI1065L-R33MA | 0.33                                       | 1.60                               | 50                                | 30                                      |



## 2. SPI107-L

| Part Number    | Inductance<br>( $\mu\text{H}$ ) $\pm$ 20% | DCR @25°C<br>(m $\Omega$ )<br>Max. | Saturation<br>Current<br>(A) Max. | Temperature<br>Rise Current<br>(A) Max. |
|----------------|---|------------------------------------|-----------------------------------|---|
| SPI1074L-R15MA | 0.15                                      | 0.65                               | 75                                | 55                                      |
| SPI1074L-R22MA | 0.22                                      | 0.82                               | 50                                | 32                                      |
| SPI1075L-R10MA | 0.10                                      | 0.70                               | 100                               | 44                                      |
| SPI1075L-R12MA | 0.12                                      | 0.52                               | 100                               | 45                                      |
| SPI1075L-R15MA | 0.15                                      | 0.52                               | 85                                | 42                                      |
| SPI1075L-R22MA | 0.22                                      | 0.70                               | 60                                | 35                                      |
| SPI1075L-R30MA | 0.30                                      | 1.27                               | 50                                | 30                                      |
| SPI1075L-R33MA | 0.33                                      | 1.65                               | 55                                | 28                                      |
| SPI1075L-R47MA | 0.47                                      | 1.65                               | 50                                | 25                                      |

## 3. SPI108-L

| Part Number    | Inductance<br>( $\mu\text{H}$ ) $\pm$ 20% | DCR @25°C<br>(m $\Omega$ )<br>Max. | Saturation<br>Current<br>(A) Max. | Temperature<br>Rise Current<br>(A) Max. |
|----------------|---|------------------------------------|-----------------------------------|---|
| SPI1084L-R15MA | 0.15                                      | 0.52                               | 75                                | 45                                      |
| SPI1084L-R20MA | 0.20                                      | 0.52                               | 70                                | 45                                      |
| SPI1084L-R22MA | 0.22                                      | 0.80                               | 70                                | 40                                      |
| SPI1085L-R10MA | 0.10                                      | 0.52                               | 80                                | 45                                      |
| SPI1085L-R15MA | 0.15                                      | 0.52                               | 75                                | 45                                      |
| SPI1085L-R20MA | 0.20                                      | 0.80                               | 75                                | 45                                      |
| SPI1085L-R22MA | 0.22                                      | 0.80                               | 75                                | 45                                      |
| SPI1085L-R30MA | 0.30                                      | 0.85                               | 75                                | 45                                      |
| SPI1087L-R42MA | 0.42                                      | 0.86                               | 55                                | 45                                      |
| SPI1087L-R47MA | 0.47                                      | 0.86                               | 50                                | 45                                      |

## 4. SPI117-L

| Part Number    | Inductance<br>( $\mu\text{H}$ ) $\pm$ 20% | DCR @25°C<br>(m $\Omega$ )<br>Max. | Saturation<br>Current<br>(A) Max. | Temperature<br>Rise Current<br>(A) Max. |
|----------------|---|------------------------------------|-----------------------------------|---|
| SPI1174L-R10MA | 0.10                                      | 0.50                               | 120                               | 40                                      |
| SPI1174L-R15MA | 0.15                                      | 0.50                               | 70                                | 40                                      |
| SPI1174L-R22MA | 0.22                                      | 0.75                               | 60                                | 30                                      |
| SPI1174L-R33MA | 0.33                                      | 1.21                               | 45                                | 35                                      |
| SPI1175L-R15MA | 0.15                                      | 0.50                               | 75                                | 40                                      |
| SPI1175L-R22MA | 0.22                                      | 0.70                               | 70                                | 40                                      |
| SPI1175L-R33MA | 0.33                                      | 0.95                               | 60                                | 35                                      |



## 5. SPI138-L

| Part Number    | Inductance<br>( $\mu\text{H}$ ) $\pm$ 20% | DCR @25°C<br>(m $\Omega$ )<br>Max. | Saturation<br>Current<br>(A) Max. | Temperature<br>Rise Current<br>(A) Max. |
|----------------|---|------------------------------------|-----------------------------------|---|
| SPI1384L-R10MA | 0.10                                      | 0.50                               | 120                               | 50                                      |
| SPI1384L-R12MA | 0.12                                      | 0.50                               | 100                               | 45                                      |
| SPI1384L-R15MA | 0.15                                      | 0.60                               | 90                                | 48                                      |
| SPI1384L-R22MA | 0.22                                      | 0.60                               | 80                                | 45                                      |
| SPI1384L-R30MA | 0.30                                      | 0.95                               | 60                                | 40                                      |
| SPI1384L-R33MA | 0.33                                      | 0.95                               | 60                                | 35                                      |
| SPI1384L-R47MA | 0.47                                      | 1.40                               | 50                                | 32                                      |
| SPI1385L-R10MA | 0.10                                      | 0.50                               | 130                               | 50                                      |
| SPI1385L-R15MA | 0.15                                      | 0.50                               | 110                               | 50                                      |
| SPI1385L-R22MA | 0.22                                      | 0.60                               | 100                               | 45                                      |
| SPI1385L-R33MA | 0.33                                      | 0.75                               | 70                                | 35                                      |
| SPI1385L-R47MA | 0.47                                      | 1.20                               | 60                                | 30                                      |
| SPI1385L-1R0MA | 1.00                                      | 2.55                               | 33                                | 23                                      |

## 6. SPI168-L

| Part Number    | Inductance<br>( $\mu\text{H}$ ) $\pm$ 20% | DCR @25°C<br>(m $\Omega$ )<br>Max. | Saturation<br>Current<br>(A) Max. | Temperature<br>Rise Current<br>(A) Max. |
|----------------|---|------------------------------------|-----------------------------------|---|
| SPI1685L-R21MA | 0.21                                      | 0.60                               | 120                               | 52                                      |
| SPI1685L-R33MA | 0.33                                      | 0.70                               | 100                               | 48                                      |
| SPI1685L-R47MA | 0.47                                      | 1.00                               | 80                                | 42                                      |
| SPI1685L-R68MA | 0.68                                      | 1.20                               | 70                                | 40                                      |

## 7. SPI107-DL

| Part Number     | Inductance<br>( $\mu\text{H}$ ) $\pm$ 20% | DCR @25°C<br>(m $\Omega$ )<br>Max. | Saturation<br>Current<br>(A) Max. | Temperature<br>Rise Current<br>(A) Max. |
|-----------------|---|------------------------------------|-----------------------------------|---|
| SPI1075DL-R10MA | 0.10                                      | 0.45                               | 100                               | 50                                      |
| SPI1075DL-R12MA | 0.12                                      | 0.45                               | 85                                | 45                                      |
| SPI1075DL-R15MA | 0.15                                      | 0.45                               | 70                                | 42                                      |
| SPI1075DL-R20MA | 0.20                                      | 0.60                               | 70                                | 42                                      |
| SPI1076DL-R12MA | 0.12                                      | 0.50                               | 90                                | 45                                      |
| SPI1076DL-R15MA | 0.15                                      | 0.50                               | 80                                | 42                                      |



## 8. SPI127-L

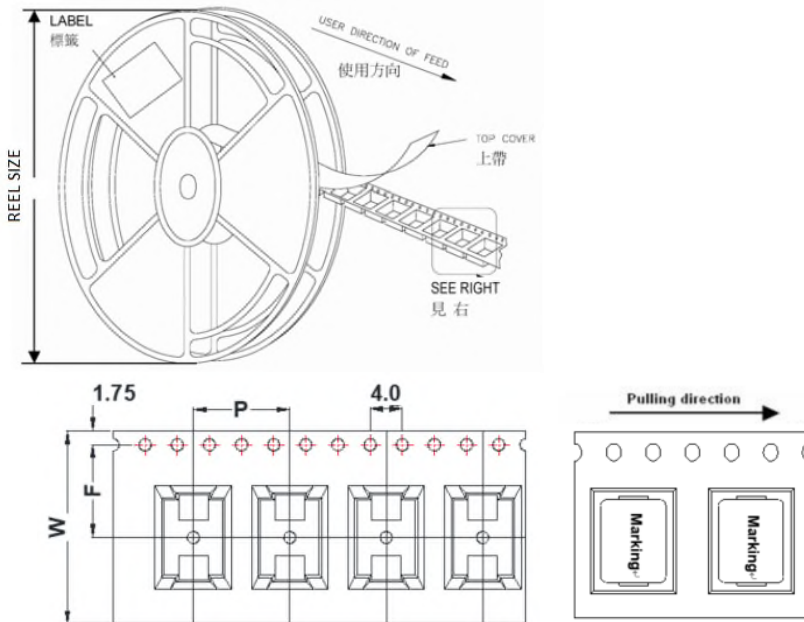
| Part Number    | Inductance<br>( $\mu\text{H}$ ) $\pm$ 20% | DCR @25°C<br>(m $\Omega$ )<br>Max. | Saturation<br>Current<br>(A) Max. | Temperature<br>Rise Current<br>(A) Max. |
|----------------|---|------------------------------------|-----------------------------------|---|
| SPI1274L-R12MA | 0.12                                      | 0.52                               | 85                                | 45                                      |
| SPI1274L-R15MA | 0.15                                      | 0.52                               | 75                                | 45                                      |
| SPI1275L-R12MA | 0.12                                      | 0.52                               | 90                                | 45                                      |
| SPI1275L-R15MA | 0.15                                      | 0.52                               | 80                                | 45                                      |

Note:

- Initial Inductance: Testing at 100KHz / 1V.
- All test data is referenced to 25°C ambient.
- Operating temperature range from -55°C to 125°C .
- Saturation Current: DC current that will cause initial Inductance to drop approximately 30%.
- Temperature Rise Current: DC current that will cause an approximate  $\Delta T$  of 40°C.
- The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature.
- Absolute maximum voltage 30 VDC.
-



## ■ REEL DIMENSIONS AND PACKAGING QUANTITY



Unit: mm

| TYPE      | W  | P  | F    | REEL SIZE    | PCS / REEL |
|-----------|----|----|------|--------------|------------|
| SPI1063L  | 24 | 12 | 11.5 | 330 mm (13") | 1000       |
| SPI1064L  | 24 | 12 | 11.5 | 330 mm (13") | 1000       |
| SPI1065L  | 24 | 12 | 11.5 | 330 mm (13") | 800        |
| SPI1074L  | 24 | 12 | 11.5 | 330 mm (13") | 800        |
| SPI1075L  | 24 | 12 | 11.5 | 330 mm (13") | 500        |
| SPI1084L  | 24 | 12 | 11.5 | 330 mm (13") | 1000       |
| SPI1085L  | 24 | 12 | 11.5 | 330 mm (13") | 800        |
| SPI1087L  | 24 | 16 | 11.5 | 330 mm (13") | 500        |
| SPI1174L  | 24 | 12 | 11.5 | 330 mm (13") | 1000       |
| SPI1175L  | 24 | 12 | 11.5 | 330 mm (13") | 800        |
| SPI1384L  | 24 | 12 | 11.5 | 330 mm (13") | 1000       |
| SPI1385L  | 24 | 12 | 11.5 | 330 mm (13") | 800        |
| SPI1685L  | 32 | 16 | 14.2 | 330 mm (13") | 500        |
| SPI1075DL | 24 | 12 | 11.5 | 330 mm (13") | 500        |
| SPI1076DL | 24 | 12 | 11.5 | 330 mm (13") | 500        |