

## Data Sheet

Customer:

Product: SMD Power Inductor – PD Series

Sizes.: 1608/3308/3316/3340/5022

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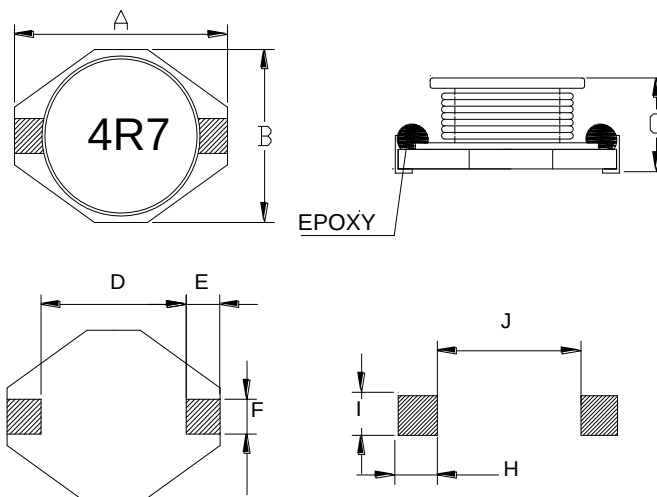
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## SMD Power Inductor



### Features

- High power, High saturation inductors
- Ideal inductors for DC-DC converters in notebook computer, PDAs, Step-up or step-down converters, flash memory programmers, etc.
- PD1608 used ceramic base with gold-plating
- The others used LCP plastic base

### Dimensions

Unit: mm

| Type   | A<br>max. | B<br>max. | C<br>max. | D    | E    | F    | H    | I    | J     |
|--------|-----------|-----------|-----------|------|------|------|------|------|-------|
| PD1608 | 6.60      | 4.45      | 2.92      | 4.32 | 1.02 | 1.27 | 1.40 | 3.56 | 4.06  |
| PD3308 | 12.95     | 9.40      | 3.00      | 7.62 | 2.54 | 2.54 | 2.79 | 2.92 | 7.37  |
| PD3316 | 12.95     | 9.40      | 5.21      | 7.62 | 2.54 | 2.54 | 2.79 | 2.92 | 7.37  |
| PD3340 | 12.95     | 9.40      | 11.43     | 7.62 | 2.54 | 2.54 | 2.79 | 2.92 | 7.37  |
| PD5022 | 18.54     | 15.24     | 7.11      | 12.7 | 2.54 | 2.54 | 2.79 | 2.92 | 12.45 |

### Applications

- Portable Telephones
- Personal Computers
- DC/DC Converters, etc.
- Other Various Electronic Appliances

### Inductance and rated current ranges

- PD1608 1.0μH~1000μH 2.9~0.10A
- PD3308 1.0μH~1000μH 5.15~0.10A
- PD3316 0.68μH~1000μH 11~0.35A
- PD3340 0.47μH~1000μH 20~0.8A
- PD5022 1.0μH~1000μH 20~1.0A

### Characteristics

- Saturation Rated Current: The current when the inductance becomes 10% lower than its initial value. (Ta=25°C)
- Operating temperature range: -40~125°C

— Test equipment:

L: HP4284A LCR meter

DCR: Milli-ohm meter

— Electrical specifications at 25°C

### Product Identification

| PD           | 1608                                                                                                                       | M                  | T                | 101                                   |
|--------------|----------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|---------------------------------------|
| Product Type | Dimensions (AxBxC)                                                                                                         | Inductor Tolerance | Packaging Style  | Inductance                            |
|              | 1608: 6.60×4.45×2.92<br>3308: 12.95×9.40×3.00<br>3316: 12.95×9.40×5.21<br>3340: 12.95×9.40×11.43<br>5022: 18.54×15.24×7.11 | M: ±20%            | T: Tape and Reel | 1R0: 1.0μH<br>470: 47μH<br>101: 100μH |

## Electrical Characteristics

PD1608 Type(□:Tolerance):

| Part No     | L<br>(μH) | Tolerance | Test<br>Condition | DCR<br>(Ω) max. | IDC<br>(A) max. |
|-------------|-----------|-----------|-------------------|-----------------|-----------------|
| PD1608□T1R0 | 1.0       | M         | 100KHz, 0.1V      | 0.05            | 2.90            |
| PD1608□T1R5 | 1.5       | M         | 100KHz, 0.1V      | 0.06            | 2.60            |
| PD1608□T2R2 | 2.2       | M         | 100KHz, 0.1V      | 0.07            | 2.30            |
| PD1608□T3R3 | 3.3       | M         | 100KHz, 0.1V      | 0.08            | 2.00            |
| PD1608□T4R7 | 4.7       | M         | 100KHz, 0.1V      | 0.09            | 1.50            |
| PD1608□T6R8 | 6.8       | M         | 100KHz, 0.1V      | 0.13            | 1.20            |
| PD1608□T8R2 | 8.2       | M         | 100KHz, 0.1V      | 0.16            | 1.15            |
| PD1608□T100 | 10        | M         | 100KHz, 0.1V      | 0.16            | 1.10            |
| PD1608□T150 | 15        | M         | 100KHz, 0.1V      | 0.23            | 0.90            |
| PD1608□T220 | 22        | M         | 100KHz, 0.1V      | 0.37            | 0.70            |
| PD1608□T330 | 33        | M         | 100KHz, 0.1V      | 0.51            | 0.58            |
| PD1608□T470 | 47        | M         | 100KHz, 0.1V      | 0.64            | 0.50            |
| PD1608□T680 | 68        | M         | 100KHz, 0.1V      | 0.86            | 0.40            |
| PD1608□T101 | 100       | M         | 100KHz, 0.1V      | 1.27            | 0.31            |
| PD1608□T151 | 150       | M         | 100KHz, 0.1V      | 2.00            | 0.27            |
| PD1608□T221 | 220       | M         | 100KHz, 0.1V      | 3.11            | 0.22            |
| PD1608□T331 | 330       | M         | 100KHz, 0.1V      | 3.80            | 0.18            |
| PD1608□T471 | 470       | M         | 100KHz, 0.1V      | 6.00            | 0.14            |
| PD1608□T681 | 680       | M         | 100KHz, 0.1V      | 10.5            | 0.12            |
| PD1608□T102 | 1000      | M         | 100KHz, 0.1V      | 13.8            | 0.10            |

PD3308 Type(□:Tolerance):

| Part No     | L<br>(μH) | Tolerance | Test<br>Condition | DCR<br>(Ω) max. | IDC<br>(A) max. |
|-------------|-----------|-----------|-------------------|-----------------|-----------------|
| PD3308□T1R0 | 1.0       | M         | 100KHz, 0.1V      | 0.024           | 5.15            |
| PD3308□T4R7 | 4.7       | M         | 100KHz, 0.1V      | 0.036           | 4.20            |
| PD3308□T6R8 | 6.8       | M         | 100KHz, 0.1V      | 0.060           | 3.90            |
| PD3308□T8R2 | 8.2       | M         | 100KHz, 0.1V      | 0.080           | 2.42            |
| PD3308□T100 | 10        | M         | 100KHz, 0.1V      | 0.110           | 2.40            |
| PD3308□T150 | 15        | M         | 100KHz, 0.1V      | 0.120           | 2.30            |
| PD3308□T220 | 22        | M         | 100KHz, 0.1V      | 0.180           | 1.80            |
| PD3308□T330 | 33        | M         | 100KHz, 0.1V      | 0.250           | 1.60            |
| PD3308□T470 | 47        | M         | 100KHz, 0.1V      | 0.320           | 1.30            |
| PD3308□T680 | 68        | M         | 100KHz, 0.1V      | 0.540           | 1.10            |
| PD3308□T101 | 100       | M         | 100KHz, 0.1V      | 0.690           | 0.87            |
| PD3308□T151 | 150       | M         | 100KHz, 0.1V      | 0.940           | 0.74            |
| PD3308□T221 | 220       | M         | 100KHz, 0.1V      | 1.600           | 0.56            |
| PD3308□T331 | 330       | M         | 100KHz, 0.1V      | 2.150           | 0.50            |
| PD3308□T471 | 470       | M         | 100KHz, 0.1V      | 3.300           | 0.40            |
| PD3308□T681 | 680       | M         | 100KHz, 0.1V      | 4.400           | 0.33            |
| PD3308□T821 | 820       | M         | 100KHz, 0.1V      | 5.800           | 0.15            |
| PD3308□T102 | 1000      | M         | 100KHz, 0.1V      | 8.400           | 0.10            |

## Electrical Characteristics

PD3316 Type(□:Tolerance)

| Part No       | L<br>( $\mu$ H) | Tolerance | Test<br>Condition | DCR<br>( $\Omega$ ) max. | IDC<br>(A) max. |
|---------------|-----------------|-----------|-------------------|--------------------------|-----------------|
| PD3316□TR68   | 0.68            | M         | 100KHz, 0.1V      | 0.008                    | 11.0            |
| PD3316□T1R0   | 1.0             | M         | 100KHz, 0.1V      | 0.009                    | 9.00            |
| PD3316□T1R2   | 1.2             | M         | 100KHz, 0.1V      | 0.010                    | 8.50            |
| PD3316□T1R5   | 1.5             | M         | 100KHz, 0.1V      | 0.010                    | 8.00            |
| PD3316□T1R8   | 1.8             | M         | 100KHz, 0.1V      | 0.011                    | 7.50            |
| PD3316□T2R2   | 2.2             | M         | 100KHz, 0.1V      | 0.012                    | 7.10            |
| PD3316□T2R7   | 2.7             | M         | 100KHz, 0.1V      | 0.014                    | 6.60            |
| PD3316□T3R3   | 3.3             | M         | 100KHz, 0.1V      | 0.015                    | 6.50            |
| PD3316□T4R7   | 4.7             | M         | 100KHz, 0.1V      | 0.018                    | 5.50            |
| PD3316□T5R6   | 5.6             | M         | 100KHz, 0.1V      | 0.025                    | 4.80            |
| PD3316□T6R8   | 6.8             | M         | 100KHz, 0.1V      | 0.027                    | 4.70            |
| PD3316□T8R2   | 8.2             | M         | 100KHz, 0.1V      | 0.036                    | 4.10            |
| PD3316□T100   | 10              | M         | 100KHz, 0.1V      | 0.038                    | 3.90            |
| PD3316□T120   | 12              | M         | 100KHz, 0.1V      | 0.044                    | 3.30            |
| PD3316□T150   | 15              | M         | 100KHz, 0.1V      | 0.046                    | 3.10            |
| PD3316□T180   | 18              | M         | 100KHz, 0.1V      | 0.066                    | 2.80            |
| PD3316□T220   | 22              | M         | 100KHz, 0.1V      | 0.085                    | 2.60            |
| PD3316□T270   | 27              | M         | 100KHz, 0.1V      | 0.095                    | 2.10            |
| PD3316□T330   | 33              | M         | 100KHz, 0.1V      | 0.100                    | 2.00            |
| PD3316□T390   | 39              | M         | 100KHz, 0.1V      | 0.130                    | 1.80            |
| PD3316□T470   | 47              | M         | 100KHz, 0.1V      | 0.140                    | 1.70            |
| PD3316□T560   | 56              | M         | 100KHz, 0.1V      | 0.190                    | 1.60            |
| PD3316□T680   | 68              | M         | 100KHz, 0.1V      | 0.200                    | 1.50            |
| PD3316□T820   | 82              | M         | 100KHz, 0.1V      | 0.260                    | 1.30            |
| PD3316□T101   | 100             | M         | 100KHz, 0.1V      | 0.280                    | 1.25            |
| PD3316□T101-1 | 100             | K         | 100KHz, 0.1V      | 0.280                    | 1.50            |
| PD3316□T121   | 120             | M         | 100KHz, 0.1V      | 0.360                    | 1.05            |
| PD3316□T151   | 150             | M         | 100KHz, 0.1V      | 0.400                    | 1.05            |
| PD3316□T181   | 180             | M         | 100KHz, 0.1V      | 0.540                    | 0.85            |
| PD3316□T221   | 220             | M         | 100KHz, 0.1V      | 0.610                    | 0.82            |
| PD3316□T271   | 270             | M         | 100KHz, 0.1V      | 0.840                    | 0.65            |
| PD3316□T331   | 330             | M         | 100KHz, 0.1V      | 1.020                    | 0.62            |
| PD3316□T391   | 390             | M         | 100KHz, 0.1V      | 1.250                    | 0.55            |
| PD3316□T471   | 470             | M         | 100KHz, 0.1V      | 1.270                    | 0.52            |
| PD3316□T561   | 560             | M         | 100KHz, 0.1V      | 1.850                    | 0.45            |
| PD3316□T681   | 680             | M         | 100KHz, 0.1V      | 2.020                    | 0.42            |
| PD3316□T821   | 820             | M         | 100KHz, 0.1V      | 2.530                    | 0.38            |
| PD3316□T102   | 1000            | M         | 100KHz, 0.1V      | 3.000                    | 0.35            |
| PD3316□T102-2 | 1000            | K         | 1KHz, 0.25V       | 3.900                    | 0.35            |
| PD3316□T152-1 | 1500            | K         | 1KHz, 0.25V       | 6.300                    | 0.30            |
| PD3316□T222-1 | 2200            | K         | 1KHz, 0.25V       | 8.200                    | 0.24            |
| PD3316□T103-1 | 10000           | M         | 1KHz, 0.25V       | 39.00                    | 0.10            |

## Electrical Characteristics

PD3340 Type(□:Tolerance)

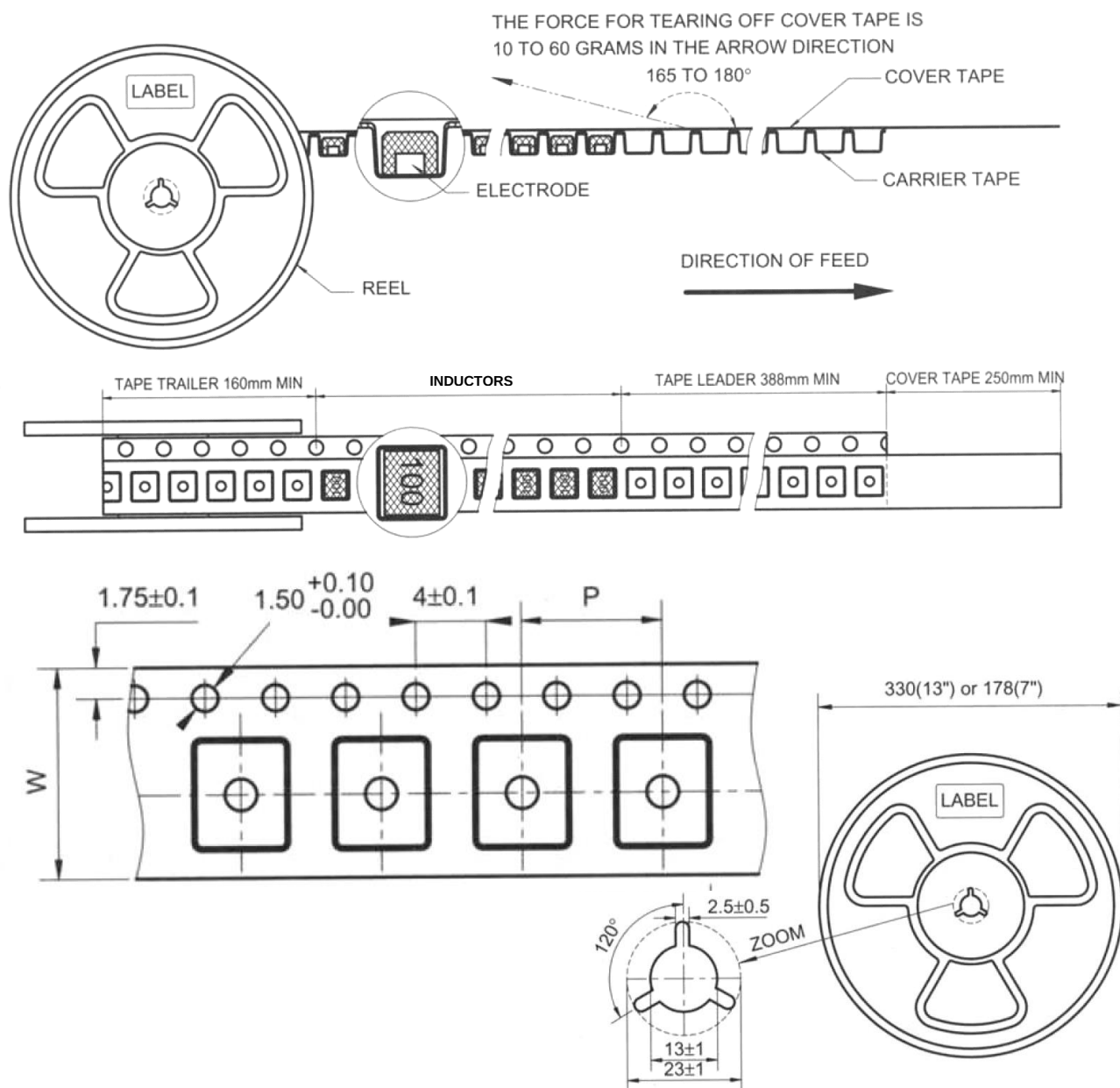
| Part No     | L<br>( $\mu$ H) | Tolerance | Test<br>Condition | DCR<br>( $\Omega$ ) max. | IDC<br>(A) max. |
|-------------|-----------------|-----------|-------------------|--------------------------|-----------------|
| PD3340□TR47 | 0.47            | M         | 100KHz, 0.1V      | 0.008                    | 20.0            |
| PD3340□TR82 | 0.82            | M         | 100KHz, 0.1V      | 0.009                    | 20.0            |
| PD3340□T1R2 | 1.2             | M         | 100KHz, 0.1V      | 0.010                    | 20.0            |
| PD3340□T1R5 | 1.5             | M         | 100KHz, 0.1V      | 0.010                    | 20.0            |
| PD3340□T2R2 | 2.2             | M         | 100KHz, 0.1V      | 0.012                    | 18.5            |
| PD3340□T3R5 | 3.5             | M         | 100KHz, 0.1V      | 0.015                    | 18.0            |
| PD3340□T4R7 | 4.7             | M         | 100KHz, 0.1V      | 0.020                    | 13.0            |
| PD3340□T5R6 | 5.6             | M         | 100KHz, 0.1V      | 0.022                    | 12.0            |
| PD3340□T6R8 | 6.8             | M         | 100KHz, 0.1V      | 0.030                    | 10.0            |
| PD3340□T8R2 | 8.2             | M         | 100KHz, 0.1V      | 0.033                    | 9.00            |
| PD3340□T100 | 10              | M         | 100KHz, 0.1V      | 0.040                    | 8.00            |
| PD3340□T120 | 12              | M         | 100KHz, 0.1V      | 0.042                    | 7.20            |
| PD3340□T150 | 15              | M         | 100KHz, 0.1V      | 0.050                    | 7.00            |
| PD3340□T180 | 18              | M         | 100KHz, 0.1V      | 0.052                    | 5.70            |
| PD3340□T220 | 22              | M         | 100KHz, 0.1V      | 0.066                    | 5.50            |
| PD3340□T270 | 27              | M         | 100KHz, 0.1V      | 0.072                    | 4.20            |
| PD3340□T330 | 33              | M         | 100KHz, 0.1V      | 0.080                    | 4.00            |
| PD3340□T390 | 39              | M         | 100KHz, 0.1V      | 0.092                    | 3.90            |
| PD3340□T470 | 47              | M         | 100KHz, 0.1V      | 0.110                    | 3.80            |
| PD3340□T560 | 56              | M         | 100KHz, 0.1V      | 0.150                    | 3.20            |
| PD3340□T680 | 68              | M         | 100KHz, 0.1V      | 0.170                    | 3.00            |
| PD3340□T820 | 82              | M         | 100KHz, 0.1V      | 0.200                    | 2.60            |
| PD3340□T101 | 100             | M         | 100KHz, 0.1V      | 0.220                    | 2.50            |
| PD3340□T121 | 120             | M         | 100KHz, 0.1V      | 0.320                    | 2.20            |
| PD3340□T151 | 150             | M         | 100KHz, 0.1V      | 0.340                    | 2.00            |
| PD3340□T181 | 180             | M         | 100KHz, 0.1V      | 0.420                    | 1.80            |
| PD3340□T221 | 220             | M         | 100KHz, 0.1V      | 0.440                    | 1.60            |
| PD3340□T271 | 270             | M         | 100KHz, 0.1V      | 0.600                    | 1.30            |
| PD3340□T331 | 330             | M         | 100KHz, 0.1V      | 0.700                    | 1.20            |
| PD3340□T391 | 390             | M         | 100KHz, 0.1V      | 0.850                    | 1.10            |
| PD3340□T471 | 470             | M         | 100KHz, 0.1V      | 0.950                    | 1.00            |
| PD3340□T561 | 560             | M         | 100KHz, 0.1V      | 1.100                    | 1.00            |
| PD3340□T681 | 680             | M         | 100KHz, 0.1V      | 1.200                    | 1.00            |
| PD3340□T821 | 820             | M         | 100KHz, 0.1V      | 1.500                    | 0.82            |
| PD3340□T102 | 1000            | M         | 100KHz, 0.1V      | 2.000                    | 0.80            |

## Electrical Characteristics

PD5022 Type(□:Tolerance)

| Part No     | L<br>( $\mu$ H) | Tolerance | Test<br>Condition | DCR<br>( $\Omega$ ) max. | IDC<br>(A) max. |
|-------------|-----------------|-----------|-------------------|--------------------------|-----------------|
| PD5022□T1R0 | 1.0             | M         | 100KHz, 0.1V      | 0.009                    | 20.00           |
| PD5022□T2R2 | 2.2             | M         | 100KHz, 0.1V      | 0.014                    | 16.00           |
| PD5022□T3R3 | 3.3             | M         | 100KHz, 0.1V      | 0.018                    | 14.00           |
| PD5022□T4R7 | 4.7             | M         | 100KHz, 0.1V      | 0.019                    | 13.00           |
| PD5022□T5R6 | 5.6             | M         | 100KHz, 0.1V      | 0.020                    | 12.00           |
| PD5022□T6R8 | 6.8             | M         | 100KHz, 0.1V      | 0.022                    | 10.60           |
| PD5022□T8R2 | 8.2             | M         | 100KHz, 0.1V      | 0.024                    | 10.30           |
| PD5022□T100 | 10              | M         | 100KHz, 0.1V      | 0.031                    | 10.00           |
| PD5022□T120 | 12              | M         | 100KHz, 0.1V      | 0.034                    | 8.20            |
| PD5022□T150 | 15              | M         | 100KHz, 0.1V      | 0.036                    | 8.00            |
| PD5022□T180 | 18              | M         | 100KHz, 0.1V      | 0.045                    | 7.20            |
| PD5022□T220 | 22              | M         | 100KHz, 0.1V      | 0.047                    | 7.00            |
| PD5022□T270 | 27              | M         | 100KHz, 0.1V      | 0.056                    | 5.80            |
| PD5022□T330 | 33              | M         | 100KHz, 0.1V      | 0.066                    | 5.50            |
| PD5022□T390 | 39              | M         | 100KHz, 0.1V      | 0.080                    | 4.60            |
| PD5022□T470 | 47              | M         | 100KHz, 0.1V      | 0.095                    | 4.50            |
| PD5022□T560 | 56              | M         | 100KHz, 0.1V      | 0.128                    | 3.70            |
| PD5022□T680 | 68              | M         | 100KHz, 0.1V      | 0.130                    | 3.50            |
| PD5022□T820 | 82              | M         | 100KHz, 0.1V      | 0.180                    | 3.10            |
| PD5022□T101 | 100             | M         | 100KHz, 0.1V      | 0.190                    | 3.00            |
| PD5022□T121 | 120             | M         | 100KHz, 0.1V      | 0.240                    | 2.80            |
| PD5022□T151 | 150             | M         | 100KHz, 0.1V      | 0.250                    | 2.60            |
| PD5022□T181 | 180             | M         | 100KHz, 0.1V      | 0.360                    | 2.50            |
| PD5022□T221 | 220             | M         | 100KHz, 0.1V      | 0.380                    | 2.40            |
| PD5022□T271 | 270             | M         | 100KHz, 0.1V      | 0.520                    | 2.00            |
| PD5022□T331 | 330             | M         | 100KHz, 0.1V      | 0.560                    | 1.90            |
| PD5022□T391 | 390             | M         | 100KHz, 0.1V      | 0.720                    | 1.50            |
| PD5022□T471 | 470             | M         | 100KHz, 0.1V      | 0.850                    | 1.40            |
| PD5022□T561 | 560             | M         | 100KHz, 0.1V      | 1.080                    | 1.30            |
| PD5022□T681 | 680             | M         | 100KHz, 0.1V      | 1.100                    | 1.20            |
| PD5022□T821 | 820             | M         | 100KHz, 0.1V      | 1.600                    | 1.03            |
| PD5022□T102 | 1000            | M         | 100KHz, 0.1V      | 1.800                    | 1.00            |

■ Tape and Reel specifications



Unit: mm

| Type   | Tape size |    | Parts Per Reel |
|--------|-----------|----|----------------|
|        | W         | P  | 13"            |
| PD1608 | 16        | 8  | 2000           |
| PD3308 | 24        | 12 | 1000           |
| PD3316 | 24        | 12 | 1000           |
| PD3340 | 24        | 16 | 225            |
| PD5022 | 32        | 20 | 250            |

## ■ SMT Power Inductor Environmental Specifications

### General

| Items                    | Specifications                                                                                                                                |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Shelf Storage conditions | Temperature range: 15~28℃; Humidity: <80% relative humidity.<br>Recommended product should be used within one year from the time of delivery. |

### Environmental test

| Test Items                    | Specifications                                                         | Test Conditions / Test Methods                                                                                                             |
|-------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| High temperature Storage test | No case deformation or change in appearance.<br>$\Delta L/L \leq 10\%$ | Temperature 85±2℃,<br>Time: 96±2 hours,<br>Tested after 1hour at room temperature.                                                         |
| Low temperature Storage test  |                                                                        | Temperature -25±2℃,<br>Time: 96±2 hours,<br>Tested after 1hour at room temperature.                                                        |
| Humidity test                 |                                                                        | Temperature 40±2℃, 90~95% relative humidity<br>Time: 96±2 hours,<br>Tested after 1hour at room temperature.                                |
| Thermal shock test            |                                                                        | First -25℃ 30minutes then 25℃ 10 minutes last 85℃ 30 minutes, as 1 cycle. Go through 5 cycles.<br>Tested after 1 hour at room temperature. |

### Mechanical test

| Test Items                   | Specifications                                                         | Test Conditions / Test Methods                                                                                                                                    |
|------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solderability test           | Terminal area must have 90% minimum solder coverage.                   | Product with Lead-free terminal:<br>Dip pads in flux then dip in solder pot at 245±5℃ for 3 seconds.                                                              |
| Resistance to Soldering Heat | No case deformation or change in appearance.                           | Flux should cover the whole of the sample before heating, then be preheated for about 2 minutes over temperature of 130~150℃. Immersing to 260±5℃ for 10 seconds. |
| Vibration test               | No case deformation or change in appearance.<br>$\Delta L/L \leq 10\%$ | Apply frequency 10~55Hz. 1.5mm amplitude in each of perpendicular direction for 2 hours.                                                                          |
| Shock resistance             |                                                                        | Drop down with 981m/s <sup>2</sup> (100G) shock attitude upon a rubber block method shock testing machine, for 1 time. In each of three orientations.             |

### The condition of reflow (recommendation):

