# SMD Power Inductor

RoHS Compliant


## Electrical Characteristics: (at 25°C)

| Test Condition | | |
|---|---|---|
| 100kHz 0.25V | L | 0.33μH ± 20% |
| at 25°C | DCR | 8mΩ (Max.) |
| 100kHz 0.25V $I_{RMS}$ = 12A | ΔT | Temperature rise 40°C (Max.) |
| Operating temperature | -55°C to +130°C | |

## Material List:

| No. | Item | Material Description |
|---|---|---|
| 1 | Core | R5A CDR5.8 × 4.5(ST) B3.5 F2.3 |
| 2 | Wire | Φ0.45mm × 1P 2UEWF 155°C |
| 3 | Solder(Lead Free) | Sn99.3% / Cu0.7% |

## Reliability Test:

| Test Items | Specifications | Test Method and Remarks |
|---|---|---|
| Operating temperature range | –55°C to +130°C | Including temperature rise due to self generated heat |
| Storage Condition | Ambient Temp. : 0°C to 40°C<br>Humidity : Below 70%RH | To maintain the solderability of terminal electrodes, care must be taken to control temperature and humidity in the storage area. |
| Moisture Sensitivity | Appearance : No abnormality<br>No Damage<br>DCR change : within ±20%<br>Inductance change : within ±20% | According to J-STD-020B level 3<br>Test condition : 60°C 60%RH<br>Test duration : 40hrs<br>Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test chamber. |
| Solderability | All termination shall exhibit a continuous solder coating free from defects for a minimum of 90% of the surface area of any individual lead. | According to J-STD-002B<br>Steam aging category : 97°C 98%RH<br>Steam aging duration : 8hrs<br>Solder : Lead-free solder<br>Solder temperature : 260 ±5°C<br>Dip time : 5 +0/-0.5 seconds |

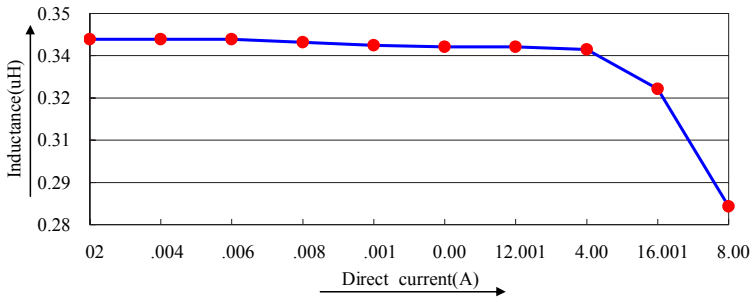
## Test Data for Mechanical:

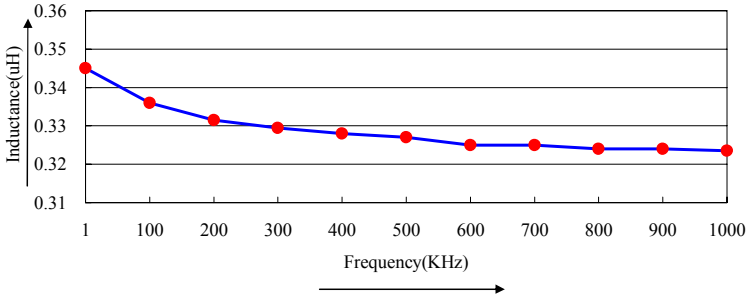
| Test Item | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) |
|---|---|---|---|---|---|
| Spec | 5.2 ±0.3 | 5.8 ±0.3 | 4.5 ±0.4 | 2 (Ref) | 5.8 ±0.5 |
| 1 | 5.26 | 5.87 | 4.52 | 2.02 | 5.85 |
| 2 | 5.28 | 5.88 | 4.54 | 2.03 | 5.83 |
| 3 | 5.24 | 5.85 | 4.55 | 1.96 | 5.85 |
| 4 | 5.26 | 5.86 | 4.51 | 1.98 | 5.91 |
| 5 | 5.27 | 5.84 | 4.52 | 2.01 | 5.87 |
| Average | 5.26 | 5.86 | 4.53 | 2 | 5.86 |

## Test Data for Electrical:

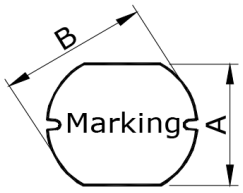
| Test Item | L<br>µH | DCR<br>mΩ | ΔT |
|---|---|---|---|
| Condition | 100kHz 0.25V | at 25°C | 100kHz 0.25V<br>$I_{RMS}$ = 12A |
| Spec | 0.33 ±20% | 8 (Max.) | Temperature rise 40°C (Max.) |
| 1 | 0.322 | 6.09 | OK |
| 2 | 0.32 | 6.27 | |
| 3 | 0.327 | 6.13 | |
| 4 | 0.329 | 6.15 | |
| 5 | 0.321 | 6.07 | |
| Average | 0.32 | 6.14 | OK |

## Electrical Characteristics:

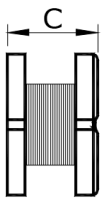


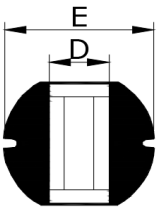
## Configurations & Dimensions:



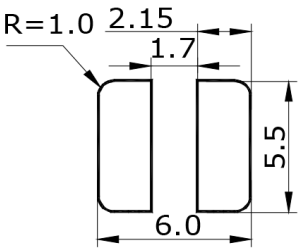

TOP VIEW




SIDE VIEW



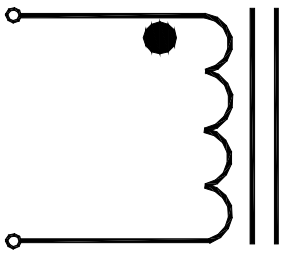

BOTTOM VIEW




Suggest PCB Layout

| | |
|---|---|
| A | 5.2 ±0.3mm |
| B | 5.8 ±0.3mm |
| C | 4.5 ±0.35mm |
| D | 2 (REF) mm |
| E | 5.8 ±0.5mm |

## Schematic Diagram:

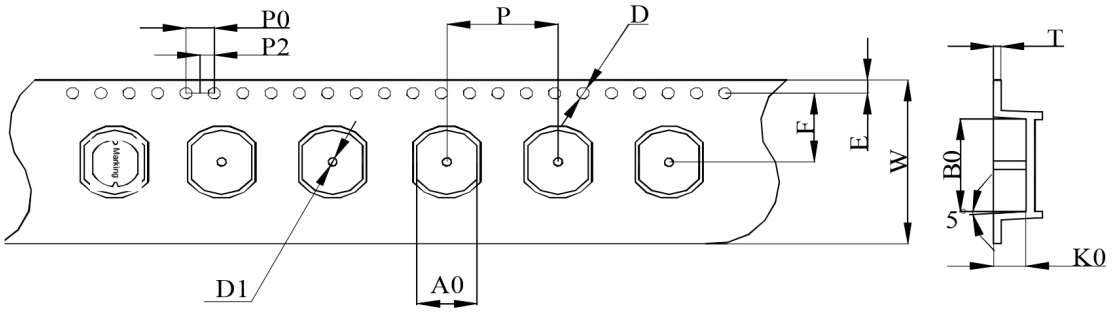


Note: 1.Wire Φ0.45mm × 1P 2UEWF 155°C
2. 3.5TS(REF)

# SMD Power Inductor

## Package Specification:

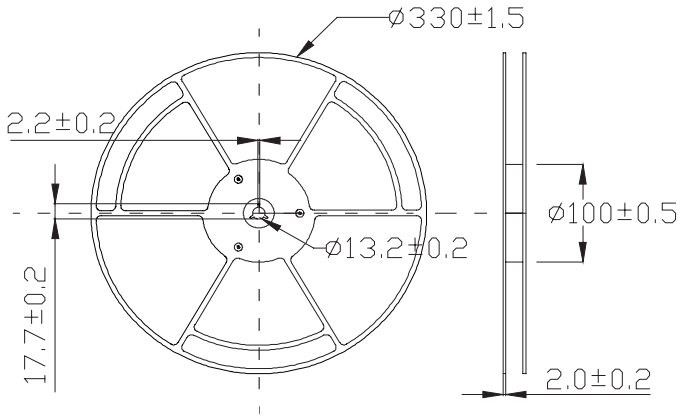
### Encapsulation Mode




| P | P0 | P2 | D | D1 | E | F | W | B0 | K0 | A0 | T |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 ±1 | 4 ±0.1 | 2 ±0.1 | 1.5 +0.15/-0 | 1.5 (min) | 1.75 ±0.1 | 7.5 ±0.1 | 16 +0.3/-0.1 | 6.4 ±0.1 | 5.1 ±0.1 | 5.5 ±0.1 | 0.5 ±0.05 |

Dimensions : Millimetres

## Reel Size:




Dimensions : Millimetres

## Part Number Table

| Description | Part Number |
|---|---|
| SMD Power Inductor, 0.33µH, ±20% | MCSD54-R33MU |