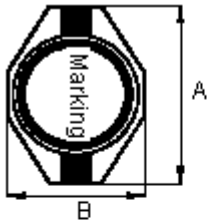
multicomp

PART NO.

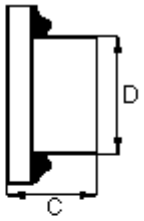
MCBFS5220-3R3MU

| REVISIONS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ECN # | REV | DESCRIPTION | DRAWN | DATE | CHECKD | DATE | APPRVD | DATE |
| - | A | RELEASED | ASH | 20/4/11 | SID | 20/4/11 | | 04/5/11 |
| | | | | | | | | |

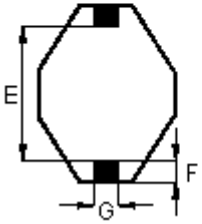
## Configurations and Dimensions



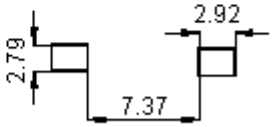

Top View




Side View




Bottom View

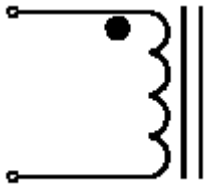



Suggest PCB Layout

Dimensions : Millimetres

| | | |
|---|---|---|
| A | 12.95 mm | (Max.) |
| B | 9.5 mm | |
| C | 5.2 mm | |
| D | 8.4 ±0.3 mm | - |
| E | 7.62 mm | (Ref.) |
| F | 2.54 mm | |
| G | | |

## Schematic Diagram



**Note:**

1. Wire Ø0.33mm × 1P 2UEWF 155°C
2. 11.5TS (Reference)

RoHS Compliant

**Marking : 3R3**

## Electrical Characteristics (at 25°C)

| Test Condition | | |
|---|---|---|
| 100 KHz 0.1 V | L | 3.3 µH ±20% |
| at 25°C | DCR | 36 mΩ (Max.) |
| 100 KHz 0.1 V $I_{rms}$ = 4.87 A | L at $I_{rms}$ | ΔT 40°C (Max.) |

Operating temperature : -55°C to +130°C

**Note :** $I_{rms}$ : Temperature rise 40°C

## Test Data for Mechanical

| Test Item | A mm | B mm | C mm | D mm | E mm | F mm | G mm |
|---|---|---|---|---|---|---|---|
| **Specification** | **12.95 (Max.)** | **9.5 (Max.)** | **5.2 (Max.)** | **8.4 ±0.3** | **7.62 (Ref.)** | **2.54 (Ref.)** | **2.54 (Ref.)** |
| 1 | 12.75 | 9.21 | 4.78 | 8.5 | 7.62 | 2.52 | 2.53 |
| 2 | 12.73 | 9.22 | 4.8 | 8.48 | 7.6 | 2.51 | 2.52 |
| 3 | 12.78 | 9.2 | 4.81 | 8.51 | 7.61 | 2.53 | 2.53 |
| 4 | 12.8 | 9.18 | 4.8 | 8.52 | 7.62 | 2.5 | 2.51 |
| 5 | 12.74 | 9.2 | 4.79 | 8.49 | 7.59 | 2.52 | 2.52 |
| **Average** | **12.76** | **9.2** | **4.8** | **8.5** | **7.61** | **2.52** | **2.52** |



TOLERANCES:

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.

| DRAWN BY: | DATE: |
|---|---|
| ARU | 20/04/11 |
| CHECKED BY: | DATE: |
| SID | 20/04/11 |
| APPROVED BY: | DATE: |
| | 04/05/11 |

DRAWING TITLE: **Inductor**

| SIZE | DWG NO. | ELECTRONIC FILE | REV |
|---|---|---|---|
| A | M10003211 | MCBFS5220-3R3MU | A |

SCALE: NTS | U.O.M.: mm | SHEET: 1 OF 4

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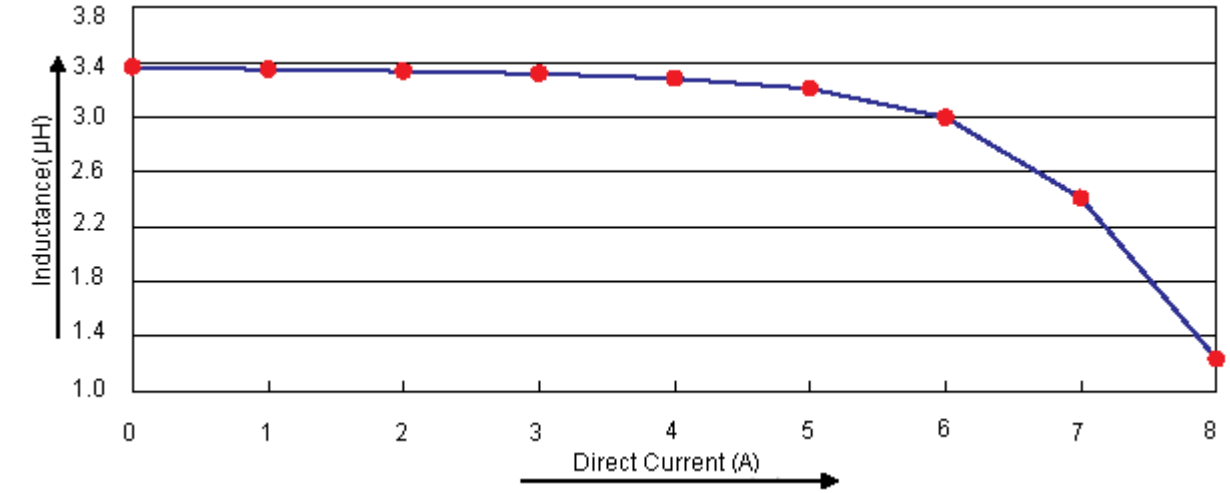
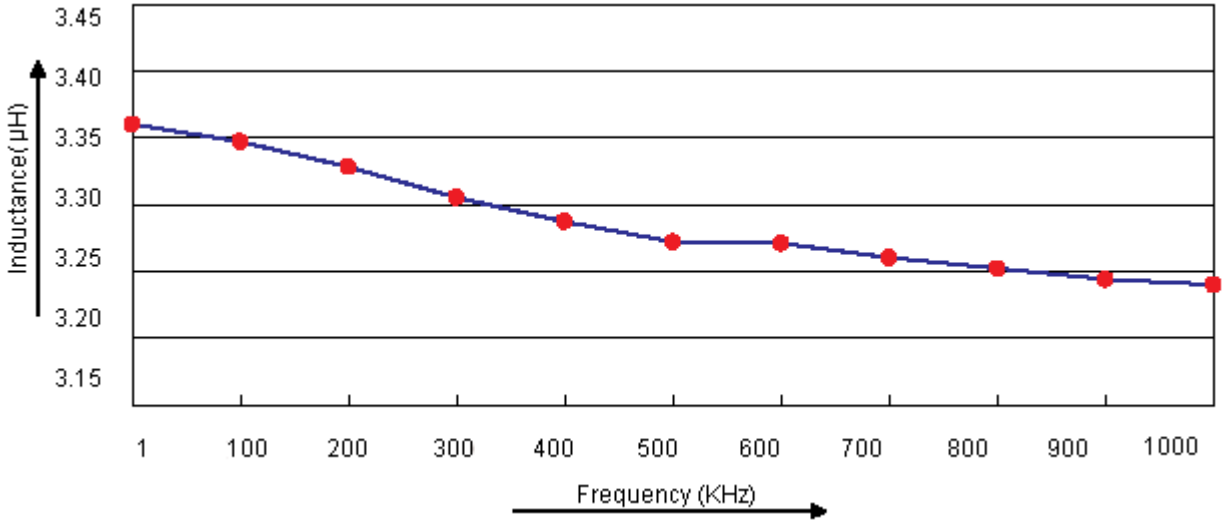
PART NO.

MCBFS5220-3R3MU

| REVISIONS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ECN # | REV | DESCRIPTION | DRAWN | DATE | CHECKD | DATE | APPRVD | DATE |
| - | A | RELEASED | ASH | 20/4/11 | SID | 20/4/11 | | 04/5/11 |
| | | | | | | | | |

## Electric Characteristics




## Test Data for Electrical

| Test Item | L μH | DCR mΩ | L at $I_{rms}$ μH |
|---|---|---|---|
| **Condition** | **100 KHz 0.1 V** | **at 25°C** | **100 KHz 0.1 V $I_{rms}$ = 4.87 A** |
| **Specification** | **3.3 ±20%** | **36 (Max.)** | **ΔT 40°C (Max.)** |
| 1 | 3.33 | 30.52 | OK |
| 2 | 3.39 | 30.8 | |
| 3 | 3.35 | 29.86 | |
| 4 | 3.32 | 29.58 | |
| 5 | 3.21 | 30.24 | |
| **Average** | **3.32** | **30.2** | **OK** |



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| SID | 20/04/11 |
| APPROVED BY: | DATE: |
| | 04/05/11 |

DRAWING TITLE: **Inductor**

| SIZE | DWG NO. | ELECTRONIC FILE | REV |
|---|---|---|---|
| A | M10003211 | MCBFS5220-3R3MU | A |

SCALE: NTS | U.O.M.: mm | SHEET: 2 OF 4

| multicomp | PART NO. MCBFS5220-3R3MU | REVISIONS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ECN # | REV | DESCRIPTION | DRAWN | DATE | CHECKD | DATE | APPRVD | DATE |
| | | - | A | RELEASED | ASH | 20/4/11 | SID | 20/4/11 | | 04/5/11 |
| | | | | | | | | | | |

## Reliability Test

| Test Item | Specifications | Test Method and Remarks |
|---|---|---|
| Solderability | The electrodes shall be at least 90% covered with new solder coating. | According to IEC68-2-20<br>Soldering temperature : 245 ±5°C<br>Solder : Sn99.3% / Cu0.7%<br>Flux : Rosin<br>Immersion time : 5 ±1 s |
| Soldering heat resistance | Appearance : No damage<br>Inductance change : Within ±10% of initial value | Preheat temperature 150°C<br>Preheat time : 1 min<br>Solder temperature : 260 ±5°C<br>Dipping time : 10 ±1 s<br>Measured at room temperature after placing for 24 hours. |
| Vibration (Out LAB) | Appearance : No damage<br>All electrical and mechanical parameters within tolerance. | According to MIL-STD202 Method 204<br>Frequency : 10 to 55 Hz<br>Amplitude : 1.52 mm<br>Direction and time X Y and Z direction for 2 hours each. |
| Humidity resistance test | Appearance : No damage<br>All electrical and mechanical parameters within tolerance. | According to IEC68-2-1 Method Ca<br>Temperature : 40 ±2°C<br>Humidity : 90%-95% RH<br>Test time : 500 ±2 hrs<br>The component should be stabilized at normal condition for 24 hours before test. |
| High temperature resistance test | Appearance : No damage<br>All electrical and mechanical parameters within tolerance. | According to IEC68-2-2<br>Temperature : 85 ±3°C<br>Test time : 500 +24 hrs<br>The component should be stabilized at normal condition for 24 hours before test. |
| Low temperature resistance test | Appearance : No damage<br>All electrical and mechanical parameters within tolerance. | According to IEC68-2-1 Method A (Ad)<br>Temperature : -40 ±3°C<br>Test time : 500 +24 hrs<br>The component should be stabilized at normal condition for 24 hours before test. |
| Temperature cycles test | Appearance : No damage<br>All electrical and mechanical parameters within tolerance. | According to IEC68-2-14 Method N (Nb)<br>High-temperature : 85 ±3°C duration 30 mins<br>Room-temperature : 25 ±2°C duration 3 hrs<br>Low-temperature : -40 ±3°C duration 30 mins<br>Room-temperature : 25 ±2°C duration 3 hrs<br>Number of cycle : 10 cycles<br>The component should be stabilized at normal condition for 24 hours before test. |



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DRAWING TITLE: **Inductor**

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|---|---|---|---|
| A | M10003211 | MCBFS5220-3R3MU | A |

SCALE: NTS | U.O.M.: mm | SHEET: 3 OF 4

| multicomp | PART NO. MCBFS5220-3R3MU | REVISIONS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ECN # | REV | DESCRIPTION | DRAWN | DATE | CHECKD | DATE | APPRVD | DATE |
| | | - | A | RELEASED | ASH | 20/4/11 | SID | 20/4/11 | | 04/5/11 |
| | | | | | | | | | | |

## Material List

| No. | Item | Material Description |
|---|---|---|
| 1 | Core | R5A DR4.8 × 4<br>R5A RI 8.4 × 4.1 × 6.85 |
| 2 | Wire | Ø0.33 mm × 1P 2UEWF (155°C) |
| 3 | Solder (Lead-free) | Sn99.3% / Cu0.7% |
| 4 | Glue | TH320D / TH320-3 |
| 5 | Base | SN-BS019.01 LCP |

## Part Number Table

| Description | Part Number |
|---|---|
| Inductor, 3.3µH, 20%, 4.5A | MCBFS5220-3R3MU |

http://www.element14.com

http://www.farnell.com

http://www.newark.com



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DRAWING TITLE: **Inductor**

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SCALE: NTS | U.O.M.: mm | SHEET: 4 OF 4