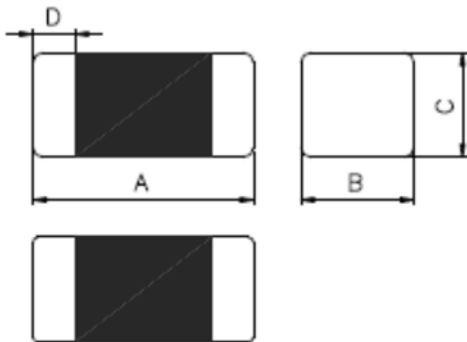


FEATRLRES

- Monolithic inorganic material construction.
- Closed magnetic circuit avoids crosstalk.
- S.M.T. type.
- Suitable for reflow soldering.
- Shapes and dimensions follow E.I.A. spec.
- Available in various sizes.
- Excellent solder ability and heat resistance.
- High reliability.
- 100% Lead(Pb) & Halogen-Free and RoHS compliant.

CONFIGLRATIONS & DIMENSIONS (unit in mm)



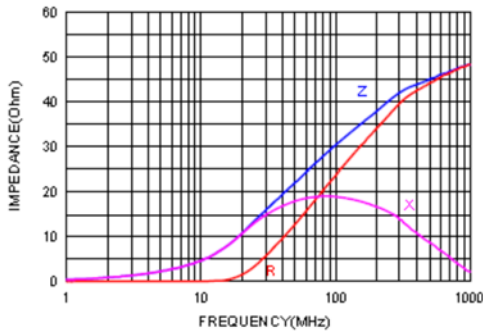
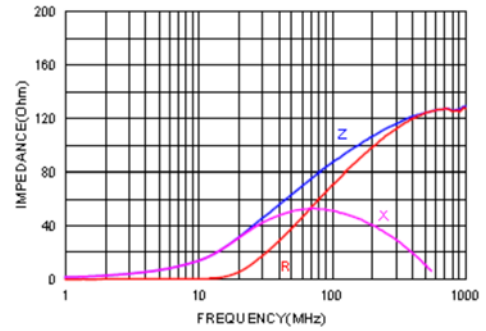
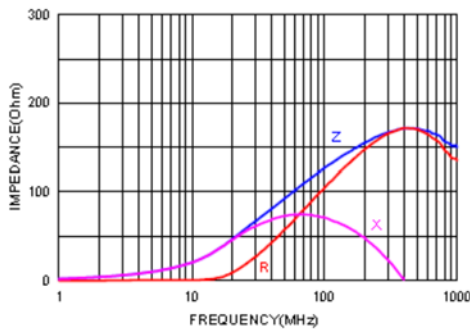
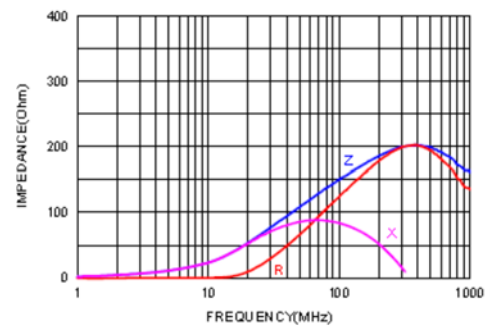
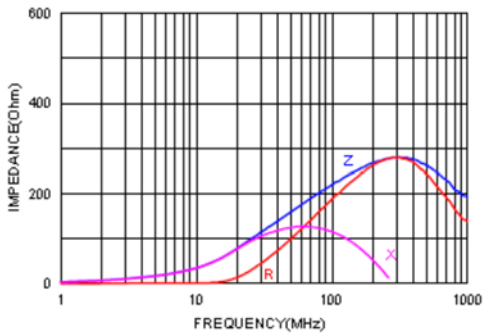
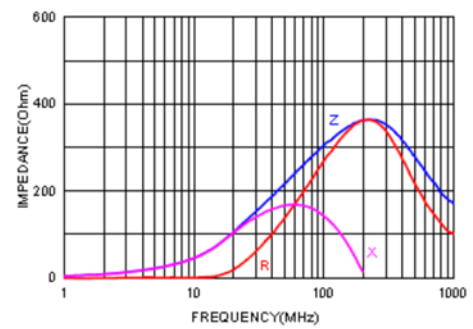
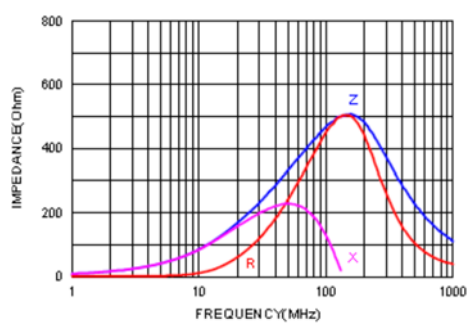
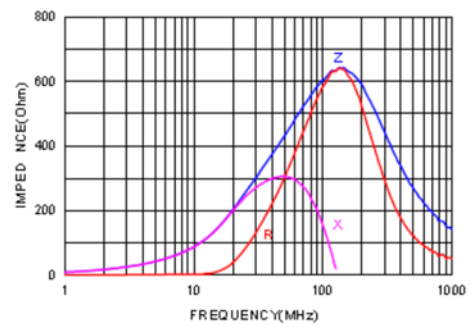
| Size | A | B | C | D |
|---------|---------|----------|----------|---------|
| HCB2012 | 2.0±0.2 | 1.25±0.2 | 0.85±0.2 | 0.5±0.3 |

ELECTRICAL CHARACTERISTICS

| Number | Impedance (Ω) | Test Frequency (MHz) | DC Resistance (Ω) | Rated Current (mA) |
|------------------|------------------------|----------------------|----------------------------|--------------------|
| | | | max. | max. |
| HCB2012KF-300T30 | 30±25% | 100 | 0.04 | 3000 |
| HCB2012KF-800T30 | 80±25% | 100 | 0.04 | 3000 |
| HCB2012KF-121T30 | 120±25% | 100 | 0.10 | 3000 |
| HCB2012KF-151T20 | 150±25% | 100 | 0.10 | 2000 |
| HCB2012KF-221T20 | 220±25% | 100 | 0.10 | 2000 |
| HCB2012KF-301T10 | 300±25% | 100 | 0.20 | 1000 |
| HCB2012KF-471T10 | 470±25% | 100 | 0.20 | 1000 |
| HCB2012KF-601T10 | 600±25% | 100 | 0.20 | 1000 |

- Rated current: based on temperature rise test
- In compliance with EIA 595

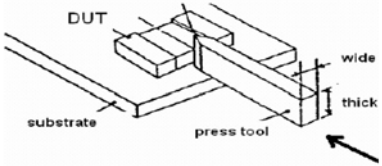
Impedance Frequency Characteristics(Typical)

HCB2012KF-300

HCB2012KF-800

HCB2012KF-121

HCB2012KF-151

HCB2012KF-221

HCB2012KF-301

HCB2012KF-471

HCB2012KF-601


Reliability and Test Condition

| Item | Performance | Test Condition |
|------------------------------------|--|--|
| Operating temperature | -40~+125°C (Including self - temperature rise) | |
| Storage temperature | 1. -10~+40°C, 50~60%RH (Product with taping) 2. -40~+125°C (on board) | |
| Electrical Performance Test | | |
| Inductance | Refer to standard electrical characteristics list. | HP4284A, CH11025, CH3302, CH1320, CH1320S LCR Meter. |
| DCR | | CH16502, Agilent33420A Micro-Ohm Meter. |
| Saturation Current (Isat) | Approximately $\Delta L30\%$ | Saturation DC Current (Isat) will cause L0 to drop $\Delta L(\%)$ |
| Heat Rated Current (Irms) | Approximately $\Delta T40^\circ C$ | Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^\circ C)$. 1. Applied the allowed DC current 2. Temperature measured by digital surface thermometer |
| Reliability Test | | |
| Life Test | Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value | Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Temperature : $125 \pm 2^\circ C$ (Inductor) Applied current : rated current Duration : 1000 \pm 12hrs Measured at room temperature after placing for 24 \pm 2 hrs |
| Load Humidity | | Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Humidity : $85 \pm 2 \times R.H.$, Temperature : $85^\circ C \pm 2^\circ C$ Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24 \pm 2 hrs |
| Moisture Resistance | | Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) 1. Baked at $50^\circ C$ for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to $65 \pm 2^\circ C$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to $25^\circ C$ in 2.5hrs. 3. Raise temperature to $65 \pm 2^\circ C$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to $25^\circ C$ in 2.5hrs, keep at $25^\circ C$ for 2 hrs then keep at $-10^\circ C$ for 3 hrs 4. Keep at $25^\circ C$ 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs. |
| Thermal shock | | Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Condition for 1 cycle Step1 : $-40 \pm 2^\circ C$ 30 \pm 5min Step2 : $25 \pm 2^\circ C$ \leq 0.5min Step3 : $125 \pm 2^\circ C$ 30 \pm 5min Number of cycles : 500 Measured at room temperature after placing for 24 \pm 2 hrs |
| Vibration | | Oscillation Frequency: 10 ~ 2K ~ 10Hz for 20 minutes Equipment : Vibration checker Total Amplitude: $1.52mm \pm 10\%$ Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations). |
| Bending | | Shall be mounted on a FR4 substrate of the following dimensions: ≥ 0805 inch(2012mm):40x100x1.2mm < 0805 inch(2012mm):40x100x0.8mm Bending depth: ≥ 0805 inch(2012mm):1.2mm < 0805 inch(2012mm):0.8mm duration of 10 sec. |
| Shock | | Appearance : No damage. Impedance : within $\pm 15\%$ of initial value Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value |
| Solder ability | | More than 95% of the terminal electrode should be covered with solder. Preheat: $150^\circ C, 60sec.$ Solder: Sn96.5% Ag3% Cu0.5% Temperature: $245 \pm 5^\circ C$ Flux for lead free: Rosin. 9.5% Dip time: $4 \pm 1sec$ |

| Type | Peak value (g's) | Normal duration (D) (ms) | Wave form | Velocity change (Vi)ft/sec |
|------|------------------|--------------------------|-----------|----------------------------|
| SMD | 50 | 11 | Half-sine | 11.3 |
| Lead | 50 | 11 | Half-sine | 11.3 |

| | | Depth: completely cover the termination | | | | | | | | |
|------------------------------|--|---|-----------------------|---------|--|-----------------------|----------------------|-------|----------------|---|
| Resistance to Soldering Heat | | Depth: completely cover the termination <table border="1" data-bbox="1023 277 1453 394"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 ±5 (solder temp)</td> <td>10 ±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table> | Temperature(°C) | Time(s) | Temperature ramp/immersion and emersion rate | Number of heat cycles | 260 ±5 (solder temp) | 10 ±1 | 25mm/s ±6 mm/s | 1 |
| Temperature(°C) | Time(s) | Temperature ramp/immersion and emersion rate | Number of heat cycles | | | | | | | |
| 260 ±5 (solder temp) | 10 ±1 | 25mm/s ±6 mm/s | 1 | | | | | | | |
| Terminal Strength | Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value e | Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force(>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.  | | | | | | | | |

Note : When there are questions concerning measurement result : measurement shall be made after 48 ± 2 hours of recovery under the standard condition.