



APPLICATIONS

- Battery-powered devices
- Portable devices
- Embedded computing
- High-current SMPS
- High-frequency SMPS
- POL converters
- FPGA

FEATURES

- Size 13.5mmx12.6mmx6.2mm
- Molded Construction
- Low Audible Noise
- Soft Saturation
- Stable Over High Temperatures
- Max Operating Temp +155°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

| Parameter | | | Value | Unit |
|--|------------------|------|-------|------|
| Inductance ⁽¹⁾ | L | ±20% | 6.8 | μH |
| Resistance | R_{DC} | typ | 9.9 | mΩ |
| Resistance _{MAX} | $R_{DC\ MAX}$ | max | 11.4 | mΩ |
| Rated Current ⁽²⁾ | I_R | typ | 12 | A |
| Saturation Current _{25°C} ⁽³⁾ | $I_{SAT\ 25°C}$ | typ | 19.5 | A |
| Saturation Current _{100°C} ⁽⁴⁾ | $I_{SAT\ 100°C}$ | typ | 19.5 | A |
| Resonance Frequency | f_r | typ | 10 | MHz |

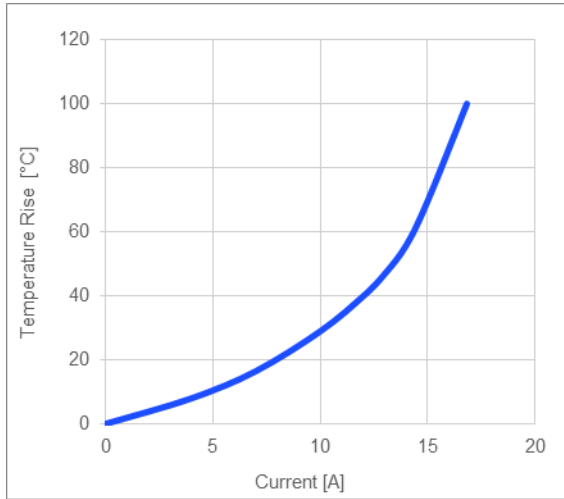
GENERAL SPECIFICATIONS

| | |
|--|--|
| (1) Inductance | Measured at 100kHz, 100mA |
| (2) Rated Current | Rated current will cause the coil temperature rise ΔT of 40K <i>I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35μm Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.</i> |
| (3) Saturation Current _{25°C} | Saturation current will cause L to drop from 30% at 25°C ambient temperature |
| (4) Saturation Current _{100°C} | Saturation current will cause L to drop from 30% at 100°C ambient temperature |
| Temperature Test Condition | Electrical specifications measured at 25°C, 35% RH if not given differently |
| Operating Condition | Operating temperature: -40°C to +155°C (including temp rise) Should not exceed +155°C under worst-case operation conditions |
| Storage Condition | Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH |

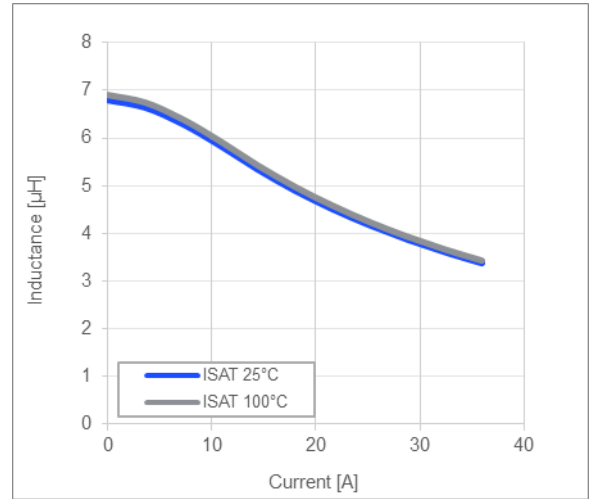
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TYPICAL PERFORMANCE CURVES

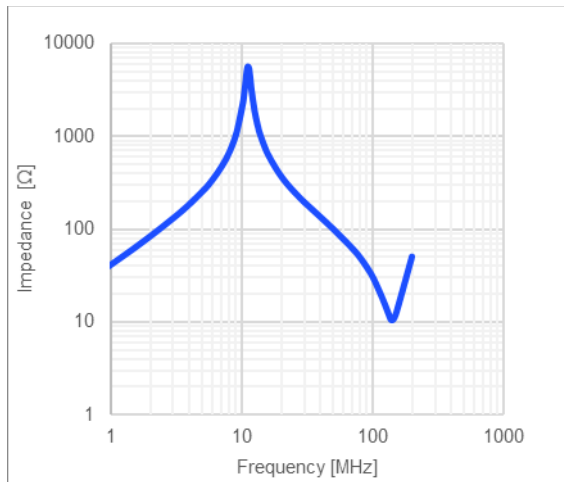
Temperature Rise vs. Current



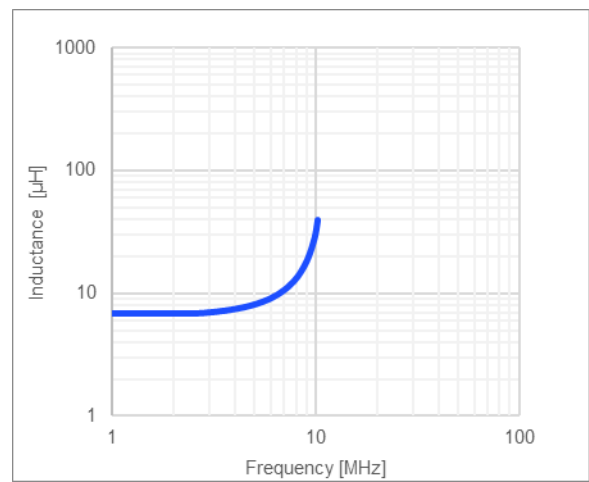
Inductance vs. Current



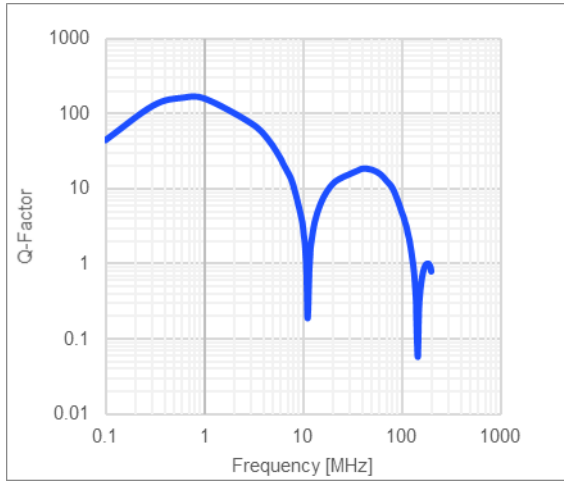
Impedance vs. Frequency



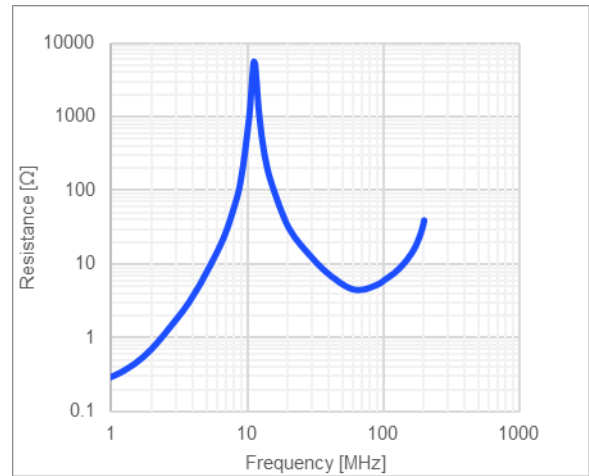
Inductance vs. Frequency



Quality Factor vs. Frequency



AC Resistance vs. Frequency



LAND PATTERN

Dimensions

| | |
|---|------------|
| A | 5.0 ref. |
| B | 8.0 ref. |
| C | 14.50 ref. |

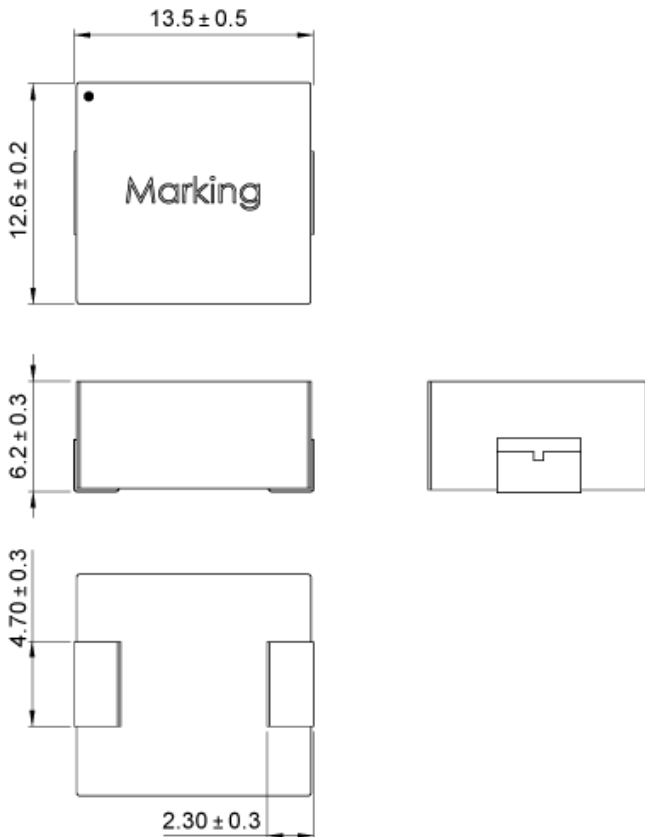
(unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



TOP MARKING

Marking

| | |
|------------------|---------|
| Start of Winding | · (dot) |
| Inductance Code | 6R8 |
| MPS Code | MPS |
| Date Code | YYWW |

ORDERING INFORMATION

| Part Number | $L^{(1)}$ | R_{DC} | $I_R^{(2)}$ | $I_{SAT\ 25^\circ C}^{(3)}$ | $I_{SAT\ 100^\circ C}^{(4)}$ |
|----------------|-----------|----------|-------------|-----------------------------|------------------------------|
| | typ (μH) | typ (mΩ) | typ (A) | typ (A) | typ (A) |
| MPL-AY1265-R47 | 0.47 | 0.89 | 33 | 64 | 64 |
| MPL-AY1265-R56 | 0.56 | 1.1 | 31 | 58 | 58 |
| MPL-AY1265-R68 | 0.68 | 1.25 | 29 | 51 | 51 |
| MPL-AY1265-R82 | 0.82 | 1.3 | 27 | 46 | 46 |
| MPL-AY1265-1R0 | 1.0 | 1.5 | 25.5 | 43 | 43 |
| MPL-AY1265-1R2 | 1.2 | 1.8 | 24 | 37 | 37 |
| MPL-AY1265-1R5 | 1.5 | 2.3 | 22 | 34 | 34 |
| MPL-AY1265-1R8 | 1.8 | 3.3 | 20 | 29 | 29 |
| MPL-AY1265-2R2 | 2.2 | 3.7 | 17 | 26.5 | 26.5 |
| MPL-AY1265-3R3 | 3.3 | 5.5 | 16 | 25 | 25 |
| MPL-AY1265-4R7 | 4.7 | 7.0 | 14 | 23 | 23 |
| MPL-AY1265-5R6 | 5.6 | 8.6 | 13 | 20 | 20 |
| MPL-AY1265-6R8 | 6.8 | 9.9 | 12 | 19.5 | 19.5 |
| MPL-AY1265-8R2 | 8.2 | 12.5 | 11.5 | 18 | 18 |
| MPL-AY1265-100 | 10 | 13.3 | 10.7 | 16 | 16 |
| MPL-AY1265-150 | 15 | 21.8 | 8.5 | 12 | 12 |
| MPL-AY1265-220 | 22 | 31.4 | 7 | 9 | 9 |

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| | |
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