

HIGH CURRENT POWER INDUCTORS

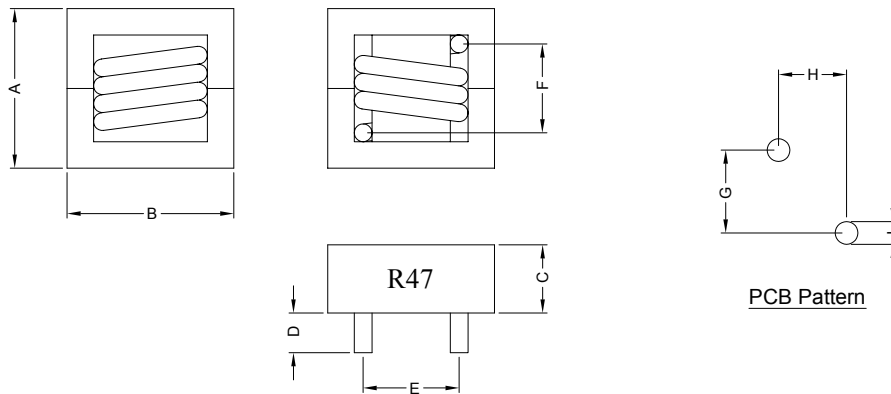
SDL1108 SERIES

1. PART NO. EXPRESSION :

$\frac{S}{(a)} \frac{D}{(b)} \frac{1108}{(c)} - \frac{R47}{(d)(e)} \frac{MF}{(f)}$

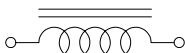
- (a) Series code
- (b) Dimension code
- (c) Inductance code : R47 = 0.47uH
- (d) Tolerance code : M = ±20%
- (e) F : Lead Free

2. CONFIGURATION & DIMENSIONS :

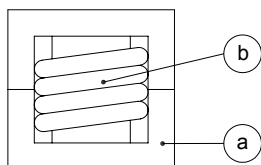


Part No.	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm
SDL1108-R47MF	12.0 Max.	12.0 Max.	8.5 Max.	3.4±0.5	5.6±0.5	6.7±0.5	5.6±0.5	6.7±0.5	1.8 ⁰ _{+0.2}
SDL1108-R60MF	12.0 Max.	12.0 Max.	8.5 Max.	3.4±0.5	5.6±0.5	6.7±0.5	5.6±0.5	6.7±0.5	1.8 ⁰ _{+0.2}
SDL1108-1R0MF	12.0 Max.	12.0 Max.	8.5 Max.	3.4±0.5	6.6±0.5	6.2±0.5	6.6±0.5	6.2±0.5	1.5 ⁰ _{+0.2}
SDL1108-1R2MF	12.5 Max.	12.0 Max.	8.5 Max.	3.4±0.5	6.6±0.5	6.2±0.5	6.6±0.5	6.2±0.5	1.5 ⁰ _{+0.2}
SDL1108-1R5MF	12.0 Max.	12.0 Max.	8.5 Max.	3.4±0.5	7.2±0.5	6.2±0.5	7.2±0.5	6.2±0.5	1.4 ⁰ _{+0.2}
SDL1108-2R0MF	12.0 Max.	12.0 Max.	8.5 Max.	3.4±0.5	6.5±0.5	6.4±0.5	6.5±0.5	6.4±0.5	1.2 ⁰ _{+0.2}

3. SCHEMATIC :



4. MATERIALS :



- (a) Core : Ferrite Core
- (b) Wire : Enamelled Copper Wire



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- a) Operating temp. : -55°C to +125°C
- b) Storage temp. : -55°C to +125°C
- c) Ambient temp. : 20°C
- d) Irms (A) : Will cause the coil temperature rise approximately $\Delta T=40^{\circ}\text{C}$ without core loss
- e) Isat (A) : Will cause L_0 to drop approximately 20% typical
- f) Part temperature (ambient + temp. rise) : Should not exceed 125°C under worst case operating conditions

6. ELECTRICAL CHARACTERISTICS :

Part No.	Inductance L_0 (μH)	Test Frequency (Hz)	DCR ($\text{m}\Omega$) $\pm 8\%$	Irms (A) Max.	Isat (A) Max.
SDL1108-R47MF	0.47 $\pm 20\%$	0.25V / 100K	0.8	40	50
SDL1108-R60MF	0.60 $\pm 20\%$	0.25V / 100K	0.8	38	45
SDL1108-1R0MF	1.00 $\pm 20\%$	0.25V / 100K	1.7	30	40
SDL1108-1R2MF	1.20 $\pm 20\%$	0.25V / 100K	2.0	27	34
SDL1108-1R5MF	1.50 $\pm 20\%$	0.25V / 100K	2.4	25	30
SDL1108-2R0MF	2.00 $\pm 20\%$	0.25V / 100K	3.5	20	25

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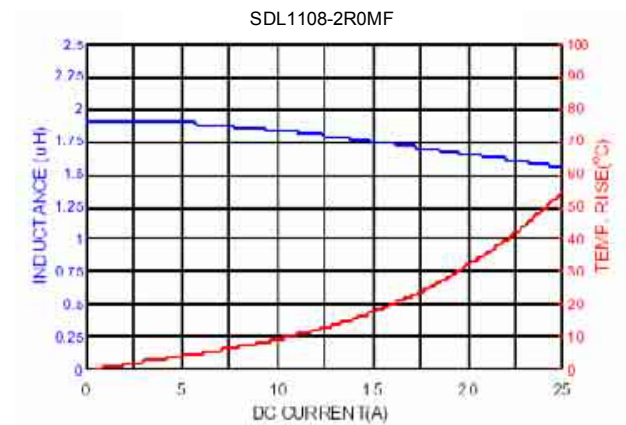
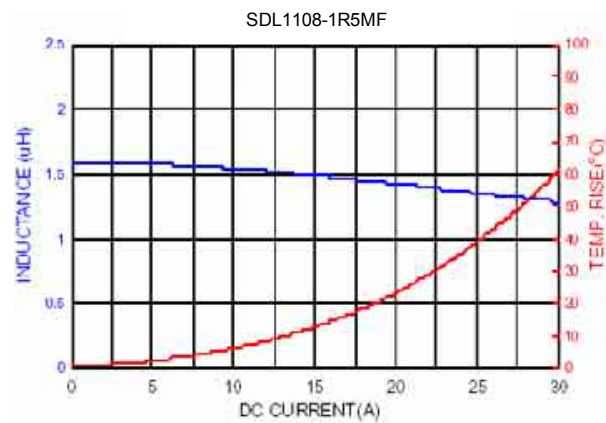
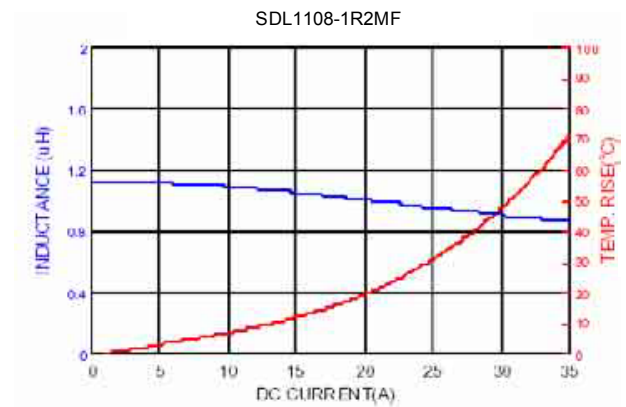
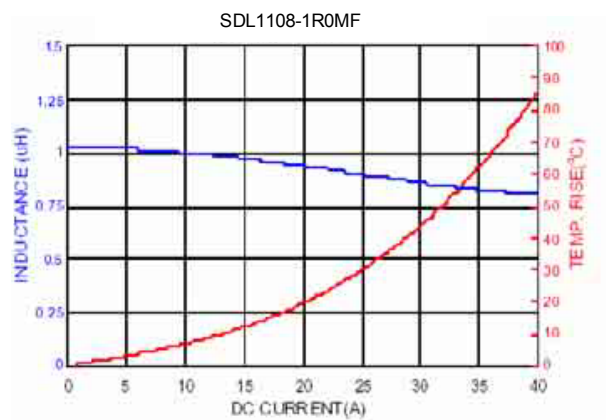
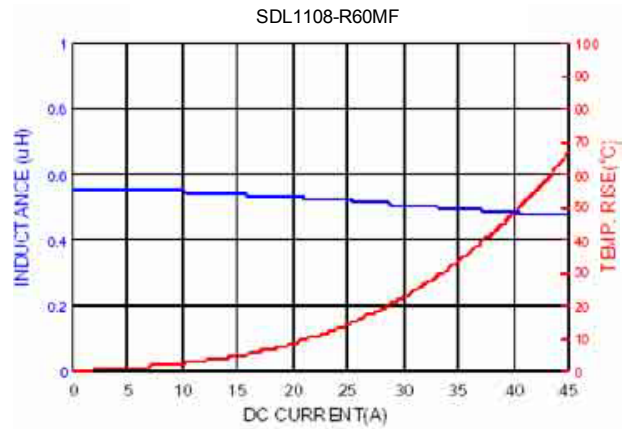
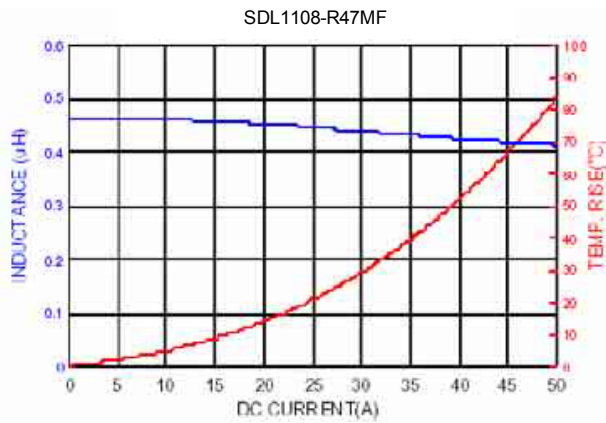
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7. CHARACTERISTICS CURVES :



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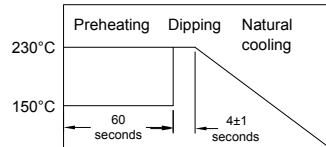
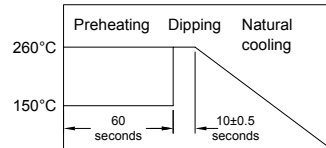
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8. RELIABILITY AND TEST CONDITION :

ITEM	PERFORMANCE	TEST CONDITION														
Electrical Characteristics Test																
Inductance	Refer to standard electrical characteristics list	HP4284A, CH11025, CH3302, CH1320, CH1320S LCR meter.														
DCR		CH16502, Agilent33420A Micro-Ohm Meter.														
Heat Rated Current (Irms)		Irms(A) will cause the coil temperature rise approximately $\Delta T=40^{\circ}\text{C}$ without core loss														
Saturation Current (Isat)		Isat(A) will cause Lo to drop approximately 20%.														
Mechanical Performance Test																
Solderability Test	More than 90% of the terminal electrode should be covered with solder.	 <p>After fluxing components shall be dipped in a melted solder bath at $230\pm 5^{\circ}\text{C}$ for 4 seconds.</p>														
Solder Heat Resistance	<ol style="list-style-type: none"> Components should have no evidence of electrical & mechanical damage. Inductance : Within $\pm 20\%$ of initial value. 	<p>Preheat : 150°C, 60sec. Solder : Sn-Ag3.0-Cu0.5 Solder Temperature : $260\pm 5^{\circ}\text{C}$ Flux for lead free : rosin Dip Time : $10\pm 0.5\text{sec}$.</p> 														
Reliability Test																
High Temperature Life Test	<ol style="list-style-type: none"> Appearance : No damage Inductance : Within $\pm 20\%$ of initial value. No disconnection or short circuit. 	<p>Temperature : $125\pm 5^{\circ}\text{C}$ Time : 500 ± 12 hours Measure at room temperature after placing for 2 to 3 hrs.</p>														
Low Temperature Life Test		<p>Temperature : $-40\pm 5^{\circ}\text{C}$ Time : 500 ± 12 hours Measure at room temperature after placing for 2 to 3 hrs.</p>														
Thermal Shock		<p>Conditions of 1 cycle.</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature ($^{\circ}\text{C}$)</th> <th>Times (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55 ± 3</td> <td>30 ± 3</td> </tr> <tr> <td>2</td> <td>Room Temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>125 ± 3</td> <td>30 ± 3</td> </tr> <tr> <td>4</td> <td>Room Temperature</td> <td>Within 3</td> </tr> </tbody> </table> <p>Total : 5 cycles Measure at room temperature after placing for 2 to 3 hrs.</p>	Step	Temperature ($^{\circ}\text{C}$)	Times (min.)	1	-55 ± 3	30 ± 3	2	Room Temperature	Within 3	3	125 ± 3	30 ± 3	4	Room Temperature
Step	Temperature ($^{\circ}\text{C}$)	Times (min.)														
1	-55 ± 3	30 ± 3														
2	Room Temperature	Within 3														
3	125 ± 3	30 ± 3														
4	Room Temperature	Within 3														
Humidity Resistance	<ol style="list-style-type: none"> Appearance : No damage Inductance : Within $\pm 20\%$ of initial value. No disconnection or short circuit. 	<p>Temperature : $40\pm 5^{\circ}\text{C}$ Humidity : 90% to 95% Applied Current : Rated Current Time : 500 ± 12 hours Measure at room temperature after placing for 2 to 3 hrs.</p>														



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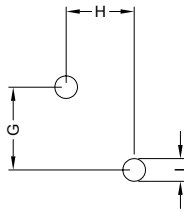
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9. SOLDERING AND MOUNTING :



Part No.	G mm	H mm	I mm
SDL1108-R47MF	5.6±0.5	6.7±0.5	1.8 ⁻⁰ _{+0.2}
SDL1108-R60MF	5.6±0.5	6.7±0.5	1.8 ⁻⁰ _{+0.2}
SDL1108-1R0MF	6.6±0.5	6.2±0.5	1.5 ⁻⁰ _{+0.2}
SDL1108-1R2MF	6.6±0.5	6.2±0.5	1.5 ⁻⁰ _{+0.2}
SDL1108-1R5MF	7.2±0.5	6.2±0.5	1.4 ⁻⁰ _{+0.2}
SDL1108-2R0MF	6.5±0.5	6.4±0.5	1.2 ⁻⁰ _{+0.2}

9-2. Soldering

Mildly activated rosin fluxes are preferred. The minimum amount of solder can lead to damage from the stresses caused by the difference in coefficients of expansion between solder, chip and substrate. Our terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

9-2.1 Solder Re-flow :

Recommended temperature profiles for re-flow soldering in Figure 1.

9-2.2 Soldering Iron (Figure 2) :

Products attachment with soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

Note :

- Preheat circuit and products to 150°C.
- 280°C tip temperature (max)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (max)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 3 secs.

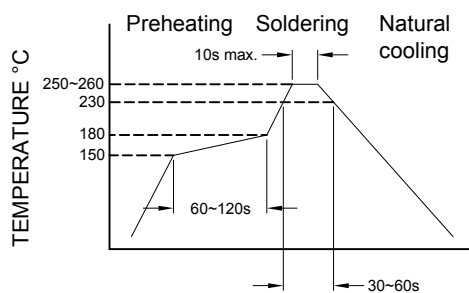


Figure 1. Re-flow Soldering

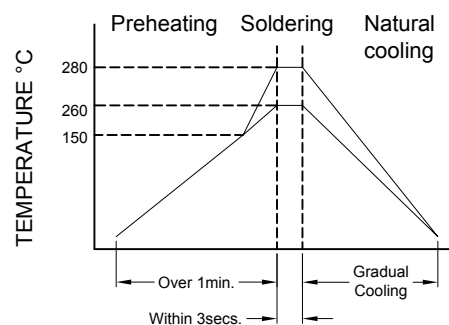


Figure 2. Iron Soldering

10. PACKING AND QUANTITY :

Size	SDL1108
Styrofoam	210
Inner box	420
Carton	2100



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