Shielded Power Inductor – *SSB0703 Series*

1. Part No. Expression

SSB 0703 1R0 M Z F

(a) (b) (c) (d) (e) (f)

(a) Series Code

(b) Dimension Code

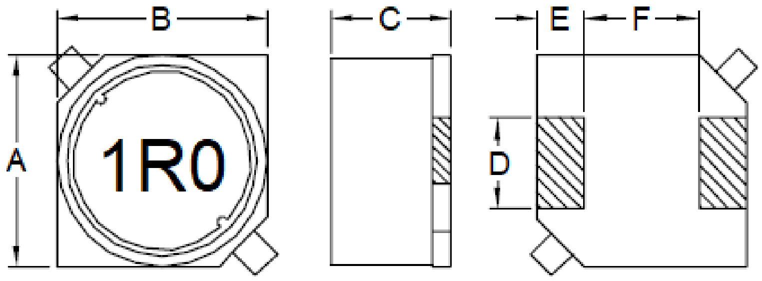
(c) Inductance Code

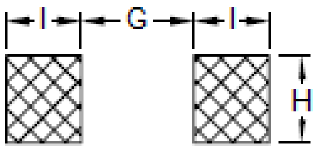
(d) Tolerance Code

(e) Special Code

(f) Packaging Code

2. Configuration & Dimensions (Unit: mm)



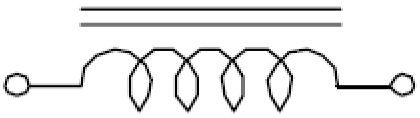


Recommended PCB Layout

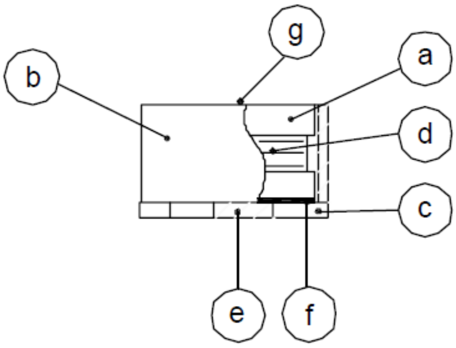
Note: 1. The above PCB layout reference only.

A	B	C	D	E
7.0±0.3	7.0±0.3	3.0±0.3	2.0±0.2	1.5±0.2
F	G	H	I	-
4.0±0.2	3.7 Ref	2.2 Ref	1.9 Ref	-

3. Schematic



4. Material List



(a) DR Core
(b) RI Core
(c) Base
(d) Wire
(e) Terminal
(f) Adhesive
(g) Ink

5. General Specifications

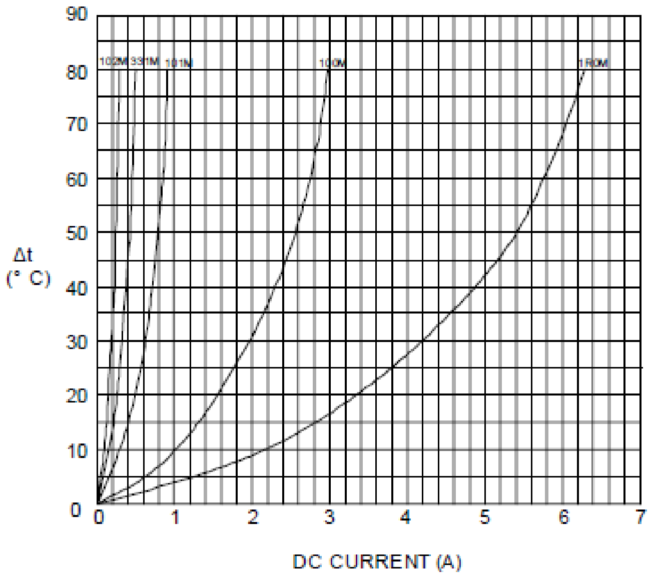
(a) Operating Temp.: -40°C to +85°C (including self-temperature rise)
(b) All test data referenced to 25°C ambient.
(c) Heat Rated Current (Irms) will cause the coil temperature rise ΔT of 40°C Max.
(d) Saturation Current (Isat) will cause inductance L0 to drop 10% Max.
(e) Rated Current: The lower value of Isat and Irms.
(f) Resistance to Solder Heat: 260°C, 10Sec.
(g) Storage Condition (Component in its packaging)
    i) Temperature: -10°C to 40°C
    ii) Humidity: Less than 60% RH

6. Electrical Characteristics

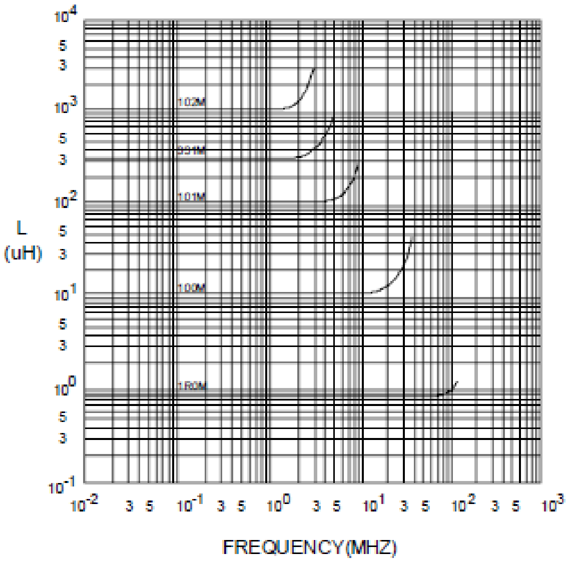
Part Number	Inductance (uH) ±20%	Test Frequency	RDC (mΩ) Max	IDC (A) Max
SSB07031R0MZF	1.0	1V/100KHz	26	3.25
SSB07031R5MZF	1.5	1V/100KHz	31	3.00
SSB07032R2MZF	2.2	1V/100KHz	37	2.55
SSB07033R3MZF	3.3	1V/100KHz	48	2.40
SSB07034R7MZF	4.7	1V/100KHz	55	2.10

Part Number	Inductance (uH) ±20%	Test Frequency	RDC (mΩ) Max	IDC (A) Max
SSB07036R8MZF	6.8	1V/100KHz	75	1.90
SSB0703100MZF	10.0	1V/100KHz	100	1.50
SSB0703120MZF	12.0	1V/100KHz	120	1.45
SSB0703150MZF	15.0	1V/100KHz	130	1.20
SSB0703180MZF	18.0	1V/100KHz	160	1.15
SSB0703220MZF	22.0	1V/100KHz	190	1.05
SSB0703270MZF	27.0	1V/100KHz	240	1.00
SSB0703330MZF	33.0	1V/100KHz	300	0.90
SSB0703390MZF	39.0	1V/100KHz	340	0.80
SSB0703470MZF	47.0	1V/100KHz	400	0.75
SSB0703560MZF	56.0	1V/100KHz	550	0.68
SSB0703680MZF	68.0	1V/100KHz	650	0.65
SSB0703820MZF	82.0	1V/100KHz	720	0.60
SSB0703101MZF	100.0	1V/100KHz	820	0.50
SSB0703121MZF	120.0	1V/100KHz	1100	0.48
SSB0703151MZF	150.0	1V/100KHz	1300	0.45
SSB0703181MZF	180.0	1V/100KHz	1500	0.38
SSB0703221MZF	220.0	1V/100KHz	2100	0.35
SSB0703271MZF	270.0	1V/100KHz	2400	0.30
SSB0703331MZF	330.0	1V/100KHz	3100	0.28
SSB0703391MZF	390.0	1V/100KHz	4100	0.25
SSB0703471MZF	470.0	1V/100KHz	4400	0.23
SSB0703561MZF	560.0	1V/100KHz	5100	0.20
SSB0703681MZF	680.0	1V/100KHz	7100	0.18
SSB0703821MZF	820.0	1V/100KHz	7900	0.17
SSB0703102MZF	1000.0	1V/100KHz	9000	0.16

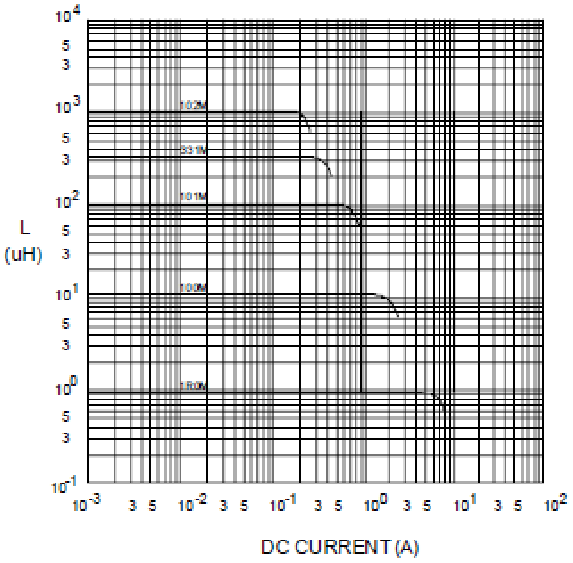
7. Characteristics Curves



@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURVE

8. Soldering Specification

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

8-1. IR Soldering Reflow

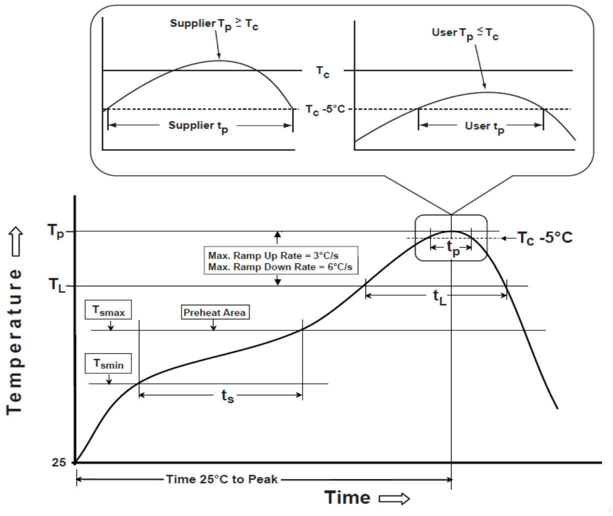
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

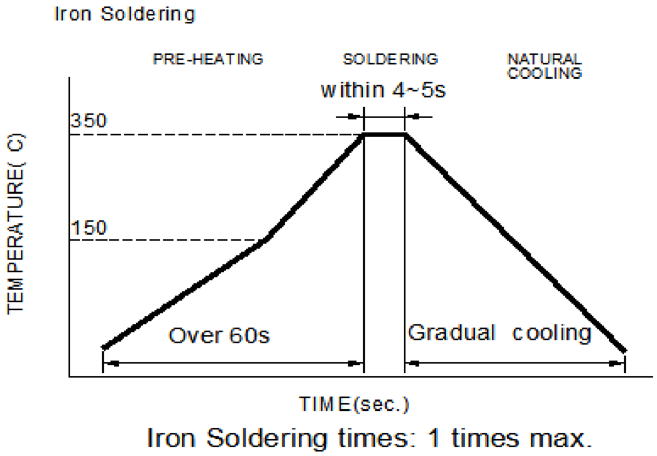
8-2. Iron Reflow

Products attachment with a 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 (Figure 2).

Note:

(a) Preheat circuit and products to 150°C.
(b) 355°C tip temperature (Max.)
(c) Never contact the ceramic with the iron tip
(d) 1.0mm tip diameter (Max.)
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm
(f) Limit soldering time to 4~5 sec.





Reflow times: 3 times Max

Figure 1: IR Soldering Reflow

Soldering iron method: 350±5°C Max

Figure 2: Iron soldering temperature profiles

Table (1.1) Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min (T_{smin}) -Temperature Max (T_{smax}) -Time (t_s) from (T_{smin} to T_{smax})	 150°C 200°C 60-120seconds
Ramp-up rate ($T_L$to T_p)	3°C /second max.
Liquids temperature (T_L) Time (t_L) maintained above T_L	217°C 60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time (t_p) at Tc- 5°C (Tp should be equal to or less than Tc.)	*< 30 seconds
Ramp-down rate (T_p to T_L)	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

Tp: maximum peak package body temperature, **Tc**: the classification temperature.

For user (customer) **Tp** should be equal to or less than **Tc.**

*Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.

Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

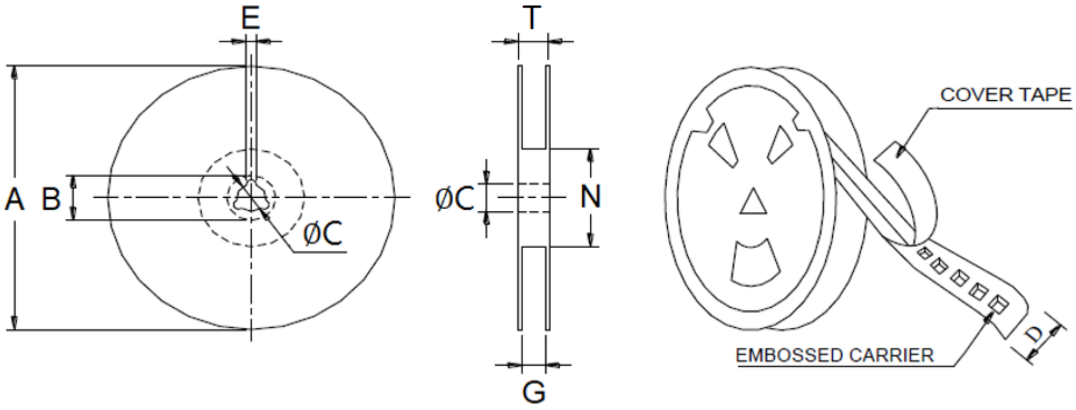
	Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E.

NOTE: Specifications subject to change without notice. Please check our website for latest information.

9. Packaging Information

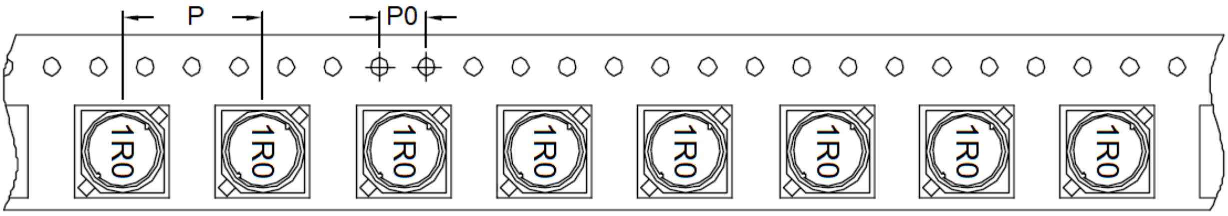
9-1. Reel Dimension (Unit: mm)



*CARRIER TAPE WIDTH: D

Type	A	B	C	D	G	N	T
13”x16mm	330.0 Ref	21.0 Ref	13.0 Ref	16.0 Ref	18.0 Max	50.0 Min	22.4 Ref

9-2. Tape Dimension (Unit: mm)



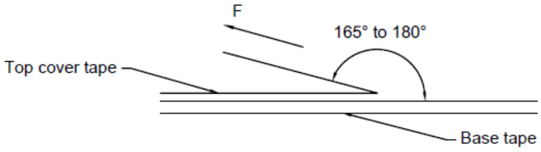
P	P0
12	4

NOTE: Specifications subject to change without notice. Please check our website for latest information.

9-3. Packaging Quantity (Unit: Pcs)

Inner: Reel			Outer: Carton		
Qty (pcs)	G.W (gw)	Style	Qty (pcs)	G.W(kg)	Size (cm)
1,000	630	13-16	6,000	7.3	40 x 40 x 24

9-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.

(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300±10

Tape Size	8 mm	12 to 56 mm	72 mm or Wider
Tearing Off Force (grams)	10~100	10~130	10~150

Application Notice

1. Storage Conditions

   To maintain the solderability of terminal electrodes:

   (a) Recommended products should be used within 12 months from the time of delivery.

   (b) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation

   (a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.

   (b) Vacuum pick up is strongly recommended for individual components.

   (c) Bulk handling should ensure that abrasion and mechanical shock are minimized.