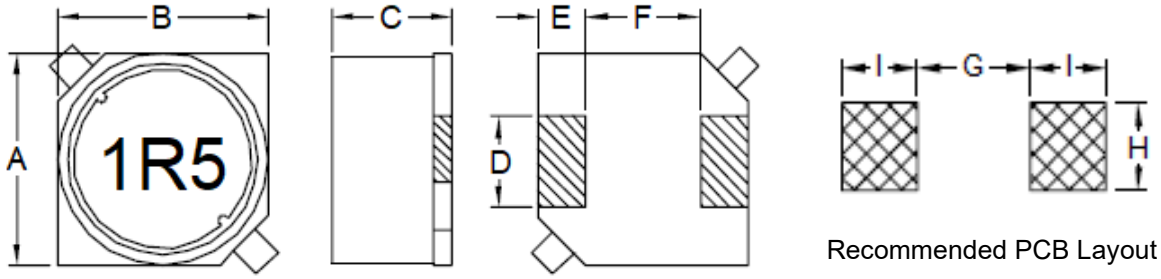
1. Part No. Expression

S S B 1 0 0 3 1 R 5 M Z F

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

(a)	Series Code	(d)	Tolerance Code
(b)	Dimension Code	(e)	Special Code
(c)	Inductance Code	(f)	Packaging Code

2. Configuration & Dimensions (Unit: mm)

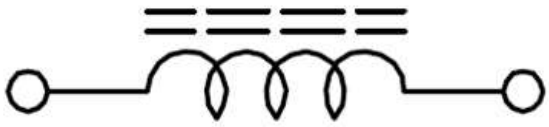


Recommended PCB Layout

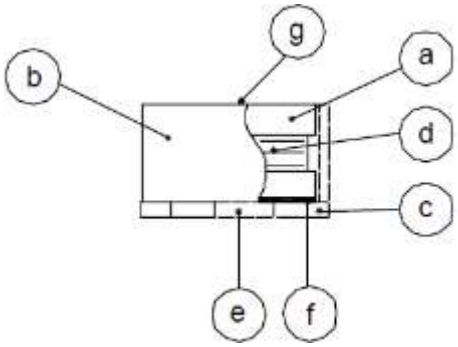
Note: 1. The above PCB layout reference only.

A	B	C	D	E
10.0±0.3	10.0±0.3	3.0±0.3	2.4±0.2	2.0±0.2
F	G	H	I	-
6.0±0.2	5.7 Ref	2.8 Ref	2.5 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 +125°C (including self-temperature rise)
(b) Storage Temp.: -40°C to +125°C (on board
(c) All test data referenced to 25°C ambient.
(d) Heat Rated Current (Irms) will cause the coil temperature rise ΔT of 40°C Max.
(e) Saturation Current (Isat) will cause inductance L0 to drop 30% Max.
(f) Rated Current: The lower value of Isat and Irms.
(g) Storage Condition (Component in its packaging)
  i) Temperature: Less than 40°C
  ii) Humidity: Less than 60% RH

6. Electrical Characteristics

Part Number	Inductance (uH) ±20%	Test Frequency	RDC (mΩ) Max	IDC (A) Max
SSB10031R5MZF	1.5	1V/100KHz	22	4.00
SSB10032R2MZF	2.2	1V/100KHz	25	3.50
SSB10033R0MZF	3.0	1V/100KHz	40	3.00
SSB10035R2MZF	5.2	1V/100KHz	45	2.50
SSB10036R8MZF	6.8	1V/100KHz	60	2.20

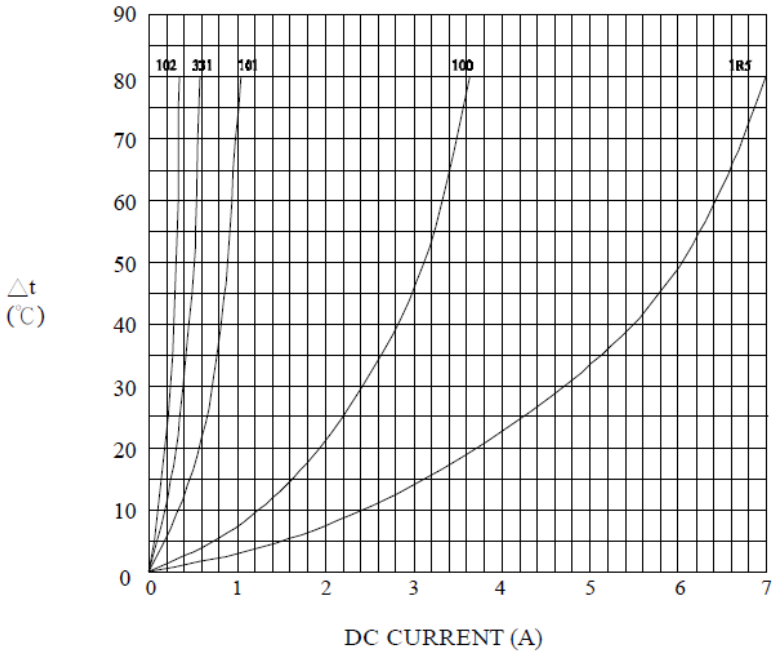
NOTE: Specifications subject to change without notice. Please check our website for latest information.

Part Number	Inductance (uH) ±20%	Test Frequency	RDC (mΩ) Max	IDC (A) Max
SSB1003100MZF	10	1V/100KHz	70	2.00
SSB1003120MZF	12	1V/100KHz	95	1.90
SSB1003150MZF	15	1V/100KHz	120	1.70
SSB1003180MZF	18	1V/100KHz	130	1.55
SSB1003220MZF	22	1V/100KHz	180	1.45
SSB1003270MZF	27	1V/100KHz	200	1.30
SSB1003330MZF	33	1V/100KHz	210	1.10
SSB1003390MZF	39	1V/100KHz	270	1.00
SSB1003470MZF	47	1V/100KHz	300	0.85
SSB1003560MZF	56	1V/100KHz	400	0.80
SSB1003680MZF	68	1V/100KHz	440	0.75
SSB1003820MZF	82	1V/100KHz	490	0.65
SSB1003101MZF	100	1V/100KHz	670	0.60
SSB1003121MZF	120	1V/100KHz	740	0.55
SSB1003151MZF	150	1V/100KHz	790	0.50
SSB1003181MZF	180	1V/100KHz	1200	0.45
SSB1003221MZF	220	1V/100KHz	1350	0.40
SSB1003271MZF	270	1V/100KHz	1800	0.38
SSB1003331MZF	330	1V/100KHz	2000	0.32
SSB1003391MZF	390	1V/100KHz	2100	0.30
SSB1003471MZF	470	1V/100KHz	3500	0.28
SSB1003561MZF	560	1V/100KHz	3900	0.25
SSB1003681MZF	680	1V/100KHz	4100	0.22
SSB1003821MZF	820	1V/100KHz	4550	0.20
SSB1003102MZF	1000	1V/100KHz	5100	0.18

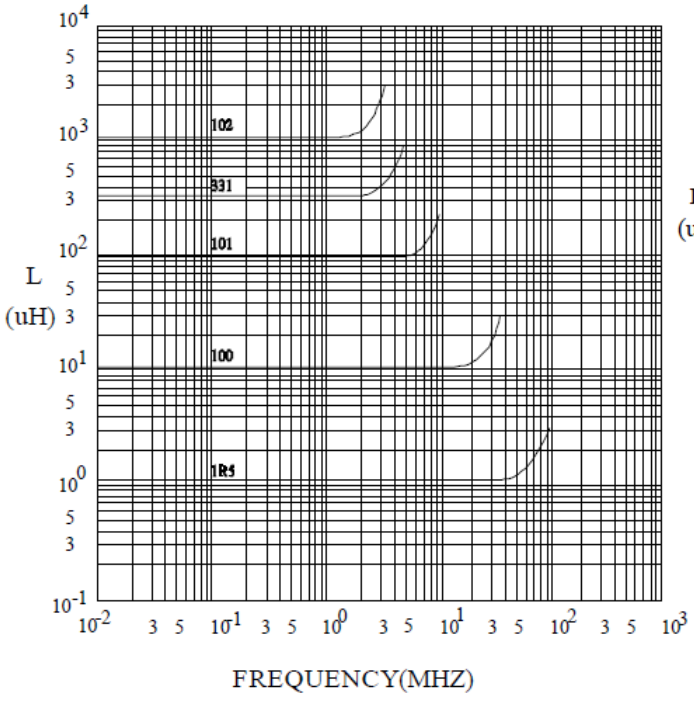
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7. Characteristics Curves

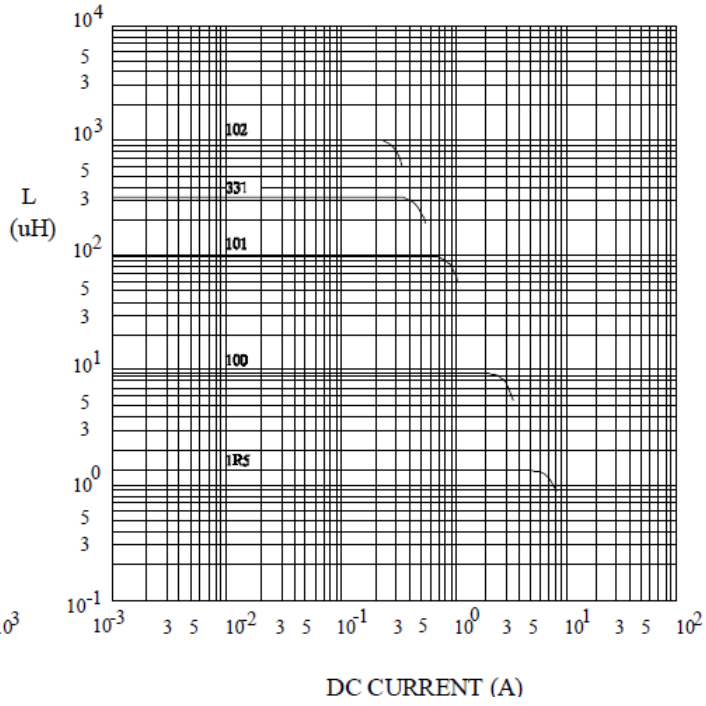
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURVE



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

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-020F).

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.

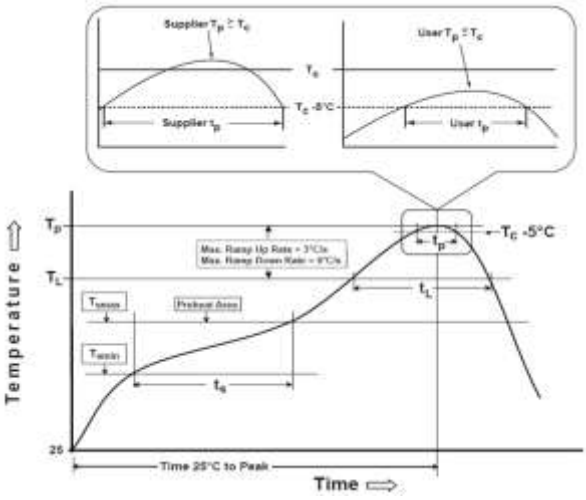
(b) 350°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

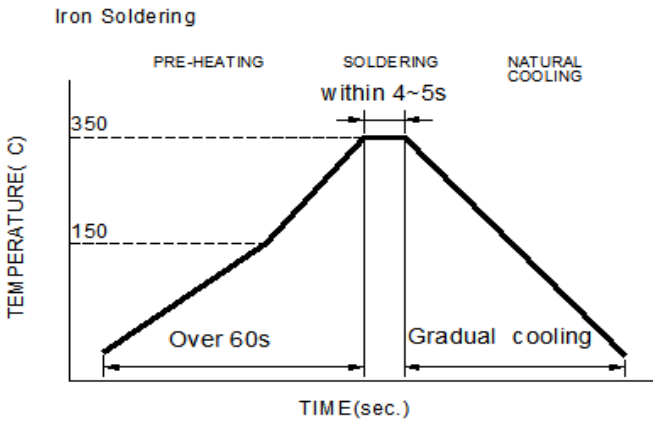
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(f) Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Iron Soldering times：1 times max

Figure 2: Iron soldering temperature profiles

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

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.**

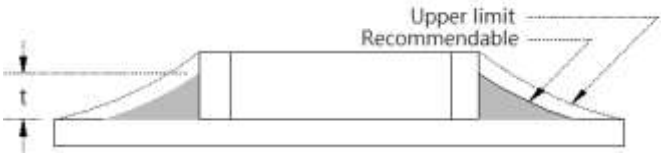
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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-020F.

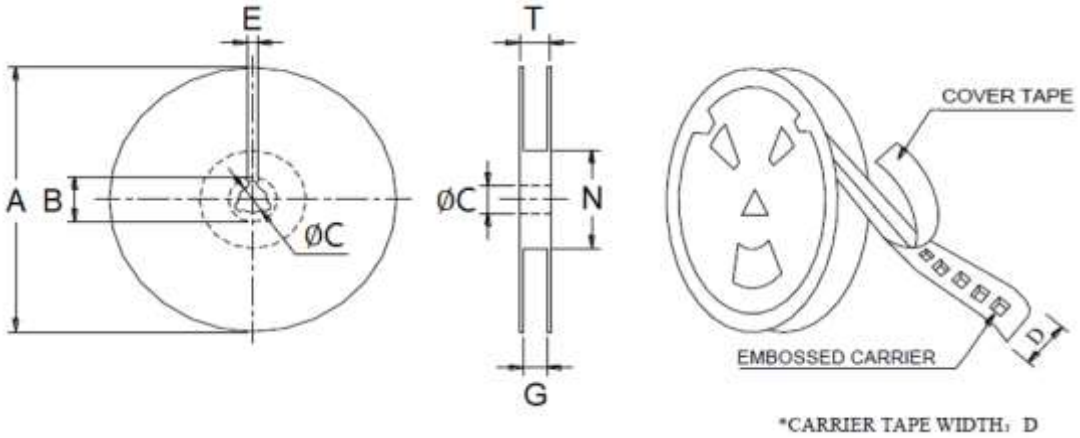
8-3. Soldering Volume

Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. Solder shall be used not to be exceeded as shown in the Figure below. Minimum fillet height = soldering thickness + 25% product height.



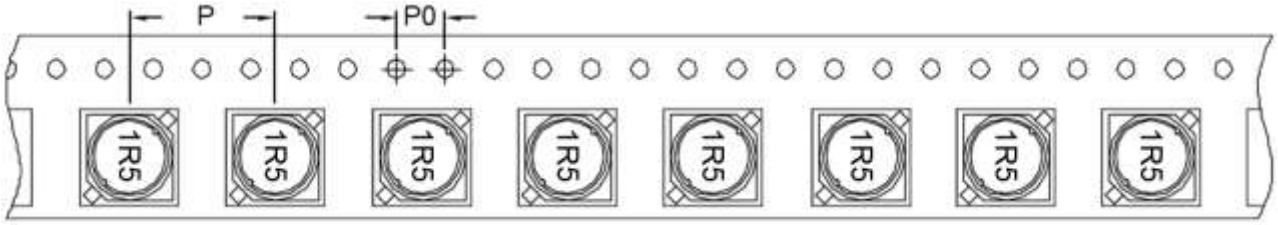
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	G	N	T
13”x24mm	330.0 Ref	21.0 Ref	13.0 Ref	24.0 Ref	26.0 Max	50.0 Min	30.4 Ref

9-2. Tape Dimension (Unit: mm)



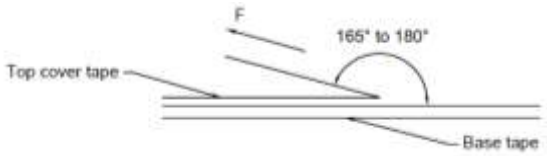
P	P0
16	4

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	1,000	13-24	4,000	7.5	38 x 36.5 x 21

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) Products meet IPC/JEDEC J-STD-020F standard-MSL, level 1.

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

(c) 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.