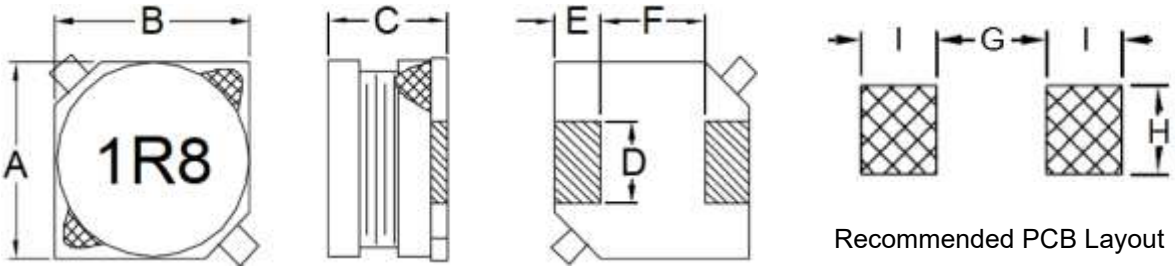
1. Part No. Expression

P S B 1 0 0 3 1 R 8 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)

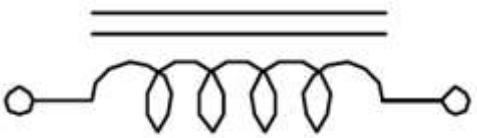


Recommended PCB Layout

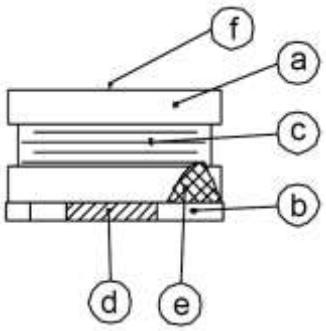
Note: 1. The above PCB layout reference only.
2. Marking: Inductance Code

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) Core
(b) Base
(c) Wire
(d) Terminal
(e) Adhesive
(f) Ink

5. General Specifications

(a) Operating Temp.: -40°C to +125°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.10 secs
(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) @0A	Test Frequency	DCR (mΩ) Max	IDC (A) Max
PSB10031R8MZF	1.8	1V/100KHz	27	4.00
PSB10032R7MZF	2.7	1V/100KHz	30	3.65
PSB10033R9MZF	3.9	1V/100KHz	35	3.15
PSB10034R7MZF	4.7	1V/100KHz	40	3.00
PSB10036R8MZF	6.8	1V/100KHz	50	2.35

Tolerance Code: K=±10%, L=±15%, M=±20%

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

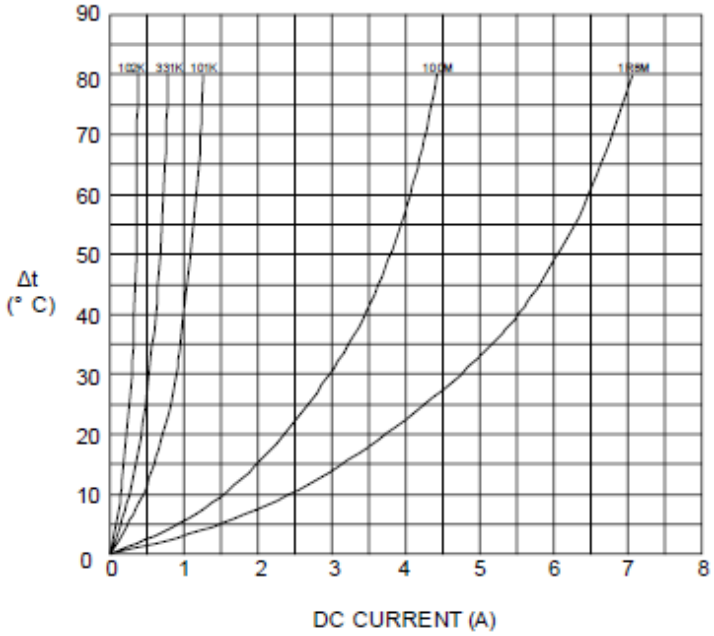
Part Number	Inductance (uH) @0A	Test Frequency	DCR (mΩ) Max	IDC (A) Max
PSB1003100MZF	10.0	1V/100KHz	60	2.20
PSB1003120MZF	12.0	1V/100KHz	80	2.00
PSB1003150MZF	15.0	1V/100KHz	100	1.75
PSB1003180LZF	18.0	1V/100KHz	110	1.70
PSB1003220LZF	22.0	1V/100KHz	140	1.60
PSB1003270LZF	27.0	1V/100KHz	160	1.40
PSB1003330LZF	33.0	1V/100KHz	210	1.20
PSB1003390LZF	39.0	1V/100KHz	235	1.10
PSB1003470LZF	47.0	1V/100KHz	280	1.00
PSB1003560LZF	56.0	1V/100KHz	320	0.90
PSB1003680LZF	68.0	1V/100KHz	370	0.85
PSB1003820LZF	82.0	1V/100KHz	430	0.75
PSB1003101KZF	100.0	1V/100KHz	560	0.70
PSB1003121KZF	120.0	1V/100KHz	640	0.60
PSB1003151KZF	150.0	1V/100KHz	730	0.55
PSB1003181KZF	180.0	1V/100KHz	960	0.50
PSB1003221KZF	220.0	1V/100KHz	1100	0.48
PSB1003271KZF	270.0	1V/100KHz	1240	0.45
PSB1003331KZF	330.0	1V/100KHz	1640	0.38
PSB1003391KZF	390.0	1V/100KHz	1790	0.35
PSB1003471KZF	470.0	1V/100KHz	2050	0.30
PSB1003561KZF	560.0	1V/100KHz	2890	0.29
PSB1003681KZF	680.0	1V/100KHz	3240	0.27
PSB1003821KZF	820.0	1V/100KHz	3700	0.25
PSB1003102KZF	1000.0	1V/100KHz	7000	0.24

Tolerance Code: K=±10%, L=±15%, M=±20%

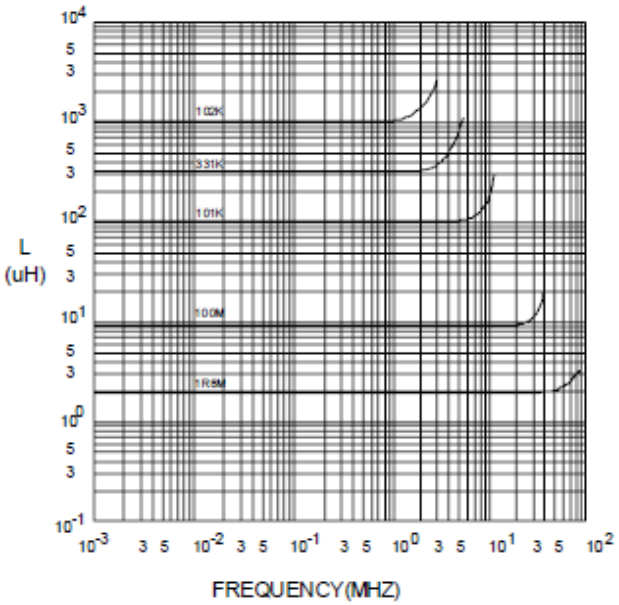
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7. Characteristics Curves

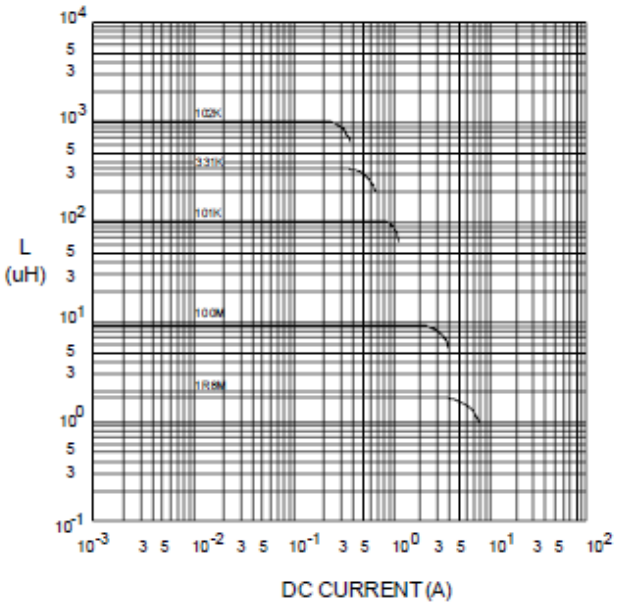
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ 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.

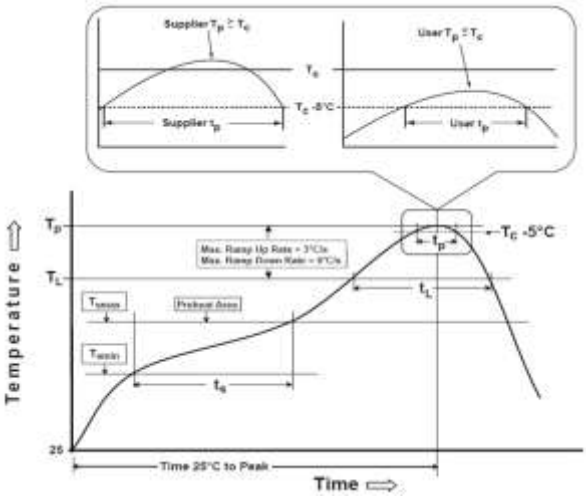
(b) 350°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

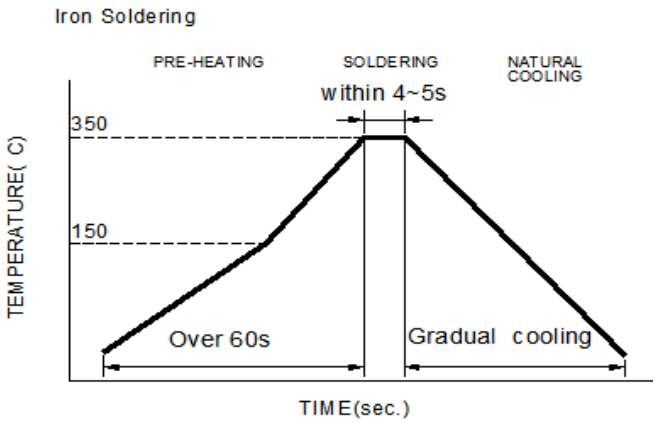
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(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.**

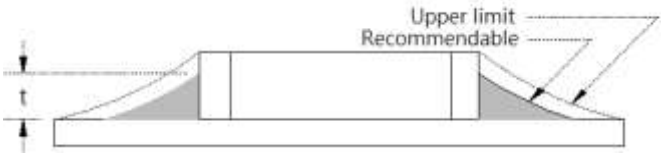
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

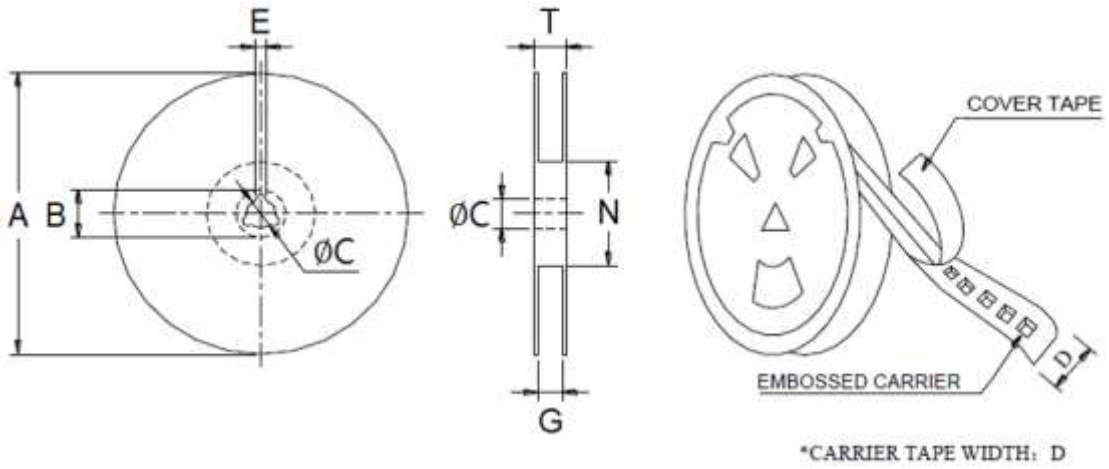
8-3. Soldering Volume

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.



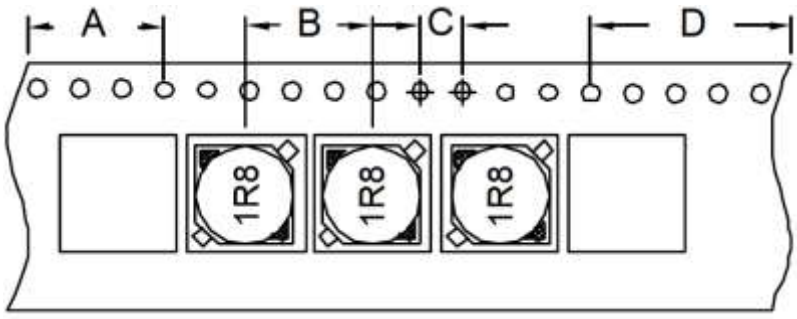
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



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

9-2. Tape Dimension (Unit: mm)



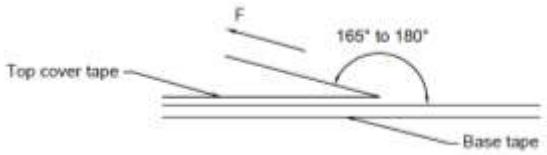
A	B	C	D
200	12	4	400

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

9-3. Packaging Type

Inner/Reel			Outer Carton		
Q'TY(PCS)	G.W. (gw)	STYLE	Q'TY(PCS)	G.W. (Kg)	SIZE (cm)
1,000	900	13-24	4,000	7.1	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) 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.