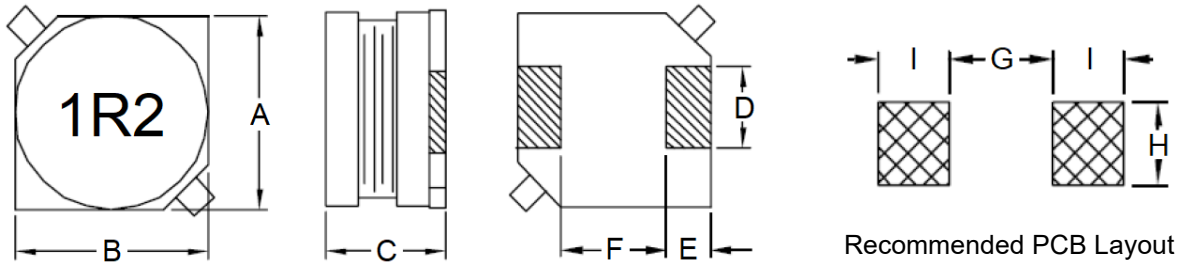
1. Part No. Expression

P S B 0 6 0 3 1 R 2 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

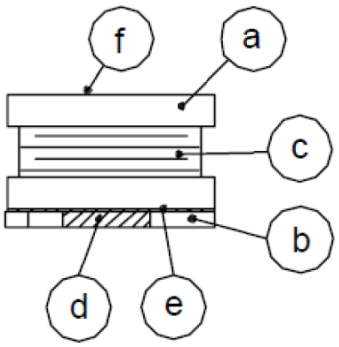
Note: 1. The above PCB layout reference only.

2. Marking: Inductance Code

A	B	C	D	E
6.0±0.3	6.0±0.3	2.9±0.3	2.0±0.2	1.5±0.2
F	G	H	I	-
3.0±0.2	2.8 Ref	2.2 Ref	1.9 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 +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.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	Q Ref	Test Frequency	SRF (MHz) Typ	DCR (mΩ) Max	IDC (A) Max
PSB06031R2MZP	1.2	30	1V/100KHz	150.0	25	2.80
PSB06031R5MZF	1.5	30	1V/100KHz	135.0	28	2.60
PSB06032R2MZF	2.2	30	1V/100KHz	85.0	30	2.30
PSB06033R3MZF	3.3	30	1V/100KHz	70.0	55	2.00
PSB06034R7MZF	4.7	25	1V/100KHz	60.0	65	1.85

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

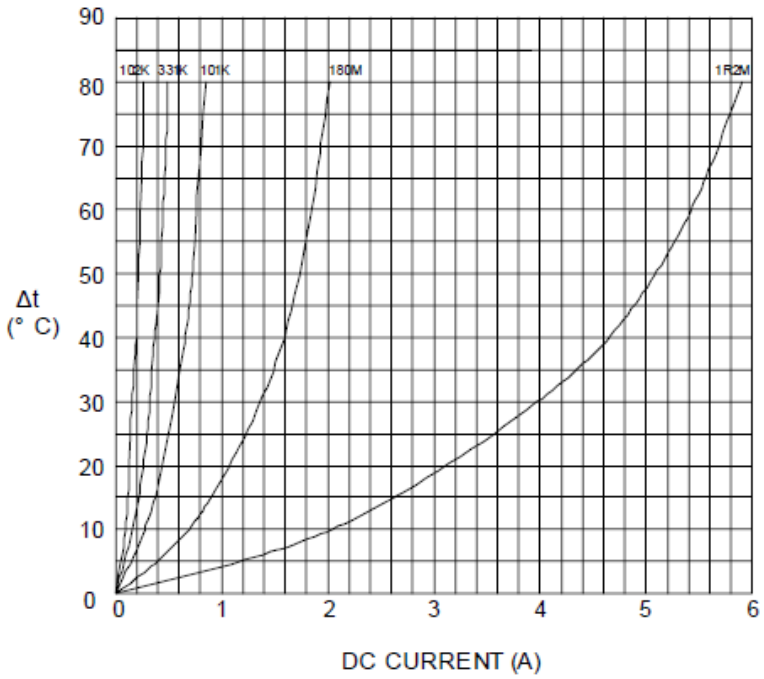
Unshielded Power Inductor – *PSB0603 Series*

Part Number	Inductance (uH) @0A	Q Ref	Test Frequency	SRF (MHz) Typ	DCR (mΩ) Max	IDC (A) Max
PSB06036R8MZF	6.8	30	1V/100KHz	45.0	90	1.65
PSB0603100MZF	10.0	25	1V/100KHz	35.0	115	1.45
PSB0603120MZF	12.0	30	1V/100KHz	33.0	150	1.20
PSB0603150MZF	15.0	25	1V/100KHz	32.0	180	1.15
PSB0603180MZF	18.0	30	1V/100KHz	30.0	230	1.05
PSB0603220MZF	22.0	30	1V/100KHz	28.0	250	1.00
PSB0603270MZF	27.0	30	1V/100KHz	27.0	350	0.95
PSB0603330KZF	33.0	35	1V/100KHz	22.0	380	0.90
PSB0603390KZF	39.0	25	1V/100KHz	20.0	410	0.80
PSB0603470KZF	47.0	40	1V/100KHz	16.0	430	0.75
PSB0603560KZF	56.0	40	1V/100KHz	15.0	620	0.70
PSB0603680KZF	68.0	40	1V/100KHz	13.0	710	0.60
PSB0603820KZF	82.0	50	1V/100KHz	11.0	730	0.50
PSB0603101KZF	100.0	45	1V/100KHz	10.0	1050	0.48
PSB0603121KZF	120.0	40	1V/100KHz	9.5	1180	0.45
PSB0603151KZF	150.0	50	1V/100KHz	9.0	1800	0.40
PSB0603181KZF	180.0	50	1V/100KHz	8.0	1950	0.35
PSB0603221KZF	220.0	55	1V/100KHz	7.0	2960	0.30
PSB0603271KZF	270.0	55	1V/100KHz	6.5	3450	0.28
PSB0603331KZF	330.0	50	1V/100KHz	6.0	3800	0.26
PSB0603391KZF	390.0	50	1V/100KHz	5.0	4000	0.24
PSB0603471KZF	470.0	60	1V/100KHz	4.8	4400	0.22
PSB0603561KZF	560.0	60	1V/100KHz	4.4	6200	0.20
PSB0603681KZF	680.0	60	1V/100KHz	4.0	6800	0.18
PSB0603821KZF	820.0	60	1V/100KHz	3.8	12000	0.16
PSB0603102KZF	1000.0	60	1V/100KHz	3.5	13500	0.14

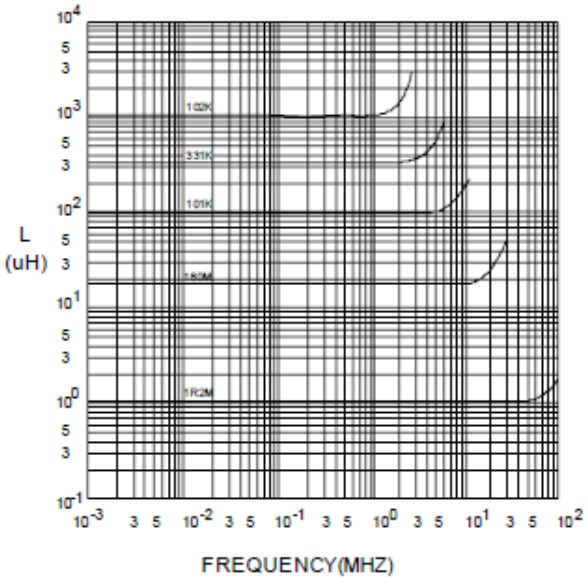
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7. Characteristics Curves

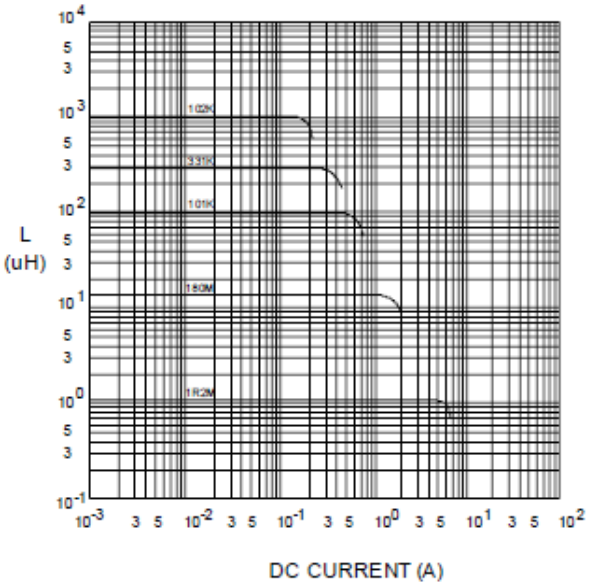
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ 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-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.

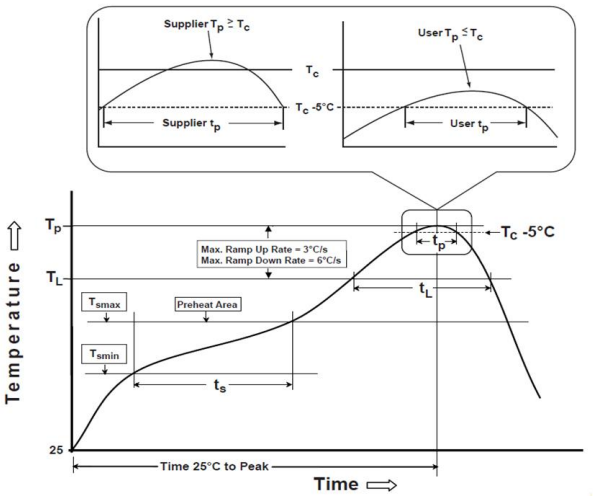
(b) 355°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

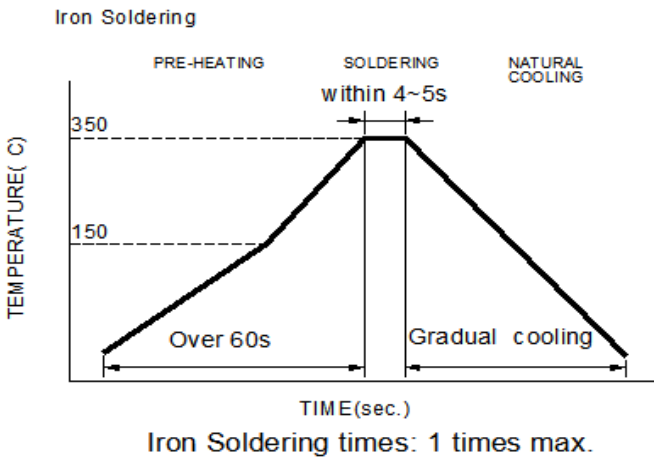
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(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

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.**

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

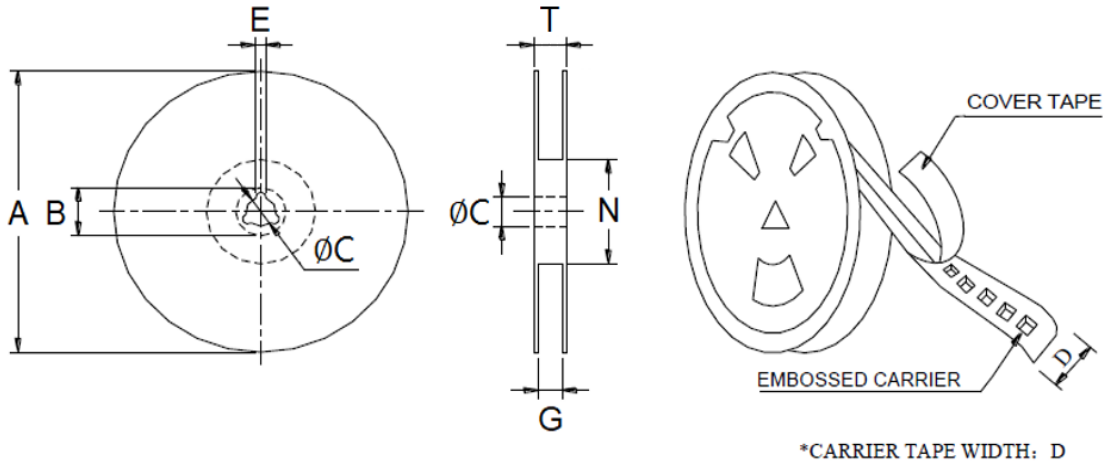
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

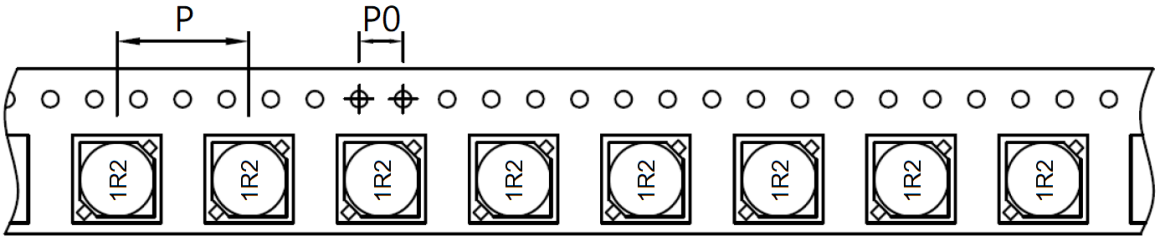
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
	330.0 Ref	21.0 Ref	13.0 Ref	16.0 Ref
13”x16	E	G	N	T
	2.0 Ref	18.0 Max	50.0 Min	22.4 Ref

9-2. Tape Dimension (Unit: mm)



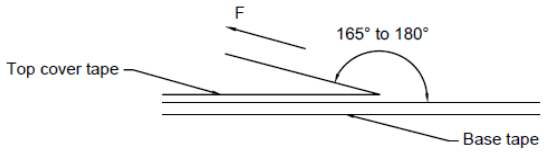
P	P0
12	4

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

9-3. Packaging Type

Inner/Reel			Outer Carton		
Q'TY(PCS)	G.W. (gw)	STYLE	Q'TY(PCS)	G.W. (Kg)	SIZE (cm)
1,000	450	13-16	6,000	6.2	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.