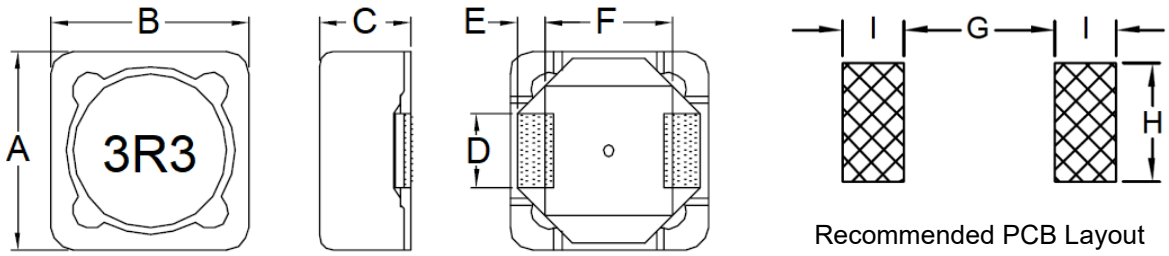
1. Part No. Expression

S D B 1 2 0 4 3 R 3 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)



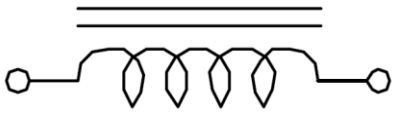
Recommended PCB Layout

Note: 1. The above PCB layout reference only.

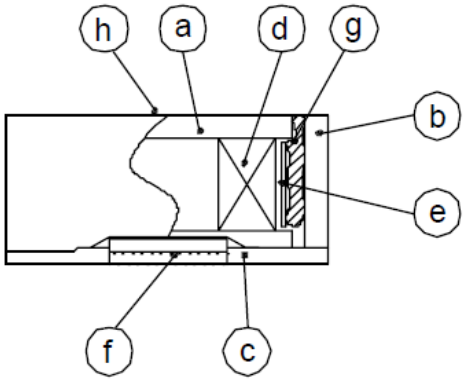
2. Marking: Inductance Code

A	B	C	D	E
12.5±0.3	12.5±0.3	4.6 Max	5.0±0.2	2.2±0.2
F	G	H	I	-
7.6±0.2	7.0 Ref	5.4 Ref	2.8 Ref	-

3. Schematic



4. Material List



(a) DR Core
(b) RI Core
(c) Base
(d) Wire
(e) Tape
(f) Terminal
(g) Adhesive
(h) 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 20% 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

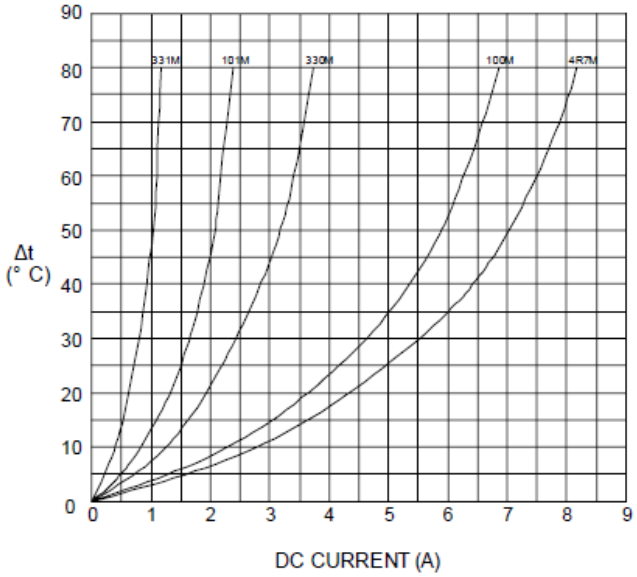
6. Electrical Characteristics

Part Number	Inductance (μH) @0A ±20%	Test Frequency	RDC (mΩ) Max	Irms (A) Max	Isat (A) Max
SDB12043R3MZF	3.3	1V/100KHz	15	6.10	6.50
SDB12044R7MZF	4.7	1V/100KHz	18	5.70	5.70
SDB12046R8MZF	6.8	1V/100KHz	23	5.00	4.90
SDB1204100MZF	10.0	1V/100KHz	28	4.60	4.50
SDB1204120MZF	12.0	1V/100KHz	38	3.90	4.00
SDB1204150MZF	15.0	1V/100KHz	52	3.30	3.20
SDB1204180MZF	18.0	1V/100KHz	60	3.00	3.10
SDB1204220MZF	22.0	1V/100KHz	70	2.80	2.90
SDB1204270MZF	27.0	1V/100KHz	80	2.60	2.80
SDB1204330MZF	33.0	1V/100KHz	97	2.40	2.70
SDB1204390MZF	39.0	1V/100KHz	132	2.30	2.10
SDB1204470MZF	47.0	1V/100KHz	150	2.00	1.90
SDB1204560MZF	56.0	1V/100KHz	190	1.80	1.80
SDB1204680MZF	68.0	1V/100KHz	220	1.70	1.50
SDB1204820MZF	82.0	1V/100KHz	260	1.60	1.30
SDB1204101MZF	100.0	1V/100KHz	308	1.40	1.20
SDB1204121MZF	120.0	1V/100KHz	380	1.30	1.10
SDB1204151MZF	150.0	1V/100KHz	520	1.10	0.95
SDB1204181MZF	180.0	1V/100KHz	600	0.95	0.85
SDB1204221MZF	220.0	1V/100KHz	700	0.90	0.80
SDB1204271MZF	270.0	1V/100KHz	860	0.90	0.60
SDB1204331MZF	330.0	1V/100KHz	980	0.80	0.50

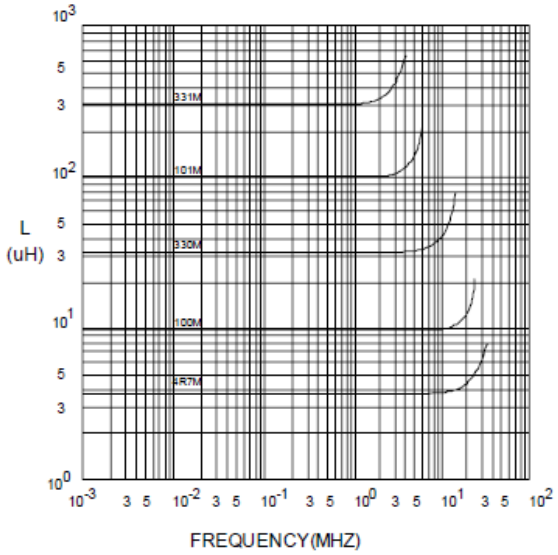
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7. Characteristics Curve

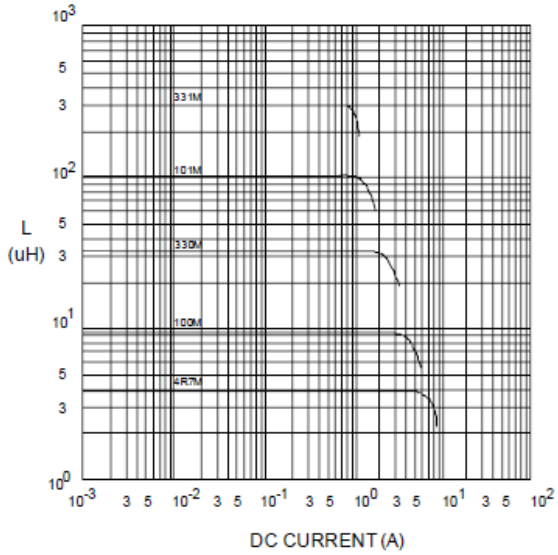
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ 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.

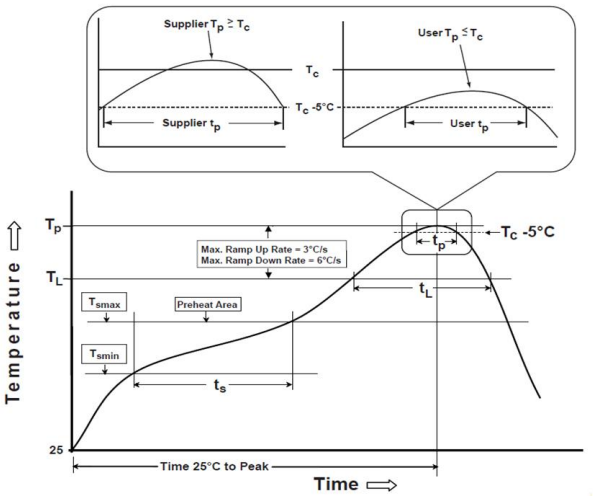
(b) 355°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

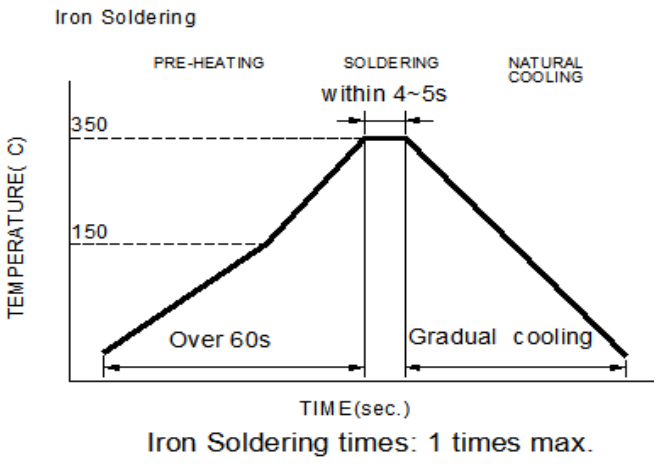
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(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.

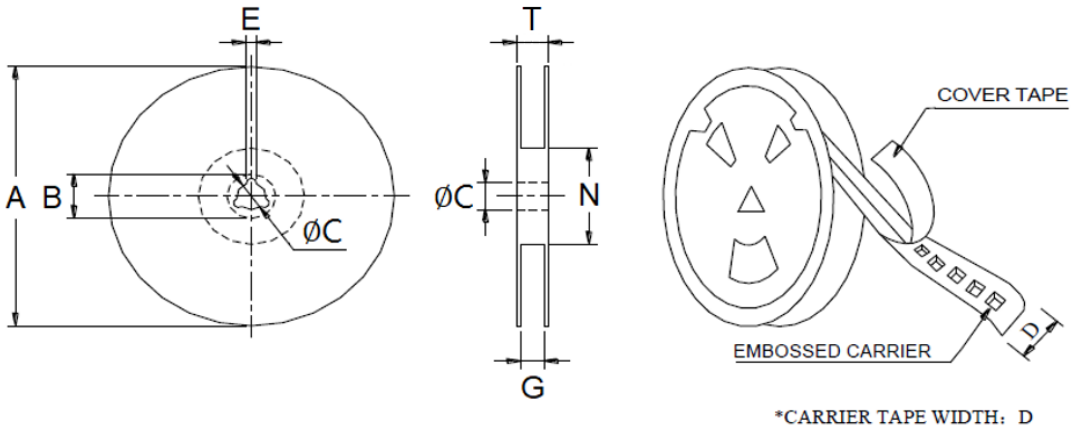
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

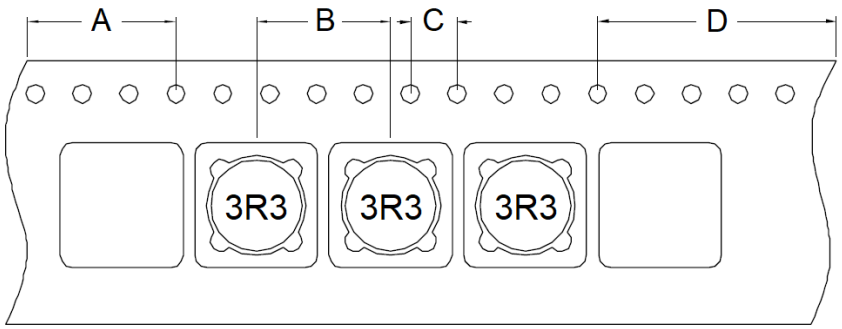
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



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

9-2. Tape Dimension (Unit: mm)



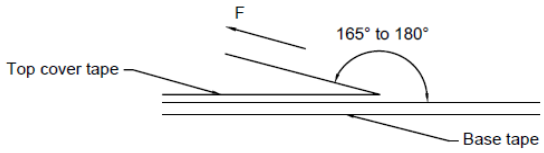
A	B	C	D
200	12	4	400

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

9-3. Packaging Quantity & G.W & Size

INNER : REEL			OUTER : CARTON		
QTY(PCS)	G.W(gw)	STYLE	QTY(PCS)	G.W(Kg)	SIZE(cm)
600	1900	13-24	2400	11.1	38x36.5x21

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.