

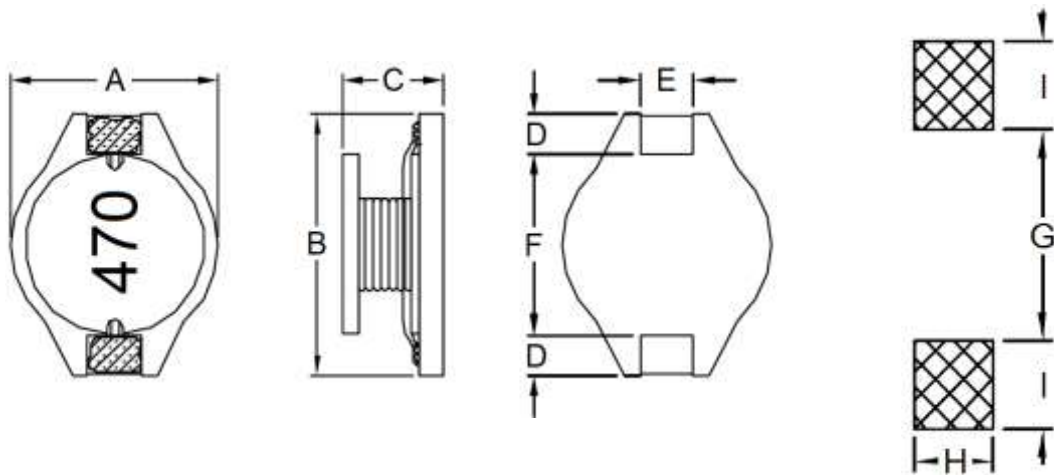
## 1. Part No. Expression

**P D B 1 5 1 1 4 7 0 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)



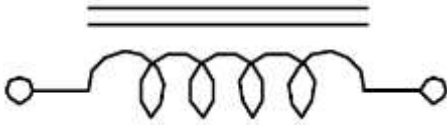
Recommended PCB Layout

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

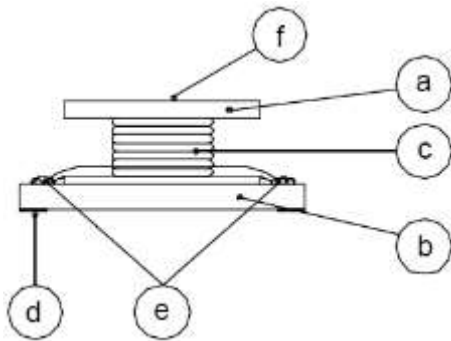
A	B	C	D	E
15.0±0.3	18.4±0.3	11.5 Max	2.4±0.2	2.2±0.2
F	G	H	I	-
13.3±0.3	12.7 Ref	2.8 Ref	3.0 Ref	-

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

## 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 (I<sub>rms</sub>) will cause the coil temperature rise approximately  $\Delta T$  of 40°C.
- (d) Saturation Current (I<sub>sat</sub>) will cause inductance L<sub>0</sub> to drop approximately 10%.
- (e) Rated Current: The lower value of I<sub>sat</sub> and I<sub>rms</sub>.
- (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

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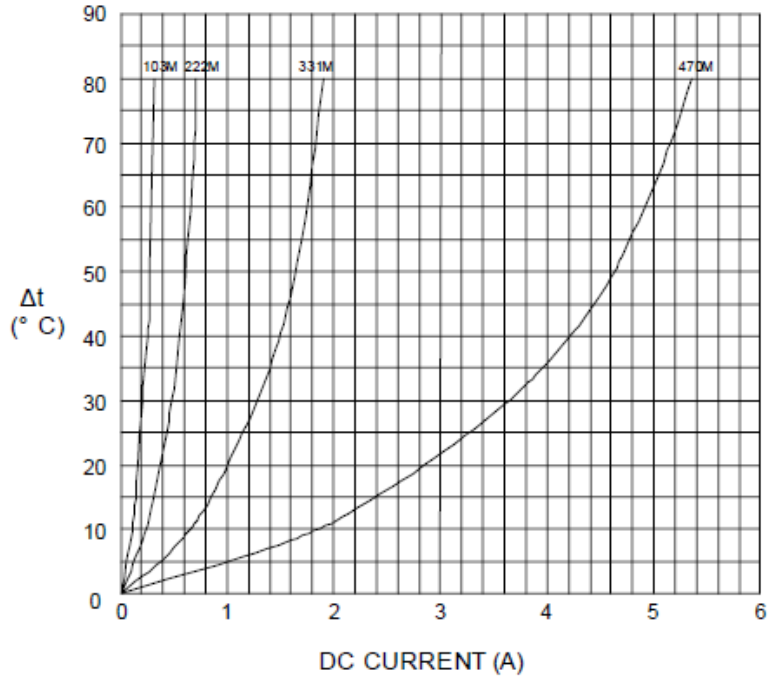
## 6. Electrical Characteristics

Part Number	Inductance (uH) @0A ±20%	Test Frequency	DCR (mΩ) Max	I <sub>last</sub> (A)	I <sub>rms</sub> (A)
PDB1511470MZF	47	1V/100KHz	55	5.20	3.70
PDB1511680MZF	68	1V/100KHz	75	4.30	3.10
PDB1511101MZF	100	1V/100KHz	125	3.60	2.50
PDB1511151MZF	150	1V/100KHz	190	3.00	2.00
PDB1511221MZF	220	1V/100KHz	280	2.50	1.60
PDB1511331MZF	330	1V/100KHz	370	2.00	1.40
PDB1511471MZF	470	1V/100KHz	510	1.60	1.20
PDB1511681MZF	680	1V/100KHz	800	1.40	1.00
PDB1511102MZF	1000	1V/100KHz	1100	1.15	0.80
PDB1511152MZF	1500	1V/100KHz	1600	0.95	0.60
PDB1511222MZF	2200	1V/100KHz	2300	0.80	0.50
PDB1511332MZF	3300	1V/100KHz	3600	0.65	0.40
PDB1511472MZF	4700	1V/100KHz	5200	0.55	0.35
PDB1511682MZF	6800	1V/100KHz	7700	0.45	0.30
PDB1511103MZF	10000	1V/100KHz	11000	0.38	0.25

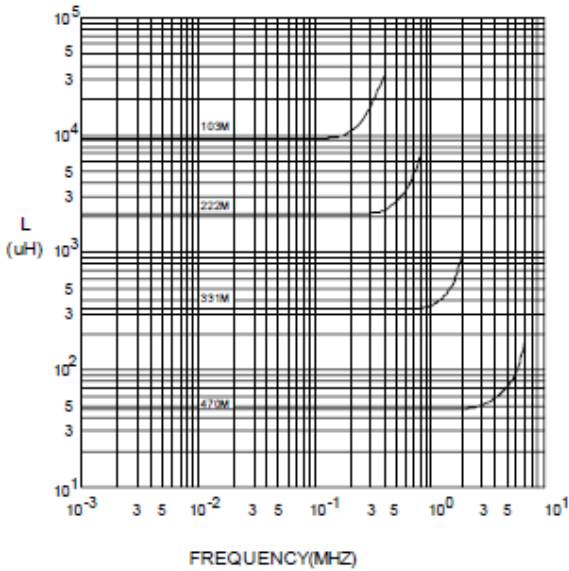
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7. Characteristics Curves

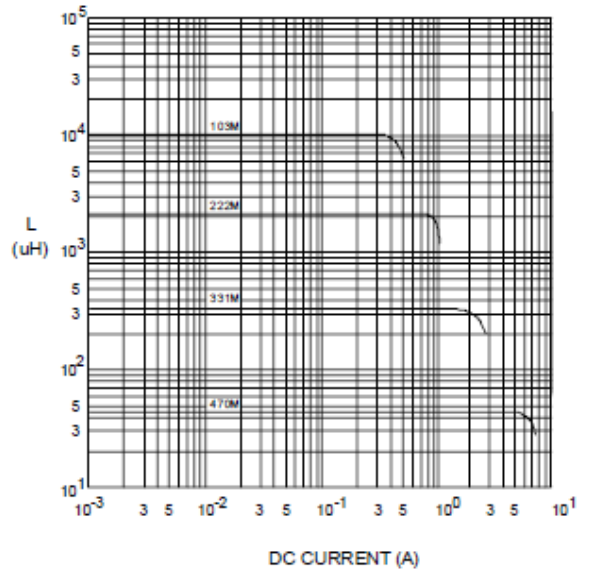
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURVE



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### 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).

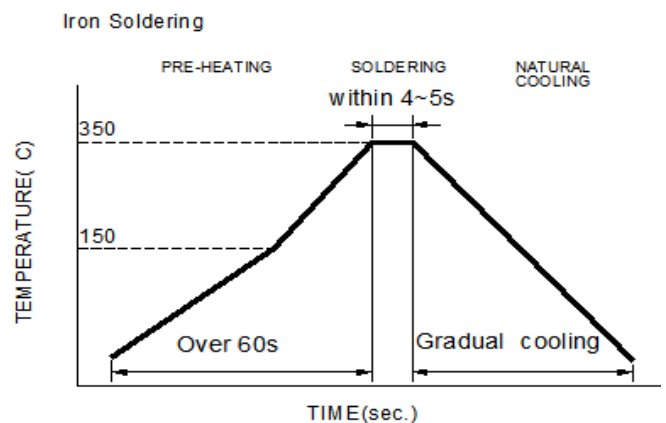
Note:

- (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

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**Table (1.1) Reflow Profiles**

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

**T<sub>p</sub>**: maximum peak package body temperature, **T<sub>c</sub>**: the classification temperature.

For user (customer) **T<sub>p</sub>** should be equal to or less than **T<sub>c</sub>**.

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

	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >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.

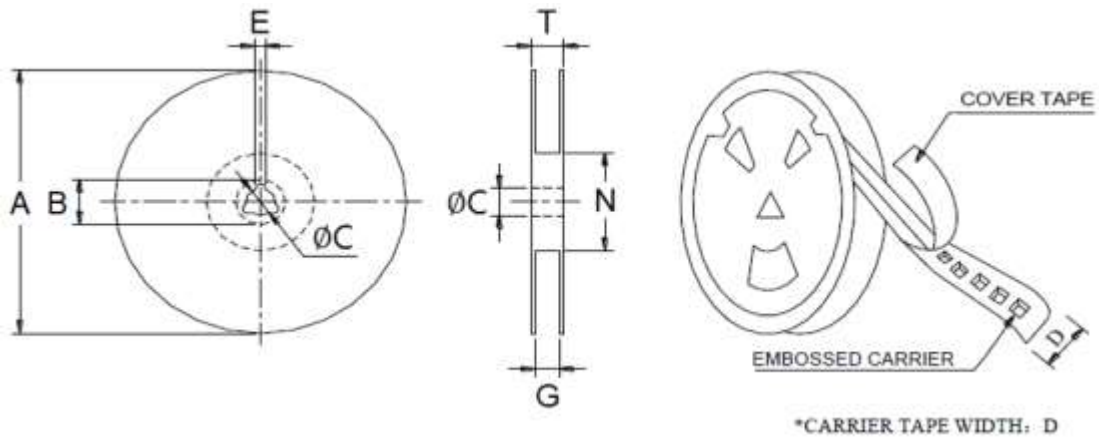
Minimum fillet height = soldering thickness + 25% product height.



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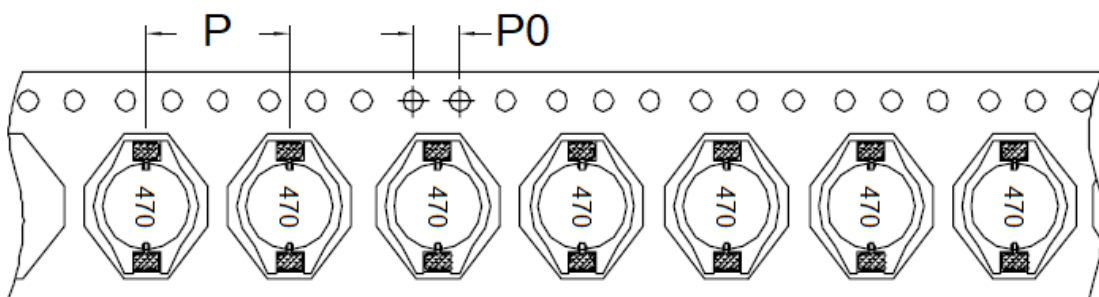
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
	330.0 Ref	21.0 Ref	13.0 Ref	32.0 Ref
13"x32mm	E	G	N	T
	2.0 Ref	34.0 Max	100.0 Min	38.4 Ref

9-2. Tape Dimension (Unit: mm)



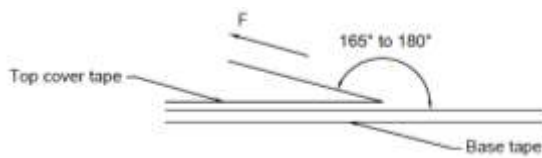
P	P0
20	4

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### 9-3. Packaging Type

INNER : REEL			OUTER : CARTON		
Q'TY(PCS)	G.W. (gw)	STYLE	Q'TY(PCS)	G.W. (Kg)	SIZE(cm)
200	1,370	13-32	800	9.0	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.

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