Unshielded Power Inductor – *PDC0705 Series*

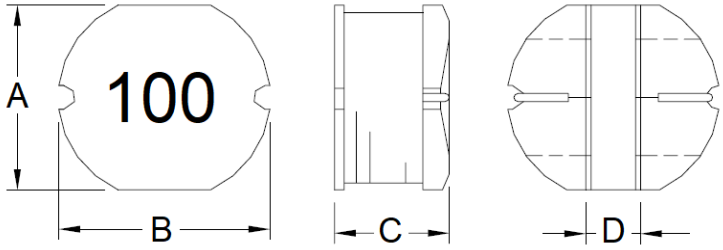
1. Part No. Expression

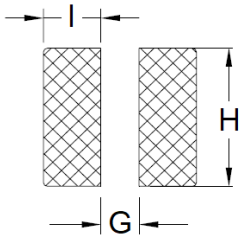
P D C 0 7 0 5 1 0 0 M Z F

(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)





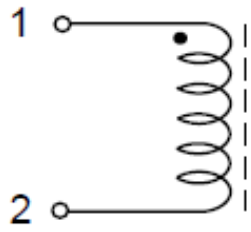
Recommended PCB Layout

Note: 1. The above PCB layout reference only.

2. Marking: Inductance Code, Black

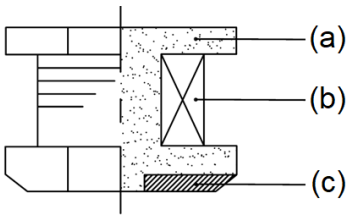
A	B	C	D	G	H	I
7.0±0.3	7.8±0.3	5.0±0.5	2.5±0.3	2.0 Ref	7.5 Ref	3.0 Ref

3. Schematic



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

4. Material List



(a) Core
(b) Wire
(c) Electrode

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 approximately 10%.
(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) @0A	Test Frequency	DCR (Ω) Max	IDC (A)	Marking
PDC0705100MZF	10.0	1.0V/2.52MHz	0.07	2.30	100
PDC0705120MZF	12.0	1.0V/2.52MHz	0.08	2.00	120
PDC0705150MZF	15.0	1.0V/2.52MHz	0.09	1.80	150
PDC0705180MZF	18.0	1.0V/2.52MHz	0.10	1.60	180
PDC0705220MZF	22.0	1.0V/2.52MHz	0.11	1.50	220
PDC0705270MZF	27.0	1.0V/2.52MHz	0.12	1.30	270
PDC0705330MZF	33.0	1.0V/2.52MHz	0.13	1.20	330
PDC0705390MZF	39.0	1.0V/2.52MHz	0.16	1.10	390
PDC0705470KZF	47.0	1.0V/2.52MHz	0.18	1.10	470
PDC0705560KZF	56.0	1.0V/2.52MHz	0.24	0.94	560
PDC0705680KZF	68.0	1.0V/2.52MHz	0.28	0.85	680
PDC0705820KZF	82.0	1.0V/2.52MHz	0.37	0.78	820
PDC0705101KZF	100	1.0V/1KHz	0.43	0.72	101
PDC0705121KZF	120	1.0V/1KHz	0.47	0.66	121
PDC0705151KZF	150	1.0V/1KHz	0.64	0.58	151
PDC0705181KZF	180	1.0V/1KHz	0.71	0.51	181
PDC0705221KZF	220	1.0V/1KHz	0.96	0.49	221
PDC0705271KZF	270	1.0V/1KHz	1.11	0.42	271
PDC0705331KZF	330	1.0V/1KHz	1.26	0.40	331
PDC0705391KZF	390	1.0V/1KHz	1.77	0.36	391
PDC0705471KZF	470	1.0V/1KHz	1.96	0.34	441

Note:

Tolerance Code: K= ±10%, M= ±20%

7. 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.

7-1. IR Soldering Reflow

Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

7-2. 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.

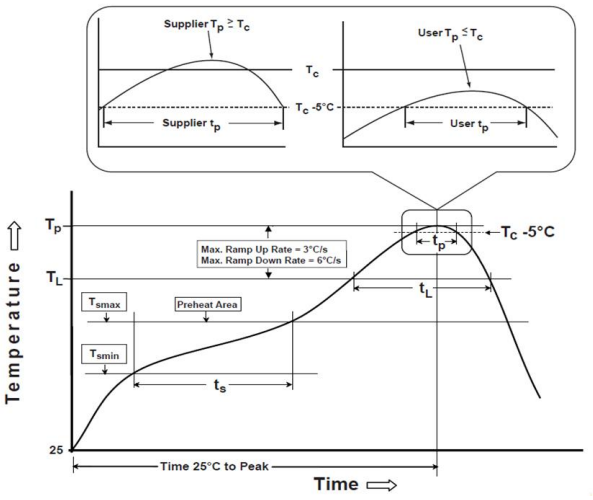
(b) 355°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

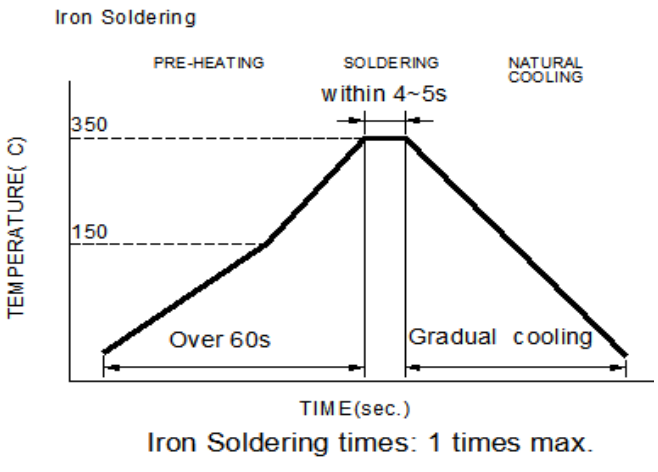
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(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.

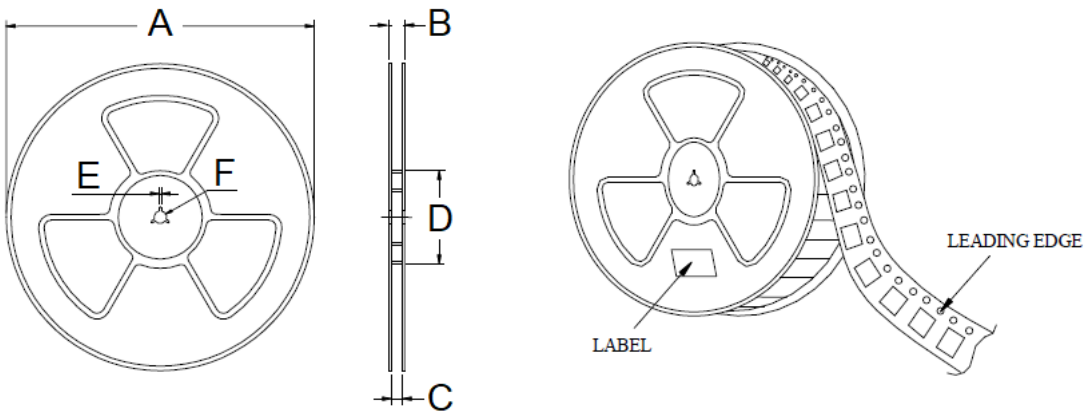
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

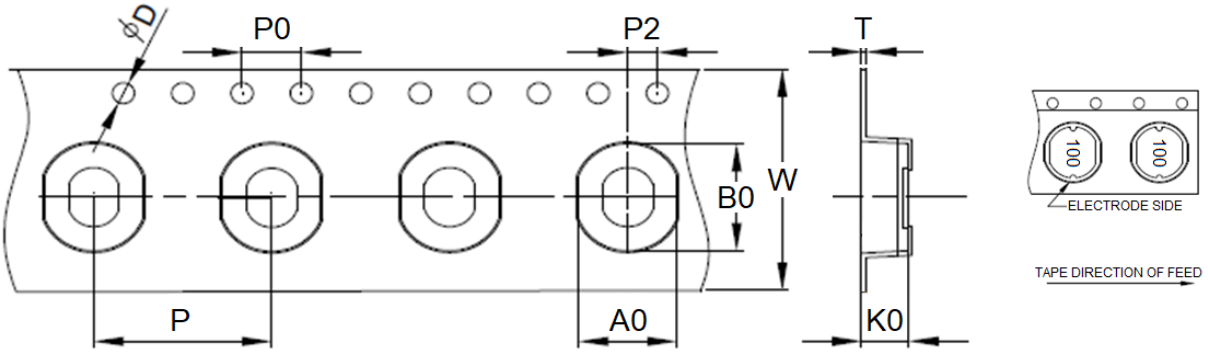
8. Packaging Information

8-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	E	F
13”x16	330.00	22.40	16.40	100.00	2.30	R6.75

8-2. Tape Dimension (Unit: mm)



W	A0	B0	K0	P
16.0+0.3/-0.1	7.3±0.1	8.0±0.1	5.7±0.1	12.0±0.1
D	P0	P2	T	-
1.5+0.1/-0.0	4.0±0.1	2.0±0.1	0.4 Ref	-

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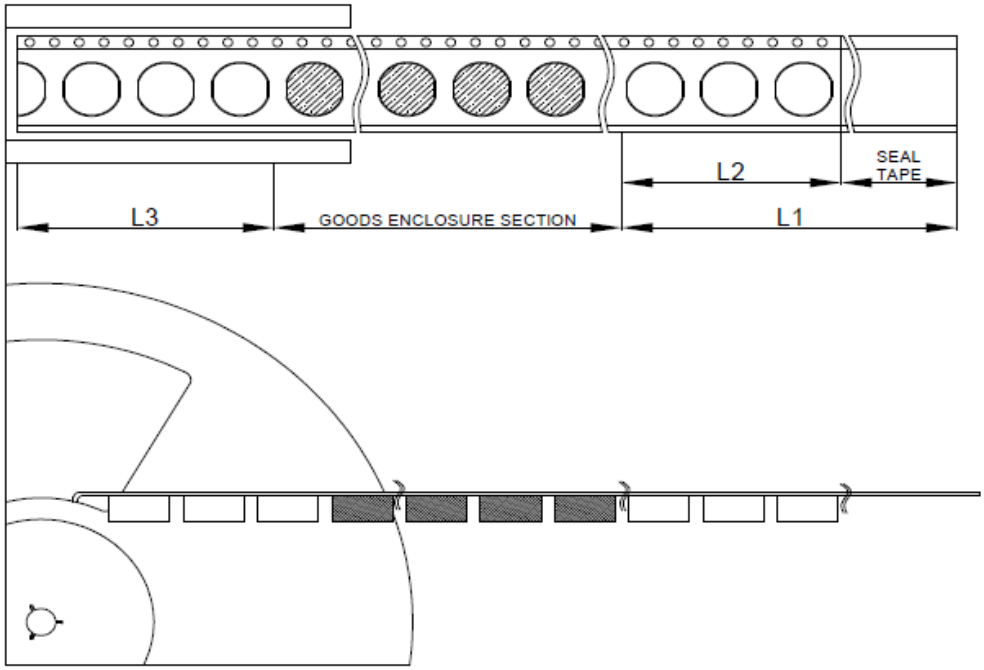
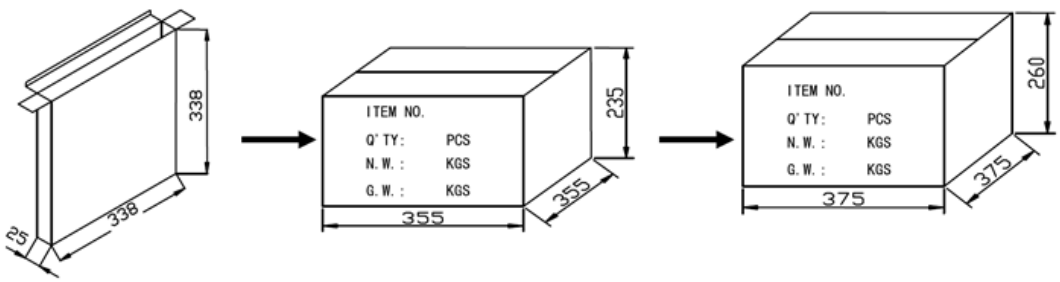


L1	LEADER SECTION LENGTH	400mm Min
L2	START CATTIER TAPE LENGTH	170mm Min
L3	TRAILER SECTION LENGTH	170mm Min
QUANTITY	1000 PCS	

8-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	1,000
Inner Carton	7,000
Outside Carton	7,000



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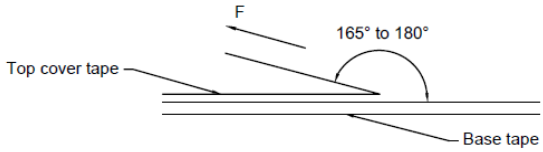
8-4. Tearing Off Force



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.