Unshielded Power Inductor – *PDC1005 Series*

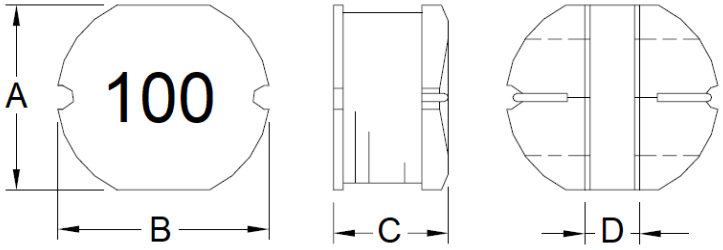
1. Part No. Expression

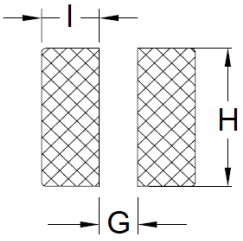
P D C 1 0 0 5 1 0 0 M Z F

(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)





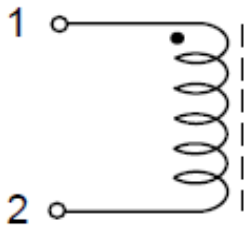
Recommended PCB Layout

Note: 1. The above PCB layout reference only.

2. Marking: Inductance Code

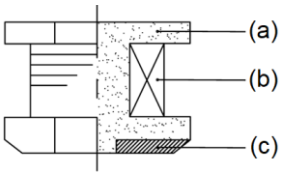
A	B	C	D	G	H	I
9.00±0.40	10.00±0.40	5.40±0.40	3.00±0.30	2.50 Ref	9.50 Ref	3.75 Ref

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 60°C
  ii) Humidity: Less than 90% RH

6. Electrical Characteristics

Part Number	Inductance (uH) @0A	Test Frequency	DCR (mΩ) Max	IDC (mA)	Marking
PDC1005100MZF	10	1V/2.52MHz	60	2600	100
PDC1005120MZF	12	1V/2.52MHz	70	2450	120
PDC1005150MZF	15	1V/2.52MHz	80	2270	150
PDC1005180MZF	18	1V/2.52MHz	90	2150	180
PDC1005220MZF	22	1V/2.52MHz	100	1950	220
PDC1005270MZF	27	1V/2.52MHz	110	1760	270
PDC1005330MZF	33	1V/2.52MHz	120	1500	330
PDC1005390MZF	39	1V/2.52MHz	140	1370	390
PDC1005470KZF	47	1V/2.52MHz	170	1280	470
PDC1005560KZF	56	1V/2.52MHz	190	1170	560
PDC1005680KZF	68	1V/2.52MHz	220	1110	680
PDC1005820KZF	82	1V/2.52MHz	250	1000	820
PDC1005101KZF	100	1V/1KHz	350	970	101
PDC1005121KZF	120	1V/1KHz	400	890	121
PDC1005151KZF	150	1V/1KHz	470	780	151
PDC1005181KZF	180	1V/1KHz	630	720	181
PDC1005221KZF	220	1V/1KHz	730	660	221
PDC1005271KZF	270	1V/1KHz	970	570	271
PDC1005331KZF	330	1V/1KHz	1150	520	331
PDC1005391KZF	390	1V/1KHz	1300	480	391
PDC1005471KZF	470	1V/1KHz	1480	420	471
PDC1005561KZF	560	1V/1KHz	1900	330	561
PDC1005681KZF	680	1V/1KHz	2250	280	681
PDC1005821KZF	820	1V/1KHz	2550	240	821

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.

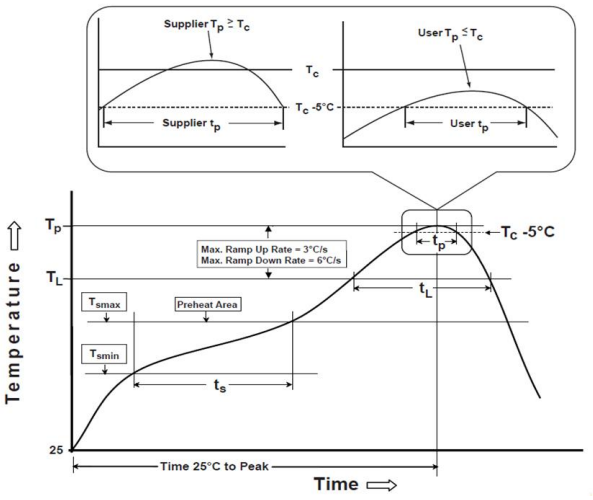
(b) 355°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

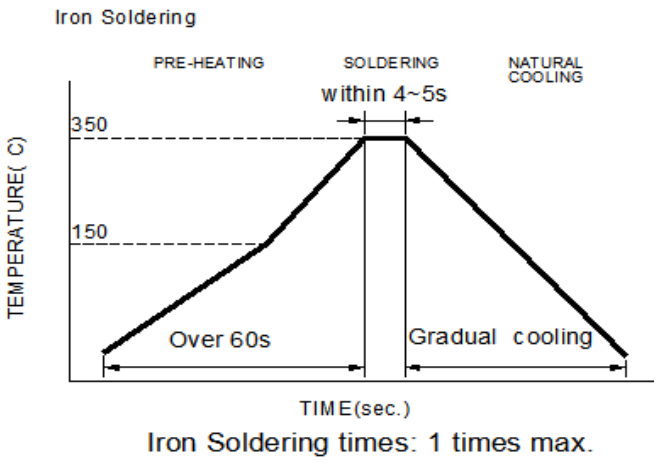
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(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.

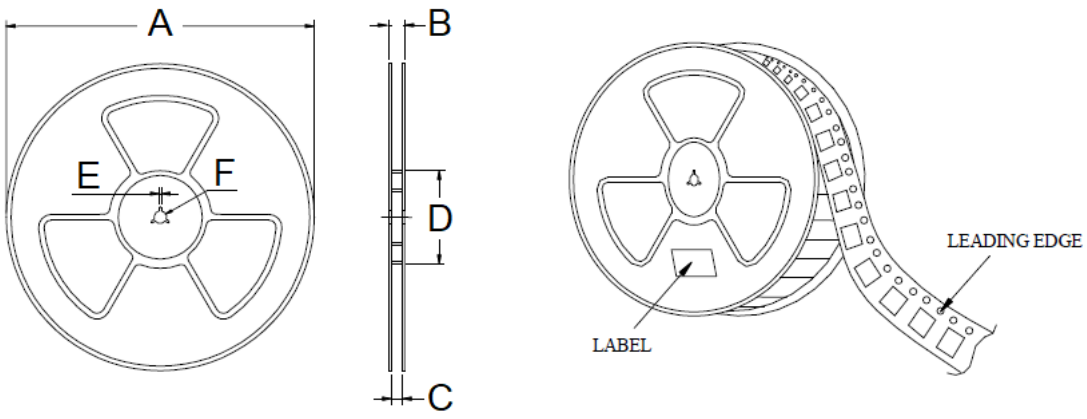
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

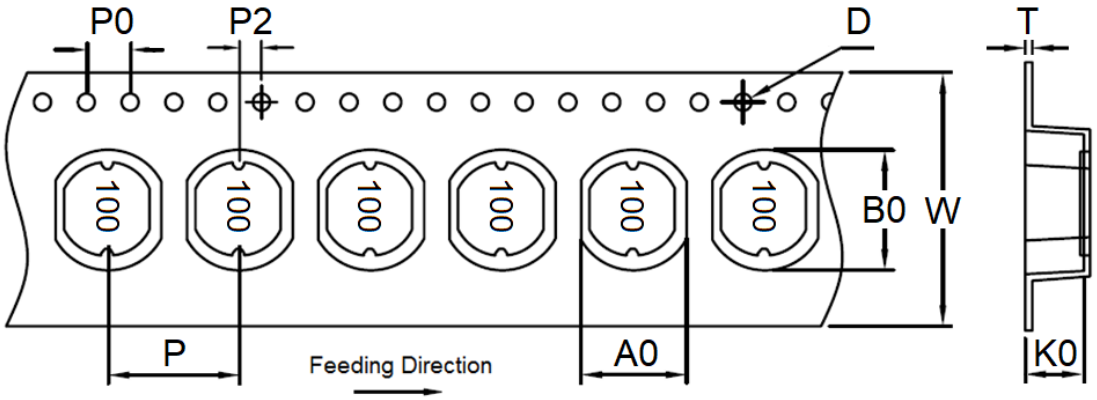
8. Packaging Information

8-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	E	F
13”x24	330.00	100.00	13.00	12.50	2.30	R6.75

8-2. Tape Dimension (Unit: mm)



W	A0	B0	K0	P
24.0+0.3/-0.1	9.4±0.1	10.4±0.1	6.2±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	-

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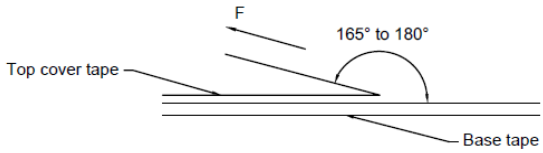
8-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	1,000
Outside Carton	5,000

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 6 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.