Unshielded Power Inductor – *PDC0403 Series*

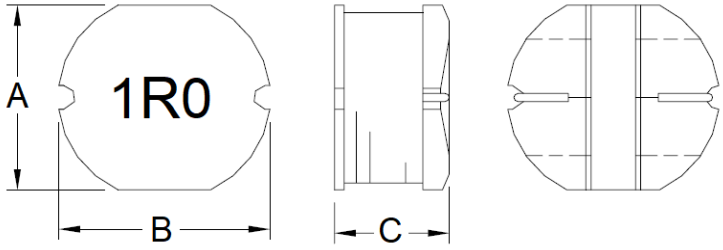
1. Part No. Expression

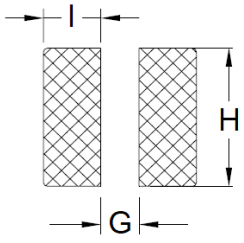
P D C 0 4 0 3 1 R 0 M Z F

(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)





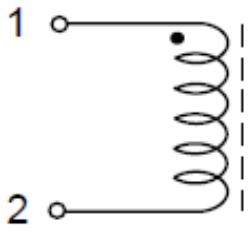
Recommended PCB Layout

Note: 1. The above PCB layout reference only.

2. Marking: Inductance Code

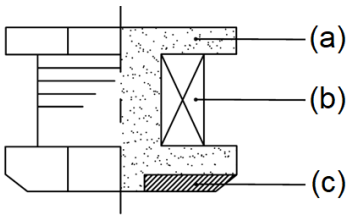
A	B	C	G	H	I
4.00±0.30	4.50±0.30	3.20±0.30	1.50 Ref	4.50 Ref	1.75 Ref

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) 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 approximately 10%.
(e) Rated Current: The lower value of Isat and Irms.
(f) 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	Test Frequency	DCR (Ω) Max	IDC (A)
PDC04031R0MZF	1.0	1V/7.96MHz	0.033	3.80
PDC04031R4MZF	1.4	1V/7.96MHz	0.038	3.30
PDC04031R8MZF	1.8	1V/7.96MHz	0.042	2.91
PDC04032R2MZF	2.2	1V/7.96MHz	0.047	2.60
PDC04032R7MZF	2.7	1V/7.96MHz	0.052	2.43
PDC04033R3MZF	3.3	1V/7.96MHz	0.058	2.15
PDC04033R9MZF	3.9	1V/7.96MHz	0.076	1.98
PDC04034R7MZF	4.7	1V/7.96MHz	0.094	1.70
PDC04035R6MZF	5.6	1V/7.96MHz	0.101	1.60
PDC04036R8MZF	6.8	1V/7.96MHz	0.117	1.41
PDC04038R2MZF	8.2	1V/7.96MHz	0.132	1.26
PDC0403100MZF	10.0	1V/2.52MHz	0.182	1.15
PDC0403120MZF	12.0	1V/2.52MHz	0.210	1.05
PDC0403150MZF	15.0	1V/2.52MHz	0.235	0.92
PDC0403180MZF	18.0	1V/2.52MHz	0.338	0.84
PDC0403220MZF	22.0	1V/2.52MHz	0.378	0.76
PDC0403270MZF	27.0	1V/2.52MHz	0.522	0.71
PDC0403330KZF	33.0	1V/2.52MHz	0.540	0.64
PDC0403390KZF	39.0	1V/2.52MHz	0.587	0.59
PDC0403470KZF	47.0	1V/2.52MHz	0.844	0.54
PDC0403560KZF	56.0	1V/2.52MHz	0.937	0.50
PDC0403680KZF	68.0	1V/2.52MHz	1.117	0.46

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.

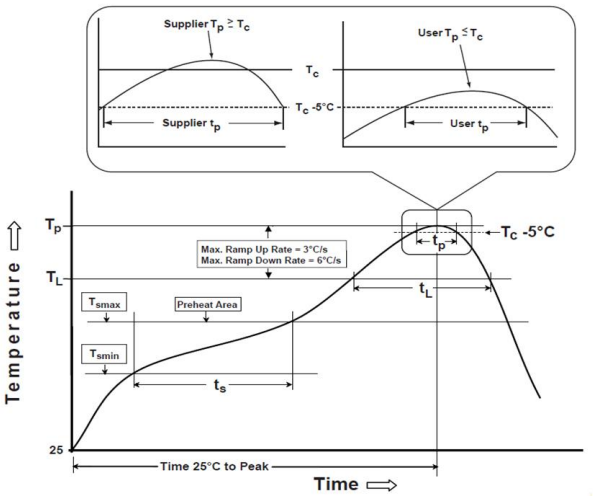
(b) 355°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

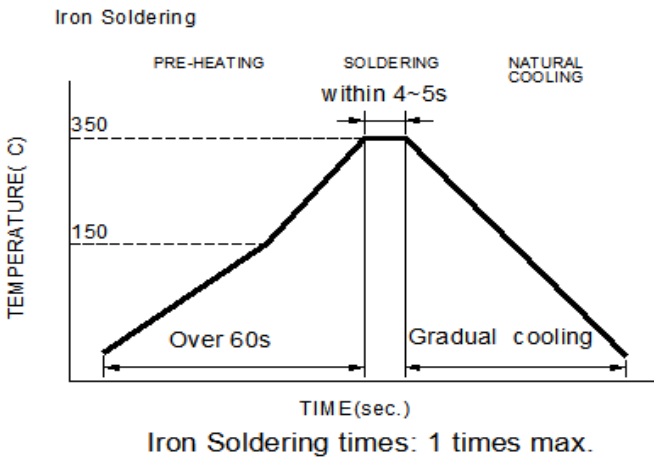
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(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.

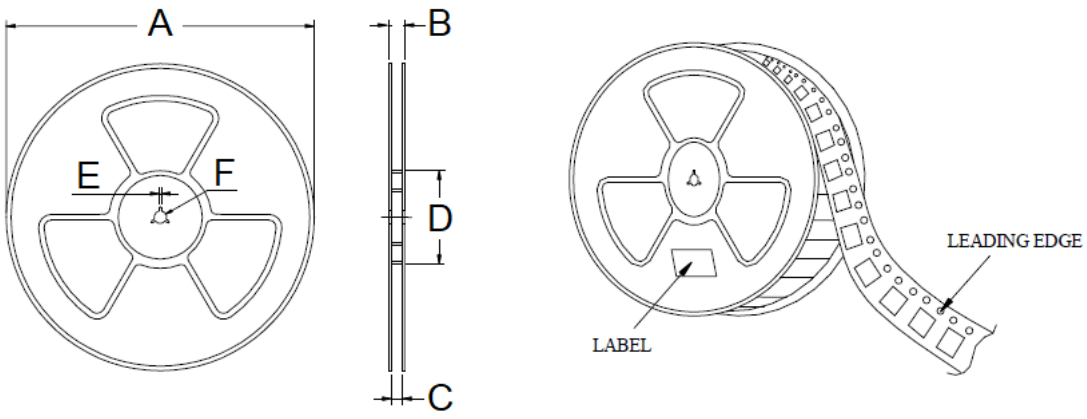
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

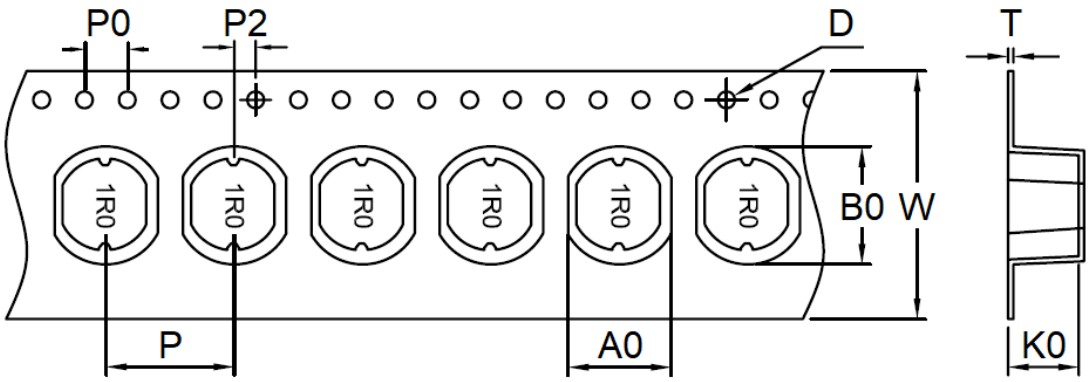
8. Packaging Information

8-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	E	F
13”x12	330.00	18.40	12.40	100.00	2.30	R6.75

8-2. Tape Dimension (Unit: mm)



W	A0	B0	K0	P
12.00+0.30/-0.10	4.15±0.10	5.10±0.10	3.50±0.10	8.00±0.10
D	P0	P2	T	-
1.50+0.10/-0.00	4.00±0.10	2.00±0.10	0.35 Ref	-

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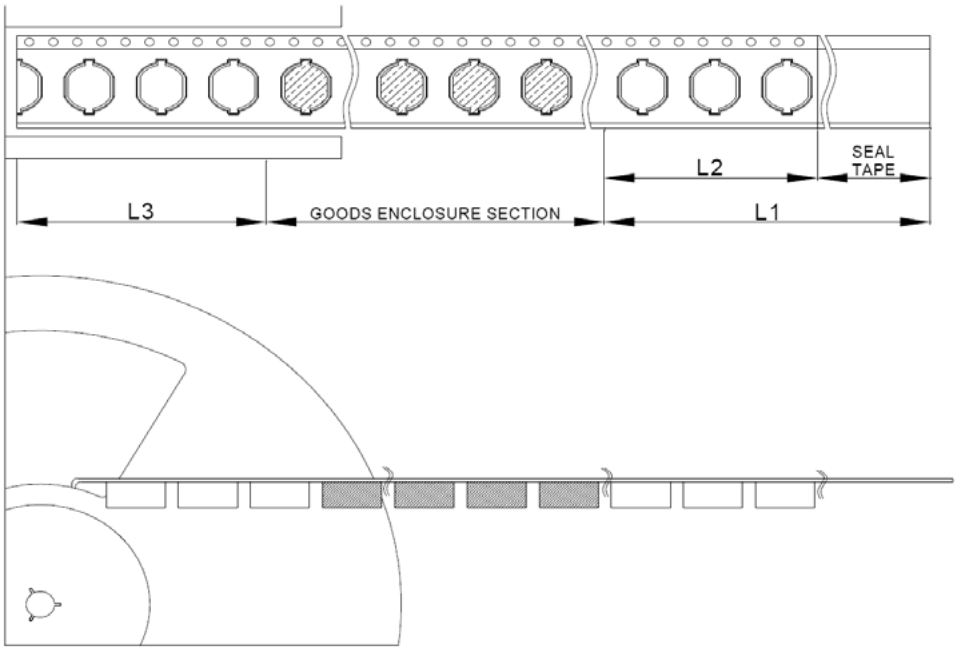
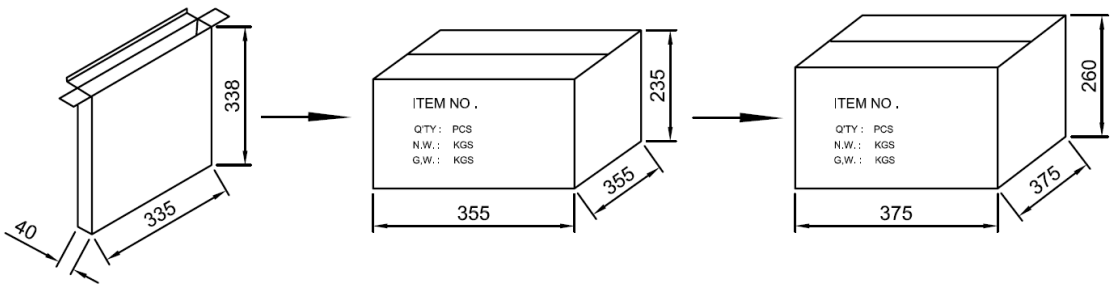


L1	LEADER SECTION LENGTH	400mm Min
L2	START CATTIER TAPE LENGTH	170mm Min
L3	TRAILER SECTION LENGTH	170mm Min
QUANTITY	2000 PCS	

8-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	4,000
Inner Carton	20,000
Outside Carton	20,000



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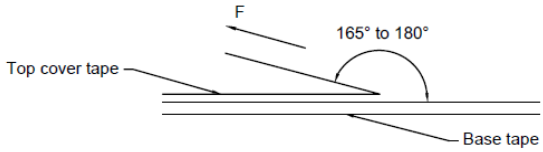
8-4. Tearing Off Force



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.