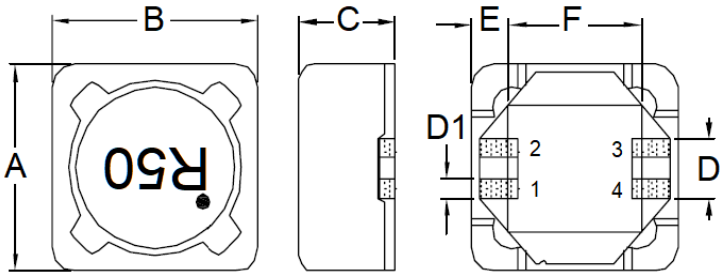
1. Part No. Expression

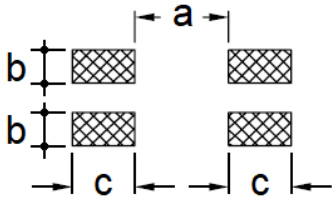
S P B 1 2 0 7 R 5 0 Y Z F

(a) (b) (c) (d) (e) (f)

(a) Series Code
(b) Dimension Code
(c) Inductance Code
(d) Tolerance Code
(e) Special Code
(f) Packaging Code

2. Configuration & Dimensions (Unit: mm)



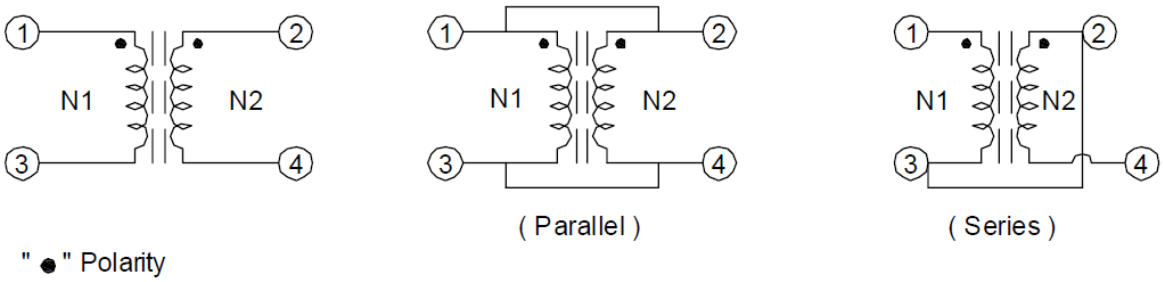


Recommended PCB Layout

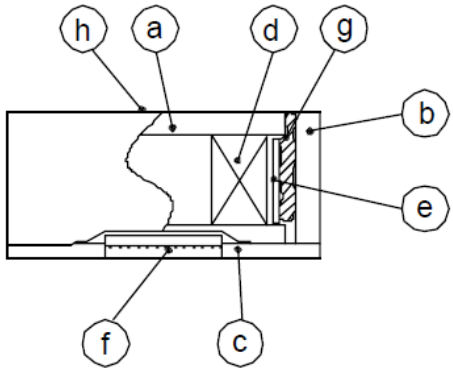
Note: 1. The above PCB layout reference only.
2. Marking: White dot(on pin ① side), Inductance Code

A	B	C	D	D1
12.5±0.3	12.5±0.3	8.0 Max	5.0 Ref	1.7 Ref
E	F	a	b	c
2.2 Ref	7.6 Ref	7.0 Ref	2.1 Ref	2.8 Ref

3. Schematic



4. Material List



(a) Core
(b) 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 approximately ΔT of 40°C.
(d) Saturation Current (Isat) will cause inductance L0 to drop approximately 30%.
(e) Rated Current: The lower value of Isat and Irms.
(f) Hi-Pot (N1-N2): 200Vac /3mA /1Sec
(g) Resistance to Solder Heat: 260°C, 10Sec.
(h) Storage Condition (Component in its packaging)
  i) Temperature: -10°C to 40°C
  ii) Humidity: Less than 60% RH

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

6. Electrical Characteristics

Part Number	Inductance (uH) Ref @0.25V/100KHz	Parallel				Series			
		Inductance (uH) Ref	RDC (Ω) Max	Isat (A)	Irms (A)	Inductance (uH) Ref	RDC (Ω) Max	Isat (A)	Irms (A)
SPB1207R50YZF	0.5	0.520	0.0058	35.00	13.50	1.900	0.0260	18.00	6.720
SPB12071R0YZF	1.0	0.821	0.0085	24.00	10.00	3.284	0.0374	12.00	5.000
SPB12071R5YZF	1.5	1.357	0.0106	19.00	8.60	5.428	0.4500	9.20	4.300
SPB12072R2YZF	2.2	2.027	0.0127	16.00	8.30	8.108	0.0522	7.60	4.150
SPB12073R3YZF	3.3	2.831	0.0138	14.00	8.30	11.320	0.0570	7.20	4.150
SPB12074R5YZF	4.5	4.380	0.0169	11.80	6.50	17.520	0.0697	5.90	3.250
SPB12076R8YZF	6.8	7.387	0.0206	9.70	5.50	29.550	0.0899	4.70	2.750
SPB12078R2YZF	8.2	8.861	0.0223	8.50	5.30	35.440	0.0949	4.15	2.650
SPB1207100MZF	10.0	10.470	0.0238	7.50	5.20	41.880	0.1016	3.80	2.600
SPB1207150MZF	15.0	14.090	0.0301	6.00	4.30	56.360	0.1258	2.95	2.150
SPB1207220MZF	22.0	22.930	0.0391	5.25	4.00	91.720	0.1570	2.60	2.000
SPB1207330MZF	33.0	33.920	0.0600	4.15	3.23	135.700	0.2410	2.10	1.610
SPB1207470MZF	47.0	47.050	0.0719	3.50	2.95	188.200	0.2880	1.80	1.470
SPB1207680MZF	68.0	66.480	0.1050	2.95	2.44	265.900	0.4210	1.50	1.220
SPB1207820MZF	82.0	79.750	0.1430	2.75	2.09	319.000	0.5730	1.40	1.040
SPB1207101MZF	100.0	99.310	0.1630	2.56	1.96	397.200	0.6530	1.28	0.980
SPB1207151MZF	150.0	144.900	0.2470	2.10	1.59	579.600	0.9890	1.05	0.796
SPB1207221MZF	220.0	221.500	0.3760	1.64	1.29	886.000	1.5000	0.84	0.645
SPB1207331MZF	330.0	323.600	0.5740	1.40	1.04	1294.000	2.3000	0.72	0.522
SPB1207471MZF	470.0	467.100	0.8610	1.17	0.85	1868.000	3.4400	0.55	0.427
SPB1207681MZF	680.0	676.700	1.0800	0.93	0.76	2707.000	4.3200	0.43	0.380
SPB1207821MZF	820.0	818.100	1.4700	0.86	0.65	3272.000	5.8800	0.41	0.325
SPB1207102MZF	1000.0	1005.000	1.6600	0.75	0.61	4637.333	6.6400	0.35	0.307

Note:

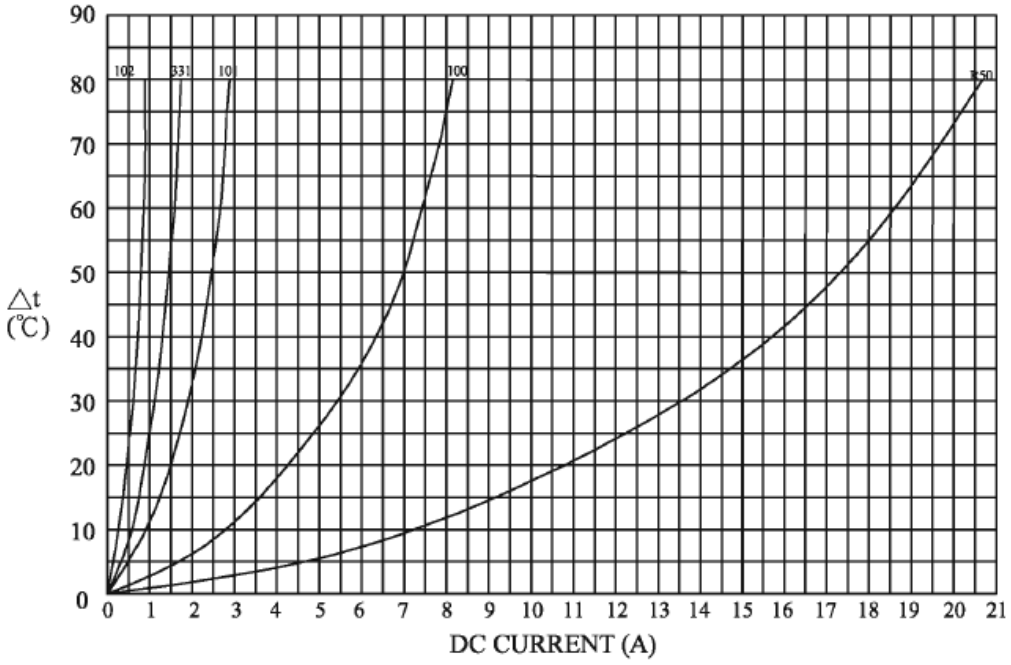
Tolerance Code: M=±20%, Y=±30%

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

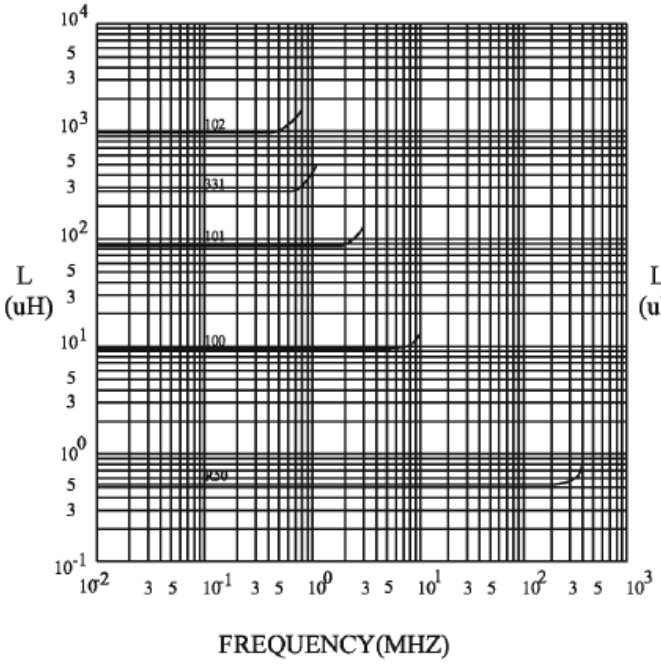
7. Characteristics Curves

7-1. Parallel

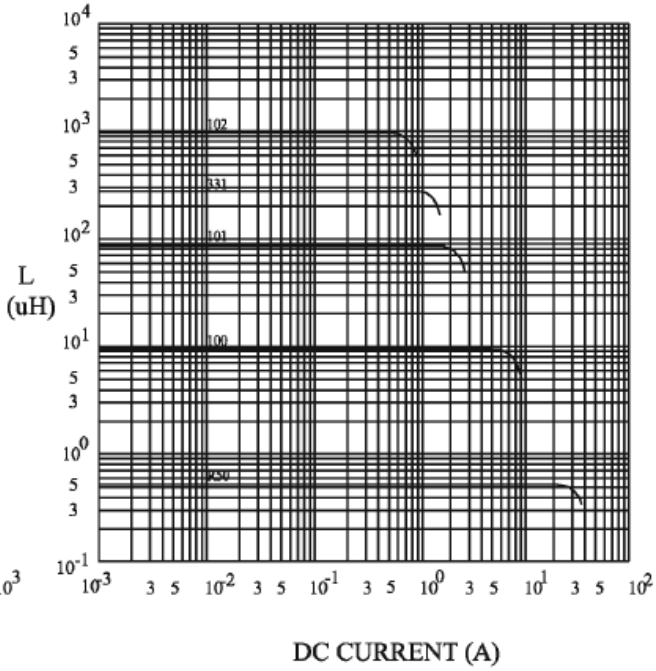
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



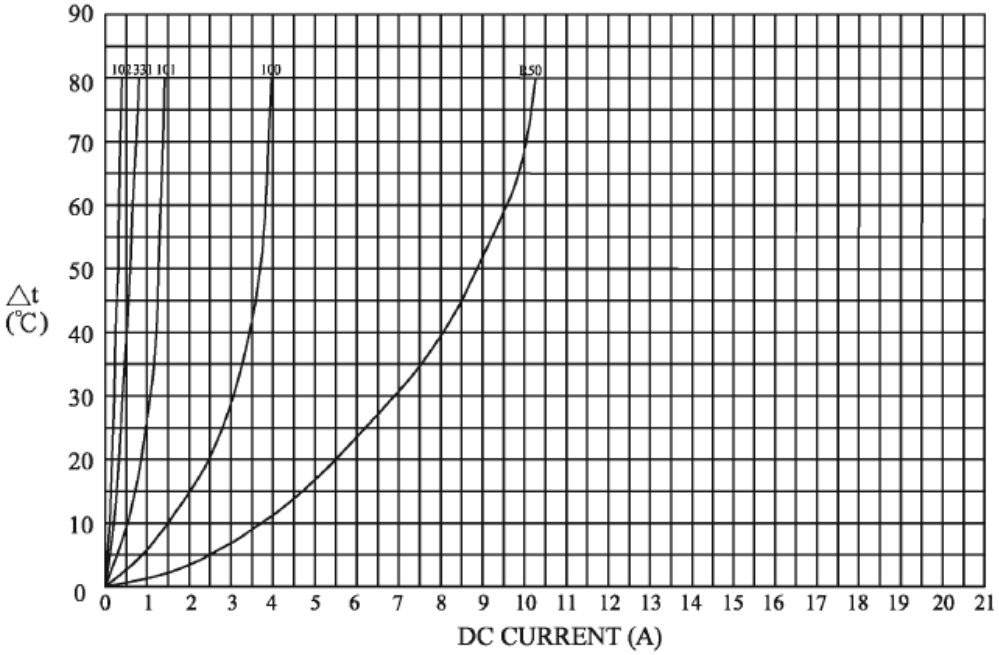
@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURVE



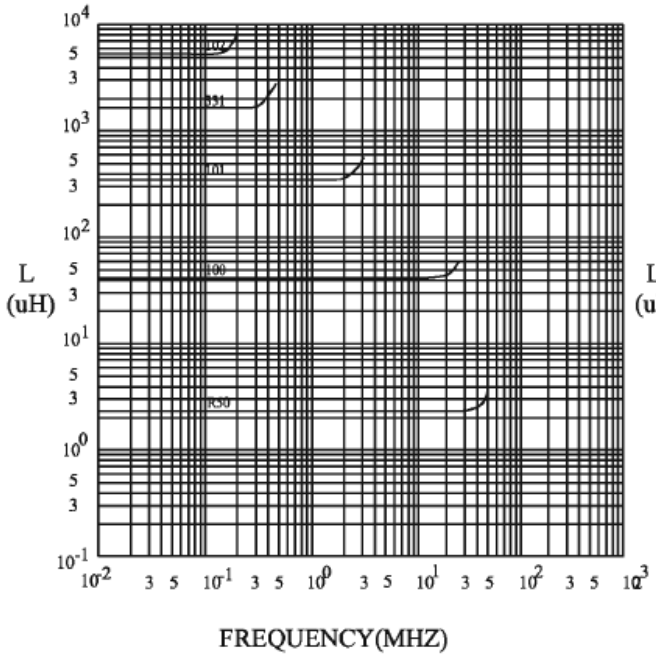
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7-2. Series

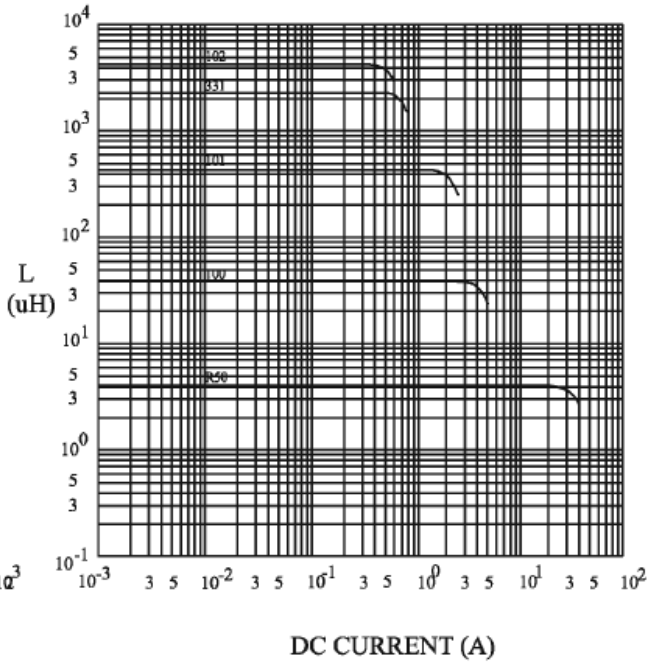
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ 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.

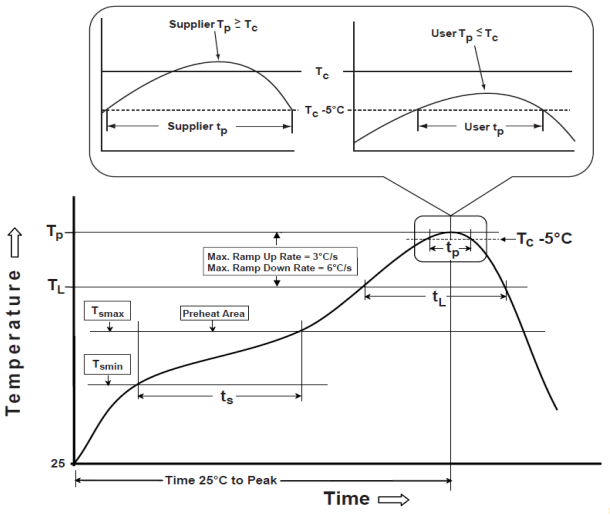
(b) 355°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

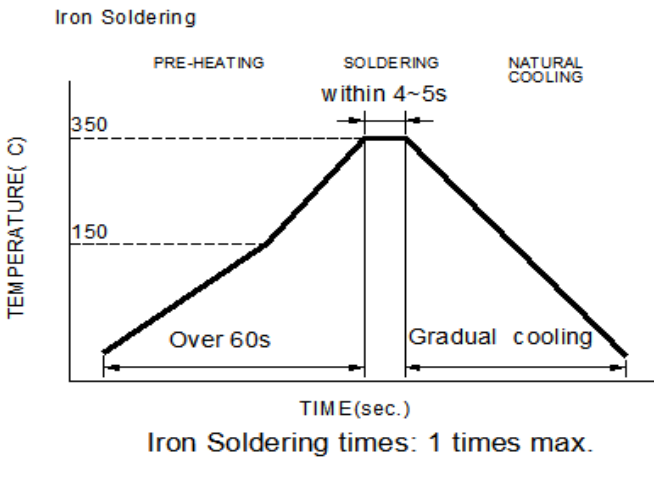
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(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.

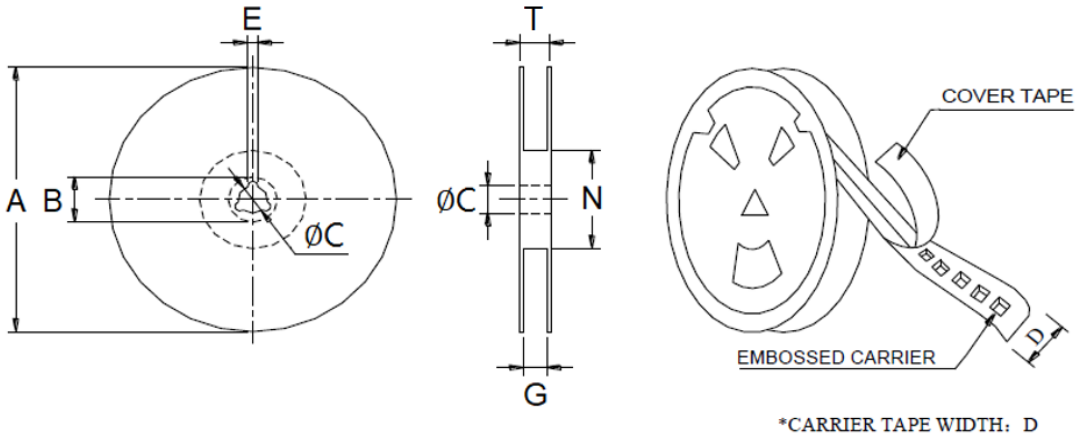
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

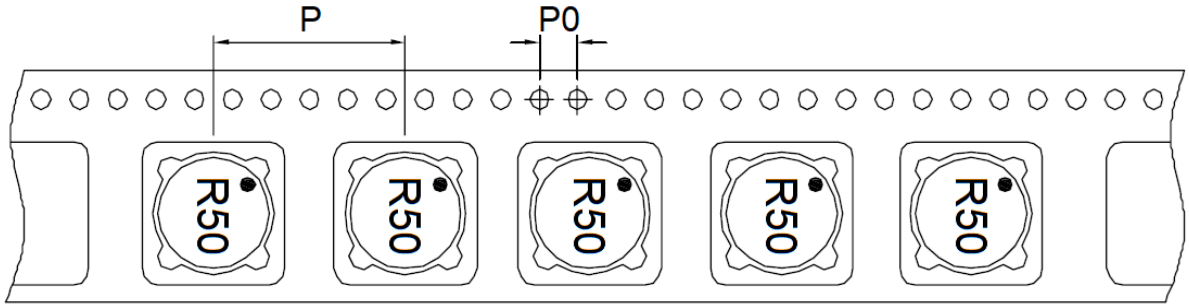
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



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

9-2. Tape Dimension (Unit: mm)



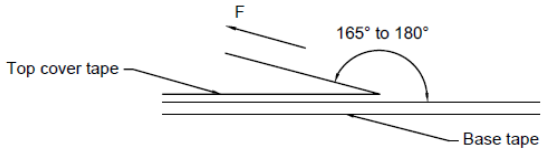
P	P0
20	4

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

9-3. Packaging Quantity (Unit: Pcs)

Inner: Reel			Outer: Carton		
Qty (pcs)	G.W (gw)	Style	Qty (pcs)	G.W (kg)	Size (cm)
400	2,100	13-24	1,600	11.9	38 x 36.5 x21

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.