

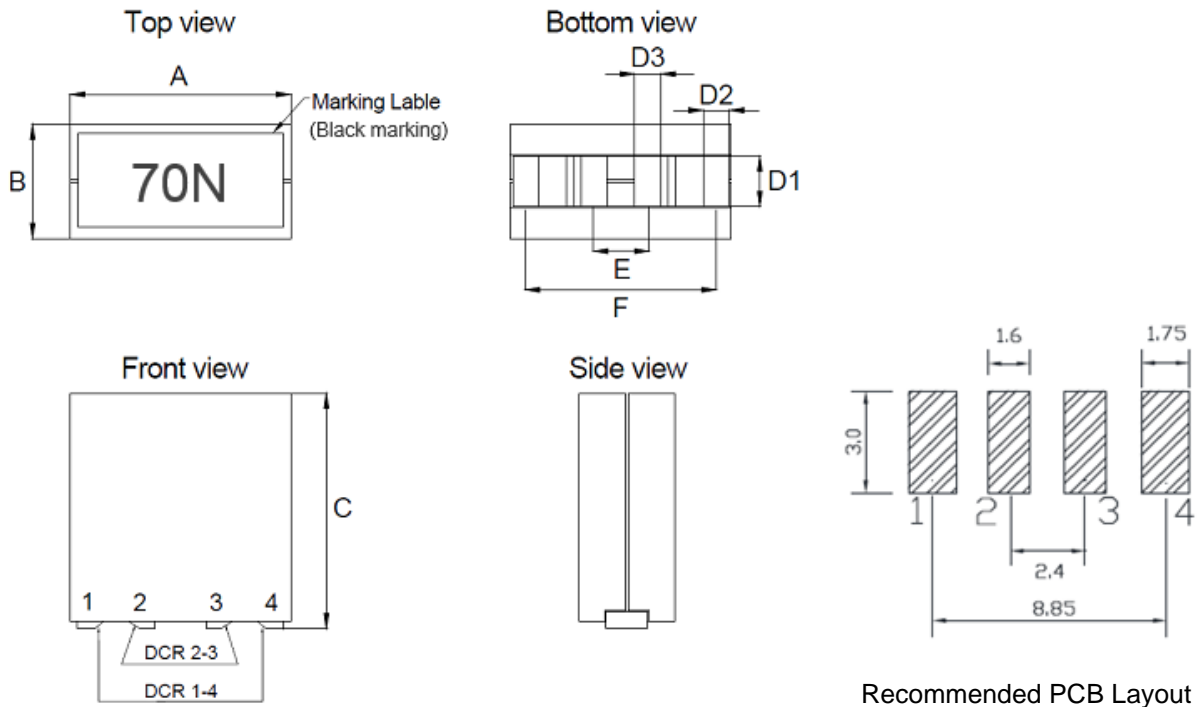
## 1. Part No. Expression

**S M F 1 0 0 5 1 2 R 0 7 K 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)

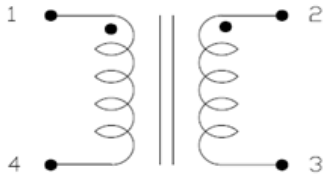


Note: 1. Marking: Inductance (Please refer to Electrical Characteristics table)

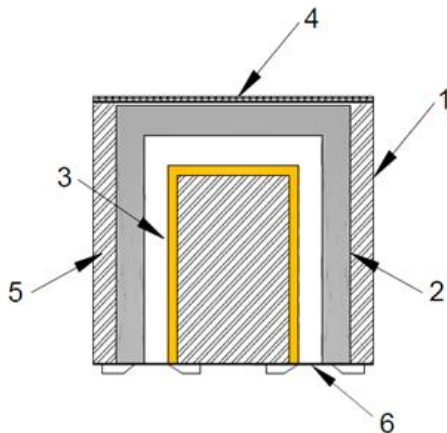
A	B	C	D1	D2	D3	E	F
10.00 Max	5.00 Max	12.00 Max	2.30 Typ	1.10 Typ	0.86 Typ	1.96 Typ	8.60 Typ

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

## 3. Schematic



## 4. Material List



- (1) Core
- (2) Clip
- (3) Wire
- (4) Tape
- (5) Glue
- (6) Coating

## 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 ( $I_{rms}$ ) will cause the coil temperature rise approximately  $\Delta T$  of 40°C.
- (e) Saturation Current ( $I_{sat 1}$ ) will cause inductance  $L_0$  to drop approximately 20% at +25°C.
- (f) Saturation Current ( $I_{sat 2}$ ) will cause inductance  $L_0$  to drop approximately 20% at +100°C.
- (g) Saturation Current ( $I_{sat 3}$ ) will cause inductance  $L_0$  to drop approximately 20% at +125°C.
- (h) Rated Current: The lower value of  $I_{sat}$  and  $I_{rms}$ .
- (i) Maximum Operating Voltage: 80V
- (j) Storage Condition (Component in its packaging)
  - i) Temperature: Less than 40°C
  - ii) Humidity: Less than 60% RH

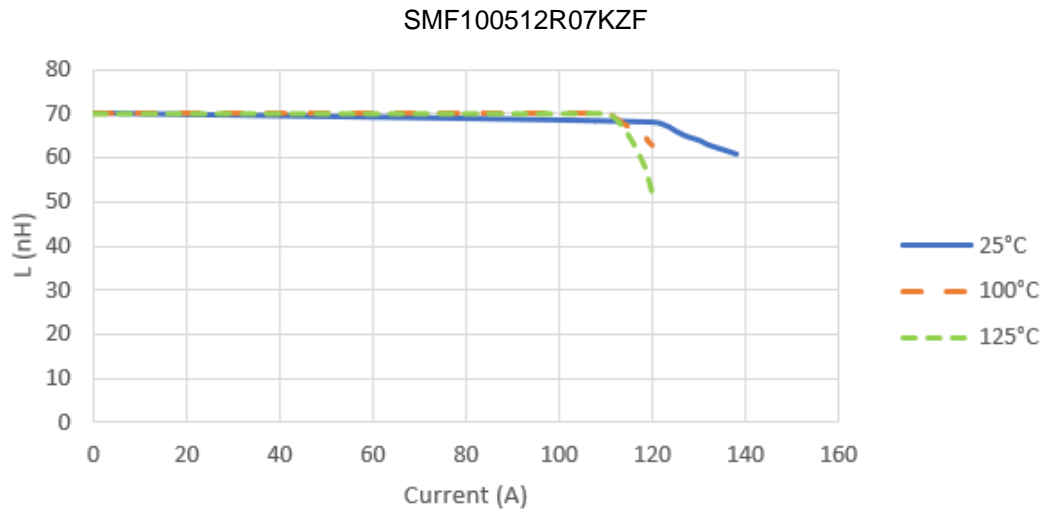
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## 6. Electrical Characteristics

Part Number	Inductance (nH) @0A 1-4/2-3 ±10%	Inductance (nH) @Isat1 1-4 Min	DCR (mΩ) ±10%		Isat 1 (A)	Isat 2 (A)	Isat 3 (A)	I <sub>rms</sub> (A)		Leakage Inductance (nH) Typ	Coupling Coefficient Typ	Marking
			1-4	2-3				1-4	2-3			
SMF100512R07KZF	70	50	0.125	0.450	127	110	100	75	35	9	0.93	70N
SMF100512R08KZF	80	57	0.125	0.450	111	96	87	75	35	9	0.94	80N
SMF100512R09KZF	90	64	0.125	0.450	98	85	77	75	35	9	0.95	90N
SMF100512R10KZF	100	72	0.125	0.450	89	77	70	75	35	9	0.95	R10
SMF100512R12KZF	120	86	0.125	0.450	74	64	58	75	35	9	0.96	R12
SMF100512R15KZF	150	108	0.125	0.450	59	51	46	75	35	9	0.96	R15
SMF100512R17KZF	170	122	0.125	0.450	52	45	41	75	35	9	0.97	R17

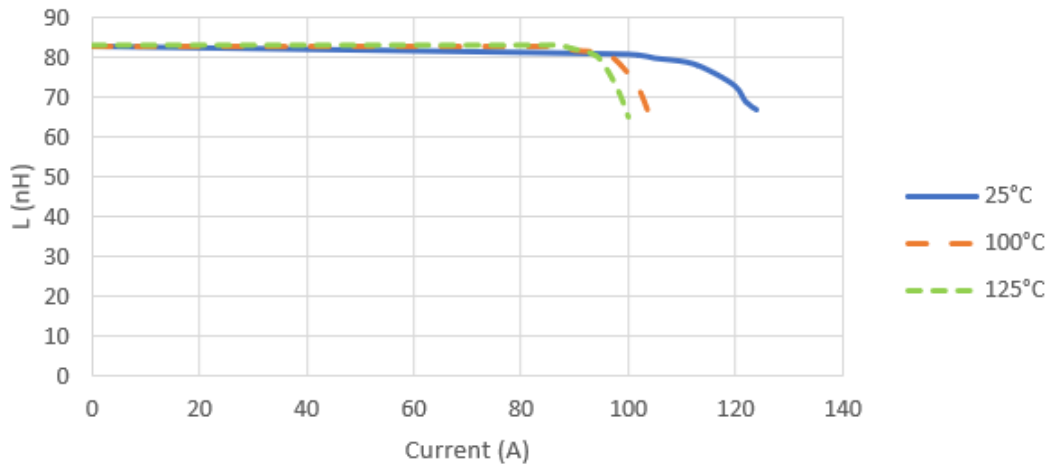
Test Frequency: 1.0V/100kHz

## 7. Characteristics Curve

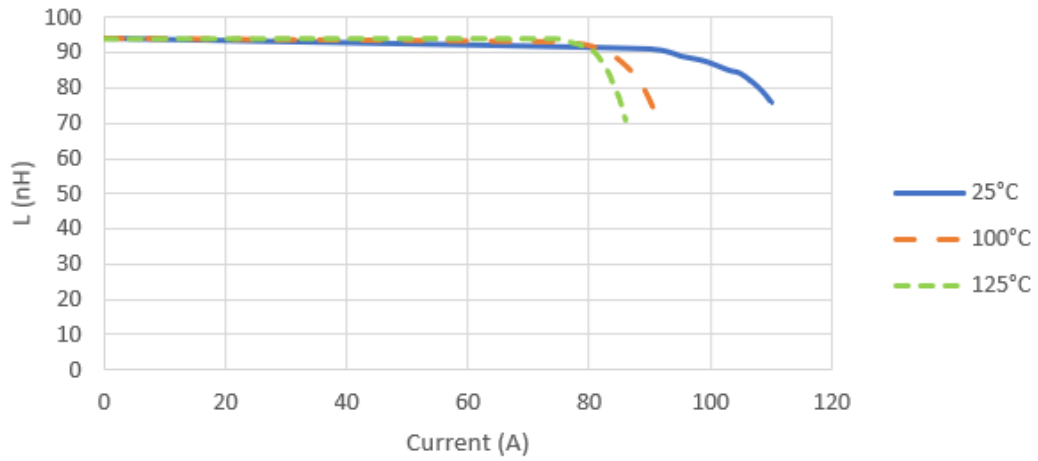


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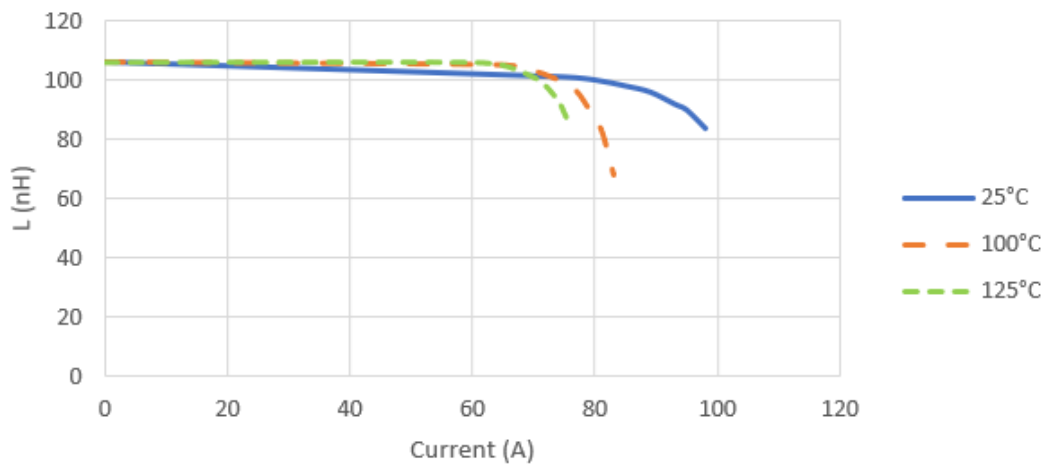
SMF100512R08KZF



SMF100512R09KZF

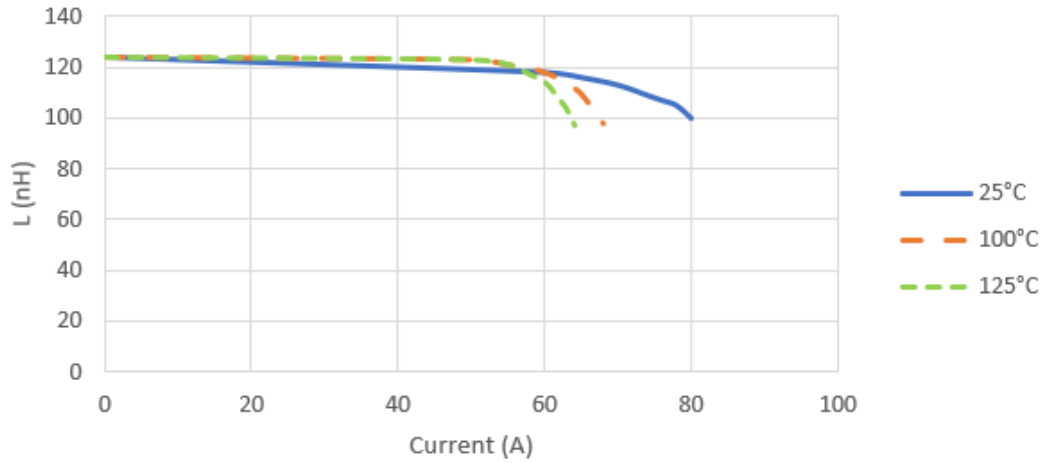


SMF100512R10KZF

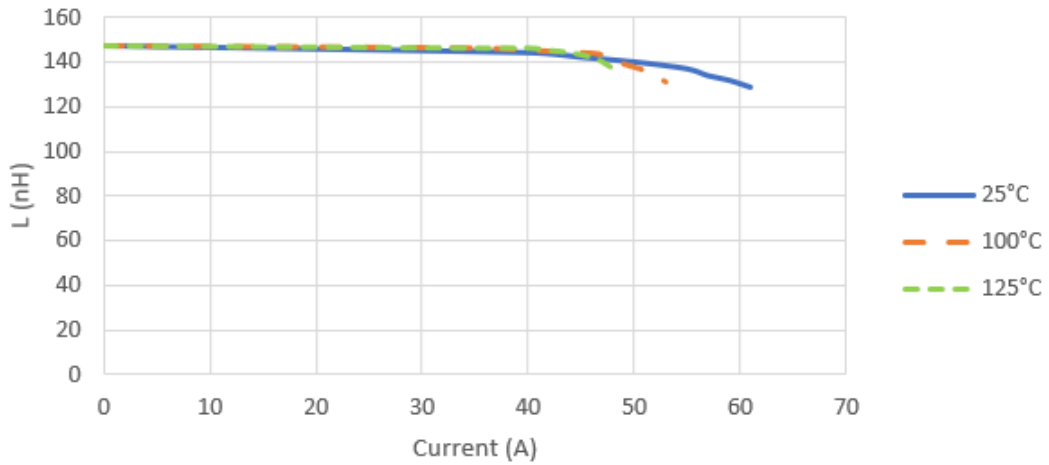


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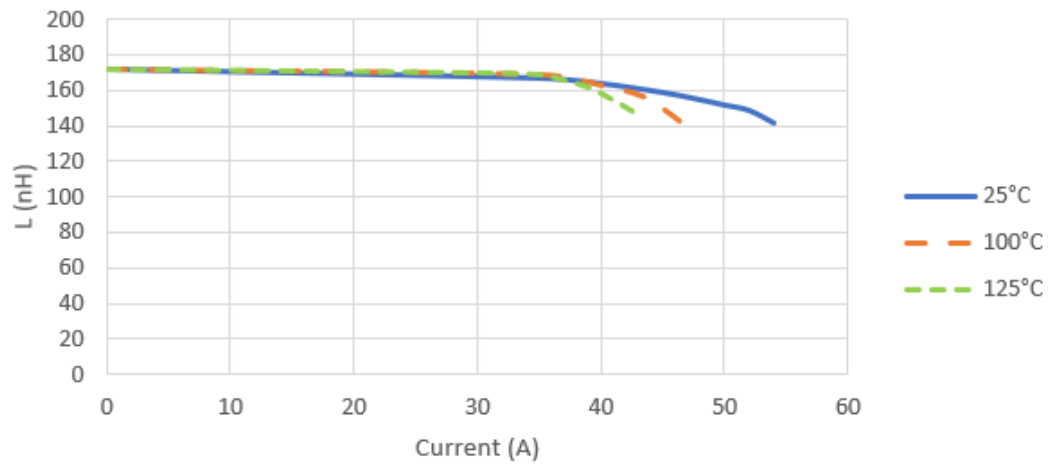
SMF100512R12KZF



SMF100512R15KZF



SMF100512R17KZF



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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

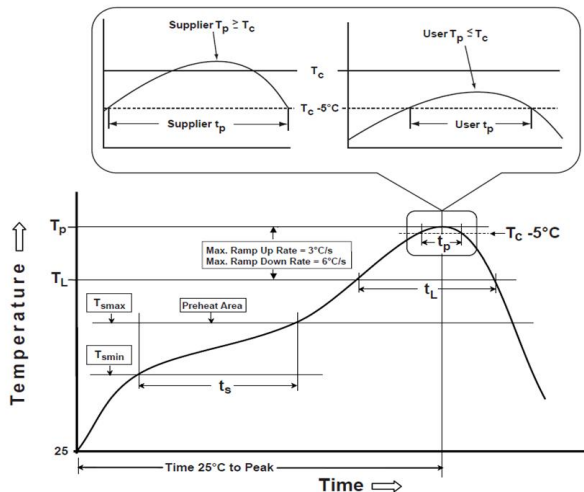
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

#### 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).

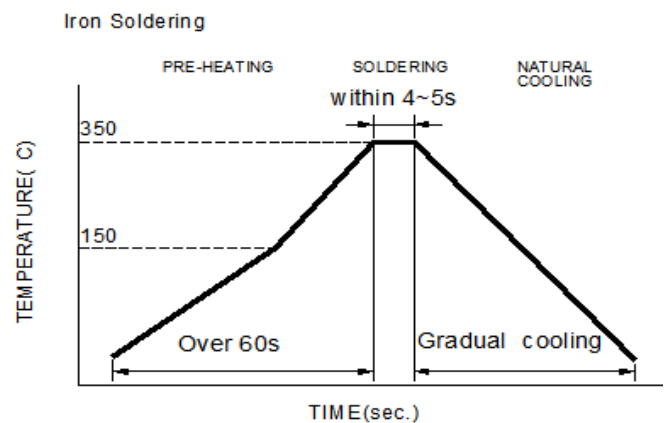
Note:

- (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

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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>**.

\*Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

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

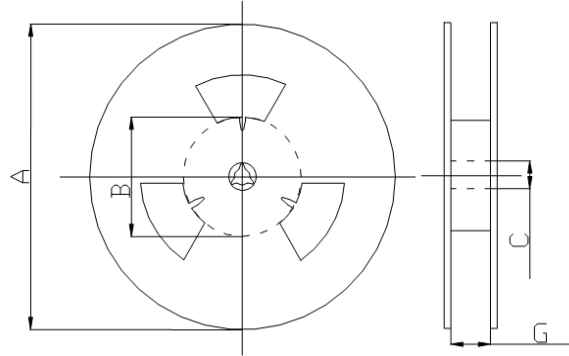
	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E.

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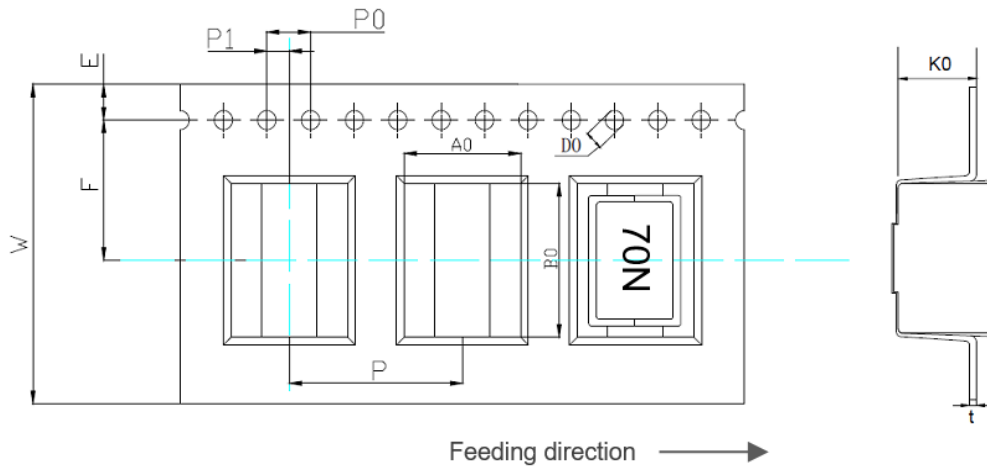
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
13" x 24mm	330.0	100.0	13.5	24.5

9-2. Tape Dimension (Unit: mm)



B0	A0	K0	P	P0	P1
10.20±0.10	5.20±0.10	12.20±0.10	16.00±0.10	4.00±0.10	2.00±0.10
W	F	E	D0	t	-
24.00±0.30	11.50±0.10	1.75±0.10	1.50±0.10	0.40±0.05	-

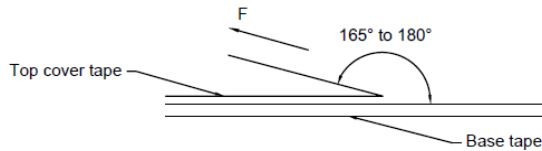
NOTE: Specifications subject to change without notice. Please check our website for latest information.



### 9-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	300
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### 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.

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