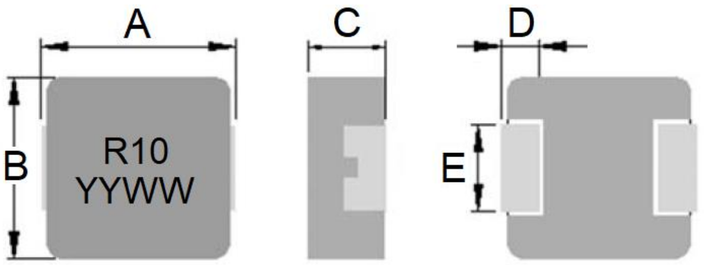
1. Part No. Expression

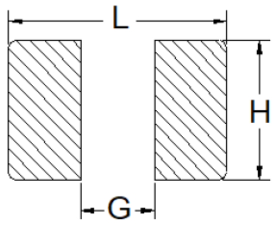
PIC 0512 HP R10 Y F

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

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

2. Configuration & Dimensions (Unit: mm)



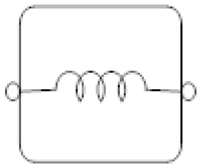


Recommended PCB Layout

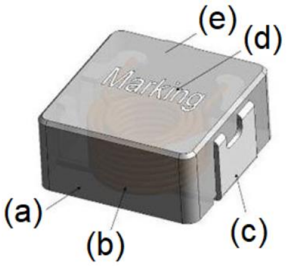
Note: 1. The above PCB layout reference only.
2. Recommend solder paste thickness at 0.12 mm and above.
3. Marking: Top= Inductance Code, Bottom=YYWW (Year/World week), Black

A	B	C	D	E	L	G	H
5.7±0.3	5.2±0.2	1.0±0.2	1.1±0.3	2.5±0.3	6.2 Ref	2.2 Ref	2.8 Ref

3. Schematic



4. Material List



NO	Items
(a)	Core
(b)	Wire
(c)	Clip
(d)	Ink
(e)	Paint

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 approximately ΔT of 40°C.
(e) Saturation Current (Isat) will cause inductance L0 to drop approximately 30%.
(f) Rated DC Current: The lower value of Irms and Isat.
(g) Part Temperature (Ambient + Temp. Rise): Should not exceed 125°C under worst case operating conditions.
(h) Maximum Operating Voltage: 50V
(i) Storage Condition (Component in its packaging)
  i) Temperature: Less than 40°C
  ii) Humidity: Less than 60% RH

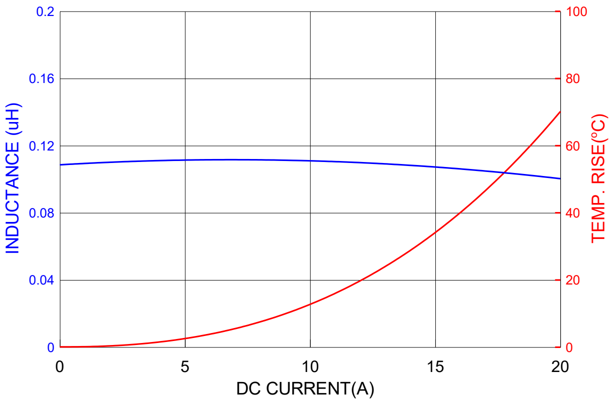
6. Electrical Characteristics

Part Number	Inductance (μH) @0A	Test Frequency	Irms (A) Typ	Isat (A) Typ	DCR (mΩ)	
					Typ	Max
PIC0512HPR10YF	0.10	1.0V/100KHz	14.0	14.5	4.3	5.2
PIC0512HPR22YF	0.22	1.0V/100KHz	10.7	14.0	5.5	6.7
PIC0512HPR33MF	0.33	1.0V/100KHz	8.5	13.5	7.8	9.4
PIC0512HPR36MF	0.36	1.0V/100KHz	8.0	13.0	10.0	11.5
PIC0512HPR47MF	0.47	1.0V/100KHz	7.0	11.0	13.6	15.8
PIC0512HPR68MF	0.68	1.0V/100KHz	6.0	9.0	21.5	24.5
PIC0512HP1R0MF	1.00	1.0V/100KHz	5.0	6.0	26.0	30.0
PIC0512HP1R2MF	1.20	1.0V/100KHz	4.5	5.5	33.0	40.0
PIC0512HP1R5MF	1.50	1.0V/100KHz	4.0	5.0	38.0	44.0
PIC0512HP2R2MF	2.20	1.0V/100KHz	3.5	4.0	65.0	75.0
PIC0512HP3R3MF	3.30	1.0V/100KHz	3.0	3.8	75.0	86.0
PIC0512HP4R7MF	4.70	1.0V/100KHz	2.5	3.2	100	115
PIC0512HP5R6MF	5.60	1.0V/100KHz	2.4	3.2	175	201
PIC0512HP6R8MF	6.80	1.0V/100KHz	2.0	3.0	193	222
PIC0512HP8R2MF	8.20	1.0V/100KHz	1.7	2.8	327	378
PIC0512HP100MF	10.0	1.0V/100KHz	1.5	1.8	335	385

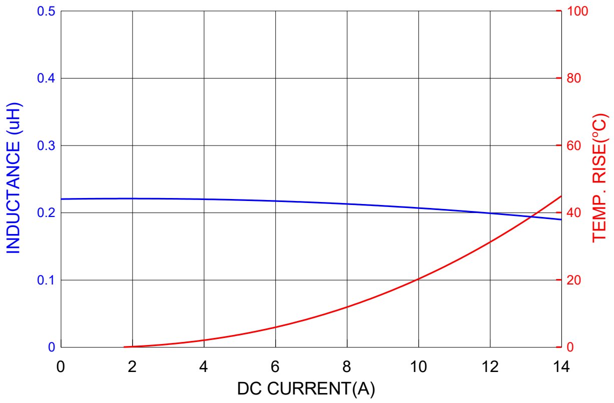
Tolerance Code: M =±20%, Y =±30%

7. Characteristics Curve

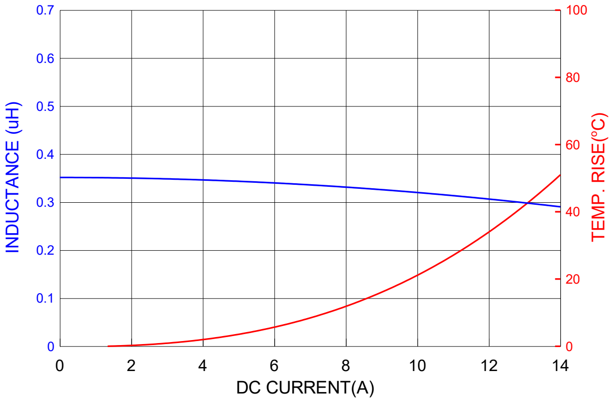
PIC0512HPR10YF



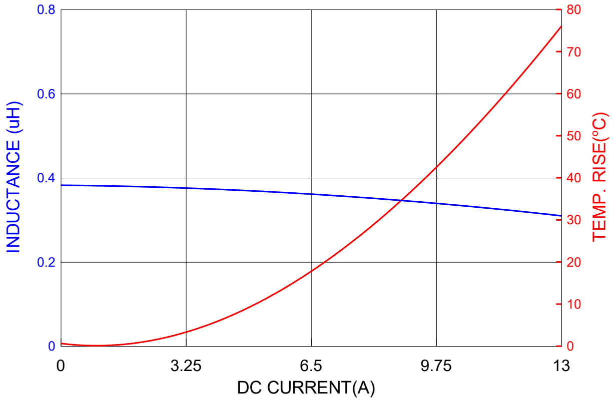
PIC0512HPR22YF



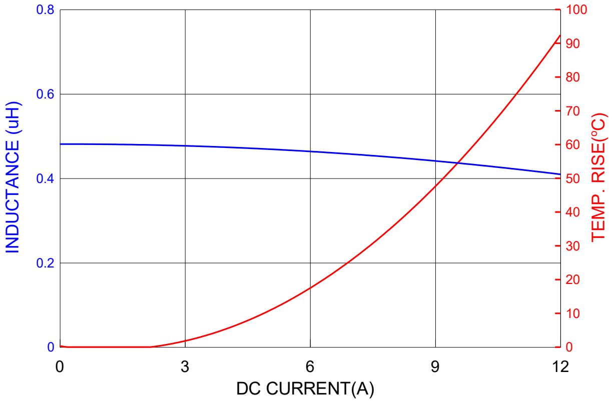
PIC0512HPR33MF



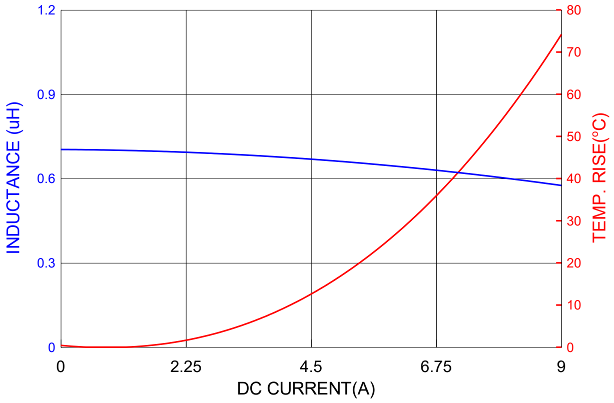
PIC0512HPR36MF



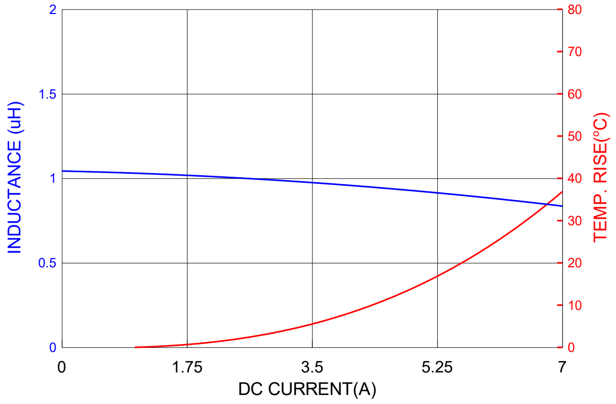
PIC0512HPR47MF



PIC0512HPR68MF



PIC0512HP1R0MF



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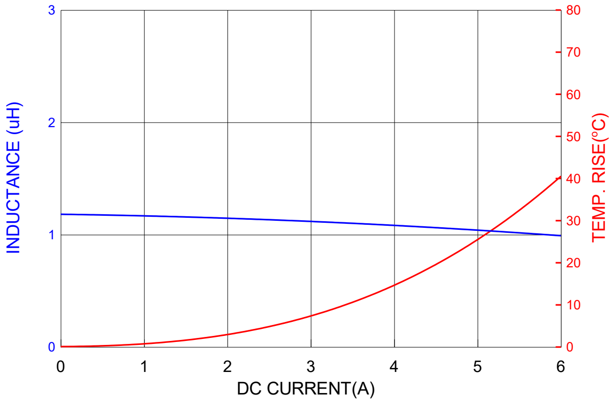

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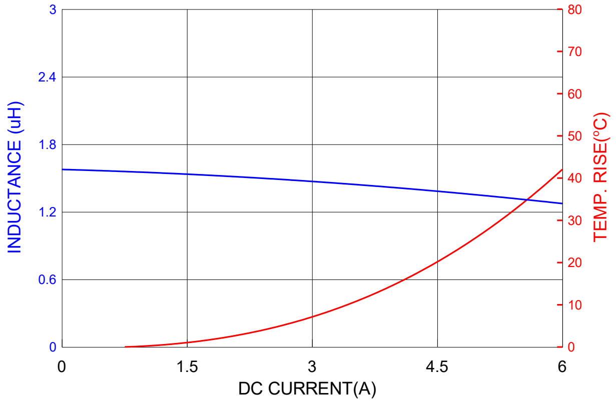

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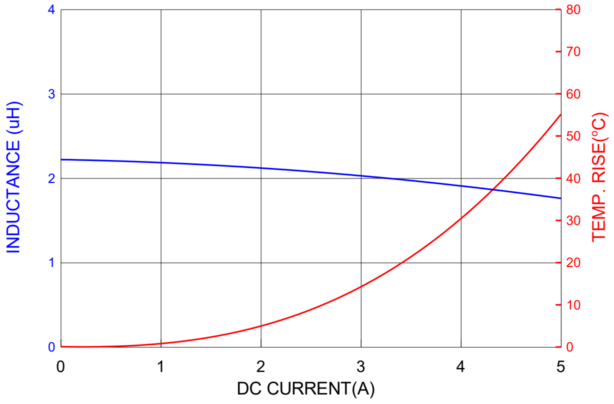
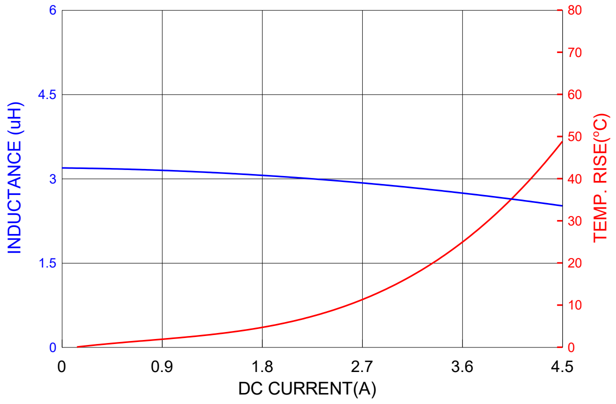
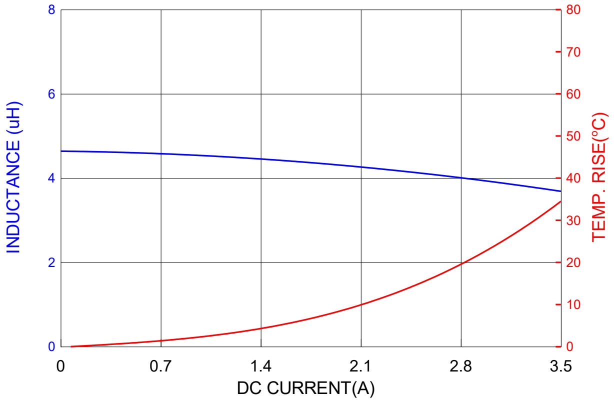
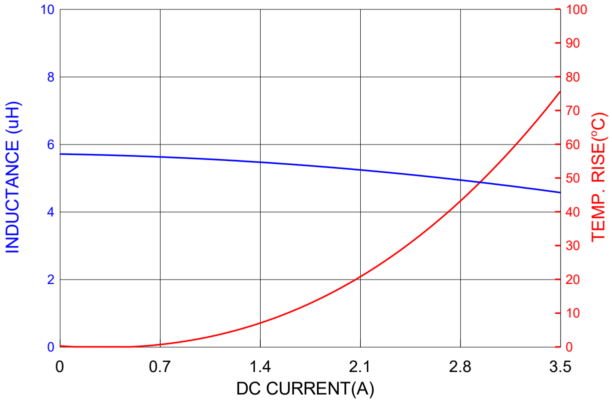


PIC0512HP3R3MF



PIC0512HP4R7MF

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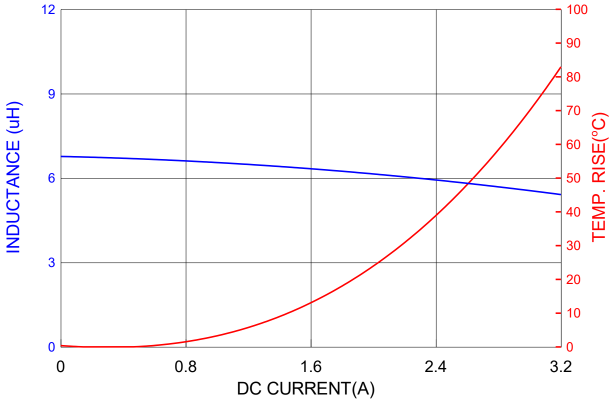
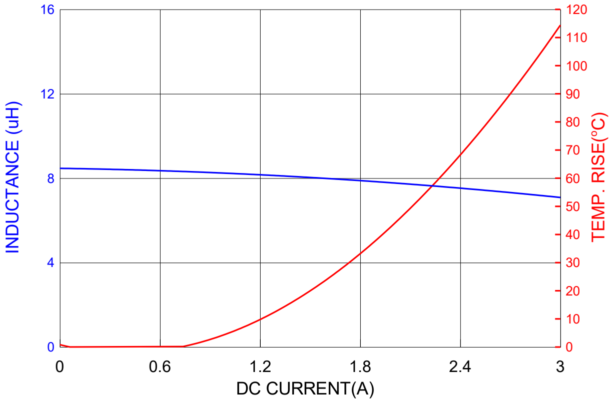
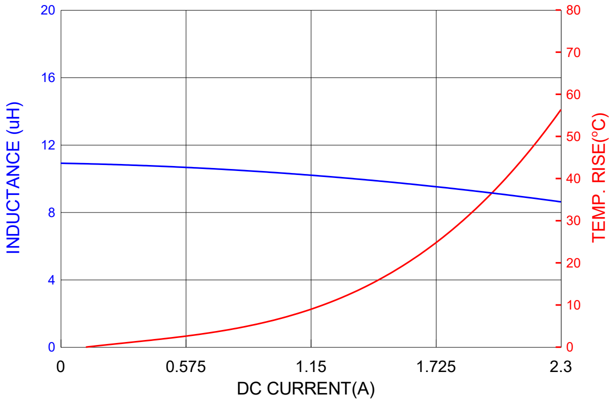

PIC0512HP6R8MF


PIC0512HP8R2MF


PIC0512HP100MF

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

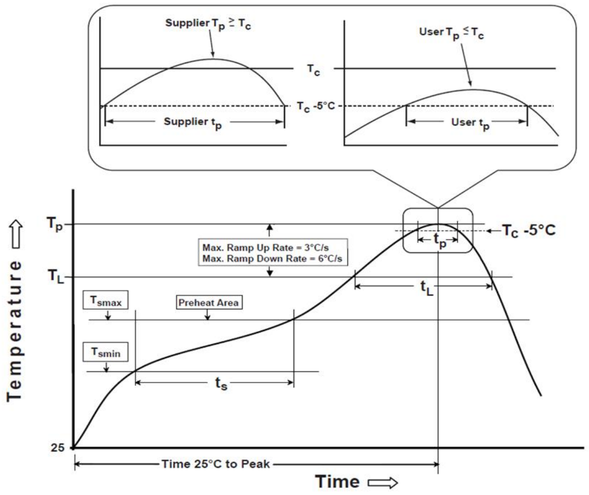
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

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).

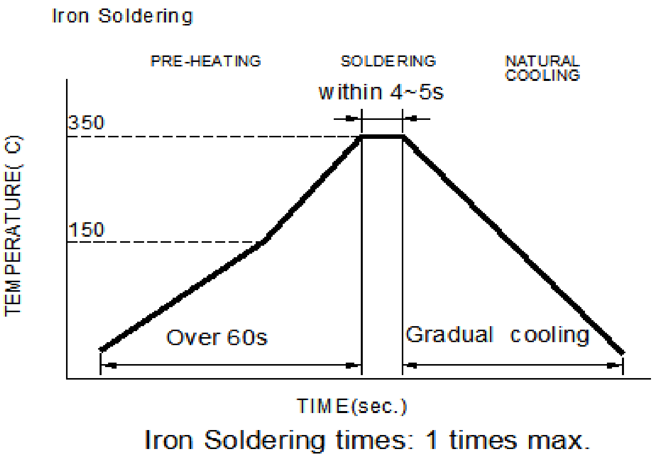
Note:

(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

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.

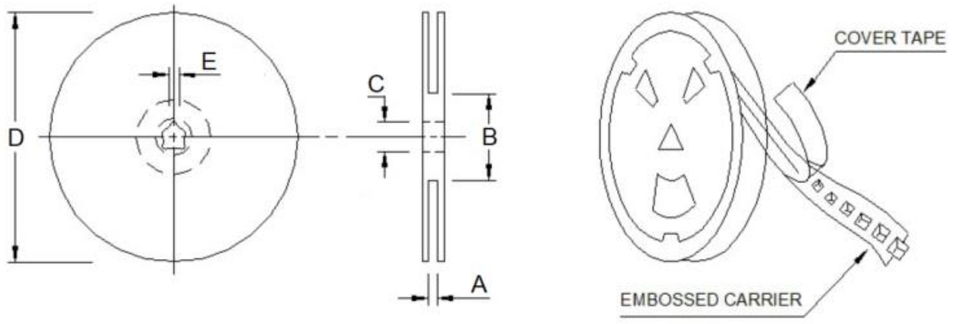
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

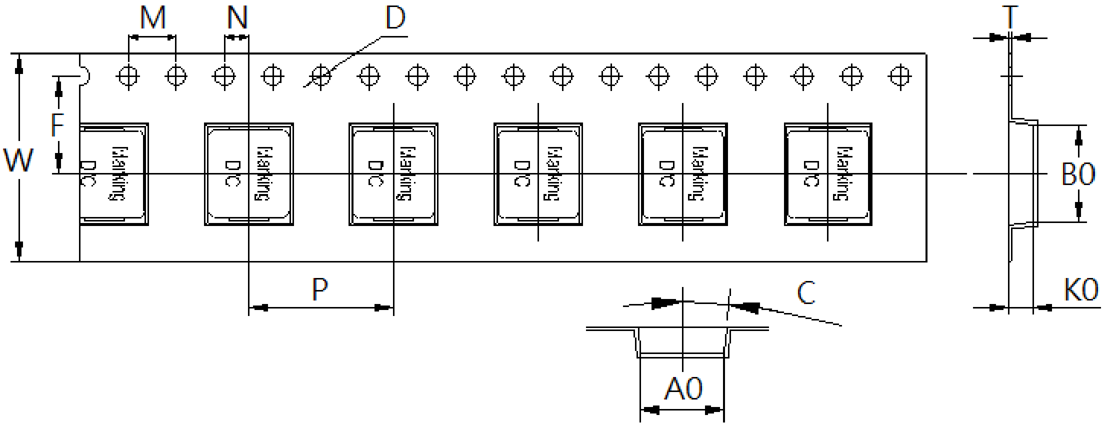
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	E
13”x12mm	12.4+2.0/-0.0	100.0±2.0	13.0+0.5/-0.2	330.0	2.0±0.5

9-2. Tape Dimension (Unit: mm)

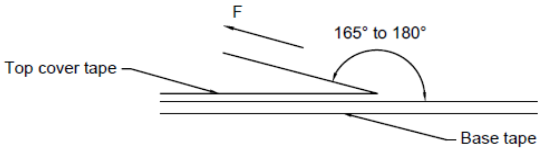


B0	A0	K0	P	W	F
6.20±0.10	5.50±0.10	1.50±0.10	8.00±0.10	12.00±0.30	5.50±0.10
T	D	M	N	C	-
0.35±0.05	1.50±0.10	4.00	2.00	3°	-

9-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	4,000
Inner box	8,000
Carton	32,000

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.