

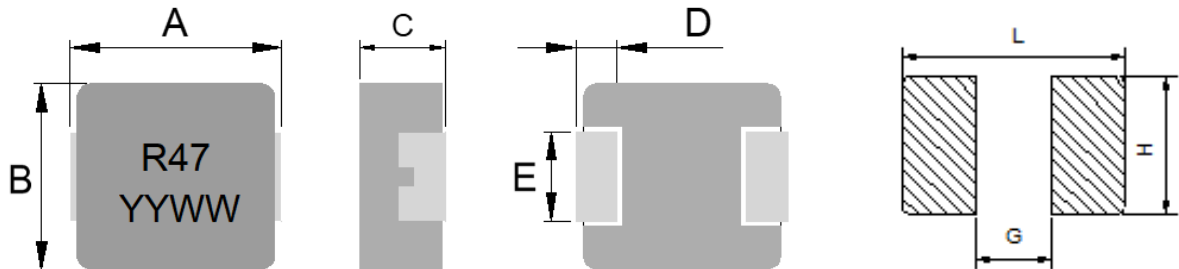
## 1. Part No. Expression

**PIC1206HPR47MF**

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

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

## 2. Configuration & Dimensions (Unit: mm)



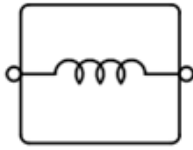
Recommended PCB Layout

- Note:
1. The above PCB layout reference only.
  2. Recommend solder paste thickness at 0.15 mm and above.
  3. Marking: Top= Inductance Code, Bottom=YYWW (Year/World week), Black

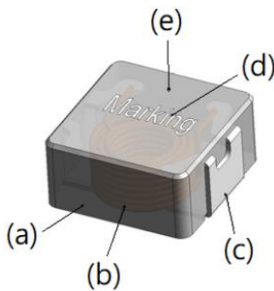
A	B	C	D	E	G	H	L
13.5±0.5	12.5±0.3	5.7±0.3	2.3±0.3	4.7±0.3	8.0 Ref	5.0 Ref	14.2 Ref

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

## 3. Schematic



## 4. Material List



- (a) Core
- (b) Wire
- (c) Clip
- (d) Paint
- (e) Ink

## 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<sub>rms</sub>) will cause the coil temperature rise approximately  $\Delta T$  of 40°C.
- (e) Saturation Current (I<sub>sat</sub>) will cause inductance L<sub>0</sub> to drop approximately 30%.
- (f) Part Temperature (Ambient + Temp. Rise): Should not exceed 125°C under worst case operating conditions.
- (g) Maximum Operating Voltage: 80V
- (h) Storage Condition (Component in its packaging)
  - i) Temperature: Less than 40°C
  - ii) Humidity: Less than 60% RH

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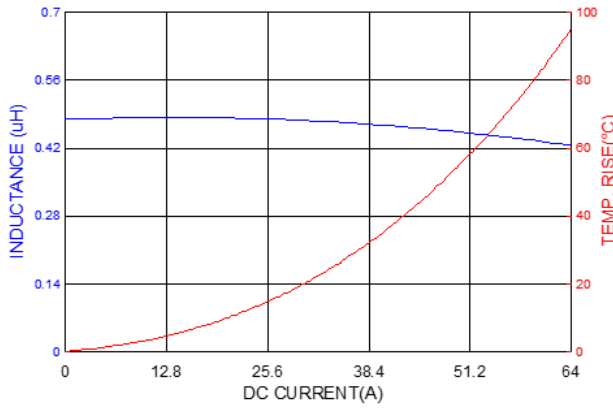
## 6. Electrical Characteristics

Part Number	Inductance ( $\mu\text{H}$ ) @0A $\pm 20\%$	Test Frequency	I <sub>rms</sub> (A) Typ	I <sub>sat1</sub> (A) Typ	I <sub>sat2</sub> (A) Typ	DCR (m $\Omega$ )	
						Typ	Max
PIC1206HPR47MF	0.47	1.0V/100KHz	38	60	64	0.92	1.3
PIC1206HPR56MF	0.56	1.0V/100KHz	35	56	60	1.15	1.5
PIC1206HPR68MF	0.68	1.0V/100KHz	33	53	57	1.33	1.7
PIC1206HP1R0MF	1.00	1.0V/100KHz	29	45	53	1.8	2.4
PIC1206HP1R2MF	1.20	1.0V/100KHz	28	44	51	2.1	2.8
PIC1206HP1R5MF	1.50	1.0V/100KHz	26	43	50	2.7	3.2
PIC1206HP2R2MF	2.20	1.0V/100KHz	21	34	43	4.0	4.7
PIC1206HP2R7MF	2.70	1.0V/100KHz	19	31	40	4.6	5.4
PIC1206HP3R3MF	3.30	1.0V/100KHz	17	28	35	5.8	7.1
PIC1206HP4R7MF	4.70	1.0V/100KHz	16	25	30	9.5	11.5
PIC1206HP5R6MF	5.60	1.0V/100KHz	15.5	22	28	10.8	12.6
PIC1206HP6R8MF	6.80	1.0V/100KHz	15	19	25	12	13.8
PIC1206HP8R2MF	8.20	1.0V/100KHz	11	17	23	13.6	16
PIC1206HP100MF	10.0	1.0V/100KHz	11	15.5	21	18	20.7
PIC1206HP120MF	12.0	1.0V/100KHz	9.5	13.5	18	20	23
PIC1206HP150MF	15.0	1.0V/100KHz	9.0	13	16	25	29
PIC1206HP180MF	18.0	1.0V/100KHz	8.5	12	15	30	35
PIC1206HP220MF	22.0	1.0V/100KHz	8.0	11	14	34	39.5
PIC1206HP270MF	27.0	1.0V/100KHz	7.0	9.0	13	49	56
PIC1206HP330MF	33.0	1.0V/100KHz	6.0	8.0	12.0	65	75
PIC1206HP470MF	47.0	1.0V/100KHz	5.5	7.0	11.0	80	90
PIC1206HP560MF	56.0	1.0V/100KHz	5.3	6.5	10	101	118
PIC1206HP680MF	68.0	1.0V/100KHz	5.0	6.0	9.0	120	140
PIC1206HP820MF	82.0	1.0V/100KHz	4.5	5.5	8.5	138	161
PIC1206HP101MF	100	1.0V/100KHz	4.0	5.0	8.0	180	200
PIC1206HP121MF	120	1.0V/100KHz	3.5	4.5	7.0	210	235
PIC1206HP151MF	150	1.0V/100KHz	3.0	4.0	6.0	300	350

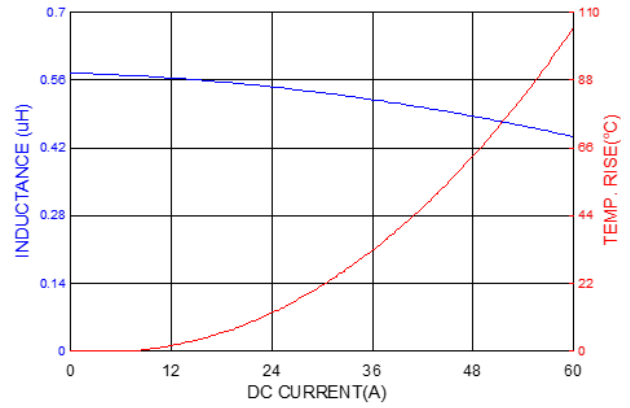
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7. Characteristics Curve

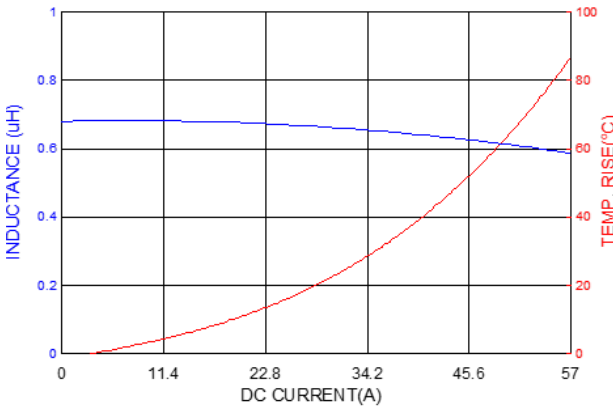
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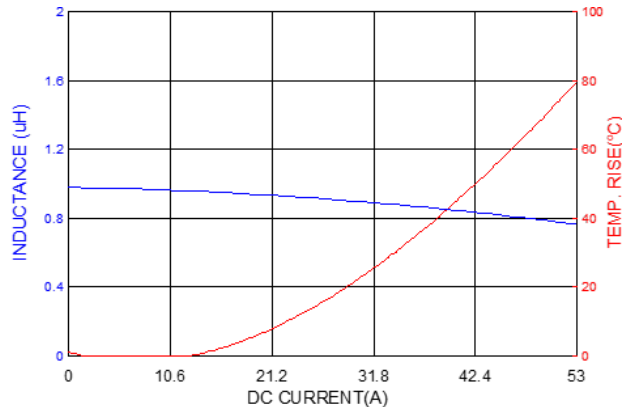
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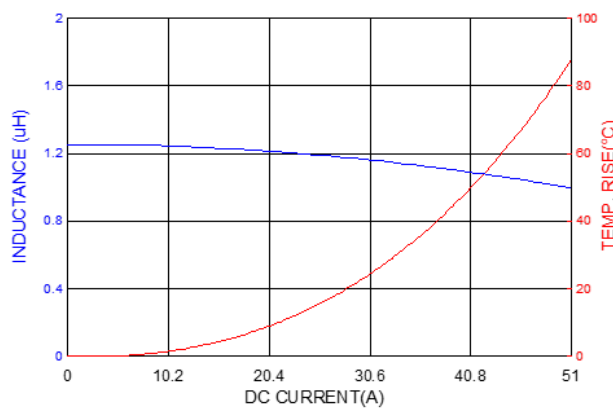
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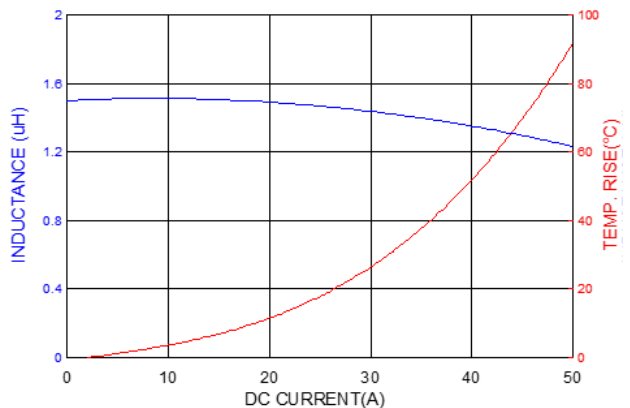
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PIC1206HP1R2MF

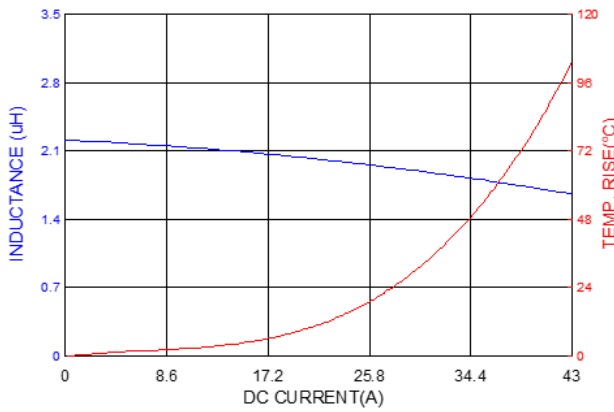


PIC1206HP1R5MF

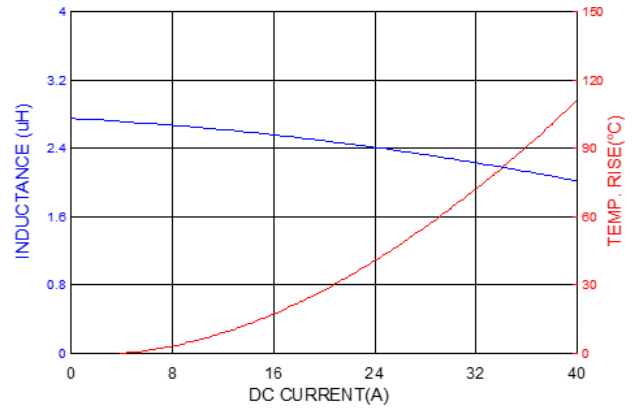


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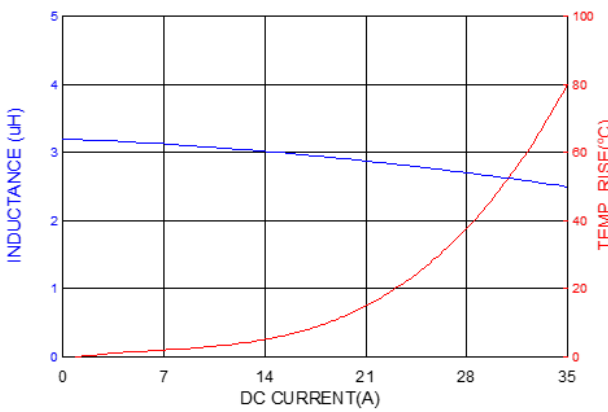
PIC1206HP2R2MF



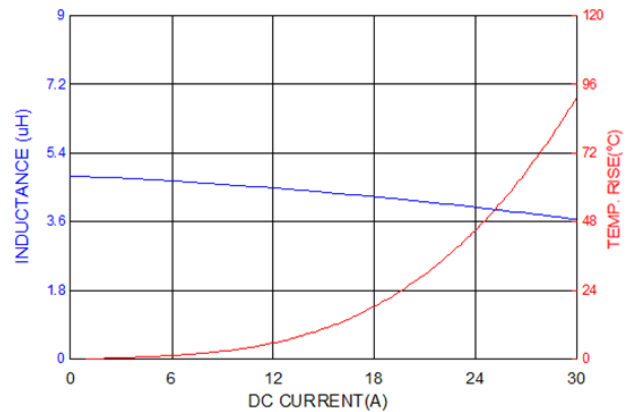
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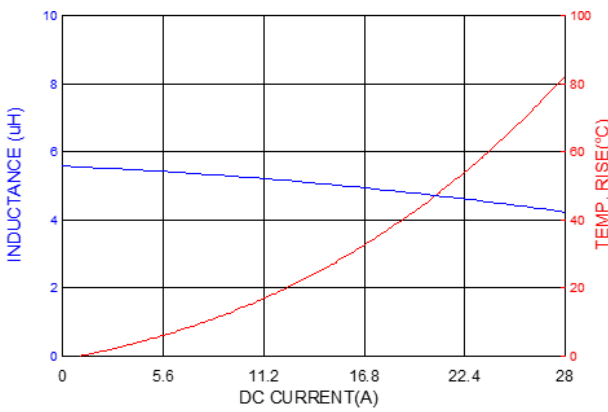
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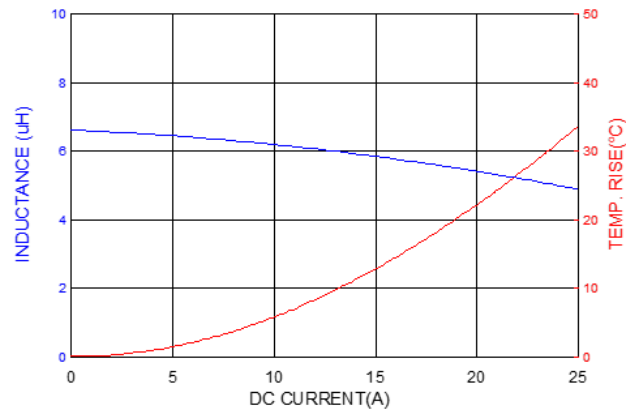
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PIC1206HP5R6MF

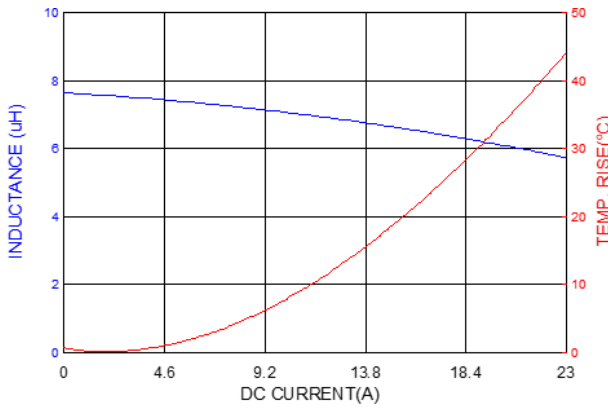


PIC1206HP6R8MF

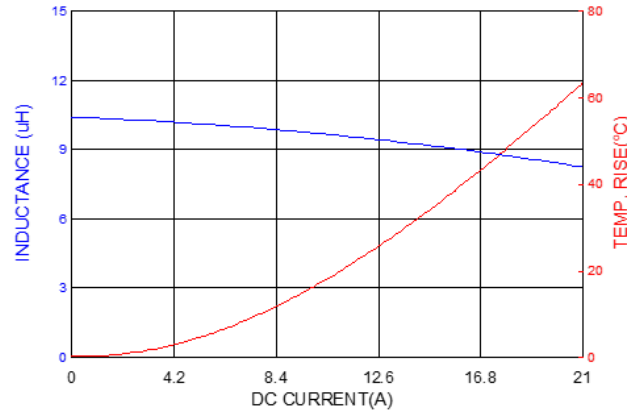


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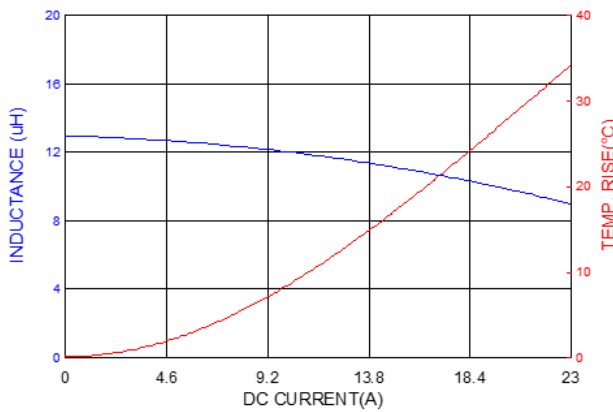
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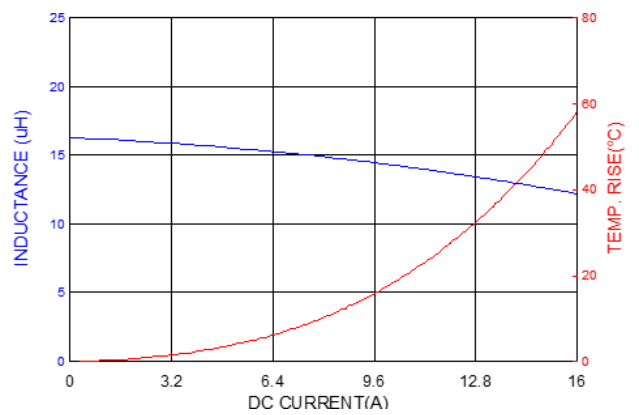
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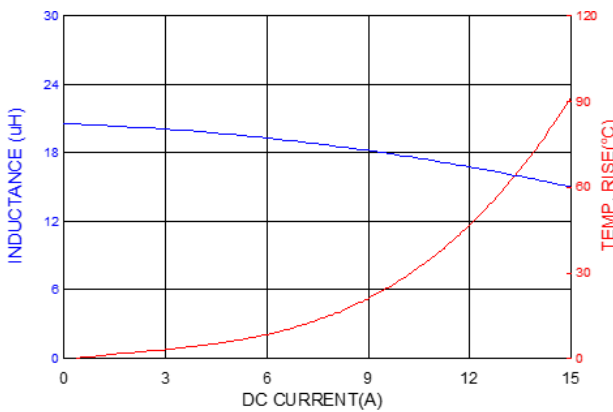
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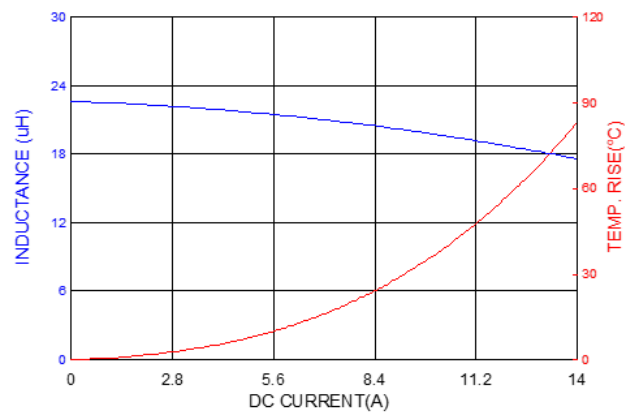
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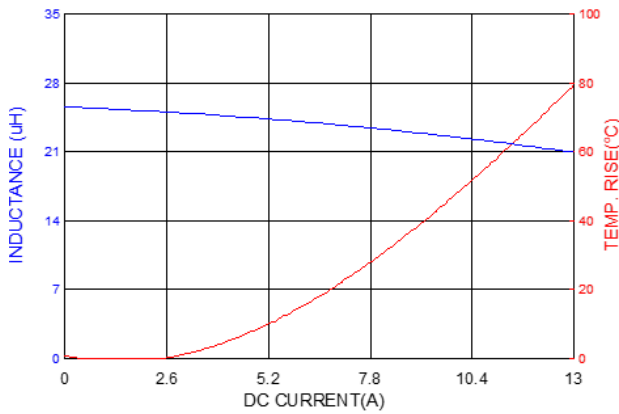


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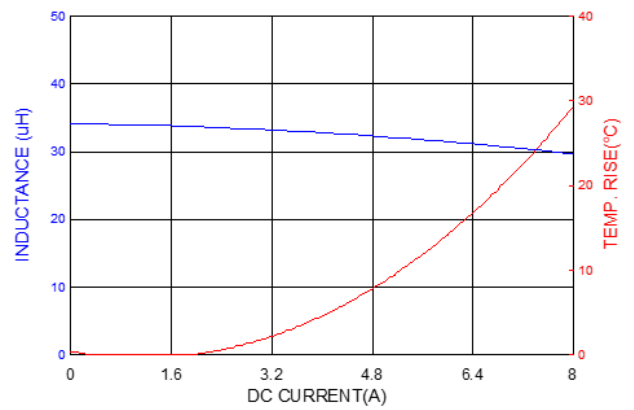


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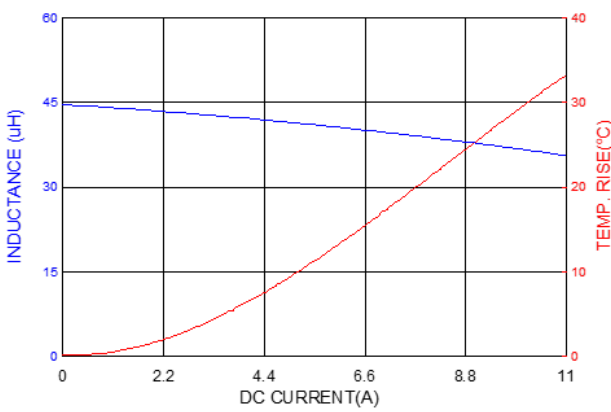
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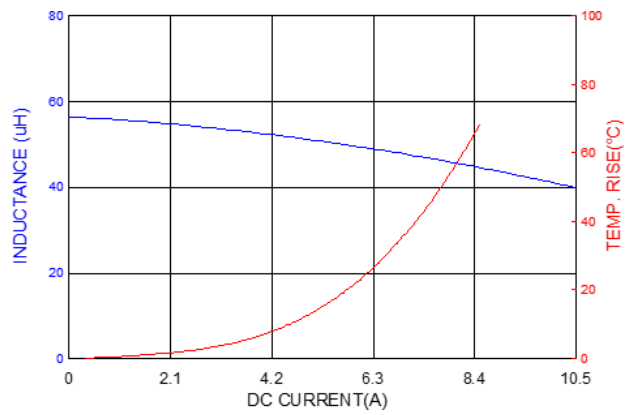
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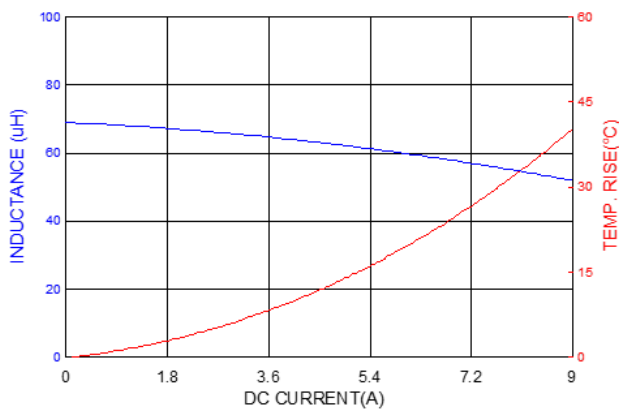
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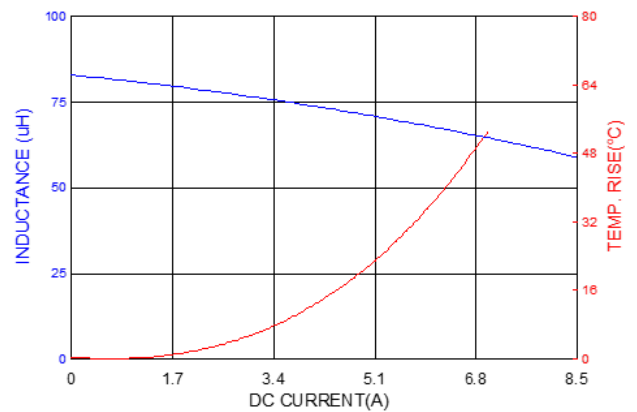
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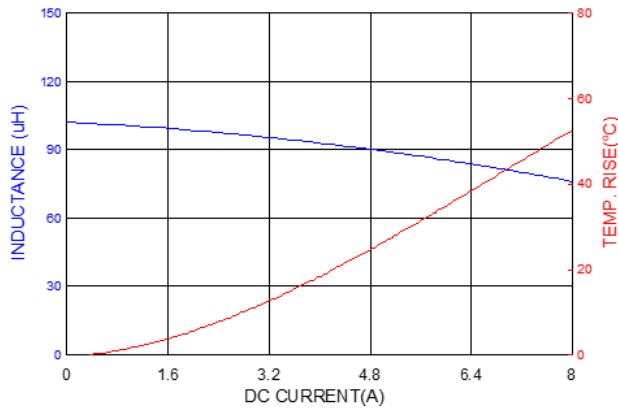


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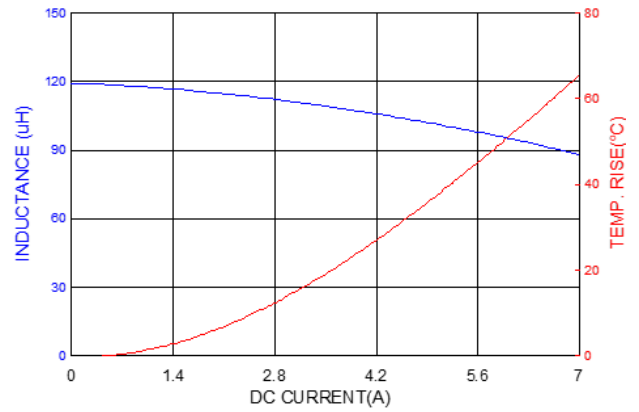


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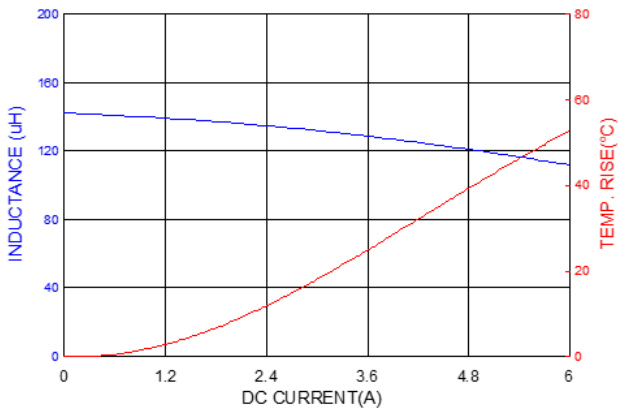
PIC1206HP101MF



PIC1206HP121MF



PIC1206HP151MF



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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

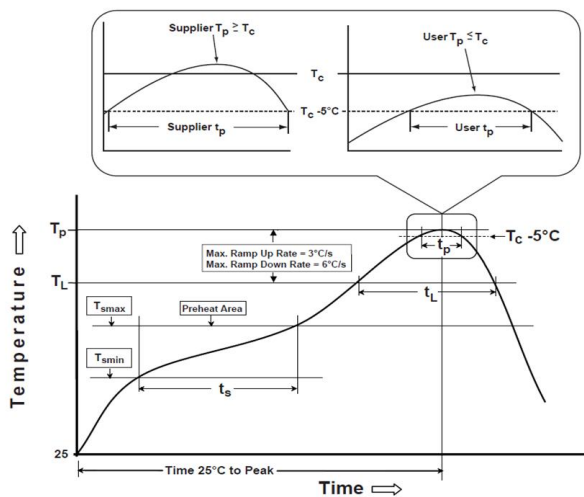
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

#### 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).

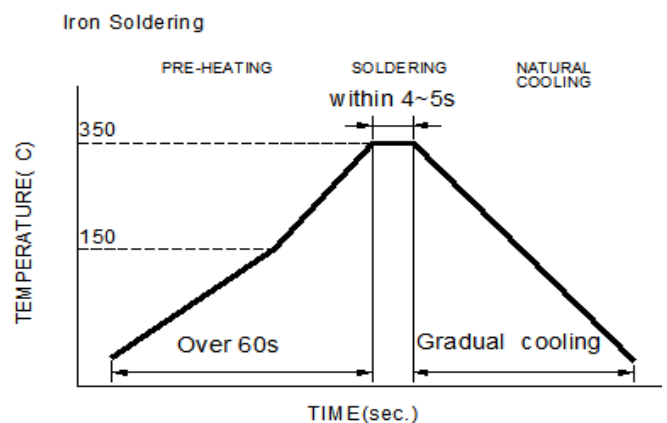
Note:

- (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



Iron Soldering times: 1 times max.

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 ( $T_{smin}$ )	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 ( $T_c$ )**

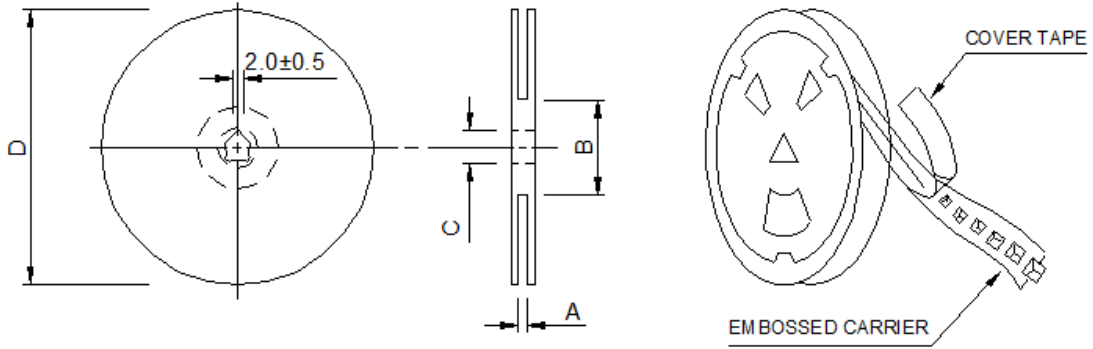
	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

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

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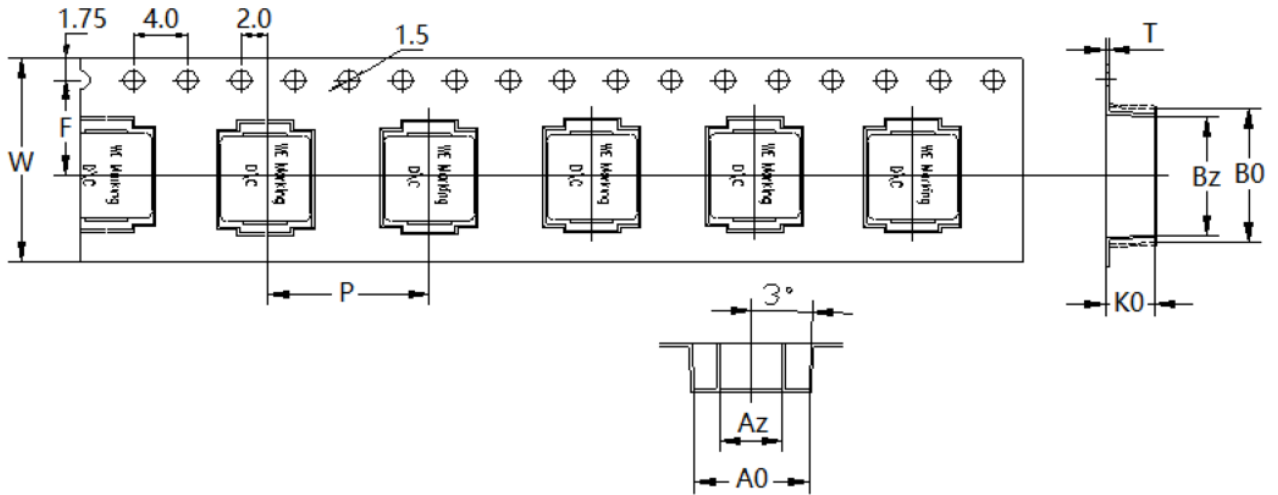
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
13"x24mm	24.4+2.0/-0.0	100.0±2.0	13.0+0.5/-0.2	330.0

9-2. Tape Dimension (Unit: mm)



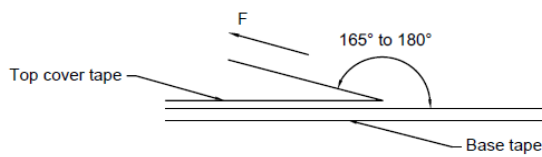
B0	Bz	A0	Az	K0
14.10±0.10	13.00±0.10	12.90±0.10	7.00±0.10	6.50±0.10
P	W	F	t	-
16.00±0.10	24.00±0.30	11.50±0.10	0.35±0.05	-

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

Chip/ Reel	500
Inner box	1,000
Carton	4,000

### 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.

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