



德砚电子

DE YAN DIAN ZI

# 一体成型功率电感

## *Data Sheet*

**RoHS**



**ISO 9001**  
质量管理体系认证



**ISO 14001**  
环境管理体系认证

Shenzhen Deyan Electronics Co., Ltd

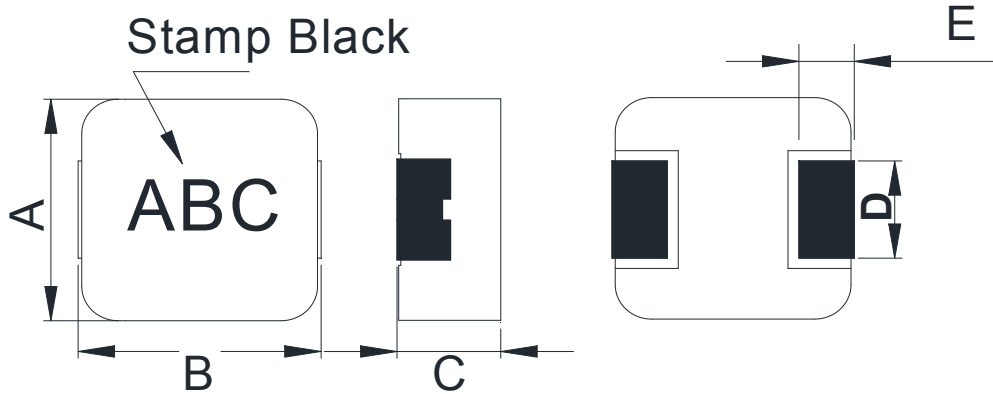
# \*SPECIFICATION\*

			<b>AMENDMENT RECORD</b>			
SYMBOL	DATE	PAGE	CONTENTS	DWN. BY	CHK. BY	APP. BY
				叶枫	李林	谢东

# \*SPECIFICATION\*

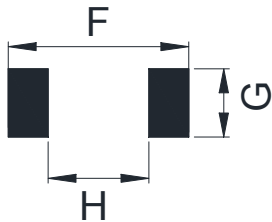
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		D0420HP-4R7MT		2024-06-06	--	01	1/5

## 1. DIMENSIONS (UNIT : mm)



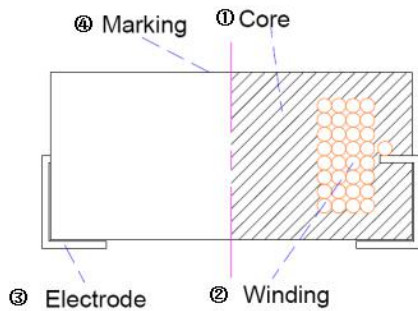
A	B	C	D	E
4.1±0.25	4.6±0.2.	2.0 Max.	1.5±0.30	1.0±0.50

## 2. RECOMMENDED LAND PATTERN (UNIT: mm)



F	5.2 Ref.
G	2.5 Ref.
H	2.2 Ref.

## 3. STRUCTURE



No.	PARTS	MATERIAL
①	CORE	Alloy powder
②	WIRE	Self bonding polyamide-imide enameled Copper Wire
③	ELECTRODE	Cu
④	MARKING	INK

APPROVAL	CHECK	DESIGN	

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## 4.CHARACTERISTICS

No.	P/N.	Inductance (μH)	Stamp	D.C.R. (mΩ) Max.	Saturation Current (A)		Temperature rise current(ΔT≦40°C) (A).	
					Typ	MAX	Typ	MAX
01	D0420HP-4R7MT	4.7±20%	4R7	122	3.5	3.0	2.5	2.2

\* Testing instrument: Inductance HP 4284A or equivalent at 100KHz /1V..

D.C.R : TH2512B or equivalent. (Ta= 25°C)

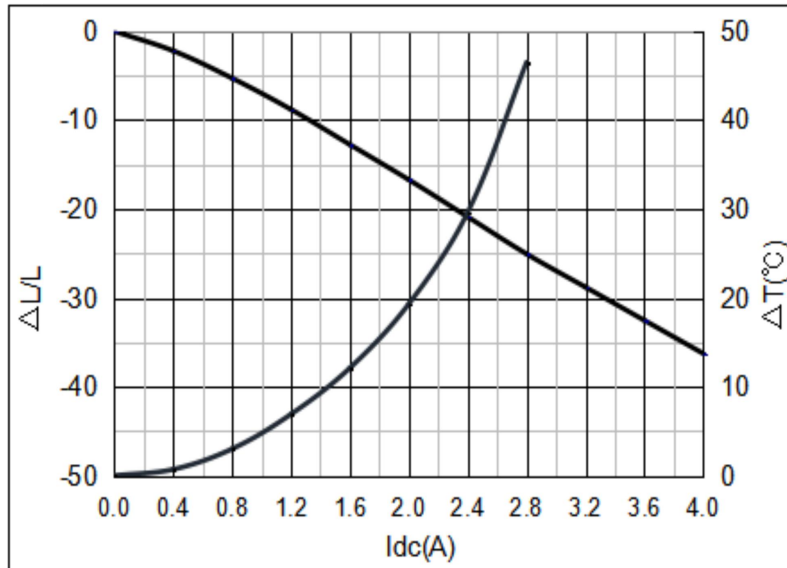
Saturation current: WK 3260B+3265B or equivalent.

\* Saturation Current (Isat) will cause L0 to drop approximately 30% from its value without current. (Ta=25°C)

\* The temperature rise current value is the DC current value having temperature increase up to approximately 40°C(Ta=25°C)

\* Absolute maximum voltage 30VDC

4R7 DC Bias & Temperature Characteristics



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## 5. GENERAL CHARACTERISTICS

\* STANDARD TESTING CONDITIONS:

UNLESS OTHERWISE SPECIFIED, THE STANDARD RANGE OF ATMOSPHERIC CONDITIONS FOR MEASUREMENTS AND TESTS ARE AS FOLLOWS: AMBIENT TEMPERATURE: 15°C~35°C.

RELATIVE HUMIDITY : 25% ~85%. AIR PRESSURE : 86kPa ~106kPa.

IF THERE IS ANY DOUBT ABOUT THE RESULTS, MEASUREMENT SHALL BE MADE WITHIN THE FOLLOWING LIMITS: AMBIENT TEMPERATURE: 20°C±1°C. RELATIVE HUMIDITY: 63% ~67%.

AIR PRESSURE : 86kPa ~106kPa.

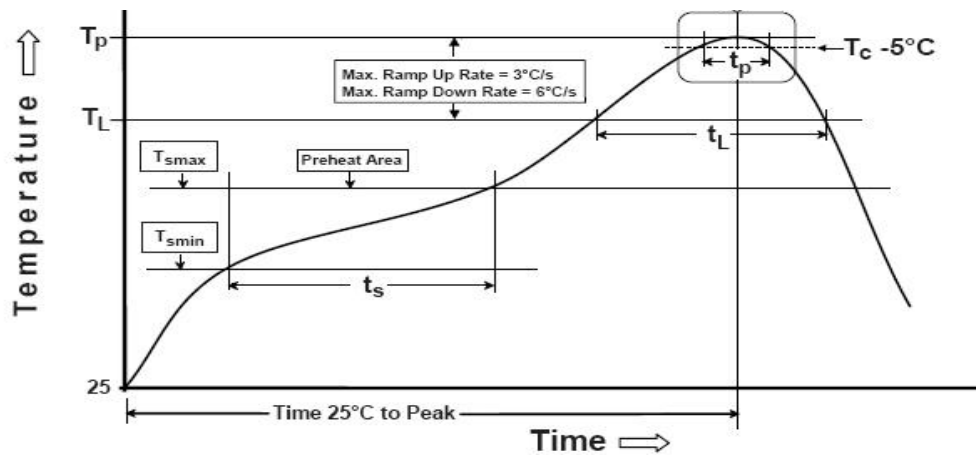
No.	ITEMS	CONDITIONS	SPECIFICATION
1	OPERATION TEMPERATURE  STORAGE TEMPERATURE		-40 ~ + 125°C (INCLUDING COIL TEMPERATURE RISE) -40 ~ + 125°C
2	TEMPERATURE COEFFICIENT	-30 ~ +105°C	0 ~ 2000 ppm/°C
3	FIXING STRENGTH	SAMPLE IS PUSHED IN THREE DIRECTIONS OF X, Y AND Z WITH FORCE OF 5. 0N FOR 10±5 SECONDS. AFTER SOLDERING BETWEEN COPPER PLATE AND ELECTRODES.	NO ELECTRODE DETACHMENT.
4	RESISTANCE TO SOLDERING HEAT TEST	REFER TO THE SPEC "STD-001NP".	NO MECHANICAL BREAKAGE. DEVIATION RELATIVE TO INITIAL VALUE: L: WITHIN ±10%
5	SOLDERABILITY TEST	IMMERSE THE ELECTRODE IN FLUX FOR 5 SECONDS. THEN DIP THE ELECTRODE INTO A SOLDERING BATH OF 245±5°C FOR 2±0.5 SECONDS.	OVER 95% OF THE SURFACE BEING IMMersed SHALL BE COVERED WITH NEW SOLDER UNIFORMLY.
6	VIBRATION TEST	AMPLITUDE: 1.5mm P-P FREQUENCY:10~55~10Hz (1 MINUTE PER CYCLE) DURATION: 1 HOUR IN EACH OF X, Y, Z AXIS.	DEVIATION RELATIVE TO INITIAL VALUE: L: WITHIN ±10%
7	HUMIDITY TEST	TEMPERATURE: 40°C±2°C HUMIDITY: 90%~95%RH DURATION: 96±4 HOURS.	DEVIATION RELATIVE TO INITIAL VALUE: L: WITHIN ±10%
8	THERMAL SHOCK TEST	20 CYCLES OF +105°C FOR 30 MINUTES, -40°C FOR 30 MINUTES. CHARACTERISTICS ARE MEASURED AFTER THE AMBIENT AIR EXPOSURE OF 1 HOUR	DEVIATION RELATIVE TO INITIAL VALUE: L: WITHIN ±10%
9	HIGH TEMPERATURE STORAGE TEST	TEMPERATURE: 125°C±2°C DURATION: 96±4 HOURS	
10	LOW TEMPERATURE STORAGE TEST	TEMPERATURE: -40°C±3°C DURATION: 96±4 HOURS.	

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## 6. Reflow profile for SMT components



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

Profile Feature	Lead(Pb) Free solder	
Preheat and soak	·temperature Min.(T <sub>smin</sub> )	150°C
	·temperature Max.(T <sub>smax</sub> )	200°C
	·time(T <sub>smin</sub> to T <sub>smax</sub> )(t <sub>s</sub> )	60-120 Seconds
Average ramp up rate T <sub>smax</sub> to T <sub>p</sub>	3°C/Second Max.	
Liquidous temperature (T <sub>L</sub> )	217 °C	
Time (T <sub>L</sub> ) maintained above T <sub>L</sub>	60-150 seconds	
Peak package body temperature (T <sub>p</sub> )	<b>Table2</b>	
Time (t <sub>p</sub> )* within 5 °C of the specified classification temperature (T <sub>c</sub> )	30* seconds	
Average Ramp-down rate (T <sub>p</sub> to T <sub>L</sub> )	6 °C/second max	
Time 25 °C to peak temperature	8 minutes max.	

**Table2. Pb-Free Process - Classification Temperatures (T<sub>c</sub>)**

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350~2000	Volume mm <sup>3</sup> >2000
<1.6 mm	260°C	260°C	260°C
1.6mm- 2.5mm	260°C	250°C	245°C
>2.5 mm	250°C	245°C	245°C

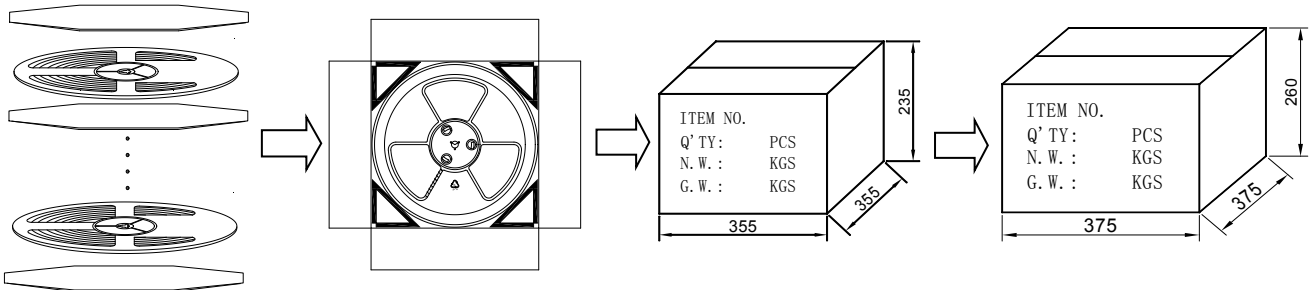
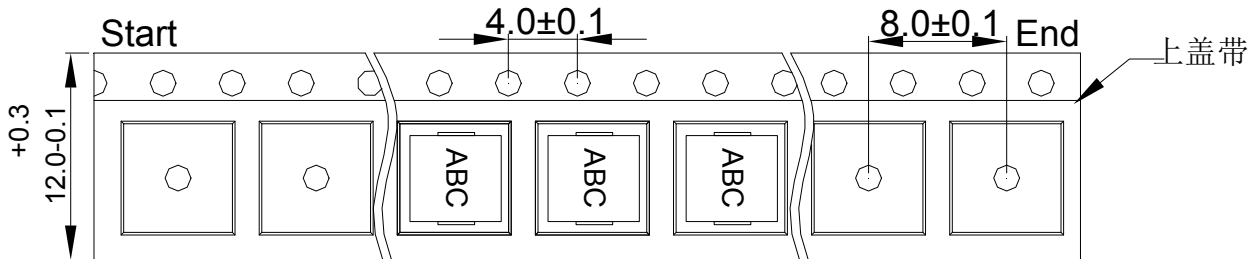
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## 7. PACKING

REFER TO STANDARD PACKING DRAWING. 3000PCS/R



REEL	3000PCS
BOX	30000PCS

## 8. NOTE

SOLDERING TIN PERIOD OF VALIDITY: SIX MONTHS  
 STORAGE TEMPERATURE:  $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$   
 COMPARATIVELY HUMIDITY: 35%--70%

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