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*

| AMENDMENT RECORD | | | | | | |
|---|---|---|---|---|---|---|
| SYMBOL | DATE | PAGE | CONTENTS | DWN. BY | CHK. BY | APP. BY |
| | | | | 叶枫 | 李林 | 谢东 |

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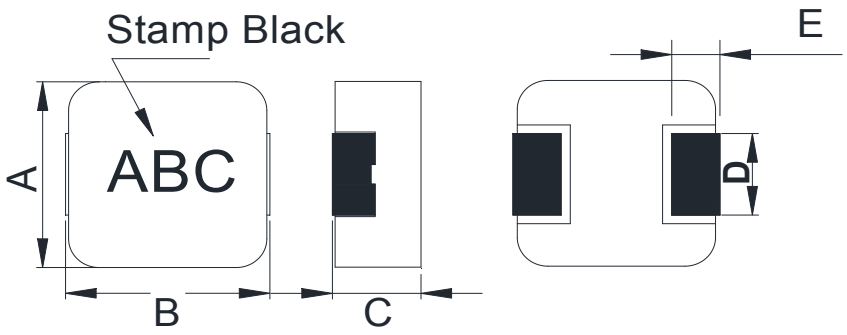
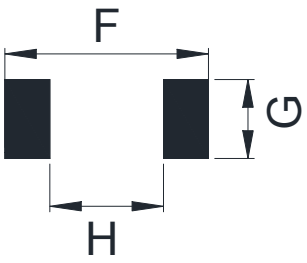
| | | D0624HP-4R7MT | | 2024-11-20 | -- | 01 | 1/5 |

## 1. DIMENSIONS (UNIT : mm)



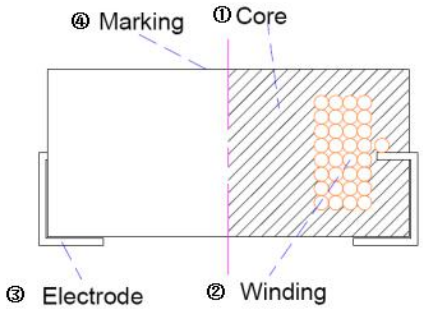

| A | B | C | D | E |
|---|---|---|---|---|
| 6.6±0.3 | 7.1 ±0.3 | 2.4 MAX | 3.0 ±0.3 | 1.6 ±0.5 |

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




| | |
|---|---|
| F | 8.4 Ref. |
| G | 3.5 Ref. |
| H | 3.7 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 (A) (△T≦40℃) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Typ | MAX | Typ. | MAX |
| 01 | D0624HP-4R7MT | 4.7±20% | 4R7 | 50 | 7.0 | 6.0 | 5.0 | 4.0 |

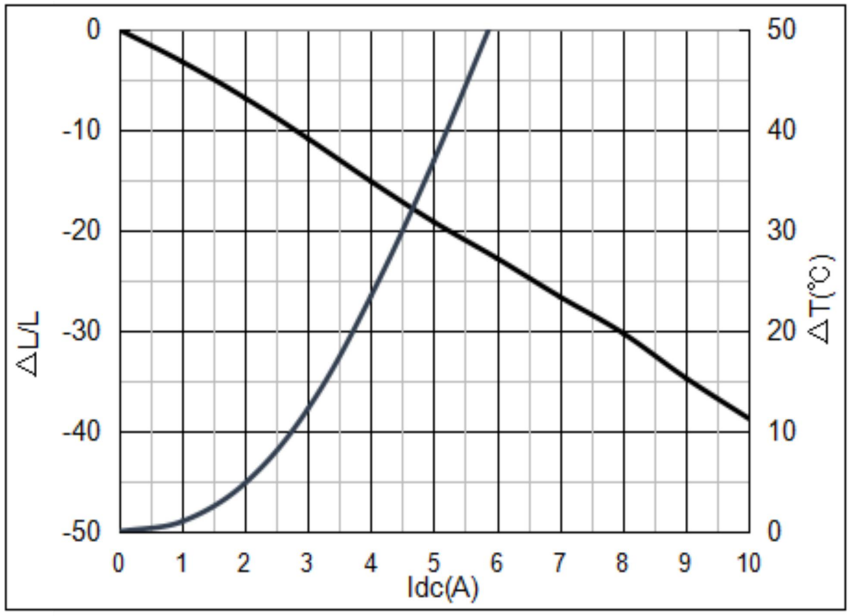
* Testing instrument: Inductance HP 4284A or equivalent at 100KHz /1V..
D.C.R : TH2512B or equivalent. (Ta= 25℃)
Saturation current: WK 3260B+3265B or equivalent.

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

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

* Absolute maximum voltage 30VDC

4R7 DC Bias & Temperature Characteristics




| APPROVAL | CHECK | DESIGN | |
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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℃~35℃.
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℃±1℃. RELATIVE HUMIDITY: 63% ~67%.
AIR PRESSURE : 86kPa ~106kPa.

| No. | ITEMS | CONDITIONS | SPECIFICATION |
|---|---|---|---|
| 1 | OPERATION TEMPERATURE<br><br>STORAGE TEMPERATURE | | -40 ～ + 125℃<br>(INCLUDING COIL TEMPERATURE RISE)<br>-40 ～ + 125℃ |
| 2 | TEMPERATURE COEFFICIENT | -30 ～ +105℃ | 0 ～ 2000 ppm/℃ |
| 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.<br>DEVIATION RELATIVE TO INITIAL VALUE:<br>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℃ 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<br>FREQUENCY:10～55～10Hz (1 MINUTE PER CYCLE)<br>DURATION: 1 HOUR IN EACH OF X, Y, Z AXIS. | DEVIATION RELATIVE TO INITIAL VALUE:<br>L: WITHIN ±10% |
| 7 | HUMIDITY TEST | TEMPERATURE: 40℃±2℃<br>HUMIDITY: 90%～95%RH<br>DURATION: 96±4 HOURS. | DEVIATION RELATIVE TO INITIAL VALUE:<br>L: WITHIN ±10% |
| 8 | THERMAL SHOCK TEST | 20 CYCLES OF +105℃ FOR 30 MINUTES, -40℃ FOR 30 MINUTES. CHARACTERISTICS ARE MEASURED AFTER THE AMBIENT AIR EXPOSURE OF 1 HOUR | DEVIATION RELATIVE TO INITIAL VALUE:<br>L: WITHIN ±10% |
| 9 | HIGH TEMPERATURE STORAGE TEST | TEMPERATURE: 125℃±2℃<br>DURATION: 96±4 HOURS | |
| 10 | LOW TEMPERATURE STORAGE TEST | TEMPERATURE: -40℃±3℃<br>DURATION: 96±4 HOURS. | |

| APPROVAL | CHECK | DESIGN | |
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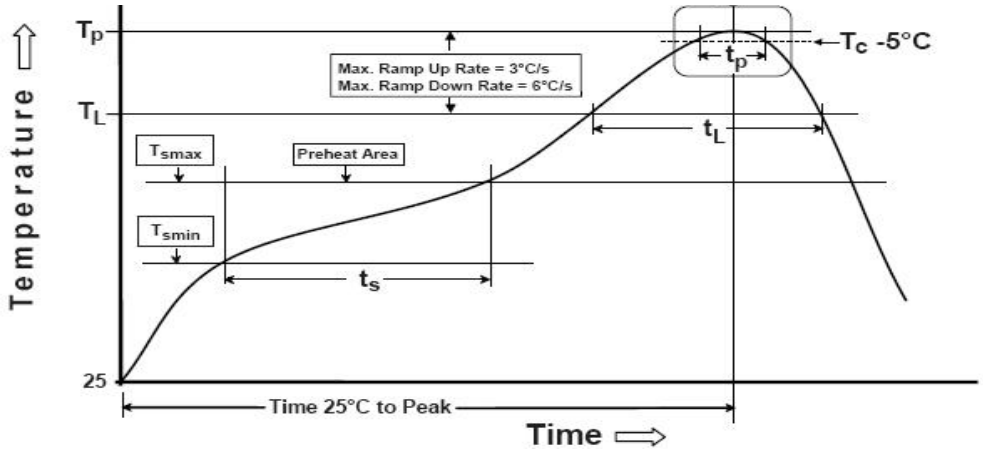
## 6. Reflow profile for SMT components




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

| Profile Feature | | Lead(Pb) Free solder |
|---|---|---|
| Preheat and soak | ·temperature Min.(Tsmin) | 150℃ |
| | ·temperature Max.(Tsmax) | 200℃ |
| | ·time(Tsmin to Tsmax)($t_s$) | 60-120 Seconds |
| Average ramp up rate Tsmax to Tp | | 3℃/Second Max. |
| Liquidous temperature ($T_L$) | | 217 °C |
| Time ($T_L$) maintained above $T_L$ | | 60-150 seconds |
| Peak package body temperature (Tp) | | **Table2** |
| Time (tp)* within 5 °C of the specified classification temperature (Tc) | | 30* seconds |
| Average Ramp-down rate (Tp to TL) | | 6 °C/second max |
| Time 25 °C to peak temperature | | 8 minutes max. |

**Table2. Pb-Free Process - Classification Temperatures (Tc)**

| Package Thickness | Volume $mm^3$ <350 | Volume $mm^3$ 350~2000 | Volume $mm^3$ >2000 |
|---|---|---|---|
| <1.6 mm | 260℃ | 260℃ | 260℃ |
| 1.6mm- 2.5mm | 260℃ | 250℃ | 245℃ |
| >2.5 mm | 250℃ | 245℃ | 245℃ |

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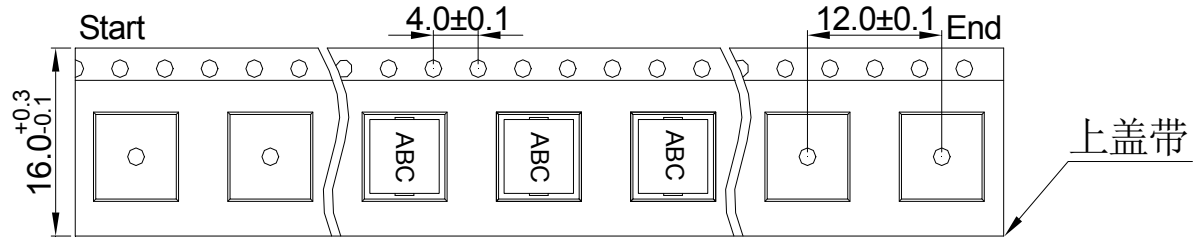
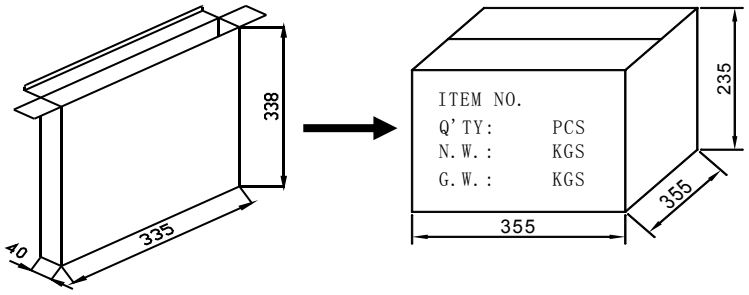
## 7. PACKING

REFER TO STANDARD PACKING DRAWING. **1500PCS/R**




| | |
|---|---|
| REEL | 1500PCS |
| BOX | 12000PCS |

## 8. NOTE

SOLDERING TIN PERIOD OF VALIDITY：SIX MONTHS
STORAGE TEMPERATURE：25℃±5℃
COMPARATIVELY HUMIDITY：35%--70%

| APPROVAL | CHECK | DESIGN | |
|---|---|---|---|
| | | | |