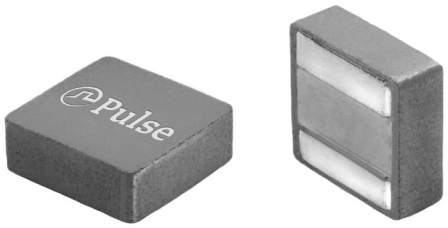
# SMT Power Inductors

*High Current Composite Inductor - PA5003.XXXNLT and PM2203.XXXNLT*

Pulse A YAGEO Company




- ***Height:*** *3.1mm Max*
- ***Footprint:*** *5.7mm x 5.5mm Max*
- ***Current Rating:*** *up to 36Apk*
- ***Inductance Range****: 0.15uH to 4.7uH*
- *High current, low DCR, and high efficiency*
- *High reliability*
- *Minimized acoustic noise and minimized leakage flux noise*
- *Available in Commercial (PA5003) and Automotive (PM2203) grades*

**Electrical Specifications @ 25°C, Operating Temperature Range per Below[4,5]**

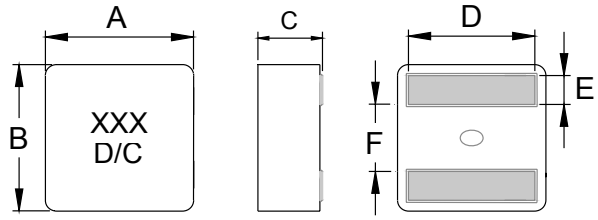
| Part Number | | Inductance 100KHz, 0.1V | Rated[3] Current | DC Resistance | | Saturation[2] Current | K Factor for Core Loss |
|---|---|---|---|---|---|---|---|
| Commerical | Automotive[6] | | | TYP. | MAX. | | |
| (-40°C to 125°C) | (-55°C to 155°C) | uH±20% | A | mΩ | mΩ | A | |
| **PA5003.151NLT** | **PM2203.151NLT** | 0.15 | 22.2 | 2.1 | 2.31 | 36 | 458.5 |
| **PA5003.161NLT** | **PM2203.161NLT** | 0.16 | 22.2 | 2.12 | 2.33 | 35 | 458.5 |
| **PA5003.331NLT** | **PM2203.331NLT** | 0.33 | 19.2 | 3.2 | 3.52 | 28 | 291.7 |
| **PA5003.471NLT** | **PM2203.471NLT** | 0.47 | 18.4 | 3.75 | 4.13 | 26 | 213.9 |
| **PA5003.561NLT** | **PM2203.561NLT** | 0.56 | 17.7 | 4.05 | 4.52 | 22.2 | 213.9 |
| **PA5003.601NLT** | **PM2203.601NLT** | 0.6 | 17.7 | 4.11 | 4.52 | 22 | 213.9 |
| **PA5003.801NLT** | **PM2203.801NLT** | 0.8 | 13.1 | 5.14 | 5.65 | 20 | 168.9 |
| **PA5003.821NLT** | **PM2203.821NLT** | 0.82 | 12.9 | 5.25 | 5.78 | 19.7 | 168.9 |
| **PA5003.102NLT** | **PM2203.102NLT** | 1 | 12.2 | 6.9 | 7.6 | 16.5 | 139.5 |
| **PA5003.122NLT** | **PM2203.122NLT** | 1.2 | 11 | 8.8 | 9.7 | 15 | 118.9 |
| **PA5003.152NLT** | **PM2203.152NLT** | 1.5 | 10.5 | 10.1 | 11.2 | 14 | 103.5 |
| **PA5003.182NLT** | **PM2203.182NLT** | 1.8 | 10.1 | 11.5 | 12.7 | 12.3 | 103.5 |
| **PA5003.222NLT** | **PM2203.222NLT** | 2.2 | 9.7 | 13.2 | 14.5 | 10 | 91.7 |
| **PA5003.332NLT** | **PM2203.332NLT** | 3.3 | 8.1 | 21 | 23.1 | 9.5 | 74.6 |
| **PA5003.472NLT** | **PM2203.472NLT** | 4.7 | 5.9 | 33 | 36.3 | 8.2 | 58.3 |

**Notes:**

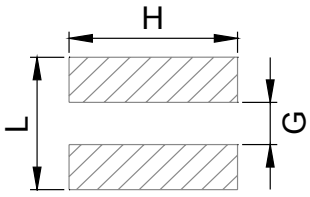
1. Actual temperature of the component during system operation (ambient plus temperature rise) must be within the standard operating range.
2. The saturation current is the current at which the initial inductance drops approximately 30% at the stated ambient temperature. This current is determined by placing the compnent in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effect) to the component.
3. The rated current is the DC current required to raise the component temperature by approximately 40 ˚ C. Take note that the components' performanc varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
4. The part temperature (ambient+temp rise) should not exceed 125 ˚ C under worst case operating conditions. Circuit design, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.
5. Parts shown in bold are standard catalog parts and are available through sample stock and distribution. Parts in lighter font are available but are not necessarily held in sample stock or distribution and lead times may be longer. Please contact Pulse for availablity.
6. The PM2203.XXXNLT part numbers are AEC-Q200 and IATF16949 certified. The mechanical dimensions are 100% tested in production but do not necessarily meet a product capability index (Cpk) >1.33 and therefore may not strictly conform to PPAP.

## Mechanical

### PA5003.XXXNLT and PM2203.XXXNLT




FINAL LAYOUT

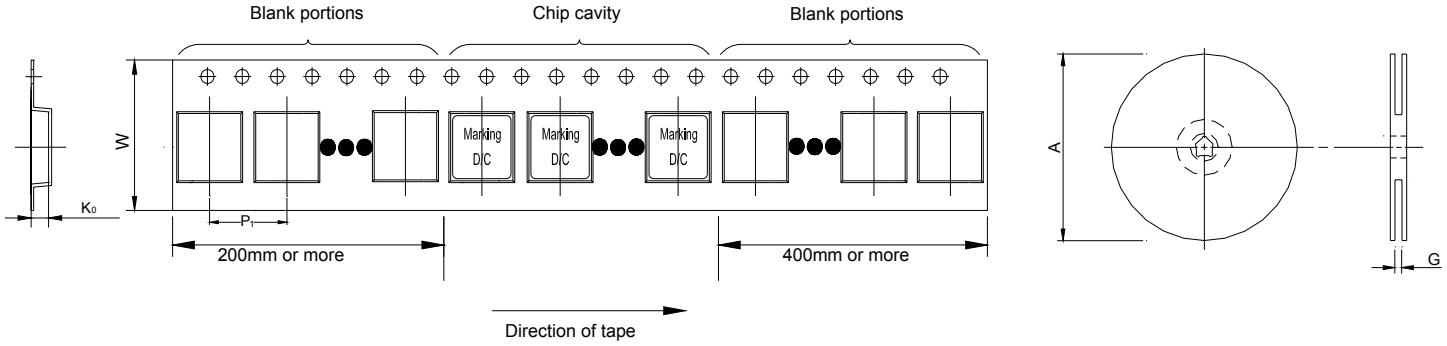



SUGGESTED PAD LAYOUT

| Series | A | B | C | D | E | F | L | G | H |
|---|---|---|---|---|---|---|---|---|---|
| PA5003/PM2203 | 5.5±0.2 | 5.3±0.2 | 2.9±0.2 | 4.3±0.3 | 1.1±0.2 | 2.3±0.25 | 4.5 (REF) | 2.0 (REF) | 4.7 (REF) |

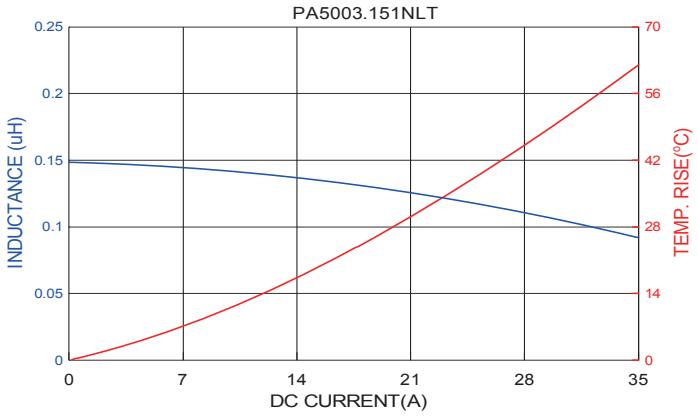
All Dimensions in mm.

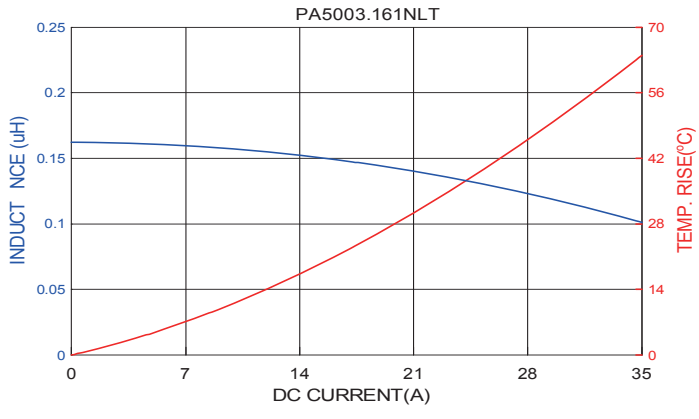
### TAPE & REEL INFO

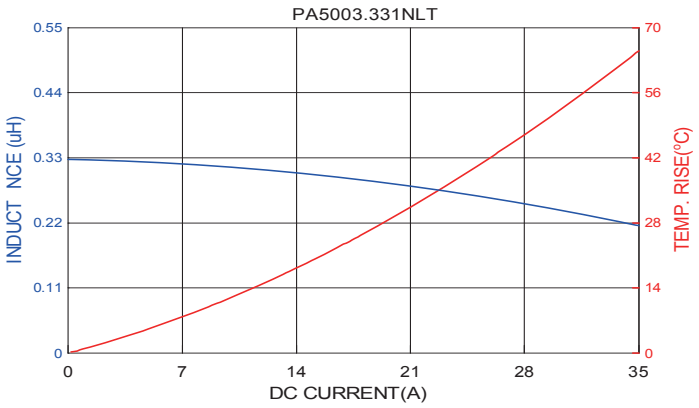


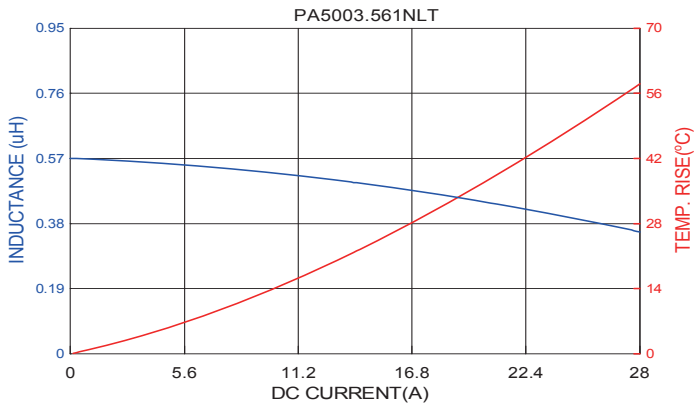

| SURFACE MOUNTING TYPE, REEL/TAPE LIST | | | | | | |
|---|---|---|---|---|---|---|
| | REEL SIZE (mm) | | TAPE SIZE (mm) | | | QTY |
| | A | G | $P_1$ | W | $K_0$ | PCS/REEL |
| PA5003/PM2203 | Ø330 | 16.4 | 8 | 16 | 2.3 | 2000 |

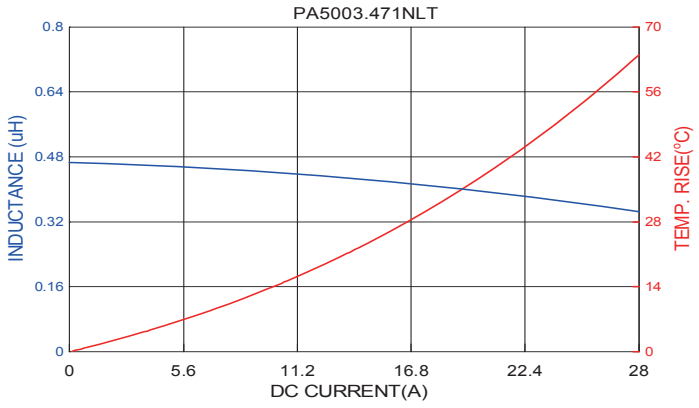
### Typical Performance Curves

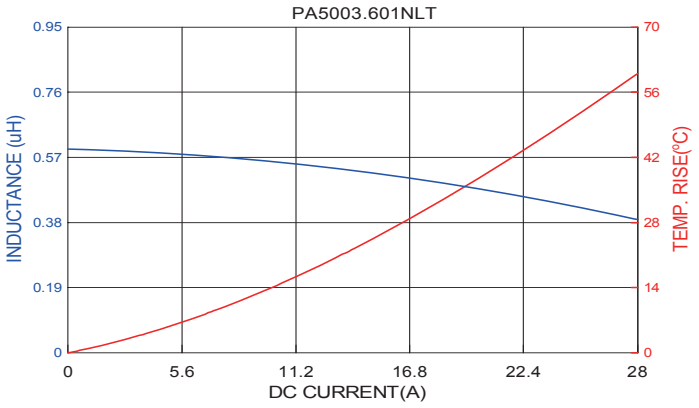


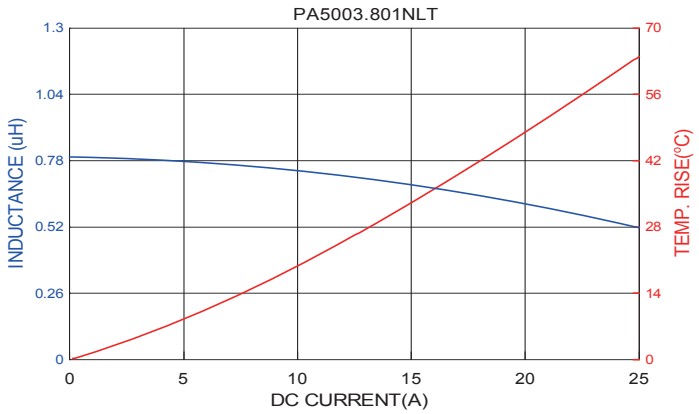



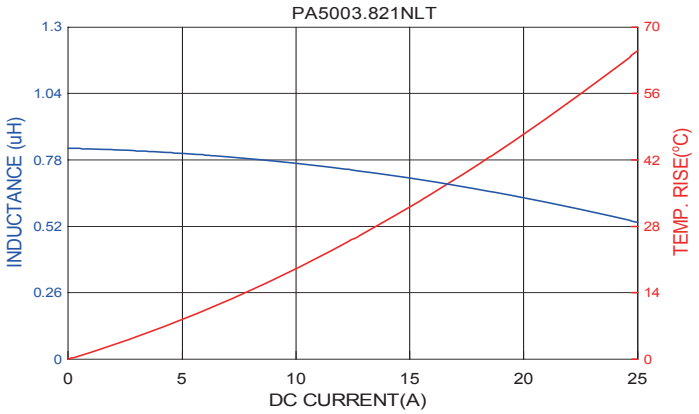

PA5003.331NLT
INDUCT NCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
0.55
0.44
0.33
0.22
0.11
0
70
56
42
28
14
0
0
7
14
21
28
35

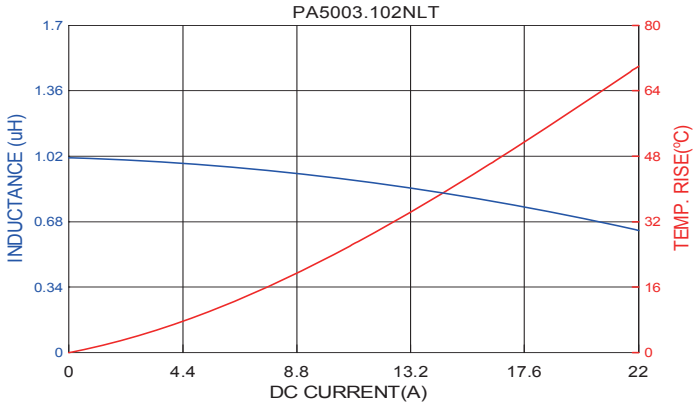

PA5003.561NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
0.95
0.76
0.57
0.38
0.19
0
70
56
42
28
14
0
0
5.6
11.2
16.8
22.4
28

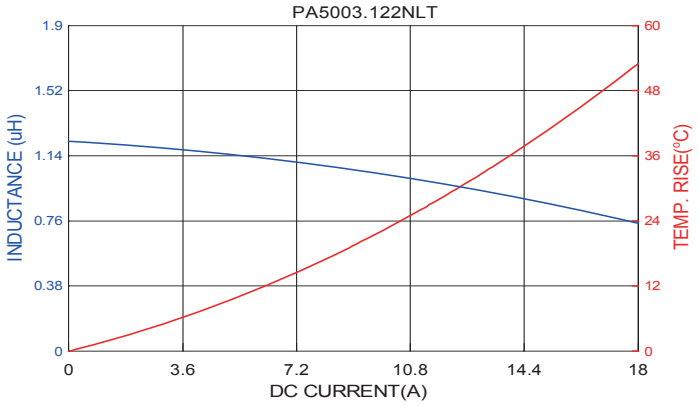

PA5003.471NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
0.8
0.64
0.48
0.32
0.16
0
70
56
42
28
14
0
0
5.6
11.2
16.8
22.4
28

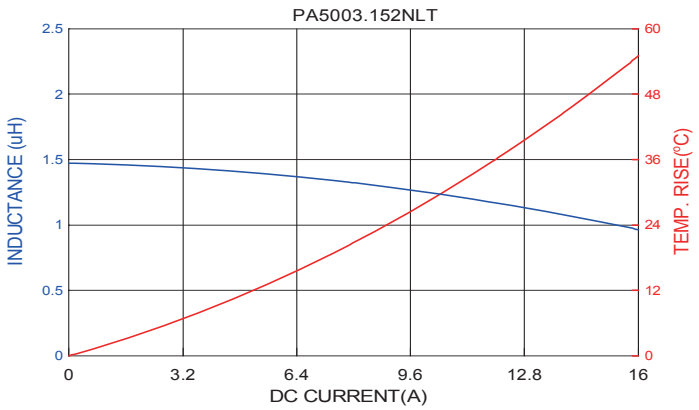

PA5003.601NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
0.95
0.76
0.57
0.38
0.19
0
70
56
42
28
14
0
0
5.6
11.2
16.8
22.4
28

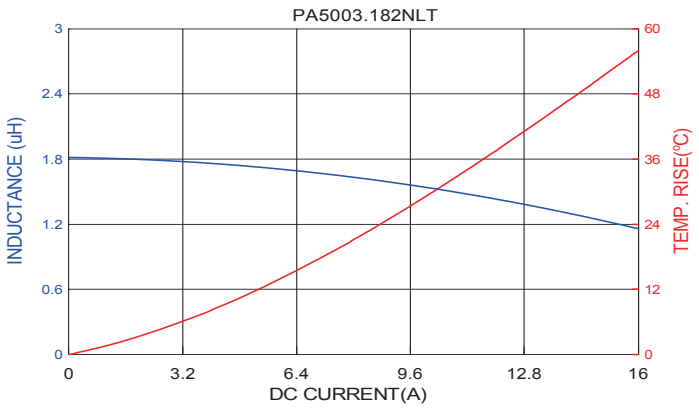

PA5003.801NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
1.3
1.04
0.78
0.52
0.26
0
70
56
42
28
14
0
0
5
10
15
20
25

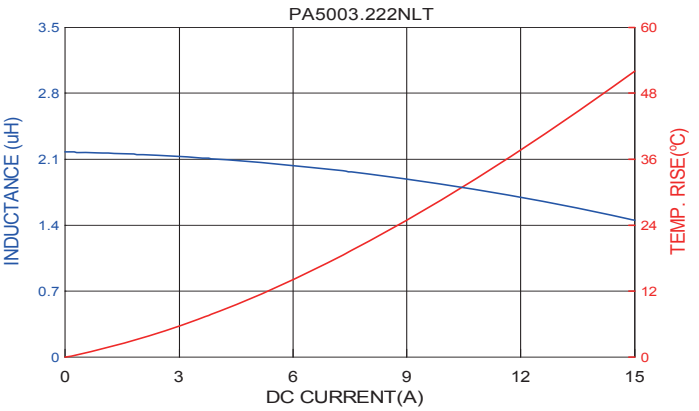

PA5003.821NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
1.3
1.04
0.78
0.52
0.26
0
70
56
42
28
14
0
0
5
10
15
20
25

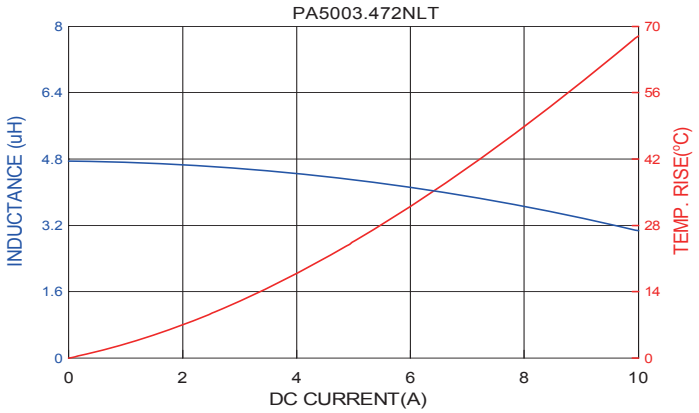

PA5003.102NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
1.7
1.36
1.02
0.68
0.34
0
80
64
48
32
16
0
0
4.4
8.8
13.2
17.6
22

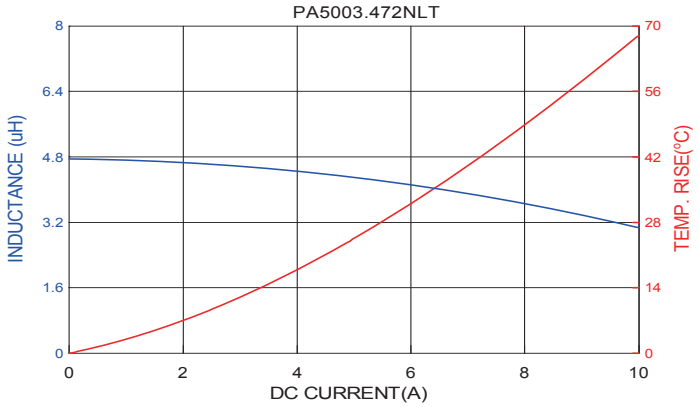

PA5003.122NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
1.9
1.52
1.14
0.76
0.38
0
60
48
36
24
12
0
0
3.6
7.2
10.8
14.4
18


PA5003.152NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
2.5
2
1.5
1
0.5
0
60
48
36
24
12
0
0
3.2
6.4
9.6
12.8
16

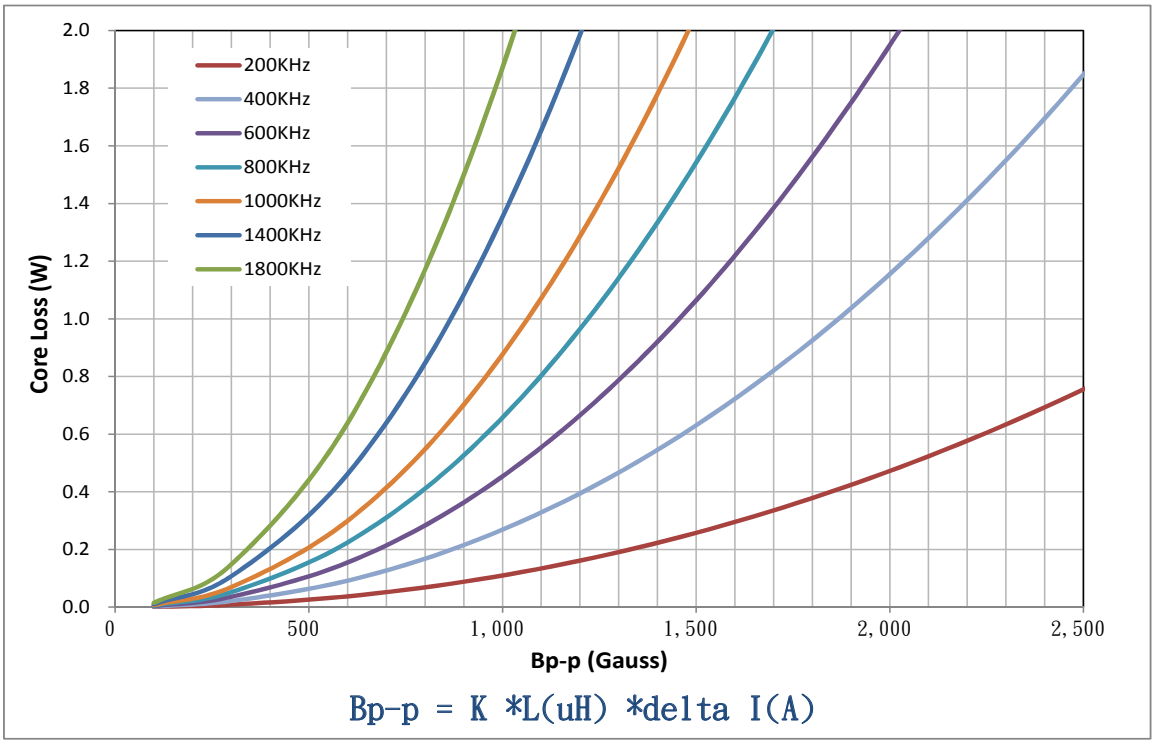

PA5003.182NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
3
2.4
1.8
1.2
0.6
0
60
48
36
24
12
0
0
3.2
6.4
9.6
12.8
16


PA5003.222NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
3.5
2.8
2.1
1.4
0.7
0
60
48
36
24
12
0
0
3
6
9
12
15


PA5003.472NLT
INDUCTANCE (uH)
TEMP. RISE(°C)
DC CURRENT(A)
8
6.4
4.8
3.2
1.6
0
70
56
42
28
14
0
0
2
4
6
8
10




## CORE LOSS vs FLUX DENSITY




Bp-p = K *L(uH) *delta I(A)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Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

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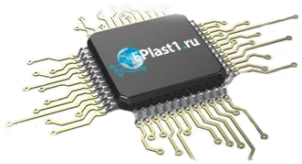
- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.

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