

|          |                        |                 |                             |
|----------|------------------------|-----------------|-----------------------------|
| ITEM P/N | PSPMAF0415-R47M-CGF-AP | TEST INSTRUMENT | Zentech-3305 / Zentech502BC |
| PRODUCT  | SMD Inductor           | TEST FREQUENCY  | 100 kHz / 1.0V              |

**CUSTOMER** :**CUSTOMER P/N** :**DESCRIPTION** : SMD INDUCTOR**P/N** : PSPMAF0415-R47M-CGF-AP**REVISION NO.** : Version: 1.0**DATE** : 2016-1-13**NOTES** : STANDARD

|                   |              |
|-------------------|--------------|
| <b>DOCUMENTED</b> |              |
| <b>APPROVED</b>   | <b>Kevin</b> |
| <b>CHECKED</b>    | <b>Peter</b> |
| <b>PREPARED</b>   | <b>Ben</b>   |

**CUSTOMER APPROVAL**

company seals

Version: 1.0

# SPECIFICATION FOR APPROVAL

**RoHS  
COMPLIANT**

|          |                        |                 |                             |
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| Version | REVISION ITEM | BEFORE REVISION | AFTER REVISION | DATE      |
|---------|---------------|-----------------|----------------|-----------|
| 1.0     | First Version |                 |                | 2016-1-13 |
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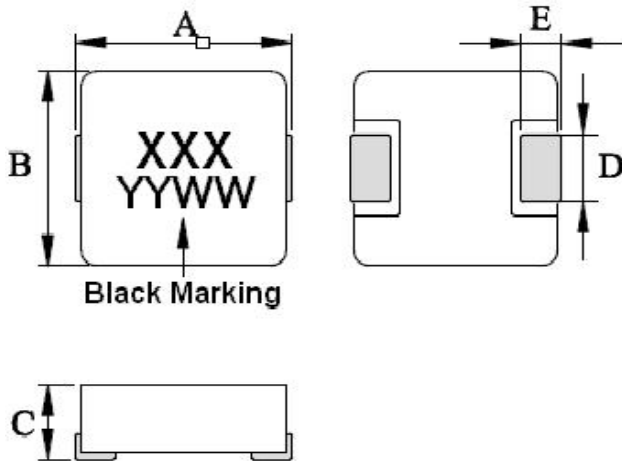


**PROD TECHNOLOGY CO., LTD.**



**E-LIVEN TECHNOLOGY CO., LTD.**  
NO. 28 HO-CHENG RD, BADE CITY, TAOYUAN, TAIWAN

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**PACKING DIMENSIONS (mm)**

| 0415 | Dimensions |
|------|------------|
| A    | 4.45±0.3   |
| B    | 4.1±0.2    |
| C    | 1.3 ± 0.2  |
| D    | 2.0±0.2    |
| E    | 0.8±0.3    |

**EXPLANATION OF PART NUMBERS**

|                     |                |   |                   |   |                    |   |            |
|---------------------|----------------|---|-------------------|---|--------------------|---|------------|
| <b>P S P M A F</b>  | <b>0 4 1 5</b> | - | <b>R 4 7 M</b>    | - | <b>C G F</b>       | - | <b>A P</b> |
| <u>Serial Codes</u> | <u>Size</u>    |   | <u>Inductance</u> |   | <u>Description</u> |   |            |

**ELECTRICAL CHARACTERISTICS**

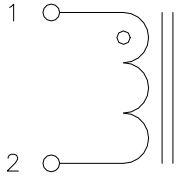
| ITEM P/N                       | @ 26 °C Ambient Temperature |           |  |  | DCR mΩ @ 25°C<br>MAX |
|--------------------------------|-----------------------------|-----------|--|--|----------------------|
|                                | INDUCTANCE                  |           | Typical<br>Heat Rating<br>DC Current (A)<br>(I <sub>dc</sub> ) | Typical<br>Saturation<br>DC Current (A)<br>(I <sub>sat</sub> ) |                      |
|                                | Lo (μH)                     | TOLERANCE |  |  |                      |
| PSPMAF041<br>5-R47M-<br>CGF-AP | 0.47                        | ±20%      | 8  | 7.6  | 17.0                 |

- ⊙ All test Data is referenced to 25°C ambient
- ⊙ Typical Heat Rating DC Current would cause an approximately ΔT of 40°C
- ⊙ Typical Saturation DC Current would cause Lo to drop approximately 30%
- ⊙ Operation Temperature Range : -55°C ~ 125°C
- ⊙ The Part temperature (ambient + ΔT) should not exceed 125°C under worst case operating conditions.
- ⊙ Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions

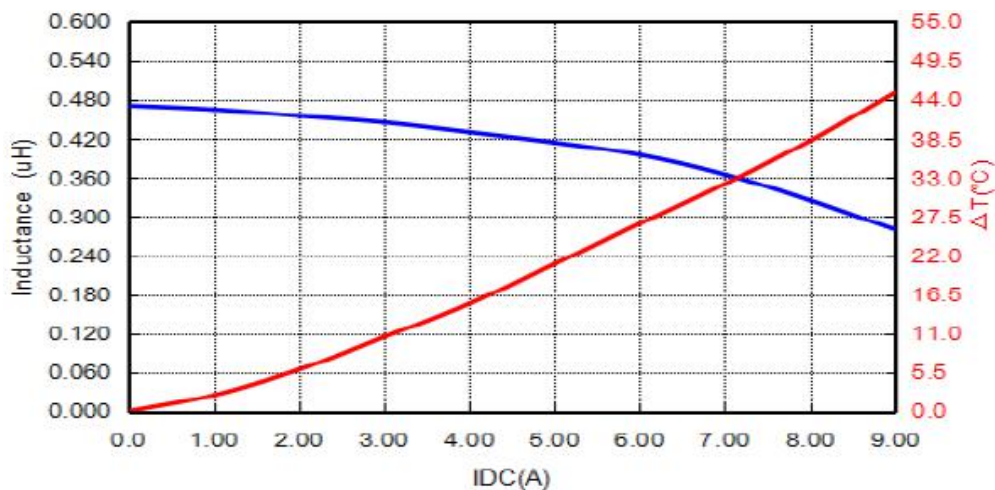
all effect the part temperature. Part temperature should be verified in the end application.

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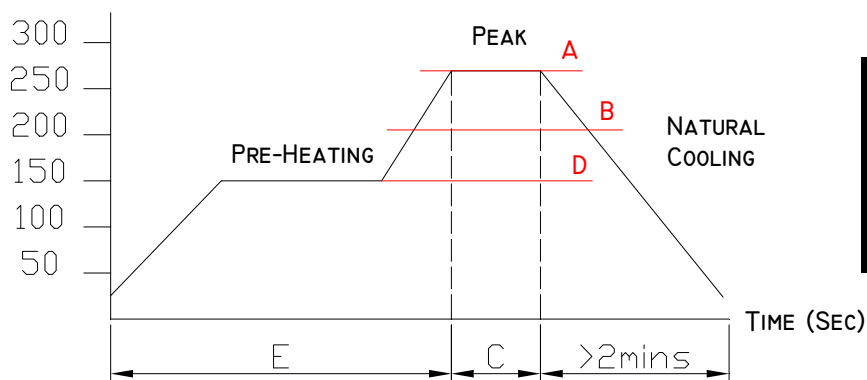
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**CONNECTIONS**

- ⊙ Inductor Contents ONE (1) Set(s) of Coil
- ⊙ DC/AC Current Shall Be Introduced By Any One of Two Pads

**PERFORMANCE CURVES****RECOMMENDED SOLDERING TEMP. GRAPH**

TEMPERATURE (°C)



|   |            |
|---|------------|
| A | 260°C      |
| B | 230°C      |
| C | 10 Sec     |
| D | 150°C      |
| E | 60~240 Sec |

|                 |                               |                        |                                    |
|-----------------|-------------------------------|------------------------|------------------------------------|
| <b>ITEM P/N</b> | <b>PSPMAF0415-R47M-CGF-AP</b> | <b>TEST INSTRUMENT</b> | <b>Zentech-3305 / Zentech502BC</b> |
| <b>PRODUCT</b>  | <b>SMD Inductor</b>           | <b>TEST FREQUENCY</b>  | <b>100 kHz / 1.0V</b>              |

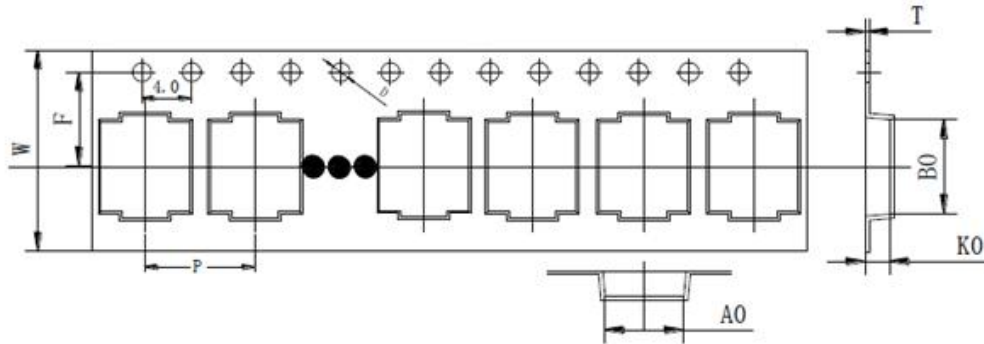
**MECHANICAL RELIABILITY**

| <b>TEST</b>   | <b>Specification &amp; Requirement</b>                                     | <b>Method Used</b>  |
|---------------|--|---|
| Solderability | The surface of terminal/pin tested shall be covered with new solder by 95% | Solder heat proof:<br>Preheating: 180 ±10°C 90 seconds<br>Soldering: 255 ±5°C for 3 ±1 sec                              |
| Shock         | Inductance change within ± 5% Without mechanical damage                    | Drop down with 981m/s <sup>2</sup> (100G) shock<br>Attitude upon a rubber block method shock testing machinem, 3 tests. |
| Vibration     | Inductance change within ± 5% Without mechanical damage                    | Vibration frequency:<br>10Hz to 55Hz to 10Hz 60 seconds cycle<br>Vibration time: 2 hours                                |

**ENDURANCE RELIABILITY**

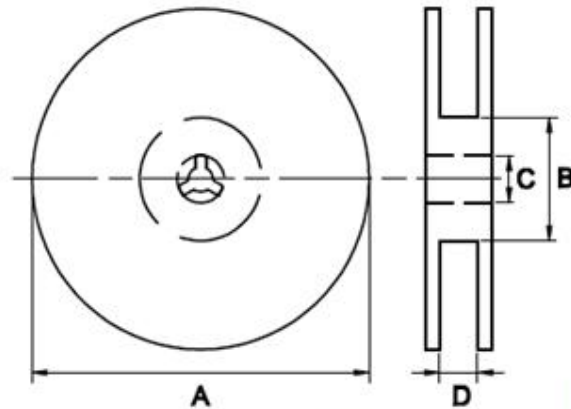
| <b>TEST</b>         | <b>Specification &amp; Requirement</b>                  | <b>Method Used</b>   |
|---------------------|---|--|
| Thermal Shock       | Inductance change within ± 5% Without mechanical damage | -25°C, (30 mins) -> room temp. (5 mins) -> 125°C, (30 mins) -> room temp. (5 mins)<br>100 cycles |
| Heat Resistance     | Inductance change within ± 5% Without mechanical damage | Apply IDC current @ 85°C ambient<br>Duration: 1000 hrs   |
| Humidity Resistance | Inductance change within ± 5% Without mechanical damage | Apply IDC current @ 60°C ambient<br>Humidity: 90~95%<br>Duration: 1000 hrs                       |
| Low Temp. Storing   | Inductance change within ± 5% Without mechanical damage | Storing Temp.<br>-25 ±2 °C for total 1,000 +4/-0 hours   |
| High Temp. Storing  | Inductance change within ± 5% Without mechanical damage | Storing Temp.<br>125 ±2 °C for total 1,000 +4/-0 hours   |

|          |                        |                 |                             |
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**CARRIERTAPEING REEL & CARRIER MATERIALS (PAPER PLASTICS) UNIT : (mm)**

Unit: mm

| Type   | A <sub>0</sub> | B <sub>0</sub> | K <sub>0</sub> | P     | F       | W      | D       | t         |
|--------|----------------|----------------|----------------|-------|---------|--------|---------|-----------|
| 0415SP | 4.4±0.1        | 5.0±0.1        | 1.8±0.1        | 8±0.1 | 5.5±0.1 | 12±0.3 | 1.5±0.1 | 0.35±0.05 |



Unit: mm

| Type   | A   | B     | C        | D        |
|--------|-----|-------|----------|----------|
| 0415SP | 330 | 100±2 | 13.5±0.5 | 12.4+2-0 |

Standard Quantity for Packaging: 3,500 pcs/Reel

|          |                        |                 |                             |
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## TEST DATA

| SPEC<br>No. | A<br>(mm) | B<br>(mm) | C<br>(mm) | D<br>(mm) | E<br>(mm) | DCR<br>Max( mΩ ) | INDUCTANCE |           |
|-------------|-----------|-----------|-----------|-----------|-----------|------------------|------------|-----------|
|             | 4.45±0.3  | 4.1±0.2   | 1.3 ± 0.2 | 2.0±0.2   | 0.8±0.3   |                  | L(0) ± 20% | 7.6 A     |
| 1           | 4.46      | 4.16      | 1.32      | 2.03      | 0.82      | 17               | 0.47       | ≈70% L(0) |
| 2           | 4.48      | 4.12      | 1.33      | 2.01      | 0.81      | 15.3             | 0.46       | PASS      |
| 3           | 4.47      | 4.13      | 1.35      | 2.03      | 0.83      | 15.4             | 0.47       | PASS      |
| 4           | 4.42      | 4.15      | 1.34      | 2.02      | 0.84      | 15.6             | 0.48       | PASS      |
| 5           | 4.45      | 4.14      | 1.32      | 2.02      | 0.88      | 15.8             | 0.46       | PASS      |
| 6           | 4.46      | 4.18      | 1.32      | 2.06      | 0.85      | 15.2             | 0.47       | PASS      |
| 7           | 4.45      | 4.10      | 1.33      | 2.03      | 0.82      | 15.3             | 0.46       | PASS      |
| 8           | 4.47      | 4.13      | 1.33      | 2.02      | 0.81      | 15.2             | 0.48       | PASS      |
| 9           | 4.48      | 4.15      | 1.35      | 2.01      | 0.83      | 15.6             | 0.47       | PASS      |
| 10          | 4.45      | 4.12      | 1.32      | 2.03      | 0.85      | 15.4             | 0.46       | PASS      |
| $\bar{X}$   | 4.46      | 4.14      | 1.33      | 2.03      | 0.83      | 15.3             | 0.48       | PASS      |
| R           | 0.06      | 0.08      | 0.03      | 0.05      | 0.07      | 15.41            | 0.47       |           |
|             |           |           |           |           |           | 0.60             | 0.02       |           |

© All test Data is referenced to 25°C ambient



# ANNOUNCEMENTS

## 产品注意事项

使用本产品时，请注意以下事项

- ◎ 产品保存期限为12个月，保存条件：温度5~40℃，湿度10~80%RH以内，超过保存期限可能会使产品端子电极发生氧化。
- ◎ 请勿在极端环境下使用和保存（高盐，强酸，强碱，强辐射等）。
- ◎ 产品焊接前，请进行预热；预热温度与焊接温度之间温差建议控制在150℃以内。
- ◎ 产品焊接后需重新拆卸焊接修正时，请遵循规格书规定的条件范围；过高的加热温度以及反复的拆卸可能会导致产品失效。
- ◎ 产品焊接到线路板后，请注意不可因线路板整体变形或局部变形而施加给电感剩余应力，这可能会导致电感发生破裂，脱落，以致失效。
- ◎ 产品请勿接触清洗剂，酒精等液体，这会侵蚀产品本体，从而导致产品失效。
- ◎ 产品通电后温度会随电流的增大而上升，设计时请务必考虑留有余量。
- ◎ 过高的静电会对产品产生永久性损害，请注意静电防护。
- ◎ 产品通电过程请勿触摸产品任何部位，防止触电。
- ◎ 本产品作为磁性产品，设计时请务必考虑周边元器件与本产品可能产生的相互影响。
- ◎ 本产品适用于一般电子设备，如：AV设备，通信设备，家电产品，娱乐设备，计算机设备，个人设备，办公设备，计测设备，工业机器人等。且该一般电子设备需在常规的操作和使用方法环境下使用。对于需要高度安全性和可靠性的，或者因本产品失效造成设备故障，误操作，运转不良等危及到人的生命身体及财产安全，以及对社会产生较大不良影响的特殊用途，设计使用前务必同本公司沟通，设计使用者如未取得我司书面同意状况下使用造成任何后果，我司不予承担。特殊用途包含但不限于如下清单：

- |                       |                  |
|-----------------------|------------------|
| 1 军用设备                | 8 关系到国防安全的设备     |
| 2 运输设备（汽车，轨道交通产品，船舶等） | 9 防灾赈灾设备         |
| 3 航空，航天设备             | 10 各种安规设备        |
| 4 发电控制设备              | 11 紧急救护设备        |
| 5 核动力相关设备             | 12 其他被认定为特殊用途的设备 |
| 6 爆炸引燃控制设备            |                  |
| 7 交通控制设备              |                  |