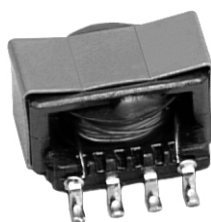




# Surface Mount Transformers/Inductors, Gapped and Ungapped, Custom Configurations Available



## FEATURES

- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## ELECTRICAL SPECIFICATIONS

**Inductance Range:** 10  $\mu$ H to 47 000  $\mu$ H, measured at 0.10 V<sub>RMS</sub> at 10 kHz without DC current, using an HP 4263A or HP 4284A impedance analyzer

**DC Resistance Range:** 0.03  $\Omega$  to 19.1  $\Omega$ , measured at +25 °C  $\pm$  5 °C

**Rated Current Range:** 2.00 A to 0.09 A

**Dielectric Withstanding Voltage:** 500 V<sub>RMS</sub>, 60 Hz, 5 s

**RoHS**  
COMPLIANT  
**HALOGEN**  
**FREE**

## STANDARD ELECTRICAL SPECIFICATIONS

| MODEL          | IND. ( $\mu$ H) | IND. TOL.  | SCHEMATIC LETTER | DCR MAX. ( $\Omega$ ) | MAX. RATED DC CURRENT (A) <sup>(1)</sup> | SATURATING CURRENT (A) <sup>(2)</sup> |                     |
|----------------|-----------------|------------|------------------|-----------------------|------------------------------------------|---------------------------------------|---------------------|
| LPE4841ER101NU | 100             | $\pm$ 30 % | A                | 0.17                  | 0.88                                     | N/A                                   | UNGAPPED MODELS (A) |
| LPE4841ER151NU | 150             | $\pm$ 30 % | A                | 0.21                  | 0.79                                     | N/A                                   |                     |
| LPE4841ER221NU | 220             | $\pm$ 30 % | A                | 0.25                  | 0.721                                    | N/A                                   |                     |
| LPE4841ER331NU | 330             | $\pm$ 30 % | A                | 0.30                  | 0.65                                     | N/A                                   |                     |
| LPE4841ER471NU | 470             | $\pm$ 30 % | A                | 0.36                  | 0.60                                     | N/A                                   |                     |
| LPE4841ER681NU | 680             | $\pm$ 30 % | A                | 0.44                  | 0.54                                     | N/A                                   |                     |
| LPE4841ER102NU | 1000            | $\pm$ 30 % | A                | 0.53                  | 0.49                                     | N/A                                   |                     |
| LPE4841ER152NU | 1500            | $\pm$ 30 % | A                | 0.65                  | 0.45                                     | N/A                                   |                     |
| LPE4841ER222NU | 2200            | $\pm$ 30 % | A                | 0.79                  | 0.40                                     | N/A                                   |                     |
| LPE4841ER332NU | 3300            | $\pm$ 30 % | A                | 1.55                  | 0.29                                     | N/A                                   |                     |
| LPE4841ER472NU | 4700            | $\pm$ 30 % | A                | 1.85                  | 0.26                                     | N/A                                   | GAPPED MODELS (B)   |
| LPE4841ER682NU | 6800            | $\pm$ 30 % | A                | 4.36                  | 0.17                                     | N/A                                   |                     |
| LPE4841ER103NU | 10 000          | $\pm$ 30 % | A                | 5.29                  | 0.16                                     | N/A                                   |                     |
| LPE4841ER153NU | 15 000          | $\pm$ 30 % | A                | 6.48                  | 0.14                                     | N/A                                   |                     |
| LPE4841ER223NU | 22 000          | $\pm$ 30 % | A                | 13.1                  | 0.10                                     | N/A                                   |                     |
| LPE4841ER333NU | 33 000          | $\pm$ 30 % | A                | 16.0                  | 0.09                                     | N/A                                   |                     |
| LPE4841ER473NU | 47 000          | $\pm$ 30 % | A                | 19.1                  | 0.08                                     | N/A                                   |                     |
| LPE4841ER100MG | 10              | $\pm$ 20 % | B                | 0.03                  | 2.03                                     | 2.320                                 |                     |
| LPE4841ER150MG | 15              | $\pm$ 20 % | B                | 0.04                  | 1.84                                     | 1.925                                 |                     |
| LPE4841ER220MG | 22              | $\pm$ 20 % | C                | 0.07                  | 1.32                                     | 1.610                                 |                     |
| LPE4841ER330MG | 33              | $\pm$ 20 % | C                | 0.09                  | 1.20                                     | 1.330                                 | GAPPED MODELS (B)   |
| LPE4841ER470MG | 47              | $\pm$ 20 % | D                | 0.13                  | 0.98                                     | 1.125                                 |                     |
| LPE4841ER680MG | 68              | $\pm$ 20 % | D                | 0.21                  | 0.79                                     | 0.941                                 |                     |
| LPE4841ER101MG | 100             | $\pm$ 20 % | E                | 0.35                  | 0.58                                     | 0.781                                 |                     |
| LPE4841ER151MG | 150             | $\pm$ 20 % | E                | 0.48                  | 0.52                                     | 0.641                                 |                     |
| LPE4841ER221MG | 220             | $\pm$ 20 % | E                | 0.73                  | 0.42                                     | 0.532                                 |                     |
| LPE4841ER331MG | 330             | $\pm$ 20 % | E                | 1.14                  | 0.34                                     | 0.436                                 |                     |
| LPE4841ER471MG | 470             | $\pm$ 20 % | E                | 1.36                  | 0.31                                     | 0.366                                 |                     |
| LPE4841ER681MG | 680             | $\pm$ 20 % | E                | 2.07                  | 0.25                                     | 0.305                                 |                     |
| LPE4841ER102MG | 1000            | $\pm$ 20 % | E                | 3.15                  | 0.20                                     | 0.252                                 |                     |
| LPE4841ER152MG | 1500            | $\pm$ 20 % | E                | 4.76                  | 0.16                                     | 0.206                                 |                     |
| LPE4841ER222MG | 2200            | $\pm$ 20 % | E                | 7.29                  | 0.13                                     | 0.170                                 |                     |
| LPE4841ER332MG | 3300            | $\pm$ 20 % | E                | 11.7                  | 0.11                                     | 0.139                                 |                     |
| LPE4841ER472MG | 4700            | $\pm$ 20 % | E                | 17.7                  | 0.09                                     | 0.117                                 |                     |

### Notes

(1) DC current that will create a maximum temperature rise of 30 °C when applied at +25 °C ambient

(2) DC current that will typically reduce the initial inductance by 20 %

- UNGAPPED MODELS:** Highest possible inductance with the lowest DCR and highest Q capability. Beneficial in filter, impedance matching and line coupling devices

**GAPPED MODELS:** Capable of handling large amounts of DC current, tighter inductance tolerance with better temperature stability than ungapped models. Beneficial in DC/DC converters or other circuits carrying DC currents or requiring inductance stability over a temperature range

## DESCRIPTION

| LPE   | 4841 | 1000 $\mu$ H     | $\pm$ 30 %           | A    | ER           | e2                            |
|-------|------|------------------|----------------------|------|--------------|-------------------------------|
| MODEL | SIZE | INDUCTANCE VALUE | INDUCTANCE TOLERANCE | CORE | PACKAGE CODE | JEDEC LEAD (Pb)-FREE STANDARD |

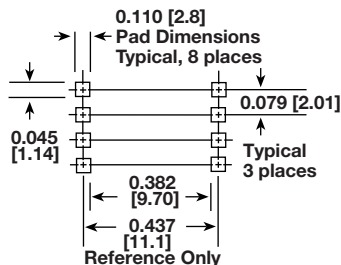
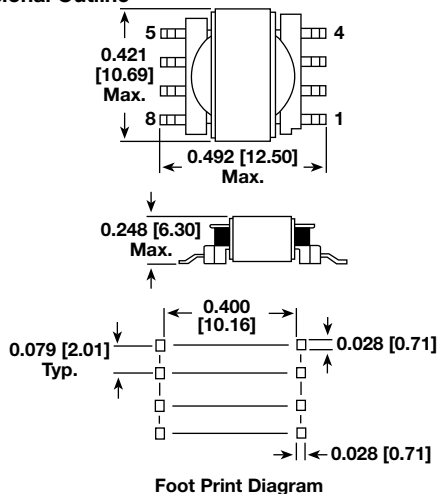
## GLOBAL PART NUMBER

|                |   |   |      |   |   |              |   |                  |   |   |      |   |      |
|----------------|---|---|------|---|---|--------------|---|------------------|---|---|------|---|------|
| L              | P | E | 4    | 8 | 4 | 1            | E | R                | 1 | 0 | 2    | N | U    |
| PRODUCT FAMILY |   |   | SIZE |   |   | PACKAGE CODE |   | INDUCTANCE VALUE |   |   | TOL. |   | CORE |

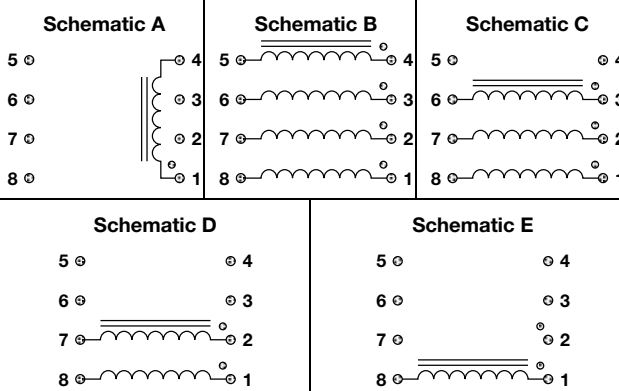
### Note

- Series is also available with SnPb terminations by using package code RY for tape and reel (in place of ER) or SM for bulk (in place of EB)

**DIMENSIONS** in inches [millimeters]

**Pad Layout**

**Dimensional Outline**

**Foot Print Diagram**
**Notes**

- Pad layout guidelines per MIL-STD-275E (printed wiring for electronic equipment)
- Tolerances:  $xx \pm 0.01$  [  $\pm 0.25$  mm ];  $xxx \pm 0.005$  [  $\pm 0.12$  mm ]
- The underside of these components contains metal and thus should not come in contact with active circuit traces

**SCHEMATIC** (top view)

**Note**

- Schematic A is for ungapped LPE series

**ENVIRONMENTAL PERFORMANCE**

| TEST                  | CONDITIONS                         |
|-----------------------|------------------------------------|
| Thermal cycling       | Withstands -55 °C to +125 °C       |
| Operating temperature | -55 °C to +125 °C <sup>(1)</sup>   |
| High humidity         | 85 %                               |
| Soldering heat        | Tested to +230 °C                  |
| Mechanical shock      | Per MIL-STD-202, method 213 (100G) |
| Vibration             | Per MIL-STD-202, method 204 (20G)  |
| Solderability         | Per industry standards             |

**Note**

- <sup>(1)</sup> Must be checked in end use application

**PART MARKING**

- Vishay Dale
- Date code
- Marking code (suffix of model #)
- Pin 1 indicator

**PACKAGING**
**TAPE SPECIFICATIONS:**

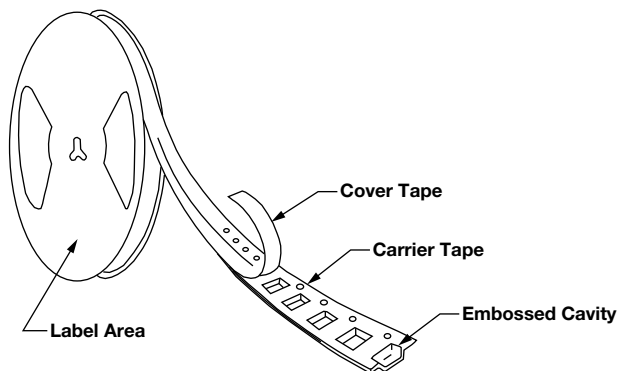
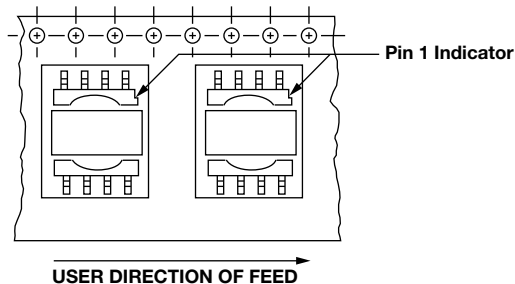
Carrier tape type: conductive  
Cover tape type: anti-static  
Cover tape adhesion to carrier: 40 g  $\pm$  30 g

**REEL SPECIFICATIONS:**

Diameter (flange): 13" [330.2 mm]  
Maximum width (over flanges): 1.197" [30.4 mm]

**STANDARDS:** All embossed carrier tape packaging will be accomplished in compliance with latest revision of EIA-481 "Taping of Surface Mount Components for Automatic Placement"

| MODEL    | TAPE WIDTH | COMPONENT PITCH | UNITS PER 13" REEL |
|----------|------------|-----------------|--------------------|
| LPE-4841 | 24 mm      | 16 mm           | 600                |

**Tape and Reel Orientation**

**Note**

- Top view shown with cover tape removed



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.