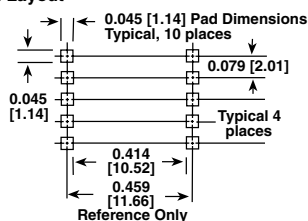


## Surface Mount Transformers/Inductors, Gapped and Ungapped Custom Configurations Available

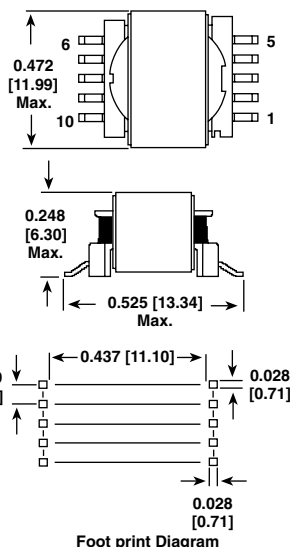


### DIMENSIONS in inches [millimeters]

#### Pad Layout



#### Dimensional Outline



Foot print Diagram

**NOTE:** 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.

### ELECTRICAL SPECIFICATIONS

(Multiple winds are connected in parallel)

**Inductance Range:** 10  $\mu$ H to 68 000  $\mu$ H, measured at 0.10 V RMS at 10 kHz without DC current, using an HP 4263A or HP 4284A impedance analyzer

**DC Resistance Range:** 0.03  $\Omega$  to 24.1  $\Omega$ , measured at + 25  $^{\circ}$ C  $\pm 5$   $^{\circ}$ C

**Rated Current Range:** 2.29 amps to 0.07 amps

**Dielectric Withstanding Voltage:** 500 V RMS, 60 Hz, 5 seconds



**RoHS**  
COMPLIANT

### STANDARD ELECTRICAL SPECIFICATIONS

| MODEL                      | IND. ( $\mu$ H) | IND. TOL.  | SCHEMATIC LETTER | DCR MAX. (Ohms) | MAX. RATED* DC CURRENT (Amps) | SATURATING CURRENT** (Amps) |
|----------------------------|-----------------|------------|------------------|-----------------|-------------------------------|-----------------------------|
| <b>Ungapped Models (A)</b> |                 |            |                  |                 |                               |                             |
| LPE5047ER151NU             | 150             | $\pm 30$ % | A                | 0.20            | 0.79                          | N/A                         |
| LPE5047ER221NU             | 220             | $\pm 30$ % | A                | 0.24            | 0.72                          | N/A                         |
| LPE5047ER331NU             | 330             | $\pm 30$ % | A                | 0.29            | 0.65                          | N/A                         |
| LPE5047ER471NU             | 470             | $\pm 30$ % | A                | 0.35            | 0.59                          | N/A                         |
| LPE5047ER681NU             | 680             | $\pm 30$ % | A                | 0.42            | 0.54                          | N/A                         |
| LPE5047ER102NU             | 1000            | $\pm 30$ % | A                | 0.51            | 0.49                          | N/A                         |
| LPE5047ER152NU             | 1500            | $\pm 30$ % | A                | 0.63            | 0.44                          | N/A                         |
| LPE5047ER222NU             | 2200            | $\pm 30$ % | A                | 0.76            | 0.40                          | N/A                         |
| LPE5047ER332NU             | 3300            | $\pm 30$ % | A                | 1.00            | 0.35                          | N/A                         |
| LPE5047ER472NU             | 4700            | $\pm 30$ % | A                | 2.24            | 0.24                          | N/A                         |
| LPE5047ER682NU             | 6800            | $\pm 30$ % | A                | 2.70            | 0.21                          | N/A                         |
| LPE5047ER103NU             | 10 000          | $\pm 30$ % | A                | 3.27            | 0.19                          | N/A                         |
| LPE5047ER153NU             | 15 000          | $\pm 30$ % | A                | 6.26            | 0.14                          | N/A                         |
| LPE5047ER223NU             | 22 000          | $\pm 30$ % | A                | 7.58            | 0.13                          | N/A                         |
| LPE5047ER333NU             | 33 000          | $\pm 30$ % | A                | 9.50            | 0.11                          | N/A                         |
| LPE5047ER473NU             | 47 000          | $\pm 30$ % | A                | 18.5            | 0.08                          | N/A                         |
| LPE5047ER683NU             | 68 000          | $\pm 30$ % | A                | 24.1            | 0.07                          | N/A                         |
| <b>Gapped Models (B)</b>   |                 |            |                  |                 |                               |                             |
| LPE5047ER100MG             | 10              | $\pm 20$ % | B                | 0.03            | 2.29                          | 2.690                       |
| LPE5047ER150MG             | 15              | $\pm 20$ % | B                | 0.04            | 2.07                          | 2.230                       |
| LPE5047ER220MG             | 22              | $\pm 20$ % | B                | 0.05            | 1.68                          | 1.860                       |
| LPE5047ER330MG             | 33              | $\pm 20$ % | C                | 0.09            | 1.35                          | 1.540                       |
| LPE5047ER470MG             | 47              | $\pm 20$ % | D                | 0.13            | 1.11                          | 1.300                       |
| LPE5047ER680MG             | 68              | $\pm 20$ % | D                | 0.15            | 1.01                          | 1.085                       |
| LPE5047ER101MG             | 100             | $\pm 20$ % | D                | 0.24            | 0.81                          | 0.900                       |
| LPE5047ER151MG             | 150             | $\pm 20$ % | D                | 0.37            | 0.65                          | 0.740                       |
| LPE5047ER221MG             | 220             | $\pm 20$ % | E                | 0.55            | 0.53                          | 0.610                       |
| LPE5047ER331MG             | 330             | $\pm 20$ % | E                | 0.85            | 0.43                          | 0.500                       |
| LPE5047ER471MG             | 470             | $\pm 20$ % | E                | 1.29            | 0.35                          | 0.420                       |
| LPE5047ER681MG             | 680             | $\pm 20$ % | E                | 1.96            | 0.28                          | 0.350                       |
| LPE5047ER102MG             | 1000            | $\pm 20$ % | E                | 2.38            | 0.26                          | 0.290                       |
| LPE5047ER152MG             | 1500            | $\pm 20$ % | E                | 3.66            | 0.21                          | 0.240                       |
| LPE5047ER222MG             | 2200            | $\pm 20$ % | E                | 5.47            | 0.17                          | 0.195                       |
| LPE5047ER332MG             | 3300            | $\pm 20$ % | E                | 8.48            | 0.14                          | 0.160                       |
| LPE5047ER472MG             | 4700            | $\pm 20$ % | E                | 13.2            | 0.11                          | 0.135                       |

\* DC current that will create a maximum temperature rise of 30  $^{\circ}$ C when applied at + 25  $^{\circ}$ C ambient. \*\* 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 to DC converters or other circuits carrying DC currents or requiring inductance stability over a temperature range.

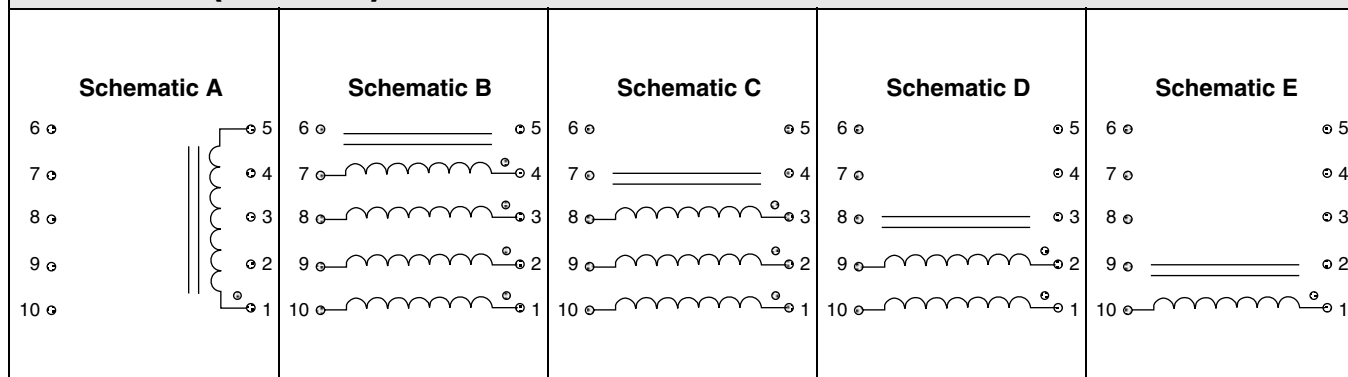
### DESCRIPTION

LPE 5047 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 5 0 4 7 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).

**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*               |
| 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             |

\* Must be checked in end use application

**PART MARKING**

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

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

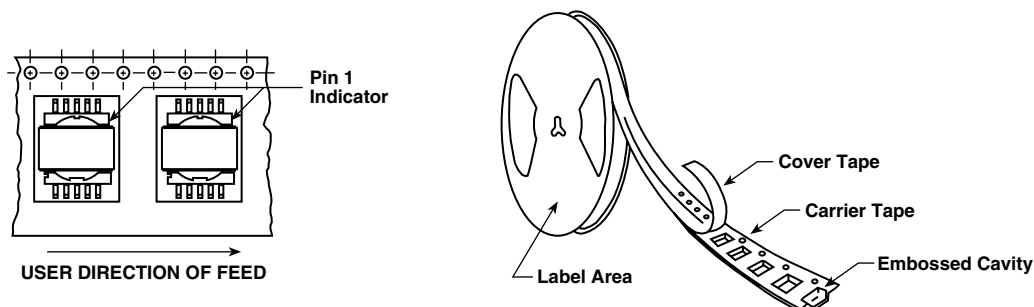
Carrier Tape Type: Conductive  
Cover Tape Type: Anti-static  
Cover Tape Adhesion to Carrier: 40 ± 30 grams

**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 INCH REEL |
|----------|------------|-----------------|------------------------|
| LPE-5047 | 24 mm      | 16 mm           | 600                    |

**Tape and Reel Orientation**

**NOTE:** Top view shown with cover tape removed



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