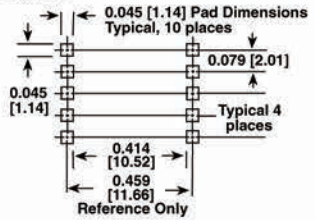
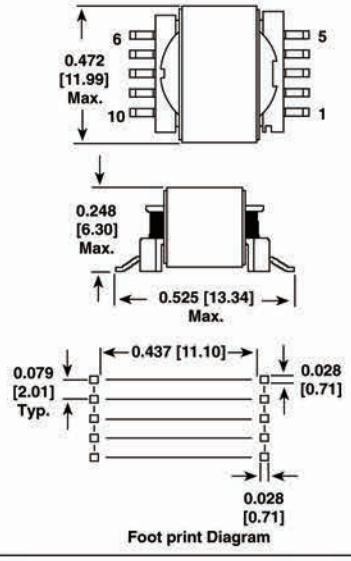

# Surface Mount Transformers/Inductors, Gapped and Ungapped Custom Configurations Available

## 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 ± 0.01" [± 0.25 mm]; xxx ± 0.005" [± 0.12 mm]

The underside of these components contains metal and thus should not come in contact with active circuit traces.

| 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

## ELECTRICAL SPECIFICATIONS

(Multiple winds are connected in parallel)

**Inductance Range:** 10 µH to 68 000 µH, 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 Ω to 24.1 Ω, measured at + 25 °C ± 5 °C

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

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

### STANDARD ELECTRICAL SPECIFICATIONS

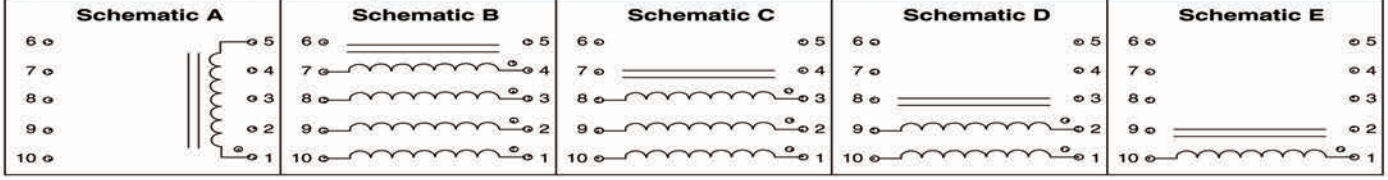
| MODEL | IND. (µH) | IND. TOL. | SCHEMATIC LETTER | DCR MAX. (Ohms) | MAX. RATED* DC CURRENT (Amps) | SATURATING CURRENT** (Amps) |
|---|---|---|---|---|---|---|
| **Ungapped Models** (A) | | | | | | |
| YCER11-151NU | 150 | ±30% | A | 0.20 | 0.79 | N/A |
| YCER11-221NU | 220 | ±30% | A | 0.24 | 0.72 | N/A |
| YCER11-331NU | 330 | ±30% | A | 0.29 | 0.65 | N/A |
| YCER11-471NU | 470 | ±30% | A | 0.35 | 0.59 | N/A |
| YCER11-681NU | 680 | ±30% | A | 0.42 | 0.54 | N/A |
| YCER11-102NU | 1000 | ±30% | A | 0.51 | 0.49 | |
| YCER11-152NU | 1500 | ±30% | A | 0.63 | 0.44 | N/A |
| YCER11-222NU | 2200 | ±30% | A | 0.76 | 0.40 | N/A |
| YCER11-332NU | 3300 | ±30% | A | 1.00 | 0.35 | N/A |
| YCER11-472NU | 4700 | ±30% | A | 2.24 | 0.24 | N/A |
| YCER11-682NU | 6800 | ±30% | A | 2.70 | 0.21 | N/A |
| YCER11-103NU | 10 000 | ±30% | A | 3.27 | 0.19 | N/A |
| YCER11-153NU | 15 000 | ±30% | A | 6.26 | 0.14 | N/A |
| YCER11-223NU | 22 000 | ±30% | A | 7.58 | 0.13 | N/A |
| YCER11-333NU | 33 000 | ±30% | A | 9.50 | 0.11 | N/A |
| YCER11-473NU | 47 000 | ±30% | A | 18.5 | 0.08 | N/A |
| YCER11-683NU | 68 000 | ±30% | A | 24.1 | 0.07 | N/A |
| **Gapped Models** (B) | | | | | | |
| YCER11-100MG | 10 | ±20% | B | 0.03 | 2.29 | 2.690 |
| YCER11-150MG | 15 | ±20% | B | 0.04 | 2.07 | 2.230 |
| YCER11-220MG | 22 | ±20% | B | 0.05 | 1.68 | 1.860 |
| YCER11-330MG | 33 | ±20% | C | 0.09 | 1.35 | 1.540 |
| YCER11-470MG | 47 | ±20% | D | 0.13 | 1.11 | 1.300 |
| YCER11-680MG | 68 | ±20% | D | 0.15 | 1.01 | 1.085 |
| YCER11-101MG | 100 | ±20% | D | 0.24 | 0.81 | 0.900 |
| YCER11-151MG | 150 | ±20% | D | 0.37 | 0.65 | 0.740 |
| YCER11-221MG | 220 | ±20% | E | 0.55 | 0.53 | 0.610 |
| YCER11-331MG | 330 | ±20% | E | 0.85 | 0.43 | 0.500 |
| YCER11-471MG | 470 | ±20% | E | 1.29 | 0.35 | 0.420 |
| YCER11-681MG | 680 | ±20% | E | 1.96 | 0.28 | 0.350 |
| YCER11-102MG | 1000 | ±20% | E | 2.38 | 0.26 | 0.290 |
| YCER11-152MG | 1500 | ±20% | E | 3.66 | 0.21 | 0.240 |
| YCER11-222MG | 2200 | ±20% | E | 5.47 | 0.17 | 0.195 |
| YCER11-332MG | 3300 | ±20% | E | 8.48 | 0.14 | 0.160 |
| YCER11-472MG | 4700 | ±20% | E | 13.2 | 0.11 | 0.135 |

* DC current that will create a maximum temperature rise of 30 °C when applied at + 25 °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.

## SCHEMATIC (TOP VIEW)




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).


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

| ENVIRONMENTAL PERFORMANCE | |
|---|---|
| **TEST** | **CONDITIONS** |
| **Thermal Cycling** | Withstands -55 °C to +125 °C |
| **Operating Temperature** | -55 °C to +125 °C (1) |
| **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**
(1) Must be checked in end use application.

## ELECTRICAL SPECIFICATIONS

(multiple winds are connected in parallel)
**Inductance Range:** 10 µH to 330 000 µH, 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 Ω to 53.7 Ω, measured at +25 °C ± 5 °C
**Rated Current Range:** 3.00 A to 0.06 A
**Dielectric Withstanding Voltage:** 500 $V_{RMS}$, 60 Hz, 5 s

## STANDARD ELECTRICAL SPECIFICATIONS

| MODEL | IND. (µH) | IND. TOL. | SCHEMATIC LETTER | DCR MAX. (Ω) | MAX. RATED DC CURRENT (A) (1) | SATURATING CURRENT (A) (2) | |
|---|---|---|---|---|---|---|---|
| YCER14.5-221NU | 220 | ± 30 % | A | 0.28 | 0.90 | N/A | UNGAPPED MODELS (A) |
| YCER14.5-331NU | 330 | ± 30 % | A | 0.34 | 0.81 | N/A | |
| YCER14.5-471NU | 470 | ± 30 % | A | 0.40 | 0.74 | N/A | |
| YCER14.5-681NU | 680 | ± 30 % | A | 0.48 | 0.67 | N/A | |
| YCER14.5-102NU | 1000 | ± 30 % | A | 0.59 | 0.61 | N/A | |
| YCER14.5-152NU | 1500 | ± 30 % | A | 0.72 | 0.55 | N/A | |
| YCER14.5-222NU | 2200 | ± 30 % | A | 0.87 | 0.50 | N/A | |
| YCER14.5-332NU | 3300 | ± 30 % | A | 1.07 | 0.45 | N/A | |
| YCER14.5-472NU | 4700 | ± 30 % | A | 1.27 | 0.41 | N/A | |
| YCER14.5-682NU | 6800 | ± 30 % | A | 1.53 | 0.38 | N/A | |
| YCER14.5-103NU | 10 000 | ± 30 % | A | 1.86 | 0.34 | N/A | |
| YCER14.5-153NU | 15 000 | ± 30 % | A | 2.27 | 0.31 | N/A | |
| YCER14.5-223NU | 22 000 | ± 30 % | A | 8.67 | 0.16 | N/A | |
| YCER14.5-333NU | 33 000 | ± 30 % | A | 10.6 | 0.14 | N/A | |
| YCER14.5-473NU | 47 000 | ± 30 % | A | 12.7 | 0.13 | N/A | |
| YCER14.5-683NU | 68 000 | ± 30 % | A | 15.2 | 0.12 | N/A | |
| YCER14.5-104NU | 100 000 | ± 30 % | A | 18.5 | 0.11 | N/A | |
| YCER14.5-154NU | 150 000 | ± 30 % | A | 37.7 | 0.08 | N/A | |
| YCER14.5-224NU | 220 000 | ± 30 % | A | 45.6 | 0.07 | N/A | |
| YCER14.5-334NU | 330 000 | ± 30 % | A | 53.7 | 0.06 | N/A | |
| YCER14.5-100MG | 10 | ± 20 % | B | 0.03 | 3.09 | 5.055 | GAPPED MODELS (B) |
| YCER14.5-150MG | 15 | ± 20 % | B | 0.04 | 2.79 | 4.160 | |
| YCER14.5-220MG | 22 | ± 20 % | B | 0.05 | 2.26 | 3.460 | |
| YCER14.5-330MG | 33 | ± 20 % | B | 0.08 | 1.81 | 2.840 | |
| YCER14.5-470MG | 47 | ± 20 % | D | 0.12 | 1.48 | 2.390 | |
| YCER14.5-680MG | 68 | ± 20 % | C | 0.19 | 1.20 | 1.990 | |
| YCER14.5-101MG | 100 | ± 20 % | D | 0.29 | 0.98 | 1.650 | |
| YCER14.5-151MG | 150 | ± 20 % | E | 0.45 | 0.78 | 1.350 | |
| YCER14.5-221MG | 220 | ± 20 % | E | 0.54 | 0.71 | 1.115 | |
| YCER14.5-331MG | 330 | ± 20 % | E | 0.84 | 0.57 | 0.912 | |
| YCER14.5-471MG | 470 | ± 20 % | E | 1.24 | 0.47 | 0.765 | |
| YCER14.5-681MG | 680 | ± 20 % | E | 1.89 | 0.38 | 0.637 | |
| YCER14.5-102MG | 1000 | ± 20 % | E | 2.91 | 0.31 | 0.526 | |
| YCER14.5-152MG | 1500 | ± 20 % | E | 4.50 | 0.25 | 0.430 | |
| YCER14.5-222MG | 2200 | ± 20 % | E | 6.90 | 0.20 | 0.355 | |
| YCER14.5-332MG | 3300 | ± 20 % | E | 10.4 | 0.16 | 0.290 | |
| YCER14.5-472MG | 4700 | ± 20 % | E | 15.7 | 0.13 | 0.243 | |

**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.