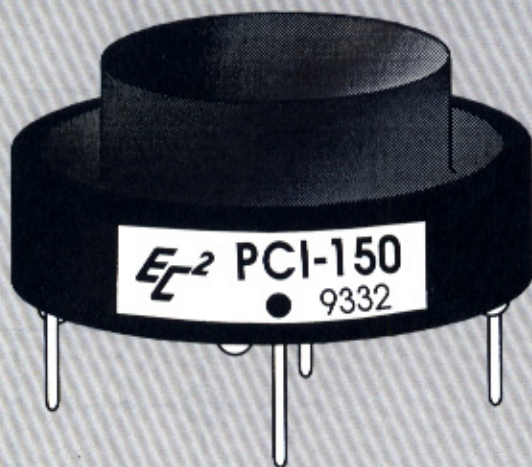


# EC<sup>2</sup>



## RF / LOW POWER POT-CORE INDUCTORS

- Fully encapsulated thru-hole lead design
- High Q
- Excellent shielding
- Low-loss ferrite cores

## design notes

Pot-core inductors described in this brochure are manufactured of the highest quality raw materials utilizing low-loss ferrite core material; they are provided as round units with thru-hole leads to realize maximum inductance per unit volume.

These pot-core inductors are designed to provide the utmost in versatility for RF/low power applications in computers, filters, instruments, missiles, aircraft, business machines, communications equipment and similar type applications. They are designed for printed circuit board thru-hole lead applications; package design provides positive standoff to allow flush cleaning of solder-flux residue from under the component after the soldering operation.

These inductors are designed and manufactured to obtain maximum Q and good temperature stability of inductance in the smallest possible package size. The pot-core inductor design isolates the winding from stray magnetic fields and effects from surrounding circuit elements. The unit is secured in the housing with epoxy resin and the top is coated with conformal coating. Leads are oxygen-free copper per MIL-W-1276 and are tin-plated per MIL-P-81728, semi-

bright. Housing material is flame-proof Diallyl Phthalate per MIL-M-14, Type SDG-F and the mounting platform is Vectra<sup>®</sup>, a liquid crystal polymer plastic meeting the requirements of MIL-M-24519C. Diallyl Phthalate can be used continuously at 450 °F; Vectra can be used continuously at 254 °C (489 °F), has a melt point of 280 °C (538 °F), and is inherently flame retardant. Both Diallyl Phthalate and Vectra meet the flammability requirements of UL 94V-0.

These pot-core inductors are designed to meet the applicable portions of Specification MIL-C-15305, Grade I, Class B. Temperature coefficient of inductance is less than 400ppm/°C over the operating temperature range of -30 to +70 °C. Inductors are capable of withstanding 500 V DC @ 50 microamps applied between inductor to case.

Standard inductance tolerance is  $\pm 10\%$ ; however, units can be supplied to closer tolerances on special order. Standard apparent inductance values are shown in the following tables. Since apparent inductance varies with AC/DC current values, each end application should be evaluated to ensure proper specification of inductance value. Inductance and Q are measured on a HP 4284A/42841A LCR Meter, and self-resonant frequency is obtained utilizing a HP 4195A Network Analyzer. Tabulated current ratings are those calculated to cause a 25 °C rise in case temperature.

Marking consists of manufacturer's logo (EC<sup>2</sup>), part number, terminal identification and date code of manufacture. All marking is applied by Laser Label. Coil termination occurs at pin centered under label and at pin opposite. Pins at 90° locations are no-connection mounting pins.

Vectra<sup>®</sup> is a registered trademark of Hoechst Celanese Corporation.

# EC<sup>2</sup>

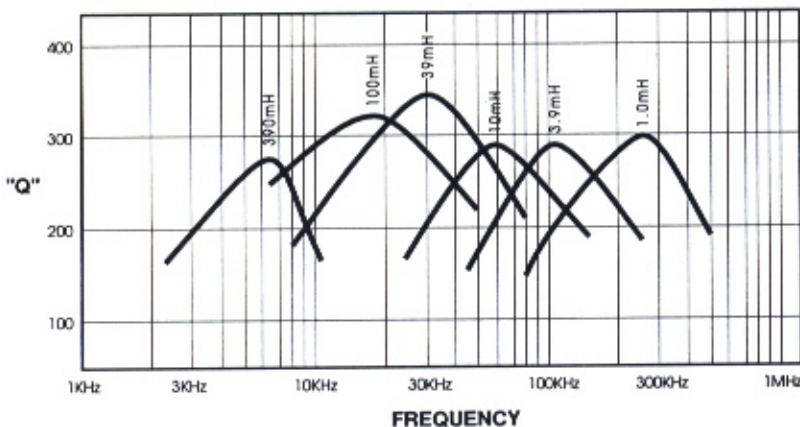
## engineered components company

3580 Sacramento Drive, P.O. Box 8121, San Luis Obispo, CA 93403-8121

Phone: (805) 544-3800



## TYPICAL "Q" VS FREQUENCY

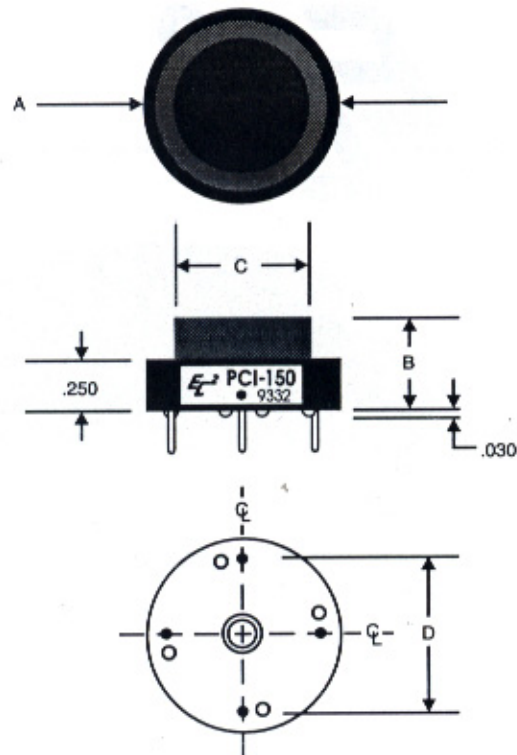


## TEST FREQUENCY TABLE

| L (IN mH) RANGE | L AND Q TEST FREQUENCY |
|-----------------|------------------------|
| 1.0 to 4.3      | 79 KHz                 |
| 4.3 to 25       | 25 KHz                 |
| 25 to 250       | 7.9 KHz                |
| 250 to 1,000    | 2.5 KHz                |

## PART NUMBER TABLE

| PART NUMBER | L (mH) | SIZE | DCR TYP. (Ohm) | Q NOM. | SRF TYP. (Mhz) | RATED $I_{dc}$ (mA) |
|-------------|--------|------|----------------|--------|----------------|---------------------|
| PCI-1.0     | 1.0    | 1    | 2.5            | 150    | 1.25           | 350                 |
| PCI-1.2     | 1.2    | 1    | 3.0            | 160    | 1.15           | 320                 |
| PCI-1.5     | 1.5    | 1    | 3.5            | 180    | 1.08           | 290                 |
| PCI-1.8     | 1.8    | 1    | 4.0            | 200    | 1.00           | 270                 |
| PCI-2.2     | 2.2    | 2    | 5.5            | 200    | .89            | 270                 |
| PCI-2.7     | 2.7    | 2    | 6.0            | 210    | .85            | 260                 |
| PCI-3.3     | 3.3    | 2    | 6.5            | 230    | .73            | 250                 |
| PCI-3.9     | 3.9    | 2    | 7.0            | 250    | .68            | 240                 |
| PCI-4.7     | 4.7    | 3    | 5.5            | 135    | .72            | 300                 |
| PCI-5.6     | 5.6    | 3    | 6.0            | 150    | .58            | 290                 |
| PCI-6.8     | 6.8    | 3    | 7.0            | 165    | .55            | 270                 |
| PCI-8.2     | 8.2    | 3    | 8.0            | 180    | .52            | 250                 |
| PCI-10      | 10.0   | 4    | 10             | 170    | .37            | 260                 |
| PCI-12      | 12.0   | 4    | 11             | 190    | .35            | 250                 |
| PCI-15      | 15.0   | 4    | 12             | 220    | .33            | 240                 |
| PCI-18      | 18.0   | 4    | 13.5           | 240    | .30            | 230                 |
| PCI-22      | 22.0   | 4    | 15             | 280    | .28            | 220                 |
| PCI-27      | 27.0   | 5    | 11             | 150    | .19            | 280                 |
| PCI-33      | 33.0   | 5    | 12             | 165    | .17            | 270                 |
| PCI-39      | 39.0   | 5    | 14             | 180    | .16            | 250                 |
| PCI-47      | 47.0   | 5    | 16             | 190    | .15            | 230                 |



A = OUTSIDE DIAMETER B = HEIGHT  
C = CORE DIAMETER D = LEAD SPACING

| SIZE | A     | B    | C     | D     |
|------|-------|------|-------|-------|
| 1    | .525  | .285 | N/A   | .350  |
| 2    | .640  | .320 | .360  | .450  |
| 3    | .700  | .360 | .430  | .500  |
| 4    | .820  | .440 | .550  | .650  |
| 5    | 1.025 | .520 | .720  | .800  |
| 6    | 1.145 | .640 | .850  | .950  |
| 7    | 1.340 | .740 | 1.010 | 1.100 |
| 8    | 1.525 | .850 | 1.200 | 1.300 |
| 9    | 1.750 | .980 | 1.400 | 1.550 |

| PART NUMBER | L (mH) | SIZE | DCR TYP. (Ohm) | Q NOM | SRF TYP. (Mhz) | RATED $I_{dc}$ (mA) |
|-------------|--------|------|----------------|-------|----------------|---------------------|
| PCI-56      | 56.0   | 6    | 18             | 200   | .105           | 230                 |
| PCI-68      | 68.0   | 6    | 20             | 210   | .100           | 220                 |
| PCI-82      | 82.0   | 6    | 22             | 240   | .095           | 210                 |
| PCI-100     | 100    | 6    | 24             | 270   | .090           | 200                 |
| PCI-120     | 120    | 7    | 32             | 300   | .065           | 250                 |
| PCI-150     | 150    | 7    | 35             | 330   | .063           | 240                 |
| PCI-180     | 180    | 7    | 38             | 360   | .061           | 230                 |
| PCI-220     | 220    | 7    | 42             | 400   | .059           | 220                 |
| PCI-270     | 270    | 8    | 28             | 170   | .045           | 330                 |
| PCI-330     | 330    | 8    | 31             | 180   | .043           | 310                 |
| PCI-390     | 390    | 8    | 35             | 190   | .041           | 290                 |
| PCI-470     | 470    | 8    | 38             | 200   | .039           | 280                 |
| PCI-560     | 560    | 9    | 48             | 210   | .038           | 290                 |
| PCI-680     | 680    | 9    | 54             | 220   | .034           | 270                 |
| PCI-820     | 820    | 9    | 60             | 230   | .030           | 260                 |