Inductors, Chips and Chokes

A Comprehensive Guide to Choosing the Right Inductor

You are the visionaries. The engineers. The designers. The Architects of the next dimension. We are the makers of your building blocks. From Chip Inductors to Chip Choke Coils, Panasonic manufactures a wide range of inductive components. With Panasonic Electronic Components, enter the next dimension.

1-800-344-2112
www.panasonic.com/industrial/electronic-components
A Wide Range of Inductive Components
Panasonic Electronic Components offers a wide range of Inductor Products. These comprehensive guides provide a quick and easy snapshot of Panasonic’s offering of chip inductors and choke coils which will make choosing the appropriate part for the application easy.

ELJ Series Chip Inductors
Panasonic Electronic Components offers a variety of Chip Inductors ranging from Laser-cut 0402 and 0603 case sizes to 0805 through 1812 case sizes with wirewound construction.

Laser-cut Inductors provide tight control of inductance value and mounting in any direction. For higher Q, there are ELJ-QF (0402) and ELJ-QE (0603) with higher Q than the general use ELJ-RF and ELJ-RE, respectively. While wirewound devices offer a bit better Q in high frequency circuits, the ELJ-QF and ELJ-QE Series provide adequate Q in a cost effective solution. For higher current there are the ELJ-PF and ELJ-PE Series.

ELL Series Chip Choke Coils
Panasonic offers a selection of SMT Chip Choke Coils in different form factors and footprints for a variety of applications. There are both magnetically shielded and non-shielded Series.

Panasonic Electronic Components SMT Chip Choke Coils are available with a wide variety of specifications, including, magnetically shielded, low profile, thin, low DC resistance, large current capability, and vibration resistant.

ETQ Series Power Choke Coils
Panasonic Power Choke Coils offer high heat resistance, excellent DC bias characteristic, Hi-BS With Ferrous alloy magnetic material and great reliability at high temperatures with a high tolerance for vibration. These Power Choke Coils also have very low audible noise and are extremely efficient with low DCR and eddy current loss reduction. Metal composite core material, with distributed airgap, and stamped frame coils on some series provide near linear Inductance vs Current and do not saturate, while also offering a cost effective design solution.

ELC Series Radial Leaded Choke Coils
Panasonic offers both magnetically shielded and non-shielded Radial Leaded Choke Coils. The magnetically shielded series are, ELC-10E-L, ELC-12E-L, ELC-15E-L, and ELC-18E-L while the non-shielded Series include ELC-09D, ELC-11D, ELC-12D, ELC-16B, and ELC-18B. Both are primarily used for noise filtering and energy storage applications.

Visit Us Online
for more detailed selection of Inductors, Chips and Chokes

www.panasonic.com/industrial/electronic-components

Make your product Powered by Panasonic Quickly Using These Online Tools

Part Number Search
Enter full part number or series prefix for immediate access to product specifications

Parametric Search
Identify the right part based on known specification details

Search Parts Inventory
Search for currently available inventory by part number

Find Sales Reps & Distributors
Easily search for local sales or technical assistance

Contact Us
Submit inquiries or request literature quickly and easily

Technical assistance is just a click away!
Inductors, Chips and Chokes Quick Selection Guide

Making easy to use Panasonic SMT Chip Choke Coils (CCC) and Power Choke Coils easy to choose as well, we now have selection guides to facilitate SMT choke coil selection. With Inductance values down the left column and Series with their form factors across the top rows, it is now easy to locate available values. Also shown are Rated Current and DC Resistance (DCR).

<table>
<thead>
<tr>
<th>Series</th>
<th>Size Code Inch (mm)</th>
<th>Inductor Range</th>
<th>Rated Current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1n</td>
<td>10n</td>
</tr>
<tr>
<td>Chip Inductors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
<tr>
<td>ELC-PF-QF</td>
<td>0402 (0603mm)</td>
<td>1.1nH</td>
<td>10nH</td>
</tr>
</tbody>
</table>
| ELC-PF-QF | 0402 (0603mm)    | 1.1nH  | 10nH | 100nH | 2.2nH | 10nH | 220nH | 700uH | 220uB
## Chip Choke Coil Detailed Selection Guide

**Length x Width (mm)** | 3.0 x 3.0 | 3.2 x 3.2 | 3.8 x 3.8 | 4.0 x 4.0 | 5.0 x 5.0 | 6.0 x 6.0 | 8.0 x 8.0 | 10.0 x 10.0 | 12.0 x 12.0
---|---|---|---|---|---|---|---|---|---
**Foot Area (mm²)** | | | | | | | | | |
**Max Height (mm)** | 1.00 | 1.20 | 1.20 | 1.55 | 1.20 | 1.80 | 1.40 | 1.20 | 2.00
**Marking** | 2R5 2.5 | 2R5 2.5 | 2R4 2.4 | 2R4 2.4 | 5R1 5.1 | 0.76 220 1.55 56 4.35 14 | 8R2 8.2 | 0.54 410 0.87 220 1.20 87 1.40 61 3.70 18 4.40 15 8R2 8.2 | 2R0 2.0 | 1.30 70 2.60 26 5.10 8.7 6.30 5.6 2R0 2.0 | 1R8 1.8 | 1.10 110 1.55 71 1R8 1.8 |
**Rated Current:** This indicates the value of current when the inductance is 80% or more than nominal value and/or temperature rising 45ºC lower at D.C superposition (at 20º)

Please ask a Panasonic Electronic Components representative to confirm product specifications and availability prior to design in. Design specifications are subject to change without notice.
### Power Choke Coil Detailed Selection Guide

**Max Height (mm)**
- 5.4mm
- 5.4mm
- 5.4mm
- 5.0mm
- 3.0mm
- 3.0mm
- 3.0mm
- 4.0mm
- 4.0mm
- 4.0mm
- 5.0mm
- 3.9mm
- 4.9mm
- 6.0mm
- 6.0mm
- 5.7mm

**2R0H ±30%**
- ±30%
- 3.5/8.7A
- 2.0/12.5A

**1R2H ±30%**
- ±30%
- 2.3/11.7A
- 1.2/14.2A

**8R2H ±25%**
- ±25%
- 10.4/5.0A
- 8.2/7.2A

**4R6H ±25%**
- ±25%
- 6.6/6.0A
- 4.6/9.3A

**2R5B ±20%**
- ±20%
- 2.45/12A
- 2.17/17A

**1R8B ±20%**
- ±20%
- 1.71/14A
- 1.50/20A

**1R1B ±20%**
- ±20%
- 1.06/16A
- 0.99/22A

**1R8B ±20%**
- ±20%
- 1.83/14A
- 1.49/20A

**1R2B ±20%**
- ±20%
- 1.22/16A
- 1.04/22A

**1R6S ±30%**
- ±30%
- 2.8/12.2A
- 1.6/12.5A

**1R3L ±30%**
- ±30%
- 2.5/15.8A
- 1.3/12.5A

**2R9L ±30%**
- ±30%
- 4.1/10.0A
- 2.9/9.3A

**102H ±25%**
- ±25%
- 12.5/4.0A
- 10.2/6.5A

**2R0L ±30%**
- ±30%
- 3.1/12.1A
- 2.0/10.8A

**1R3L ±30%**
- ±30%
- 2.5/15.8A
- 1.3/12.5A

**2R9L ±30%**
- ±30%
- 4.1/10.0A
- 2.9/9.3A

**4R7 ±20%**
- ±20%
- 4.7/0A
- 20.4

**3R3 ±20%**
- ±20%
- 3.3/0A
- 7.1

**2R2 ±20%**
- ±20%
- 2.2/0A
- 1.95/5.8A

**R19 ±20%**
- ±20%
- 0.19/21A
- 0.17/28A

**R60 ±20%**
- ±20%
- 0.60/30A
- 0.54/42A

**R19 ±20%**
- ±20%
- 0.19/21A
- 0.17/28A

**R60 ±20%**
- ±20%
- 0.60/30A
- 0.54/42A

**R19 ±20%**
- ±20%
- 0.19/21A
- 0.17/28A

**R60 ±20%**
- ±20%
- 0.60/30A
- 0.54/42A

---

**Series ETQ-P5M***

- ETQ-P5M***YFM
- ETQ-P5M***YFK
- ETQ-P5M***YFC
- ETQ-P5M***YGC
- ETQ-P3W***WFN
- ETQ-P3L***XFN
- ETQ-P3M***YFN
- ETQ-P4L***AFM
- ETQ-P4L***FC
- ETQ-P5L***XFA
- ETQ-P3H***BFA
- ETQ-P2H***BFA
- ETQ-P1H***BFA
- ETQ-P6F***BFA
- ETQ-P6F****FA

---

**Inductance**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**L2 Value**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Notes:**

1. "Saturation Current" means 20% drop point from flat point Inductance value at 100ºC.
2. "TYP." means measured data at 20ºC and ±10% current.
3. "MEAS." means measured data at 100kHz and ±10% current.
4. Inductance measurement; at 100kHz, at 20ºC
5. L1 Value (Mn-Zn, Mn-Ni Core Type); at Flat point (25 ºC) with DC current applied.
6. "MAX" means maximum measured current at initial state or specified temperature.
For cutting edge technology that gives your product the performance, reliability and quality that today’s consumers demand, rely on Panasonic’s entire line of components starting with this Product Series Guide. Visit our website today for complete product details.

Make Your Product Powered by Panasonic

### Capacitors
- **ECA, EEA, EEC** - Aluminum Electrolytic Cap. (Radial Lead)
- **ECQ** - Thru Hole Polyester Film Cap.
- **ECC-T, ECK-T** - SMT Ceramic Disc
- **ECW-F, ECW-H** - Thru Hole Polypropylene Film Cap.
- **ECE, ECO, EET** - Aluminum Electrolytic Cap. (Snap-in)
- **ECH, ECP, ECW-J** - SMT Plastic Film Cap.
- **EEC** - Electric Double Layer (Gold Cap.)
- **EEQ** - Aluminum Electrolytic Cap. (Lead Free)
- **EEH** - Hybrid Aluminum Electrolytic Cap.
- **EEE, EEV** - SMT AL Lytic (Lead Free)
- **EEF** - Speciality Polymer Cap. (SP Cap)

### Resistors
- **ERA** - Metal/Thin Film Chip Resistors
- **ERJ** - Thick Film Chip Resistors
- **ERB** - Micro Chip Fuse
- **ERX** - Metal Film Resistors
- **ERF** - Wirewound Resistors
- **ERQ** - Metal (Oxide) Film Fuse Resistors
- **ERG** - Metal (Oxide) Film Resistors
- **ERV** - Trimmers: Carbon Chip; 6mm Carbon
- **EXB** - Chip Res., Networks, Res. Array, Chip Ref, RC Filter

### Inductors and Filters
- **EFC** - Saw Devices
- **ELC** - Choke Coils
- **ELF** - Line Filters
- **ELJ** - Chip Inductors
- **ELK** - Inductance Type EMI Filters
- **ELL** - Choke Coils (SMD)
- **EXC** - Bead Cores, Chip Bead Cores, Chip Bead Arrays, SMT Filters
- **ELT** - Voltage Step-Up Coils
- **ELW** - L-R Filter (Inductor)
- **ETQ** - Power Choke Coils (SMD)

### Circuit Protection
- **EGY** - Pyrolytic Graphite Sheet (PGS)
- **EJZ** - Multilayer Chip Varistor, ESD Protection
- **ERT-J** - NTC Thermistors

### Electromechanical
- **ESB** - Push Switches
- **ESE** - Detector and Push Switches
- **EVE** - Encoders
- **EVC, EWI** - Rotary Potentiometers
- **EVA** - Slide Potentiometers; Position Sensors

### RF Modules
- **ENW** - Wireless RF Modules
- **ETW** - Position Sensors, Rotary Potentiometers

### Semiconductors
- **MOS FET** - N Channel/ P Channel
- **Diode** - Rectifiers
- **Diode** - Diode & Transistors
- **Diode** - Fast Recovery Diode
- **Diode** - Zener Diode

Panasonic Industrial Devices Sales Company of America
Panasonic Electronic Components

3 Panasonic Way • Secaucus, NJ 07094
1-800-344-2112 • www.panasonic.com/industrial/electronic-components