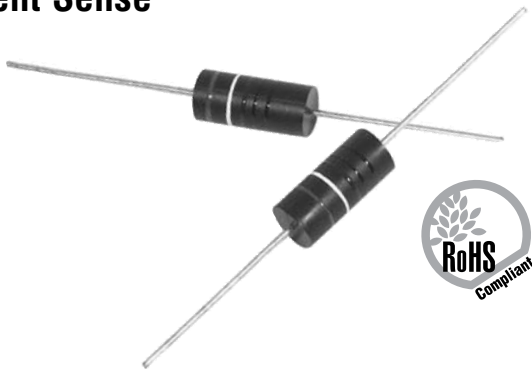


# WL Series

## Miniature Wirewound Current Sense



## FEATURES

- Ultra-low ohmic value series for Current Sensing applications
- Very low inductance (<1nH at 1MHz Test)
- Miniaturized dimensions, Better power to dimension ratios
- Use of the highest quality standard (96% Alumina) ceramic core
- Manufacturing process—Wire winding/Spot Welding—by Computer Numerical Control (CNC) machine tools to ensure consistency of product quality.
- Encapsulated by epoxy molding compound
- Advanced IC encapsulation mold/die technologies

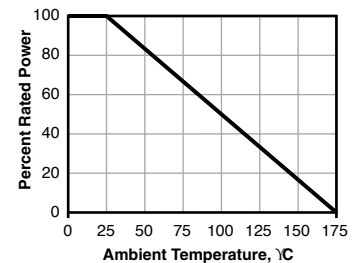
## SERIES SPECIFICATIONS

| Type | Power Rating (watts) | Resistance Range ( $\Omega$ ) |
|------|----------------------|-------------------------------|
| WLA  | 0.5                  | 0.005-0.100                   |
| WLB  | 1                    | 0.005-0.100                   |
| WLC  | 2                    | 0.010-0.100                   |

## CHARACTERISTICS

|                                |  |
|--------------------------------|--|
| <b>Ceramic Core</b>            | CeramTec Rubalit® 96% alumina  |
| <b>End Caps</b>                | Stainless steel, precision formed  |
| <b>Leads</b>                   | Copper wire, 100% Sn (Lead Free) coated  |
| <b>Resistance Wire</b>         | CN49W alloy TC $\pm 20$ ppm/ $^{\circ}$ C  |
| <b>Encapsulation</b>           | SUMICON 1100/1200 Epoxy molding compound for IC encapsulation  |
| <b>Standard Tolerance</b>      | F (1.0%), J (5.0%)   |
| <b>Temperature Coefficient</b> | $\pm 300$ ppm/ $^{\circ}$ C for $\leq 0.03\Omega$ ; $\pm 100$ ppm/ $^{\circ}$ C for $\geq 0.033\Omega$ |
| <b>Maximum Working Voltage</b> | $\sqrt{P \times R}$  |

## Derating



## PERFORMANCE DATA

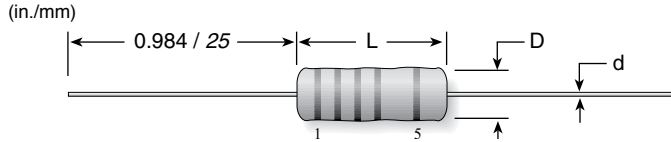
| Test                                   | Conditions Of Test  | Performance |
|--|---|-------------|
| <b>Thermal Shock</b>                   | Rated power applied until thermal stability, $-55^{\circ}$ C $+0^{\circ}$ C, $-5^{\circ}$ C, 15min. | $\pm 2.0\%$ |
| <b>Short-time Overload</b>             | 5 times rated wattage for 5 seconds   | $\pm 2.0\%$ |
| <b>Solderability</b>                   | Method 208 of MIL-STD-202   | $\pm 2.0\%$ |
| <b>Terminal Strength</b>               | Pull test: 10 pounds, 5 to 10 seconds, Twist test: $1080^{\circ}$ , 5 second/rotation               | $\pm 1.0\%$ |
| <b>Dielectric Withstanding Voltage</b> | 500 Volts rms for 1W. 1 minute  | $\pm 1.0\%$ |
| <b>High Temperature Exposure</b>       | Exposed to an ambient temperature of $275 \pm 5/0^{\circ}$ C for $250 \pm 8$ hours,                 | $\pm 5.0\%$ |
| <b>Moisture Resistance</b>             | MIL-STD-202 Method 106, 7b not applicable   | $\pm 2.0\%$ |
| <b>Low Temperature Storage</b>         | Cold chamber at a temperature of $-65 \pm 2^{\circ}$ C for $24 \pm 4$ hours                         | $\pm 2.0\%$ |
| <b>Vibration, High Frequency</b>       | Frequency varied 10 to 2000Hz, 200G peak, 2 directions 6 hours each                                 | $\pm 1.0\%$ |
| <b>Load Life</b>                       | 1000/2000 hours at rated power, $+25^{\circ}$ C, 1.5 hours "On", 0.5 hours "Off"                    | $\pm 5.0\%$ |

(continued)

# WL Series

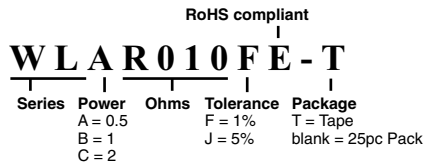
## Miniature Wirewound Current Sense

### DIMENSIONS



| Type | Power Rating (watts) | L            | D            | d            |
|------|----------------------|--------------|--------------|--------------|
| WLA  | 0.5                  | 5.08 / 0.200 | 2.54 / 0.100 | 0.60 / 0.024 |
| WLB  | 1                    | 7.00 / 0.276 | 3.30 / 0.130 | 0.60 / 0.024 |
| WLC  | 2                    | 11.4 / 0.450 | 4.57 / 0.180 | 0.80 / 0.031 |

### ORDERING INFORMATION



#### Standard Part Numbers for WL Series

| Wattage: | 0.5       | 1.0        | 2.0       |
|----------|-----------|------------|-----------|
| Series:  | WLA       | WLB        | WLC       |
| Ohms     |           |            |           |
| 0.005    | WLAR005FE | WLBRO05FE  | WLCR010FE |
| 0.01     | WLAR010FE | WLBRO10FE  | WLCR015FE |
| 0.015    | WLAR015FE | WLBRO15FE  | WLCR020FE |
| 0.02     | WLAR020FE | WLBRO20FE  | WLCR025FE |
| 0.025    | WLAR025FE | WLBRO25FE  | WLCR030FE |
| 0.03     | WLAR030FE | WLBRO30FE  | WLCR050FE |
| 0.05     | WLAR050FE | WLBRO50FE  | WLCR100FE |
| 0.10     | WLAR100FE | WLBRO100FE |           |

#### Key to five-band code



| Band   | 1     | 2 | 3 | 4          | 5           |
|--------|-------|---|---|------------|-------------|
| Color  | Digit |   |   | Multiplier | Tolerance   |
| Black  | 0     | 0 | 0 | x 1Ω       |             |
| Brown  | 1     | 1 | 1 | x 10Ω      | ± 1% (F)    |
| Red    | 2     | 2 | 2 | x 100Ω     | ± 2% (G)    |
| Orange | 3     | 3 | 3 | x 1KΩ      |             |
| Yellow | 4     | 4 | 4 | x 10KΩ     |             |
| Green  | 5     | 5 | 5 | x 100KΩ    | ± 0.5% (D)  |
| Blue   | 6     | 6 | 6 | x 1MΩ      | ± 0.25% (C) |
| Violet | 7     | 7 | 7 | x 10MΩ     | ± 0.10% (B) |
| Grey   | 8     | 8 | 8 |            | ± 0.05%     |
| White  | 9     | 9 | 9 | x 0.001Ω   |             |
| Gold   |       |   |   | x 0.1Ω     | ± 5% (J)    |
| Silver |       |   |   | x 0.01Ω    | ± 10% (K)   |