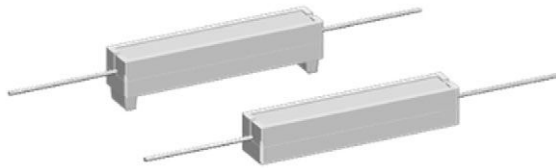




Wirewound/Metal Oxide Resistors, Commercial Power, Axial Lead



Please reference the Vishay Dale closest equivalent:

- CP (www.vishay.com/doc?30213)
- CP High Volume (www.vishay.com/doc?30113)

Notes

- There may be slight differences between the PC, PCA product and the applicable replacement.
- See the cross-reference file for a complete list of differences and part number crosses:
www.vishay.net/files/Cross-Reference%20Data%20-%20PTN-DR-022-2015%20Rev%200.pdf.

FEATURES

- High performance for low cost
- Meets or exceeds requirements of EIA standard RS-344
- High power to size ratio
- Ceramic cases are available with circuit board stand-offs (PCA Series)
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

| STANDARD ELECTRICAL SPECIFICATIONS | | | | | | |
|------------------------------------|------------------|-----------------------------------------------------|-------------------------------------------|---------------------------------------------|-----------------------|-----------------------|
| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{40\text{ }^\circ\text{C}}$ W | RESISTANCE RANGE Ω WIREWOUND | RESISTANCE RANGE Ω METAL OXIDE | TOLERANCE $\pm \%$ | WEIGHT (typical) g |
| PC-03 | PC-3 | 3 | 0.1 to 2K | 2.001K to 33K | 5, 10 | 3.4 |
| PC-05 | PC-5 | 5 | 0.1 to 2.4K | 2.401K to 50K | 5, 10 | 4.8 |
| PCA-05 | PCA-5 | 5 | 0.1 to 2.4K | 2.401K to 50K | 5, 10 | 5.0 |
| PC-07 | PC-7 | 7 | 0.1 to 5K | 5.001K to 50K | 5, 10 | 6.8 |
| PCA-07 | PCA-7 | 7 | 0.1 to 5K | 5.001K to 50K | 5, 10 | 7.0 |
| PC-10 | PC-10 | 10 | 0.1 to 30K | 30.001K to 50K | 5, 10 | 9.5 |
| PCA-10 | PCA-10 | 10 | 0.1 to 30K | 30.001K to 50K | 5, 10 | 9.9 |
| PC-15 | PC-15 | 15 | 0.1 to 8K | 8.001K to 50K | 5, 10 | 16.8 |
| PCA-15 | PCA-15 | 15 | 0.1 to 8K | 8.001K to 50K | 5, 10 | 17.4 |
| PC-20 | PC-20 | 20 | 0.1 to 10K | 10.001K to 50K | 5, 10 | 22.8 |
| PC-22 | PC-22 | 22 | 0.1 to 10K | - | 5, 10 | 24.5 |
| PC-25 | PC-25 | 25 | 0.1 to 10K | - | 5, 10 | 37.0 |

| TECHNICAL SPECIFICATIONS | | | |
|---------------------------------|-----------------------|------------------------------------------------------------------|-----------------------------|
| PARAMETER | UNIT | WIREWOUND CHARACTERISTICS | METAL OXIDE CHARACTERISTICS |
| Temperature Coefficient | ppm/ $^\circ\text{C}$ | ± 300 for 1.0 Ω and above, ± 600 below 1 Ω | ± 400 |
| Short Time Overload | - | 5 x rated power for 5 s | 5 x rated power for 5 s |
| Terminal Strength | lb | 10 minimum | 10 minimum |
| Operating Temperature Range | $^\circ\text{C}$ | -65 to +275 | -65 to +225 |
| Dielectric Withstanding Voltage | V_{AC} | 1000 | 1000 |
| Maximum Working Voltage | V | $(P \times R)^{1/2}$ | $(P \times R)^{1/2}$ |

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: PC-0522R00KE31 (Visit www.vishay.net SAP Parts Manual for all options)

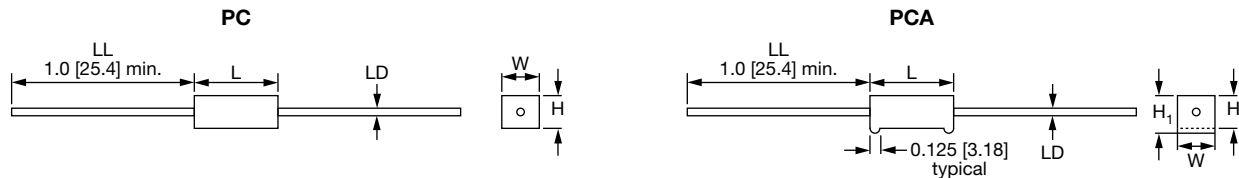
| | | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------|---|---|---------------------------------------------------------------------------------------------------------|---|---|-----------------------------------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----------------------------------------------------------------------------------------------------|---|---|--|--|--|
| P | C | - | 0 | 5 | 2 | 2 | R | 0 | 0 | K | E | 3 | 1 | | | |
| GLOBAL MODEL (5 or 6 digits) (See Standard Electrical Specifications Global Model column for options) | | | VALUE (5 digits) R = Decimal K = Thousand 15R00 = 15 Ω 1K500 = 1.5 k Ω | | | TOLERANCE (1 digit) J = $\pm 5 \%$ K = $\pm 10 \%$ | | PACKAGING CODE (3 digits) E14 = Lead (Pb)-free bulk pack E31 = Lead (Pb)-free four layer bulk pack E66 = Use for metal oxide values only | | | SPECIAL (up to 3 digits) (Dash Number) From 1 to 999 as applicable NI = Non-inductive | | | | | |

Historical Part Number example: PC-5-22-10 %

| | | |
|------------------|------------------|-----------|
| PC-5 | 22 Ω | 10 % |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE |



DIMENSIONS in inches [millimeters]



| GLOBAL MODEL | DIMENSIONS in inches [millimeters] ⁽¹⁾ | | | | |
|--------------|---------------------------------------------------|----------------------|----------------------|-----------------------------------|-----------------------|
| | L ⁽²⁾ ± 0.031 [0.794] | W ± 0.031 [0.794] | H ± 0.031 [0.794] | H ₁ ± 0.031 [0.794] | LD ± 0.001 [0.025] |
| PC-03 | 0.875 [22.22] | 0.313 [7.94] | 0.313 [7.94] | - | 0.036 [0.914] |
| PC-05 | 0.875 [22.22] | 0.375 [9.52] | 0.344 [8.73] | - | 0.036 [0.914] |
| PCA-05 | 0.875 [22.22] | 0.375 [9.52] | 0.344 [8.73] | 0.406 [10.32] | 0.036 [0.914] |
| PC-07 | 1.391 [35.32] | 0.375 [9.52] | 0.344 [8.73] | - | 0.036 [0.914] |
| PCA-07 | 1.391 [35.32] | 0.375 [9.52] | 0.344 [8.73] | 0.469 [11.91] | 0.036 [0.914] |
| PC-10 | 1.875 [47.62] | 0.375 [9.52] | 0.344 [8.73] | - | 0.036 [0.914] |
| PCA-10 | 1.875 [47.62] | 0.375 [9.52] | 0.344 [8.73] | 0.469 [11.91] | 0.036 [0.914] |
| PC-15 | 1.875 [47.62] | 0.500 [12.70] | 0.500 [12.70] | - | 0.036 [0.914] |
| PCA-15 | 1.875 [47.62] | 0.500 [12.70] | 0.500 [12.70] | 0.625 [15.87] | 0.036 [0.914] |
| PC-20 | 2.500 [63.50] | 0.500 [12.70] | 0.500 [12.70] | - | 0.036 [0.914] |
| PC-22 | 2.500 [63.50] | 0.500 [12.70] | 0.500 [12.70] | - | 0.036 [0.914] |
| PC-25 | 2.500 [63.50] | 0.625 [15.87] | 0.625 [15.87] | - | 0.040 [1.016] |

Notes

- (1) For metal oxide dimensions please contact factory.
- (2) Potting compound may extend outside of ceramic case up to 0.060 [1.52] maximum per side.

MATERIAL SPECIFICATIONS

Element:

wirewound = copper-nickel alloy or nickel-chrome alloy, depending on resistance value.
metal oxide = high temperature fired metal oxide film

Core:

wirewound = woven fiberglass
metal oxide = alumina ceramic

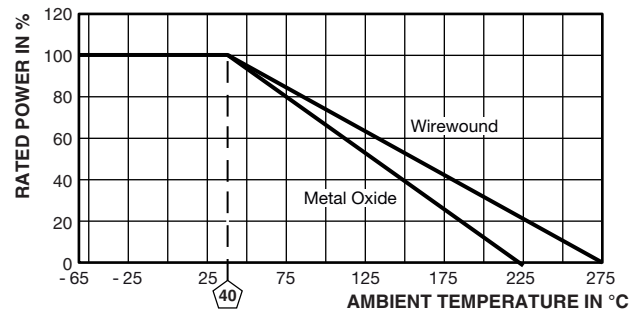
Body: steatite ceramic case with inorganic potting compound

End Caps: tin plated steel

Terminals: tinned copper

Part Marking: HEI, model, wattage, value, tolerance, date code

DERATING



| PERFORMANCE | | |
|---------------------------------|--------------------------------------------------------------------------|------------------------|
| TEST | CONDITIONS OF TEST | TEST LIMITS (EIA-344) |
| Thermal Shock | -55 °C to +275 °C (+225 °C for Metal Oxide), 5 cycles, 30 min dwell time | ± (5.0 % + 0.05 Ω) ΔR |
| Short Time Overload | 5 x rated power for 5 s | ± (4.0 % + 0.05 Ω) ΔR |
| Dielectric Withstanding Voltage | 1000 V _{RMS} for 1 min | ± (2.0 % + 0.05 Ω) ΔR |
| Low Temperature Storage | -65 °C, full rated working voltage for 45 min | ± (3.0 % + 0.05 Ω) ΔR |
| Humidity | 75 °C, 90 % to 100 % RH, 240 h | ± (5.0 % + 0.05 Ω) ΔR |
| Load Life | 1000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF" | ± (10.0 % + 0.05 Ω) ΔR |
| Terminal Strength | 5 pounds for 30 s; body twisted about axis, 3 x 360° rotations | ± (2.0 % + 0.05 Ω) ΔR |
| Resistance to Solder Heat | Terminal immersed 3.5 s in molten solder up to body | ± (4.0 % + 0.05 Ω) ΔR |



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