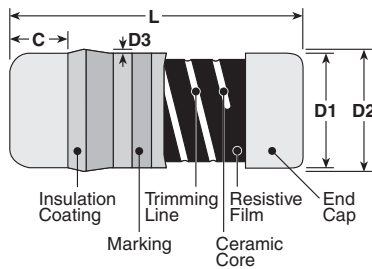


features

- Free direction for mounting due to cylindrical design
- High precision products (Resistance tolerance $\pm 0.1\%$ and T.C.R. $\pm 25 \times 10^{-6}/K$) available (RN41)
- The electrode strength is firm
- The noise characteristics is excellent
- Suitable for reflow, flow and iron solderings
- Products meet EU-RoHS requirements

dimensions and construction



NOT RECOMMENDED FOR NEW DESIGN

| Type (Inch/DIN Size Code) | Dimensions inches (mm) | | | | |
|------------------------------|------------------------|--------------------|--------------------------|----------------|----------------|
| | L | C | D1 | D2 (max.) | D3 (max.) |
| 2A (0805/0102) | .079±.004 (2.0±0.1) | .012 (0.3 min.) | .049±.002 (1.25±0.05) | .053 (1.35) | .003 (0.07) |
| 2D (1206/0203) | .126±.008 (3.2±0.2) | .02 (0.5 min.) | .061±.006 (1.55±0.15) | .069 (1.75) | .004 (0.1) |
| 2E/2H (2309/0207) | .232±.008 (5.9±0.2) | .02 (0.5 min.) | .087±.004 (2.2±0.1) | .094 (2.4) | .006 (0.15) |

ordering information

| RM41 | 2D | T | TE | 1R0 | J | 50* |
|--------------|---|----------------------|---|---|---|--|
| Type | Size | Termination Material | Packaging | Nominal Resistance | Tolerance | T.C.R. (ppm/°C) |
| RN41 RM41 | ** 2A: 0.125W ** 2D: 0.2W ** 2H: 0.5W ** 2E: 0.25W | T: Sn | TE: 7" embossed plastic (2A - 3,000 pieces/reel) (2D - 2,000 pieces/reel) (2E - 1,000 pieces/reel) (2H - 1,500 pieces/reel) | ±5%: 2 significant figures + 1 multiplier. "R" indicates decimal on values <10Ω ±1%: 3 significant figures + 1 multiplier. "R" indicates decimal on values <100Ω | C: ±0.25% D: ±0.5% F: ±1% J: ±5% | 25: ±25 50: ±50 100: ±100 200: ±200 |

* T.C.R. noted for RN41 only
** Not Recommended for New Design

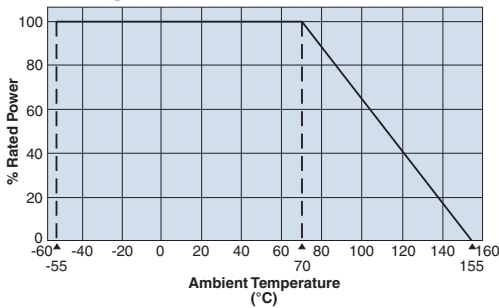
applications and ratings

| Part Designation | Power Rating @ 70°C | Rated Ambient Temp. | T.C.R. (ppm/°C) Max. | Resistance Range | | Max. Working Voltage | Max. Overload Voltage |
|------------------|---------------------|---------------------|----------------------|-------------------|-------------------|----------------------|-----------------------|
| | | | | E-24, E-96 (F±1%) | E-24 (J±5%) | | |
| ** RN412A | 1/8W (.125W) | 70°C | ±100 | 100Ω-100kΩ | — | 150V | 200V |
| ** RN412D | 1/5W (.2W) | 70°C | ±50 | 10Ω-604kΩ | — | | 300V |
| ** RN412E | 1/4W (.25W) | 70°C | ±25 | — | — | 250V | 500V |
| | | | ±50 | 10Ω-1M | — | | |
| ** RN412H | 1/2W (.5W) | 70°C | ±200 | — | 0.22Ω-100kΩ | 250V | 600V |
| ** RM412D | 1/5W (.2W) | 70°C | ±350 | — | 0.22Ω-8.2Ω (E-12) | — | — |
| ** RM412H | 1/2W (.5W) | 70°C | ±350 | — | | | |

** Not Recommended for New Design Operating Temperature Range: -55°C to +155°C

environmental applications

Derating Curve



For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the derating curve.

Performance Characteristics

| Parameter | Type | Requirement Δ R ±(%+0.05Ω) | | Test Method |
|------------------------------|--------------|---|---|---|
| | | Limit | Typical | |
| Resistance | RN41 RM41 | Within specified tolerance | — | 25°C |
| T.C.R. | RN41 RM41 | Within specified T.C.R. | — | +25°C/-55°C and +25°C /+125°C |
| Overload (Short time) | RN41 | ±0.5% | ±0.3% | Rated voltage x 2.5 for 5 seconds or Max. overload voltage, whichever is lower, for 5 seconds |
| | RM41 | ±0.5% | ±0.3% | |
| Intermittent Overload | RN41 | ±1%: 2A,2D, 2H 0.5: 2E | — | Rated voltage x 4 (RN41: 2Ax3) or Max. intermittent overload voltage, whichever is lower, 10,000 cycles, 2A:200V, 2D:300V, 2E:500V, RN412H:600V |
| Resistance to Soldering Heat | RN41 | ±2%: 2H (10Ω>) ±1%: 2H (10Ω≤) ±0.5%: RN 2A-2E | ±1%: 2H (10Ω>) ±0.5%: 2H (10Ω≤) ±0.3%: RN 2A-2E | 260°C ± 5°C, 10 seconds ± 1 second |
| Rapid Change of Temperature | RN41 | ±0.5%: 2A-2E ±1%: 2H | ±0.3%: 2A-2E ±0.7% 2H | -55°C (30 minutes), +125°C (30 minutes), 5 cycles |
| | RM41 | ±1% | ±0.75% | |
| Moisture Resistance | RN41 | ±1%: 2D, 2E ±3%: 2A; ±5%: 2H | ±0.75%: 2D, 2E ±1.5%: 2A; ±3%: 2H | 40°C ± 2°C, 90 ~ 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| | RM41 | ±5% | ±3% | |
| Endurance at 70°C | RN41 | ±1%: 2D, 2E ±3%: 2A; ±5%: 2H | ±0.5%: 2D, 2E ±1.5%: 2A; ±3%: 2H | 70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| | RM41 | ±5% | ±3% | |
| High Temperature Exposure | RN41 | ±1% | ±0.75% | 155°C, 2 hours |

Not Recommended for New Design: Sizes 2A, 2D, 2E and 2H

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

11/24/20

Performance Characteristics

| Parameter | Type | Requirement $\Delta R \pm(\%+0.05\Omega)$ | | Test Method |
|------------------------------|--------------|---|---|---|
| | | Limit | Typical | |
| Resistance | RN41 RM41 | Within specified tolerance | — | 25°C |
| T.C.R. | RN41 RM41 | Within specified T.C.R. | — | +25°C/-55°C and +25°C /+125°C |
| Overload (Short time) | RN41 | ±0.5% | ±0.3% | Rated voltage x 2.5 for 5 seconds or Max. overload voltage, whichever is lower, for 5 seconds |
| | RM41 | ±0.5% | ±0.3% | |
| Intermittent Overload | RN41 | ±1%: 2A,2D, 2H 0.5: 2E | — | Rated voltage x 4 (RN41: 2Ax3) or Max. intermittent overload voltage, whichever is lower, 10,000 cycles, 2A:200V, 2D:300V, 2E:500V, RN412H:600V |
| Resistance to Soldering Heat | RN41 | ±2%: 2H (10Ω>) ±1%: 2H (10Ω≤) ±0.5%: RN 2A-2E | ±1%: 2H (10Ω>) ±0.5%: 2H (10Ω≤) ±0.3%: RN 2A-2E | 260°C ± 5°C, 10 seconds ± 1 second |
| Rapid Change of Temperature | RN41 | ±0.5%: 2A-2E ±1%: 2H | ±0.3%: 2A-2E ±0.7% 2H | -55°C (30 minutes), +125°C (30 minutes), 5 cycles |
| | RM41 | ±1% | ±0.75% | |
| Moisture Resistance | RN41 | ±1%: 2D, 2E ±3%: 2A; ±5%: 2H | ±0.75%: 2D, 2E ±1.5%: 2A; ±3%: 2H | 40°C ± 2°C, 90 ~ 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| | RM41 | ±5% | ±3% | |
| Endurance at 70°C | RN41 | ±1%: 2D, 2E ±3%: 2A; ±5%: 2H | ±0.5%: 2D, 2E ±1.5%: 2A; ±3%: 2H | 70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| | RM41 | ±5% | ±3% | |
| High Temperature Exposure | RN41 | ±1% | ±0.75% | 155°C, 2 hours |

Not Recommended for New Design: Sizes 2A, 2D, 2E and 2H