Stackpole Electronics, Inc.

Pulse Withstanding Thick Film Chip Resistor

Resistive Product Solutions

Features:

- Excellent pulse withstanding performance
- Higher anti-surge performance compared to RMCF Series
- Standard power RPC, 5% and wider tolerances, are untrimmed
- RoHS compliant, REACH compliant, and halogen free
- 1% and wider tolerances are AEC-Q200 compliant
- Lower values may be available contact Stackpole





| | Electrical Specifications | | | | | | | | | |
|-----------|----------------------------|--------------------|-------------|------|-------------------------------|----------|--------------|--|--|--|
| Type/Code | Power Rating (W) @ 70°C | Maximum Working | | | Ohmic Range (Ω) and Tolerance | | | | | |
| | @ 70.0 | Voltage (V) | Voltage (V) | | 0.5% | 1% | 5%, 10%, 20% | | | |
| RPC0402 | 0.2 | 50 | 100 | ±300 | • | 1 - 19.6 | 1 - 20 | | | |
| KF C0402 | 0.2 | 30 | 100 | ±100 | 100 - 1M | 20 - 1M | 22 - 1M | | | |
| RPC0603 | 0.1 | 50 | 100 | ±200 | • | 1 - 9.76 | 1 - 270 | | | |
| KFC0003 | 0.1 | 50 | 100 | ±100 | 10 - | 1M | 300 - 20M | | | |
| RPC0805 | 0.25 | 150 | 300 | ±200 | - | 1 - 9.76 | 1 - 270 | | | |
| KFC0003 | 0.25 | 150 | 300 | ±100 | 10 - | 20M | 300 - 20M | | | |
| RPC1206 | 0.33 | 200 | 400 | ±200 | - | 1 - 9.76 | 1 - 20 | | | |
| RPC1206 | 0.33 | 200 | 400 | ±100 | 10 - | 20M | 22 - 20M | | | |
| DDC4040 | 0.5 | 200 | 400 | ±200 | - | 1 - 9.76 | 1 - 20 | | | |
| RPC1210 | 0.5 | 200 | 400 | ±100 | 10 - | 20M | 22 - 20M | | | |
| DDC2040 | 0.75 | 400 | 900 | ±200 | - | 1 - 9.76 | 1 - 20 | | | |
| RPC2010 | 0.75 | 400 | 800 | ±100 | 10 - | 20M | 22 - 20M | | | |
| DDC0540 | 1.5 | F00 | 1000 | ±200 | = | 1 - 9.76 | 1 - 20 | | | |
| RPC2512 | 1.5 | 500 | 1000 | ±100 | 10 - | 20M | 22 - 20M | | | |

Working Voltage = $\sqrt{(P^*R)}$ or Max. Working Voltage listed above, whichever is lower. Overload Voltage = $2.5^*\sqrt{(P^*R)}$ or Max. Overload Voltage listed above, whichever is lower.

| | Electrical Specifications – High Power (HP) | | | | | | | | | |
|---------------------------|---|--------------------|---------------------|--------------|--------|------------------|-----------|--|--|--|
| Type/Code | Power Rating (W) @ 70°C | Maximum Working | Maximum Overload | TCR (ppm/°C) | Ohm | ic Range (Ω) and | Tolerance | | | |
| | @ 70.0 | Voltage (V) | Voltage (V) | | 0.5% | 1% | 5% | | | |
| RPC0603-HP | 0.25 | 75 | 150 | ±200 | = | 1 - 9.76 | 1 - 270 | | | |
| RPC0603-FP | 0.25 | 75 | 150 | ±100 | 10 - | 1M | 300 - 1M | | | |
| DDC000E UD | 0.4 | 150 | 200 | ±200 | = | 1 - 9.76 | 1 - 270 | | | |
| RPC0805-HP | 0.4 | 150 | 300 | ±100 | 10 - | 1M | 300 - 1M | | | |
| RPC1206-HP | 0.5 | 200 | 400 | ±200 | - | 1 - 9.76 | 1 - 20 | | | |
| KPC1200-FF | 0.5 | 200 | 400 | ±100 | 10 - | 1M | 22 - 1M | | | |
| RPC1210-HP | 0.75 | 200 | 400 | ±200 | - | 1 - 9.76 | 1 - 20 | | | |
| RPC1210-FF | 0.75 | 200 | 400 | ±100 | 10 - | 1M | 22 - 1M | | | |
| RPC2010-HP | 1 | 400 | 900 | ±200 | - | 1 - 9.76 | 1 - 20 | | | |
| KFCZUIU-NP | ' | 400 | 800 | ±100 | 10 - | 1M | 22 - 1M | | | |
| DD00540 LID(*) | 2 | 500 | 1000 | ±350 | - | 1 - 9.76 | 1 - 10 | | | |
| RPC2512-HP ^(*) | 2 | 300 | 1000 | ±100 | 10 - : | 200K | 11 - 200K | | | |

^(*) Double-sided printed resistor element.

Working Voltage = $\sqrt{(P^*R)}$ or Max. Working Voltage listed above, whichever is lower.

Overload Voltage = $2.5*\sqrt{(P*R)}$ or Max. Overload Voltage listed above, whichever is lower.

| | Electrical Specifications – Ultra High Power (UP) | | | | | | | | | | |
|-------------|---|--------------------|-----------------|------|------|-------------------|-----------|--|--|--|--|
| Type/Code | Power Rating (W) @ 70°C | Maximum Working | | | Ohm | nic Range (Ω) and | Tolerance | | | | |
| | @ 70-0 | Voltage (V) | (V) Voltage (V) | | 0.5% | 1% | 5% | | | | |
| RPC0603-UP | 0.33 | 75 | 150 | ±200 | = | 1 - 9.76 | 1 - 270 | | | | |
| KFC0003-0F | 0.33 | 73 | 150 | ±100 | 10 - | · 1M | 300 - 1M | | | | |
| DDC0005 LID | ٥٢ | 400 | 000 | ±200 | = | 1 - 9.76 | 1 - 270 | | | | |
| RPC0805-UP | 0.5 | 400 | 600 | ±100 | 10 - | - 1M | 300 - 1M | | | | |
| DDC400C LID | 0.75 | 500 | 4000 | ±200 | = | 1 - 9.76 | 1 - 20 | | | | |
| RPC1206-UP | 0.75 | 500 | 1000 | ±100 | 10 - | - 1M | 22 - 1M | | | | |
| RPC1210-UP | 4 | 200 | 400 | ±200 | = | 1 - 9.76 | 1 - 20 | | | | |
| RPC1210-0P | | 200 | 400 | ±100 | 10 - | - 1M | 22 - 1M | | | | |

Ultra High Power: double side printed resistor element.

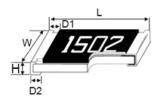
Working Voltage = $\sqrt{(P^*R)}$ or Max. Working Voltage listed above, whichever is lower.

Overload Voltage = $2.5*\sqrt{(P*R)}$ or Max. Overload Voltage listed above, whichever is lower.

| Electrical Specifications – Ultra High Power Jumper | | | | | | | |
|---|----|-------------------|--|--|--|--|--|
| Type/Code Jumper Rated Current (A) Max. Resistance | | | | | | | |
| RPC0603-UP | 5 | 0 Ω (≤ 8 mΩ) | | | | | |
| RPC0805-UP | 6 | 0 Ω (≤ 5 mΩ) | | | | | |
| RPC1206-UP | 10 | 0 22 (\$ 5 11122) | | | | | |

Ultra High Power: double side printed resistor element.

Mechanical Specifications



| Type/Code | Weight (mg) | L | W | Н | D1 | D2 | Unit |
|-----------------|-------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------|
| r ype/Code | Weight (mg) | Body Length | Body Width | Body Height | Top Termination | Bottom | Unit |
| RPC0402 | 0.64 | 0.039 ± 0.002 | 0.020 ± 0.002 | 0.014 ± 0.002 | 0.008 ± 0.004 | 0.008 ± 0.004 | inches |
| IXF C0402 | 0.04 | 1.00 ± 0.05 | 0.50 ± 0.05 | 0.35 ± 0.05 | 0.20 ± 0.10 | 0.20 ± 0.10 | mm |
| RPC0603 | 2.0 | 0.063 ± 0.004 | 0.031 ± 0.004 | 0.018 ± 0.004 | 0.012 ± 0.008 | 0.012 ± 0.008 | inches |
| KFC0003 | 2.0 | 1.60 ± 0.10 | 0.80 ± 0.10 | 0.45 ± 0.10 | 0.30 ± 0.20 | 0.30 ± 0.20 | mm |
| RPC0805 and -HP | 4.4 | 0.079 ± 0.004 | 0.049 ± 0.004 | 0.020 ± 0.004 | 0.014 ± 0.008 | 0.016 ± 0.008 | inches |
| KFC0003 and -HF | 4.4 | 2.00 ± 0.10 | 1.25 ± 0.10 | 0.50 ± 0.10 | 0.35 ± 0.20 | 0.40 ± 0.20 | mm |
| RPC0805-UP | 5.0 | 0.079 ± 0.004 | 0.049 ± 0.004 | 0.020 ± 0.004 | 0.014 ± 0.008 | 0.016 ± 0.008 | inches |
| NF C0003-0F | 3.0 | 2.00 ± 0.10 | 1.25 ± 0.10 | 0.50 ± 0.10 | 0.35 ± 0.20 | 0.40 ± 0.20 | mm |
| RPC1206 and -HP | 8.9 | 0.122 ± 0.004 | 0.061 ± 0.004 | 0.022 ± 0.004 | 0.020 ± 0.010 | 0.020 ± 0.008 | inches |
| KFC1200 and TIF | 0.9 | 3.10 ± 0.10 | 1.55 ± 0.10 | 0.55 ± 0.10 | 0.50 ± 0.25 | 0.50 ± 0.20 | mm |
| RPC1206-UP | 9.5 | 0.122 ± 0.004 | 0.061 ± 0.004 | 0.022 ± 0.004 | 0.020 ± 0.010 | 0.020 ± 0.008 | inches |
| NF C 1200-0F | 9.5 | 3.10 ± 0.10 | 1.55 ± 0.10 | 0.55 ± 0.10 | 0.50 ± 0.25 | 0.50 ± 0.20 | mm |
| RPC1210 | 16.0 | 0.122 ± 0.004 | 0.102 ± 0.006 | 0.022 ± 0.004 | 0.020 ± 0.010 | 0.020 ± 0.008 | inches |
| KFG1210 | 10.0 | 3.10 ± 0.10 | 2.60 ± 0.15 | 0.55 ± 0.10 | 0.50 ± 0.25 | 0.50 ± 0.20 | mm |
| RPC2010 and -HP | 24.2 | 0.197 ± 0.004 | 0.098 ± 0.006 | 0.022 ± 0.004 | 0.024 ± 0.010 | 0.020 ± 0.008 | inches |
| RFC2010 and -HF | 24.2 | 5.00 ± 0.10 | 2.50 ± 0.15 | 0.55 ± 0.10 | 0.60 ± 0.25 | 0.50 ± 0.20 | mm |
| RPC2512 | 39.4 | 0.250 ± 0.004 | 0.122 ± 0.006 | 0.022 ± 0.004 | 0.024 ± 0.010 | 0.020 ± 0.008 | inches |
| KFG2512 | 39.4 | 6.35 ± 0.10 | 3.10 ± 0.15 | 0.55 ± 0.10 | 0.60 ± 0.25 | 0.50 ± 0.20 | mm |
| RPC2512-HP | 42.0 | 0.250 ± 0.008 | 0.124 ± 0.006 | 0.024 ± 0.004 | 0.024 ± 0.010 | 0.020 ± 0.008 | inches |
| INF GZS1Z-FIF | 42.0 | 6.35 ± 0.20 | 3.15 ± 0.15 | 0.60 ± 0.10 | 0.60 ± 0.25 | 0.50 ± 0.20 | mm |

| Performance Characteristics | | | | | | | | |
|---|---|--|---|--|--|--|--|--|
| Item | Test Method | Test Specification | Test Condition | | | | | |
| Temperature Coefficient of Resistance (T.C.R.) | JIS-C-5201-1 4.8 IEC-60115-1 4.8 | Within the specified tolerance | At 25°C / -55°C and 25°C / + 125°C, 25°C is the reference temperature | | | | | |
| Short Time Overload | JIS-C-5201-1 4.13 IEC-60115-1 4.13 | ± (1% + 0.05Ω) | RCWV * 2.5 or max. overload voltage whichever is lower for 5 seconds Jumper: 2*Imax for 5 seconds | | | | | |
| Insulation Resistance | JIS-C-5201-1 4.6 IEC-60115-1 4.6 | ≥ 10G | Max. overload voltage for 1 minute | | | | | |
| Endurance Tolerances of 0.5%, 1% | JIS-C-5201-1 4.25 IEC-60115-1 4.25.1 | ± (1% + 0.05Ω) | 70 ± 2°C, RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF" | | | | | |
| Endurance Tolerances of 5%, 10%, 20% | JIS-C-5201-1 4.25 IEC-60115-1 4.25.1 | $\pm (3\% + 0.05\Omega)$ | 70 ± 2°C, RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF" | | | | | |
| Damp Heat with Load Tolerances of 0.5%, 1% | JIS-C-5201-1 4.24 IEC-60115-1 4.24 | ± (0.5% + 0.05Ω) | 40 ± 2°C, 90~95% R.H, RCWV for 1000 hour with 1.5 hours "ON" and 0.5 hour "OFF" | | | | | |
| Damp Heat with Load Tolerances of 5%, 10%, 20% | JIS-C-5201-1 4.24 IEC-60115-1 4.24 | $\pm (3\% + 0.05\Omega)$ | 40 ± 2°C, 90~95% R.H, RCWV for 1000 hours | | | | | |
| Damp Heat with Load Ultra High Power | JIS-C-5201-1 4.24 IEC-60115-1 4.24 | ± (1% + 0.05Ω) | with 1.5 hours "ON" and 0.5 hour "OFF" | | | | | |
| Dry Heat Tolerances of 0.5%, 1% | JIS-C-5201-1 4.23 IEC-60115-1 2.23.2 | ± (0.5% + 0.05Ω) | At +155°C for 1000 hours | | | | | |
| Dry Heat Tolerances of 5%, 10%, 20% | JIS-C-5201-1 4.23 IEC-60115-1 2.23.2 | ± (3% + 0.05Ω) | At +155°C for 1000 hours | | | | | |
| Bending Strength | JIS-C-5201-1 4.33 IEC-60115-1 4.33 | ± (1% + 0.05Ω) | Bending once for 5 seconds 2010, 2512 sizes: 2 mm; other sizes: 3 mm | | | | | |
| Solderability | JIS-C-5201-1 4.17 IEC-60115-1 4.17 | 95% min. coverage | 245 ± 5°C for 3 seconds | | | | | |
| Resistance to Soldering Heat tolerances of 0.5%, 1% | JIS-C-5201-1 4.18 IEC-60115-1 4.18 | ± (0.5% + 0.05Ω) | 260 ± 5°C for 10 seconds | | | | | |
| Resistance to Soldering Heat Tolerances of 5%, 10%, 20% | JIS-C-5201-1 4.18 IEC-60115-1 4.18 | ± (1% + 0.05Ω) | 260 ± 5°C for 10 seconds | | | | | |
| Voltage Proof | JIS-C-5201-1 4.7 IEC-60115-1 4.7 | No Breakdown or flashover | 1.42 times max. operating voltage for 1 minute | | | | | |
| Leaching | JIS-C-5201-1 4.18 IEC-60068-2-58-8.2.1 | Individual leaching area ≤ 5% Total leaching area ≤ 10% | 260 ± 5°C for 30 seconds | | | | | |
| Rapid Change of Temperature tolerances of 0.5%, 1% | JIS-C-5201-1 4.18 IEC-60115-1 4.18 | ± (0.5% + 0.05Ω) | -55 to + 150°C , 5 cycles | | | | | |
| Rapid Change of Temperature Tolerances of 5%, 10%, 20% | JIS-C-5201-1 4.18 IEC-60115-1 4.18 | ± (1% + 0.05Ω) | -55 to + 150°C , 5 cycles | | | | | |

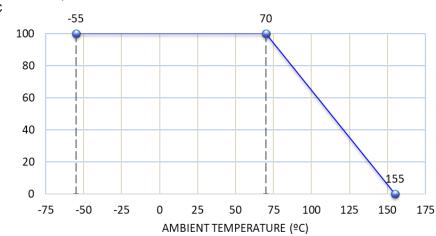
RCWV (Rated Continuous Working Voltage)= √(P*R) or Max. Working Voltage whichever is lower.

Recommended storage Temperature: $15 \sim 28^{\circ}\text{C}$; humidity < 80% R.H.

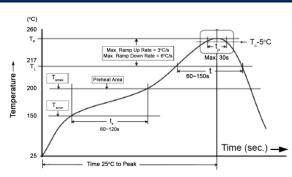
PERCENT RATED POWER (%)

Operating temperature range is -55 + 155°C

Power Derating Curve:

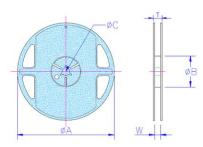


Soldering Condition



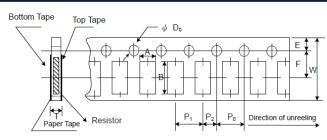
| Reflow | Reflow Profiles | | | | | | |
|---|------------------|--|--|--|--|--|--|
| Profile Feature | Pb-Free Assembly | | | | | | |
| Preheat | | | | | | | |
| Min. Temperature (Tsmin) | 150°C | | | | | | |
| Max. Temperature (Tsmax) | 200°C | | | | | | |
| Preheating time (ts) from Tsmin to Tsmax) | 60-120 seconds | | | | | | |
| Ramp-up rate (T _L to Tp) | 3°C/second max. | | | | | | |
| Liquidous Temperature (T _L) | 217°C | | | | | | |
| Time (t _L) maintained above T _L | 60-150 seconds | | | | | | |
| Min. Peak Temperature | 235°C | | | | | | |
| Max. Peak Temperature (Tp max) | 260°C | | | | | | |
| Time (tp) within 5°C of the specified classification temperature (Tc) | 30 seconds max. | | | | | | |
| Ramp-down rate (Tp to T_L) | 6°C/second max. | | | | | | |
| Time 25°C to Peak Temperature | 8 minutes max. | | | | | | |

Reel Specifications



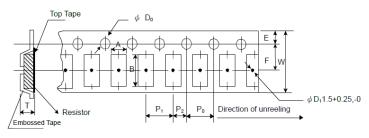
| Type/Code | Packaging | Tape Width | Reel Diameter | Α | В | С | W | Т | Unit |
|-----------|---------------|------------|---------------|---|---------------------------------------|-------------------------------|--------------------------------------|---------------------------------------|--------------|
| RPC0402 | | | | | | | | | |
| RPC0603 | | | | | | | | | |
| RPC0805 | Paper Tape | 8 mm | | | | | | | |
| RPC1206 | | | 7 inches | | 2.362 +0.039 / -0 60.00 +1.00 / -0 | 0.512 ± 0.008 13.00 ± 0.20 | 0.354 ± 0.020 9.00 ± 0.50 | 0.492 ± 0.020 12.50 ± 0.50 | inches mm |
| RPC1210 | | | | | | | | | |
| RPC2010 | Plastic | 12 mm | | | | 0.512 ± 0.020 | 0.512 ± 0.020 | 0.610 ± 0.020 | inches |
| RPC2512 | Tape | 12 111111 | | | | 13.00 ± 0.50 | 13.00 ± 0.50 | 15.50 ± 0.50 | mm |

Packaging Specifications – Paper Tape



| Type/Code | A | В | W | E | F | Unit |
|---------------------------------------|------------------------------|---|----------------|-----------------------------------|---|--|
| RPC0402 | 0.026 ± 0.004 | 0.045 ± 0.004 | | | | inches |
| KF 00402 | 0.65 ± 0.10 | 1.15 ± 0.10 | | | | mm |
| RPC0603 | 0.043 ± 0.004 | 0.075 ± 0.004 | | | | inches |
| 100000 | 1.10 ± 0.10 | 1.90 ± 0.10 | | | | mm |
| RPC0805 | 0.063 ± 0.004 | 0.094 ± 0.008 | 0.315 ± 0.008 | 0.069 ± 0.004 | 0.138 ± 0.002 | inches |
| 100000 | 1.60 ± 0.10 | 2.40 ± 0.20 | 8.00 ± 0.20 | 1.75 ± 0.10 | 3.50 ± 0.05 | mm |
| RPC1206 | 0.075 ± 0.004 | 0.138 ± 0.008 | | | | inches |
| 101200 | 1.90 ± 0.10 | 3.50 ± 0.20 | | | | mm |
| RPC1210 | 0.114 ± 0.004 | 0.138 ± 0.008 | | | | inches |
| INI CIZIO | 2.90 ± 0.10 | 3.50 ± 0.20 | | | | mm |
| | | | | | | |
| Type/Code | P ₀ | P ₁ | P ₂ | $ØD_0$ | Т | Unit |
| · · · · · · · · · · · · · · · · · · · | P ₀ | P ₁ 0.079 ± 0.002 | P ₂ | ØD ₀ | T 0.018 ± 0.004 | Unit inches |
| Type/Code RPC0402 | P ₀ | · | P ₂ | ØD ₀ | - | |
| RPC0402 | P ₀ | 0.079 ± 0.002 | P ₂ | ØD ₀ | 0.018 ± 0.004 | inches |
| · · · · · · · · · · · · · · · · · · · | P ₀ | 0.079 ± 0.002 | P ₂ | ØD ₀ | 0.018 ± 0.004 0.45 ± 0.10 | inches mm |
| RPC0402 RPC0603 | P ₀ 0.157 ± 0.004 | 0.079 ± 0.002 | P ₂ | ØD ₀ 0.059 +0.004/-0.0 | 0.018 ± 0.004 0.45 ± 0.10 0.028 ± 0.004 | inches mm inches |
| RPC0402 | | 0.079 ± 0.002 2.00 ± 0.05 | - | | 0.018 ± 0.004 0.45 ± 0.10 0.028 ± 0.004 0.70 ± 0.10 | inches mm inches mm |
| RPC0402 RPC0603 RPC0805 | 0.157 ± 0.004 | 0.079 ± 0.002 2.00 ± 0.05 0.157 ± 0.002 | 0.079 ± 0.002 | 0.059 +0.004/-0.0 | 0.018 ± 0.004 0.45 ± 0.10 0.028 ± 0.004 0.70 ± 0.10 0.033 ± 0.004 | inches mm inches mm inches |
| RPC0402 RPC0603 | 0.157 ± 0.004 | 0.079 ± 0.002 2.00 ± 0.05 0.157 ± 0.002 | 0.079 ± 0.002 | 0.059 +0.004/-0.0 | 0.018 ± 0.004 0.45 ± 0.10 0.028 ± 0.004 0.70 ± 0.10 0.033 ± 0.004 0.85 ± 0.10 | inches mm inches mm inches mm |
| RPC0402 RPC0603 RPC0805 | 0.157 ± 0.004 | 0.079 ± 0.002 2.00 ± 0.05 0.157 ± 0.002 | 0.079 ± 0.002 | 0.059 +0.004/-0.0 | 0.018 ± 0.004 0.45 ± 0.10 0.028 ± 0.004 0.70 ± 0.10 0.033 ± 0.004 0.85 ± 0.10 0.033 ± 0.004 | inches mm inches mm inches mm inches |

Packaging Specifications - Plastic Tape



| Type/Code | А | В | W | E | F | Unit |
|-----------|----------------|-------------------|-------------------|-------------------|-------------------|--------|
| RPC2010 | 0.110 ± 0.004 | 0.217 ± 0.004 | | | | inches |
| IXI 02010 | 2.80 ± 0.10 | 5.50 ± 0.10 | 0.472 ± 0.012 | 0.069 ± 0.004 | 0.217 ± 0.002 | mm |
| RPC2512 | 0.138 ± 0.004 | 0.264 ± 0.004 | 12.00 ± 0.30 | 1.75 ± 0.10 | 5.50 ± 0.05 | inches |
| KF 02312 | 3.50 ± 0.10 | 6.70 ± 0.10 | | | | mm |
| Type/Code | P ₀ | P ₁ | P ₂ | ØD ₀ | Т | Unit |
| RPC2010 | | | | | | inches |
| KFG2010 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.059 +0.004/-0.0 | 0.047 + 0.000 | mm |
| RPC2512 | 4.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.05 | 1.50 +0.1/-0.0 | 1.20 + 0.00 | inches |
| 102312 | | | | | | mm |

RPC2512

2.80

0.134

3.40

mm

inches

mm

Resistive Product Solutions

Recommended Pad Layout С Type/Code а b С Unit 0.020 0.018 0.024 inches RPC0402 0.50 0.45 0.60 mm 0.035 0.024 0.035 inches RPC0603 0.90 0.90 0.60 mm 0.047 0.028 0.051 inches RPC0805 1.20 0.70 1.30 mm 0.079 0.035 0.063 inches RPC1206 2.00 0.90 1.60 mm 0.079 0.035 0.110 inches RPC1210 2.00 0.90 2.80 mm 0.150 0.035 0.110 inches RPC2010

0.90

0.039

1.00

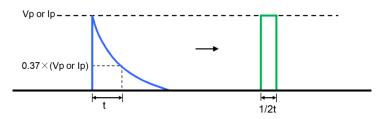
3.80

0.193

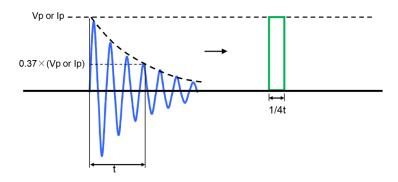
4.90

Waveform Transformation to Square Wave

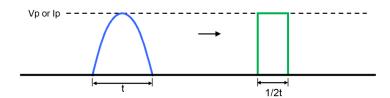
1. Discharge curve wave with time constant "t" → Square wave



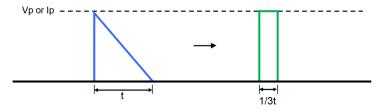
Damping oscillation wave with time constant of envelope "t" → Square wave



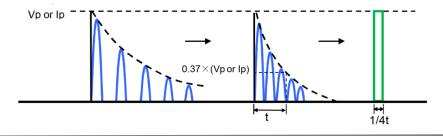
3. Half-wave rectification wave → Square wave



4. Triangular wave → Square wave



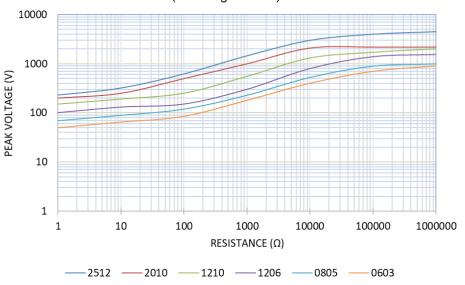
5. Special wave → Square wave



Lightning Surge

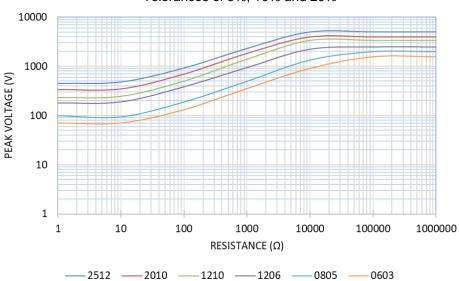
Resistors are tested in accordance with IEC 60115-1 using both 1.2 / 50 us and 10 / 700 pulse shapes. The limit of acceptance is a shift in resistance of less than 1% from the initial value.

1.2/50us Lightning Surge (*)
RPC (Standard Power) tolerances of 0.5% and 1%
RPC-HP (High Power) all tolerances
RPC-UP (Ultra High Power) all tolerances

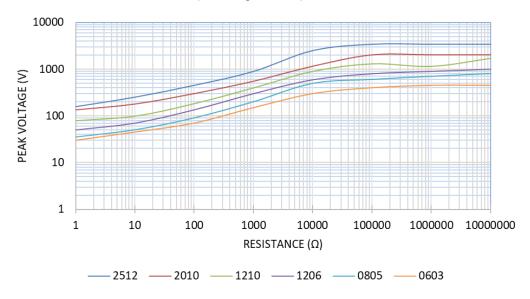


(*) Note: Data provided shows typical performance and is for reference only.

1.2/50us Lightning Surge (*) RPC (Standard Power) Tolerances of 5%, 10% and 20%

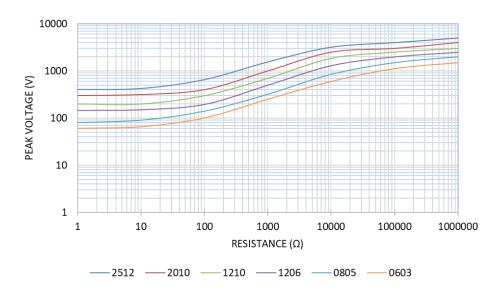


10/700us Lightning Surge (*)
RPC (Standard Power) tolerances of 0.5% and 1%
RPC-HP (High Power) all tolerances
RPC-UP (Ultra High Power) all tolerances



(*) Note: Data provided shows typical performance and is for reference only.

10/700us Lightning Surge (*) RPC (Standard Power) Tolerances of 5%, 10% and 20%



 $(\mbox{\ensuremath{^{\star}}})$ Note: Data provided shows typical performance and is for reference only.

Pulse Withstand Capacity

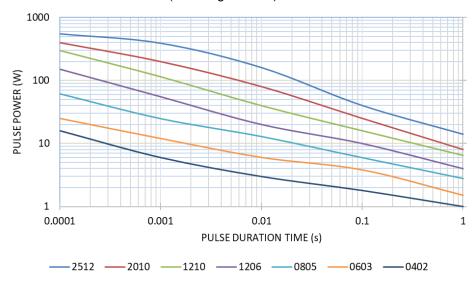
The single impulse graph is the result of 50 impulses of rectangular shape applied at one-minute intervals. The limit of acceptance was a shift in resistance of less than 1% from the initial value. The power applied was subject to the restrictions of the maximum permissible impulse voltage graph shown.

Single Pulse Power (100 ohms)

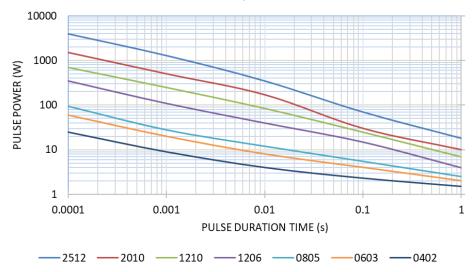
RPC (Standard Power) tolerances of 0.5% and 1%

RPC-HP (High Power) all tolerances

RPC-UP (Ultra High Power) all tolerances



Single Pulse Power (100 ohms) RPC (Standard Power) Tolerances of 5%, 10% and 20%

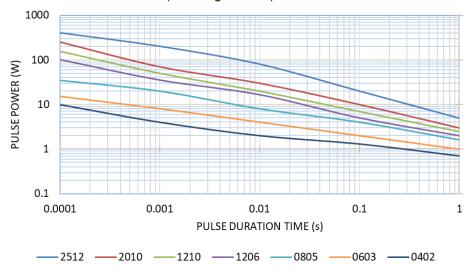


This data is for the 100 Ω resistance value for each size. Pulse power handling is dependent on the resistance value. For resistance values higher or lower than 100 Ω , contact Stackpole for advice on pulse handling characteristics of your particular resistance value of interest.

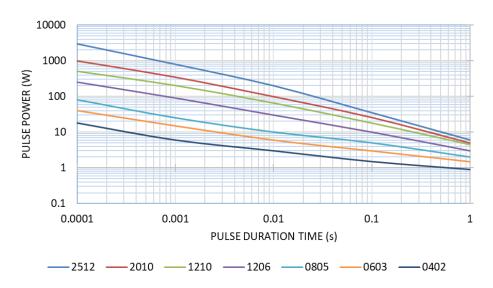
Continuous Pulse

The continuous load graph was obtained by applying repetitive rectangular pulses where the pulse period was adjusted so that the average power dissipated in the resistor was equal to its rated power at 70 °C. Again, the limit of acceptance was a shift in resistance of less than 1% from the initial value.

Continuous Pulse Power (100 ohms)
RPC (Standard Power) tolerances of 0.5% and 1%
RPC-HP (High Power) all tolerances
RPC-UP (Ultra High Power) all tolerances



Continuous Pulse Power (100 ohms) RPC (Standard Power) Tolerances of 5%, 10% and 20%

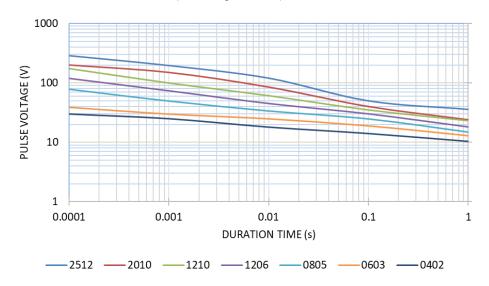


Pulse Voltage (100 ohms)

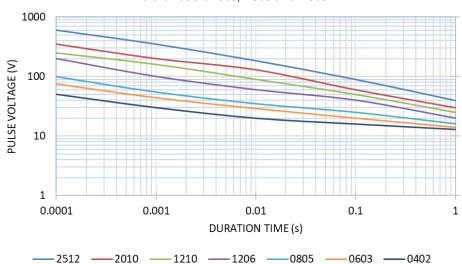
RPC (Standard Power) tolerances of 0.5% and 1%

RPC-HP (High Power) all tolerances

RPC-UP (Ultra High Power) all tolerances



Pulse Voltage (100 ohms) RPC (Standard Power) Tolerances of 5%, 10% and 20%



Part Marking Instructions

- 1. No marking for 0402
- 2. 3-digit marking for 0603 in E24

First and second digits are E24 code; third digit is the multiplier

| 3-digit marking for 0603 in E24 | | | | | | | | | |
|--|---------------------|--|--|--|--|--|--|--|--|
| Resistance 18Ω 100Ω $1K\Omega$ | | | | | | | | | |
| Marking | Marking 180 101 102 | | | | | | | | |





| E24 Code | 10 | 11 | 12 | 13 | 15 | 16 | 18 | 20 | 22 | 24 | 27 | 30 | 33 | 36 | 39 | 43 | 47 | 51 | 56 | 62 | 68 | 75 | 82 | 91 |

3. 4-digit marking for 0805-2512 in E96 and E24

Values below 100 Ω will use "R" as the decimal holder

| 4-digit marking for 0805-2512 | | | | | | | | | | |
|-------------------------------|--|--|--|--|--|--|--|--|--|--|
| Resistance | Resistance 9.76Ω 100Ω $2.2K\Omega$ $10K\Omega$ $100K\Omega$ $1M\Omega$ | | | | | | | | | |
| Marking | Marking 9R76 1000 2201 1002 1003 1004 | | | | | | | | | |







E96 Values for 0603 (1% Marking)

A two character number is assigned to each standard R-Value (E96) as shown in the chart below.

This is followed by one alpha character which is used as a multiplier. Each letter from "Y" to "F" represents a specific multiplier.



| Alpha Character = Multiplier | | | | | | |
|------------------------------|-------------|--|--|--|--|--|
| Y = 0.1 | C = 1000 | | | | | |
| X = 1 | D = 10000 | | | | | |
| A = 10 | E = 100000 | | | | | |
| B - 100 | F = 1000000 | | | | | |

| Chip Marking | Value |
|--------------|--|
| 01B = | $10.0 \times 100 = 1K\Omega$ |
| 25C = | $17.8 \times 1000 = 17.8 \text{K}\Omega$ |
| 93D = | 90.9 x10000 = 909KΩ |

| - | - | | | |
|---|---|---|----|----|
| | 1 | 0 | .5 | ς. |

| E96 | | | | | | | | | | | |
|-----|---------|----|---------|----|---------|----|---------|----|---------|----|---------|
| # | R-Value | # | R-Value | # | R-Value | # | R-Value | # | R-Value | # | R-Value |
| 01 | 10.0 | 17 | 14.7 | 33 | 21.5 | 49 | 31.6 | 65 | 46.4 | 81 | 68.1 |
| 02 | 10.2 | 18 | 15.0 | 34 | 22.1 | 50 | 32.4 | 66 | 47.5 | 82 | 69.8 |
| 03 | 10.5 | 19 | 15.4 | 35 | 22.6 | 51 | 33.2 | 67 | 48.7 | 83 | 71.5 |
| 04 | 10.7 | 20 | 15.8 | 36 | 23.2 | 52 | 34.0 | 68 | 49.9 | 84 | 73.2 |
| 05 | 11.0 | 21 | 16.2 | 37 | 23.7 | 53 | 34.8 | 69 | 51.1 | 85 | 75.0 |
| 06 | 11.3 | 22 | 16.5 | 38 | 24.3 | 54 | 35.7 | 70 | 52.3 | 86 | 76.8 |
| 07 | 11.5 | 23 | 16.9 | 39 | 24.9 | 55 | 36.5 | 71 | 53.6 | 87 | 78.7 |
| 08 | 11.8 | 24 | 17.4 | 40 | 25.5 | 56 | 37.4 | 72 | 54.9 | 88 | 80.6 |
| 09 | 12.1 | 25 | 17.8 | 41 | 26.1 | 57 | 38.3 | 73 | 56.2 | 89 | 82.5 |
| 10 | 12.4 | 26 | 18.2 | 42 | 26.7 | 58 | 39.2 | 74 | 57.6 | 90 | 84.5 |
| 11 | 12.7 | 27 | 18.7 | 43 | 27.4 | 59 | 40.2 | 75 | 59.0 | 91 | 86.6 |
| 12 | 13.0 | 28 | 19.1 | 44 | 28.0 | 60 | 41.2 | 76 | 60.4 | 92 | 88.7 |
| 13 | 13.3 | 29 | 19.6 | 45 | 28.7 | 61 | 42.2 | 77 | 61.9 | 93 | 90.9 |
| 14 | 13.7 | 30 | 20.0 | 46 | 29.4 | 62 | 43.2 | 78 | 63.4 | 94 | 93.1 |
| 15 | 14.0 | 31 | 20.5 | 47 | 30.1 | 63 | 44.2 | 79 | 64.9 | 95 | 95.3 |
| 16 | 14.3 | 32 | 21.0 | 48 | 30.9 | 64 | 45.3 | 80 | 66.5 | 96 | 97.6 |

Stackpole Electronics, Inc.

Pulse Withstanding Thick Film Chip Resistor

Resistive Product Solutions

RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

| RoHS Compliance Status | | | | | | | |
|-------------------------------|---|-----|---|--------------------------------------|--|--|--|
| Standard Product Series | Description Package / Termination Type | | Standard Series RoHS Compliant | Lead-Free Termination Composition | Lead-Free Mfg. Effective Date (Std Product Series) | Lead-Free Effective Date Code (YY/WW) | |
| RPC | Pulse Withstanding Thick Film Chip Resistor | SMD | YES RoHS Compliant by means of exemption 7c-I | 100% Matte Sn over Ni | Jan-03 | 03/01 | |

"Conflict Metals" Commitment

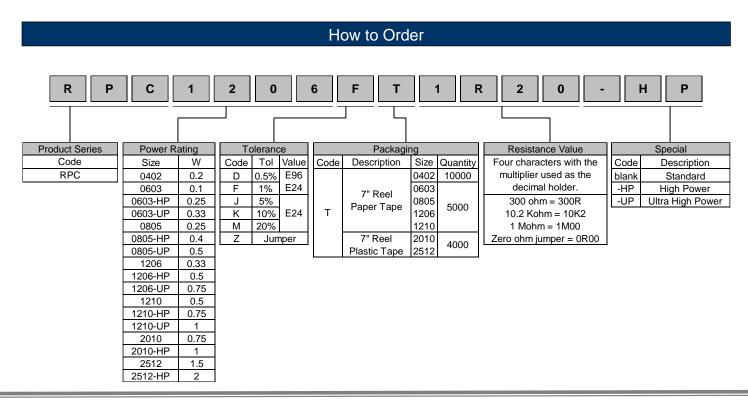
We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Thick Film Resistors - SMD category:

Click to view products by Stackpole manufacturer:

Other Similar products are found below:

CR-05FL7--150R CR-05FL7--698K CR-12JP4--680R M55342K08B46E4SWL M55342K08B62J0SUL M55342K08B6J20SWB

MCR01MZPF1202 MCR01MZPF1601 MCR01MZPF1800 MCR01MZPF6201 MCR01MZPF9102 MCR01MZPJ113 MCR01MZPJ121

MCR01MZPJ125 MCR01MZPJ751 MCR03EZHJ103 MCR03EZPFX2004 MCR03EZPJ270 MCR03EZPJ821 MCR10EZPF1102

RC1005F1152CS RC1005F1372CS RC1005F2052CS RC1005F471CS RC1005F4751CS RC1005F5621CS RC1005F6041CS

RC1005J121CS RC1005J122CS RC1005J180CS RC1005J181CS RC1005J202CS RC1005J391CS RC1005J512CS RC1005J683CS

RC1005J823CS RC1608F333CS RC1608F5110CS RC1608J121CS RC2012F2493CS RC2012F2740CS RC2012J105CS RC2012J470CS

RC2012J561CS RC2012J8R2CS RC3216F100CS RC3216F272CS RC3225F30R1CS RCP0603W100RGED RCWP1100100KFKS3