

RPC Series

Pulse Withstanding Thick Film Chip Resistor

Stackpole Electronics, Inc.

Resistive Product Solutions

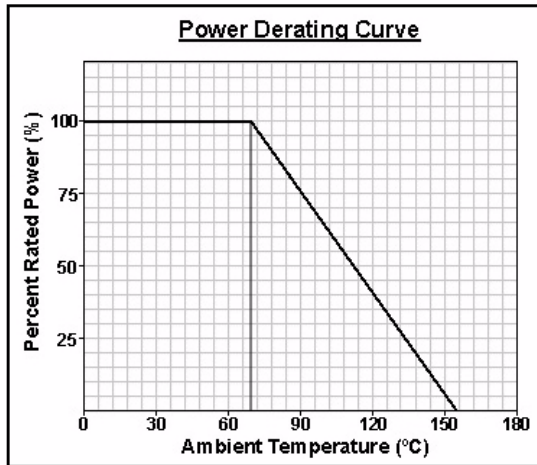
- Features:
- Excellent pulse withstanding performance
 - Broad resistance range
 - Higher anti-surge performance compared with RMC Series
 - Stability class: 5%
 - RoHS compliant / lead-free



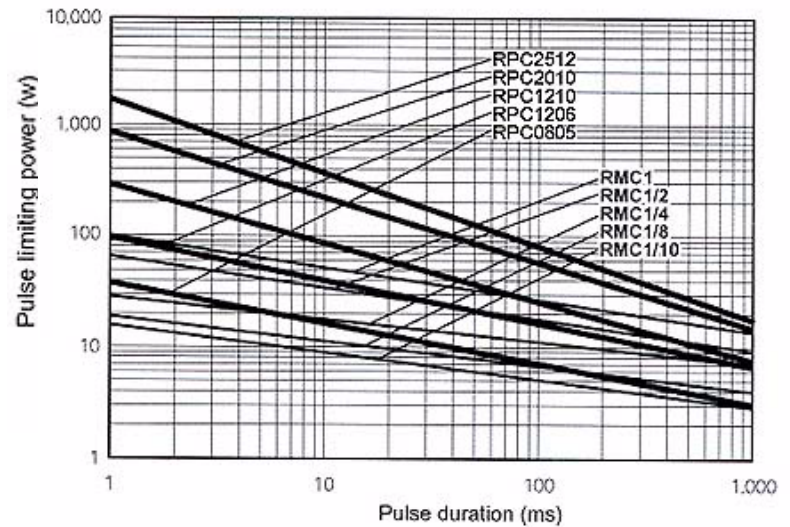
| Electrical Specifications | | | | |
|---------------------------|-----------------------------|-------------------------|------------------------------------|---------------------------|
| Type / Code | Power Rating (Watts) @ 70°C | Maximum Working Voltage | Resistance Temperature Coefficient | Ohmic Range and Tolerance |
| RPC 0603 | 0.100W | 50V | ±200 ppm/°C | 5%, 10%, 20% 10Ω - 1MΩ |
| RPC 0805 | 0.250W | 150V | ±200 ppm/°C | 0.27Ω - 22MΩ |
| RPC 1206 | 0.330W | 200V | ±200 ppm/°C | |
| RPC 1210 | 0.500W | 200V | ±200 ppm/°C | |
| RPC 2010 | 0.750W | 200V | ±200 ppm/°C | |
| RPC 2512 | 1.000W | 200V | ±200 ppm/°C | |

① Lesser of \sqrt{PR} or maximum working voltage

② Higher power rating for each package size is valid if ambient temp $\leq 80^\circ\text{C}$ and terminal temp $\leq 105^\circ\text{C}$



Pulse Limiting Power Curve (100Ω)



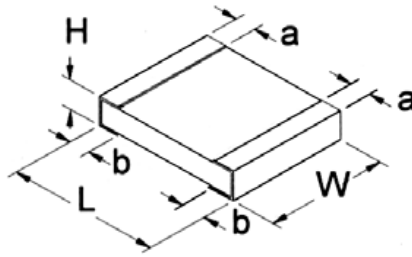
How to Order

| SEI Type | Code | Nominal Resistance | Tolerance | Packaging |
|------------|-------------|--------------------|-----------|-----------|
| RPC | 0805 | 10M | 5% | A |

| Type | Description | Code | Wattage |
|------|--------------------|------|---------|
| RPC | Pulse Withstanding | 0603 | 0.100W |
| | | 0805 | 0.250W |
| | | 1206 | 0.330W |
| | | 1210 | 0.500W |
| | | 2010 | 0.750W |
| | | 2512 | 1.000W |

| Tolerance | Values |
|-----------|--------|
| 5% | E24 |
| 10% | |
| 20% | |

| SEI Types | Pkg Qty | Description | Code |
|------------------|---------|------------------|------|
| 0603 | 5,000 | 7" Reel - Paper | R |
| 0805, 1206 | 10,000 | 10" Reel - Paper | G |
| | 5,000 | 7" Reel - Paper | R |
| 1210, 2010, 2512 | 4,000 | | |



| Mechanical Specifications | | | | | | |
|---------------------------|------------------|-----------------|------------------|----------------------|-------------------------|--------|
| Type / Code | L Body Length | W Body Width | H Body Height | a Top Termination | b Bottom Termination | Units |
| RPC 0603 | 0.063 ± 0.004 | 0.032 ± 0.004 | 0.018 ± 0.004 | 0.012 ± 0.008 | 0.012 ± 0.008 | inches |
| | 1.60 ± 0.10 | 0.80 ± 0.10 | 0.45 ± 0.10 | 0.30 ± 0.20 | 0.30 ± 0.20 | mm |
| RPC 0805 | 0.079 ± 0.004 | 0.049 ± 0.004 | 0.021 ± 0.004 | 0.012 ± 0.008 | 0.016 ± 0.008 | inches |
| | 2.00 ± 0.10 | 1.25 ± 0.10 | 0.55 ± 0.10 | 0.30 ± 0.20 | 0.40 ± 0.20 | mm |
| RPC 1206 | 0.126 ± 0.006 | 0.063 ± 0.006 | 0.021 ± 0.004 | 0.012 ± 0.008 | 0.020 ± 0.010 | inches |
| | 3.20 ± 0.15 | 1.60 ± 0.15 | 0.55 ± 0.10 | 0.30 ± 0.20 | 0.50 ± 0.25 | mm |
| RPC 1210 | 0.126 ± 0.006 | 0.098 ± 0.006 | 0.021 ± 0.006 | 0.012 ± 0.008 | 0.020 ± 0.010 | inches |
| | 3.20 ± 0.15 | 2.50 ± 0.15 | 0.55 ± 0.15 | 0.30 ± 0.20 | 0.50 ± 0.25 | mm |
| RPC 2010 | 0.197 ± 0.006 | 0.098 ± 0.006 | 0.021 ± 0.006 | 0.012 ± 0.008 | 0.024 ± 0.008 | inches |
| | 5.00 ± 0.15 | 2.50 ± 0.15 | 0.55 ± 0.15 | 0.30 ± 0.20 | 0.60 ± 0.20 | mm |
| RPC 2512 | 0.248 ± 0.006 | 0.126 ± 0.006 | 0.021 ± 0.006 | 0.012 ± 0.008 | 0.024 ± 0.008 | inches |
| | 6.30 ± 0.15 | 3.20 ± 0.15 | 0.55 ± 0.15 | 0.30 ± 0.20 | 0.60 ± 0.20 | mm |

| Performance Characteristics | | |
|---|---|---|
| Test | Test Methods (JIS C 5201-1 : 1198) | Test Results |
| Voltage Proof | Clause 4.7 500Va.a., 60s | No breakdown or flashover R ≥ 1G Ohm |
| Variation of Resistance with Temperature | Clause 4.8 +20°C/ -55°C/ +20°C/ +125°C/ +20°C: RPC 2010, 2512 +20°C/ -55°C/ +20°C/ +155°C/ +20°C: RPC 0603, 0805, 1206, 1210 | See ratings table |
| Overload | Clause 4.13 The applied voltage shall be 2.5 times of the rated voltage or twice of the limiting element voltage, whichever is the less severe, 2s. | ΔR ≤ ± 1% +0.05Ω No visible damage, legible markings |
| Solderability | Clause 4.17 235°C, 2s. | In accordance with Clause 4.17.4.5 |
| Resistance to Soldering Heat | Clause 4.18 After immersion into the flux, the immersion into solder shall be carried out in solder bath at 260° for 5s. | ΔR ≤ ± 1% +0.05Ω |
| Rapid Change of Temperature | Clause 4.19 Cycle: -55°C/ +125°C 5 times: RPC 2010, 2512 Cycle: -55°C/ +155°C 5 times: RPC 0603, 0805, 1206, 1210 | ΔR ≤ ± 1% +0.05Ω No visible damage |
| Climatic Sequence | Clause 4.23 Dry/Damp heat (12+12h cycle), first cycle/ Cold/Damp heat (12+12h cycle), remaining cycle / D.C. Load | ΔR ≤ ± 5% +0.1Ω No visible damage |
| Damp Test, Steady State | Clause 4.24 40°C, 95% R.H., 56 days, test a) and b) of Clause 4.24.2.1 | ΔR ≤ ± 5% +0.1Ω No visible damage, legible markings |
| Endurance @ 70°C | Clause 4.25.1 Rated voltage, 1.5h "ON", 0.5h "OFF", 70°C, 1,000h | ΔR ≤ ± 5% +0.1Ω No visible damage |
| Endurance at the Upper Category Temperature | Clause 4.25.3 125°C, no load, 1,000h: RPC 2010, 2512 155°C, no load, 1,000h: RPC 0603, 0805, 1206, 1210 | ΔR ≤ ± 5% +0.1Ω No visible damage |
| Adhesion | Clause 4.32 5N, 10s | No visible damage |
| Bend of Strength of the Face Plating | Clause 4.33 Amount of bend: 3mm RPC 0603, 0805, 1206, 1210 Amount of bend: 1mm RPC 2010, 2512 | ΔR ≤ ± 1% +0.05Ω |

Operating Temperature Range: -55°C to +125°C