

POS Series Datasheet

Power Metal Oxide Resistors | Axial and SMD Version
General propose | Flame retardant coating

ORDERING CODE-Example

New SAP Part Nr.:

| | | | | | | | |
|------------|--------------|---------------------------------------|--|------------------------|---|-------------|--------------------------|
| POS | 200 | J | T | - | 73- | 150R | AA |
| Serie | Power rating | Tol. F = ±1% G = ±2% J = ±5% | Pack-Code T = Tape on Box R = Tape in Reel | TCR - Base on spec. | Forming type 52- Inner Taping dimension or 73- Inner Taping dimension or 77- Inner Taping dimension ZB- Z version | R Value | Special AA = Standard |

Historical VTM Part Nr.:

| | | | |
|------------------|----------|-----------|-------------|
| PO593 - 0 | 5 | T | 150R |
| Type | Tol. | Pack-Code | R Value |

| | | | | | | |
|-------------|-------------|----------|-----------------------|----------|------------|-------------|
| RZP3 | 6720 | J | K | - | 13 | 150R |
| Type | Size | Tol. | K = Blister tape reel | TC | Reel diam. | R Value |

APPLICATIONS

- Automotive
- Charger
- Alternative Energy
- Power Supply
- Home Appliances
- Industrial

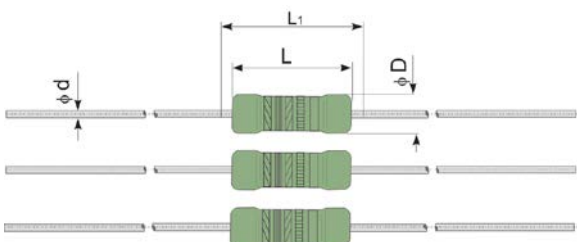
FEATURES

High power dissipation 4[W]
"Z" preforming ; Other preforming available
RoHS & REACH Compliant

ELECTRICAL SPECIFICATIONS

| Type | | POS-50 | POS100 | POS2WS | POS200 | POS300 | POS400 |
|---|--------------------------------------|---|-----------|-----------|-----------------|--------------|-----------|
| Historical Part Number | AXIAL | PO596 - 0 | PO595 - 0 | PO594 - 0 | PO593 - 0 | PO590 - 0 | PO591 - 0 |
| | SMD | ----- | RZP5 | RZP4 | RZP3 | RZP0 | ----- |
| Nominal Power Rating P ₇₀ | [W] | 0,5 | 1,0 | 2WS | 2,0 | 3,0 | 4,0 |
| Resistance Range (Other values upon request) | [Ω] | Min. | 1R | R1 | R1 | R22 | R22 |
| | | Max. | 1M | 10M | 10M | 10M | 560K |
| E-Series | | E24 only (E96 1% + E48 2% contact factory) | | | | | |
| Tolerances | ±[%] | F = 1% ; J = 5% | | | G = 2% ; J = 5% | | |
| Temperature Coefficient | ±[10 ⁻⁶ K ⁻¹] | ±50 ; ±100 ; ±200 (Depends on the value, please check the table below) | | | | | |
| Working Temperature Range | [°C] | -55 ... +200 | | | | -55 ... +250 | |
| Thermal Resistance | [KW ⁻¹] | 260 | 130 | 83 | 83 | 93 | 70 |
| Max. Working Voltage | [V _{DC/AC}] | 200 | 500 | | | 750 | |
| Dielectric Withstanding Voltage IEC115-1 clause 4.7 (1[min]) | [V] _{RMS} | 300 | 500 | | | | |

DIMENSIONS [mm]



| Type | Historical P/N: | L | L _{1 MAX} | ø D | ø d |
|--------|-----------------|----------------------|--------------------|---------------------|-----------------------|
| POS-50 | PO596 - 0 | 3,4 ^{±0,3} | 5,0 | 1,9 ^{±0,2} | 0,45 ^{±0,05} |
| POS100 | PO595 - 0 | 6,3 ^{±0,5} | 8,0 | 2,4 ^{±0,2} | 0,60 ^{-0,1} |
| POS2WS | PO594 - 0 | 9,0 ^{±0,5} | 11,0 | 3,9 ^{±0,3} | 0,60 ^{-0,1} |
| POS200 | PO593 - 0 | 11,5 ^{±1,0} | 14,0 | 4,5 ^{±0,5} | 0,80 ^{±0,05} |
| POS300 | PO590 - 0 | 16,5 ^{-1,5} | 20,0 | 6,0 ^{-0,5} | 0,80 ^{±0,05} |
| POS400 | PO591 - 0 | 20,0 ^{-1,0} | 24,0 | 9,0 ^{-0,5} | 0,80 ^{±0,05} |

POS Series Datasheet

PERFORMANCE DATE

| Type | | POS-50 | POS100 | POS2WS | POS200 | POS300 | POS400 |
|---|-------------------------------------|--------------------------------------|-----------|-----------|-----------|------------------|-----------|
| Historical Part Number | AXIAL | PO596 - 0 | PO595 - 0 | PO594 - 0 | PO593 - 0 | PO590 - 0 | PO591 - 0 |
| | SMD | ----- | RZP5 | RZP4 | RZP3 | RZP0 | ----- |
| Derating Linear | [°C] | 70...200 (0W) | | | | 70...250 (0W) | |
| Climatic Category | | 55/200/56 | | | | | |
| Failure Rate <i>(Total, ϑ_o, max, 60[%] cont. lev.)</i> | [10 ⁻⁹ h ⁻¹] | < 10 | | | | | |
| Endurance <i>IEC60115-1 clause 4.25 (P₇₀, @ 70[°C], 1000[h])</i> | ±[%] | 2,0 | | | | 1,5 | |
| Damp Heat, Steady State <i>IEC60115-1 clause 4.24 (40[°C], 93[% r.h.], 56[d])</i> | ±[%] | 2,0 | | | | 1,5 | |
| Climatic Sequence <i>IEC60115-1 clause 4.23 (260^{±5}[°C], 10^{±1}[s])</i> | ±[%] | 1,0 | | | | | |
| Resistance to Soldering Heat <i>IEC60115-1 clause 4.18 (260^{±5}[°C], 3,5^{±1}[s])</i> | ±[%] | 0,25 | | | | | |
| Surge Test <i>IEC61000-4-5</i> | ±[%] | 2,0 | | | | | |
| Terminal Strength | ±[%] | 0,3 | | | | | |
| Terminal Tensile Strength | [N] | 24,5 | | | 50 | | |
| Solderability <i>IEC60068-2-20 (260^{±5}[°C] 3^{±0,5}[s])</i> | | Solder bath method (> 95% coverage) | | | | | |
| Current Noise <i>IEC60195</i> | [db] | R <15K: -15 R>: 15 +10 /decade | | | | | |
| Nonlinearity <i>IEC60440</i> | [db] | R <15K: 110 R> 15 K: 110 -20 /decade | | | | | |
| Marking <i>IEC60062</i> | | Color code | | | | Printed in clear | |

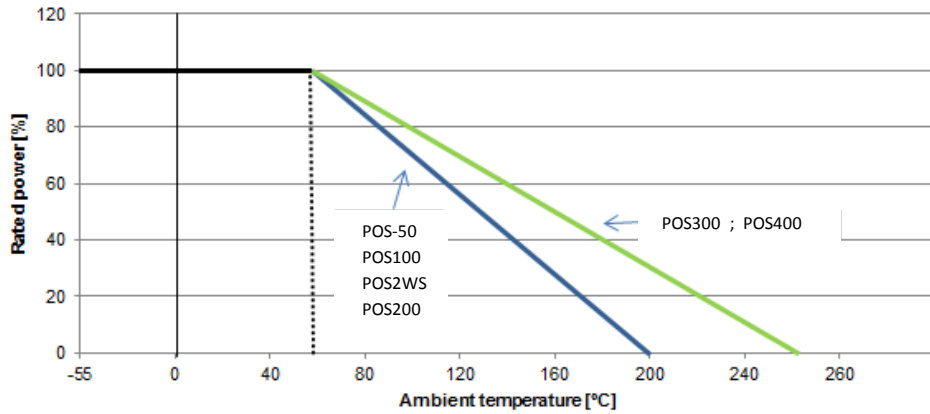
TEMPERATURE COEFFICIENT

| New P/Nr. Type | Historical P/N: | TCR | Tolerance | Resistance range |
|----------------|-----------------|-------------|-----------|------------------|
| POS-50 | PO596 - 0 | ± 100 ppm/K | ± 5% | 1R ... 1M |
| | | ± 50 ppm/K | ± 1% | |
| POS100 | PO595 - 0 | ± 100 ppm/K | ± 5% | 0R1 ... 10M |
| | | ± 50 ppm/K | ± 1% | 1R ... 1M |
| POS2WS | PO594 - 0 | ± 100 ppm/K | ± 5% | 0R1 ... 10M |
| | | ± 50 ppm/K | ± 1% | 1R ... 1M |
| POS200 | PO593 - 0 | ± 200 ppm/K | ± 5% | 0R22 ... 10M |
| | | | ± 2% | 1R ... 1M |
| POS300 | PO590 - 0 | ± 200 ppm/K | ± 5% | 0R22 ... 560K |
| | | | ± 2% | 1R ... 100K |
| POS400 | PO591 - 0 | ± 200 ppm/K | ± 5% | 0R22 ... 100K |
| | | | ± 2% | 1R ... 68K |

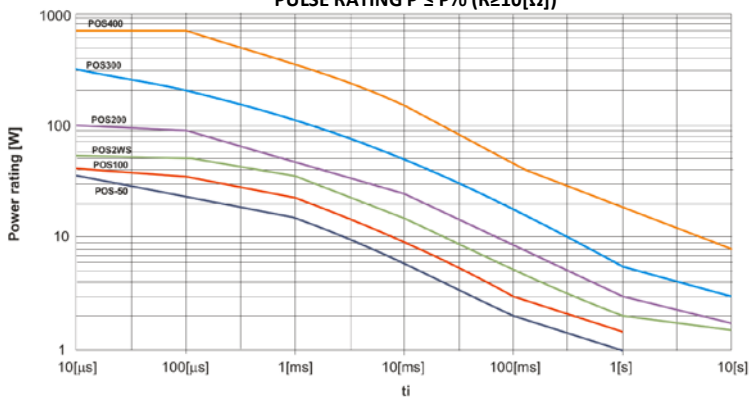
POS Series Datasheet

PERFORMANCE GRAPH'S

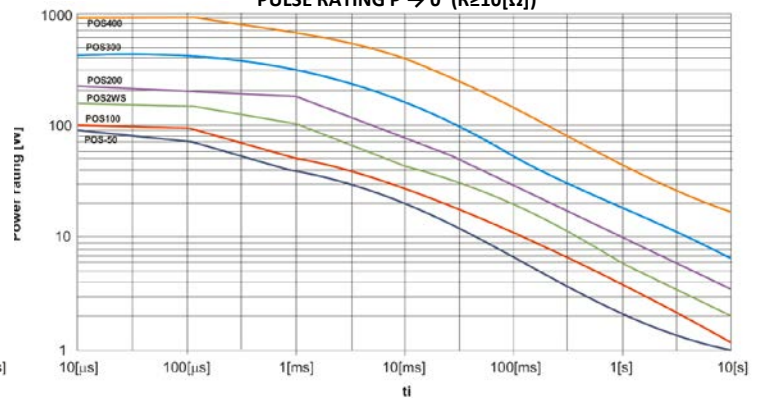
DERATING



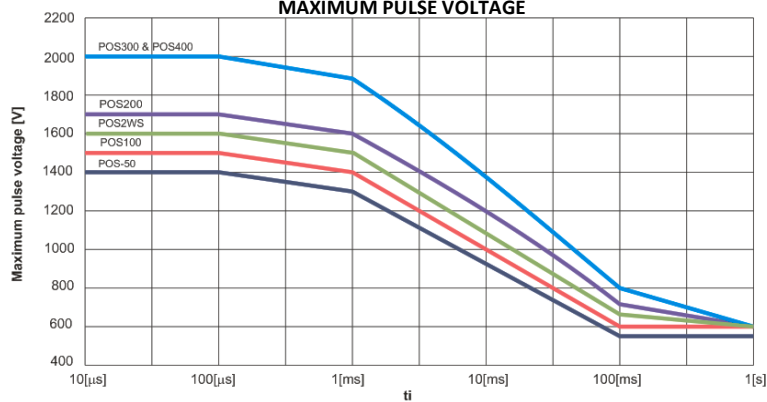
PULSE RATING $P \leq P_{70}$ ($R \geq 10[\Omega]$)



PULSE RATING $P \rightarrow 0$ ($R \geq 10[\Omega]$)



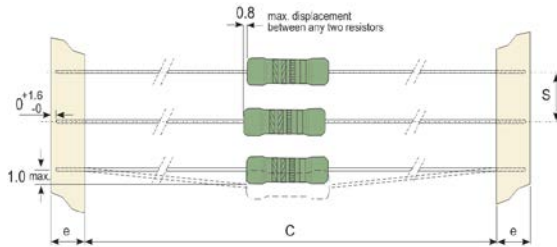
MAXIMUM PULSE VOLTAGE



POS Series Datasheet

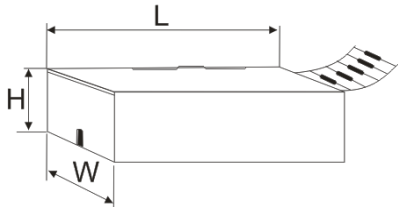
PACKAGING

The standard packaging for POS in axial type is taped, dimensions below.



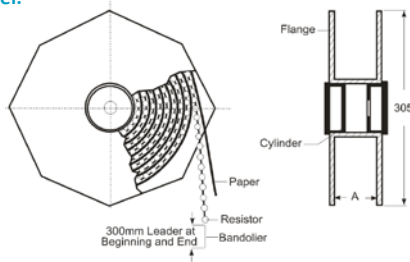
| Type | Historical P/N: | Pack Code | Forming Type (Inner Taping dim.) | C | S | e |
|--------|-----------------|--|----------------------------------|----|----|---|
| POS-50 | PO596 - 0 | T = Taped Ammo pack or R = Taped in Reel | 52- | 52 | 5 | 6 |
| POS100 | PO595 - 0 | | | 52 | 5 | 6 |
| POS2WS | PO594 - 0 | | | 52 | 5 | 6 |
| POS200 | PO593 - 0 | | 73- | 73 | 5 | 6 |
| POS300 | PO590 - 0 | | 77- | 77 | 10 | 9 |
| POS400 | PO591 - 0 | | | 77 | 10 | 9 |

Tape on Box:



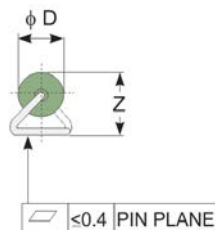
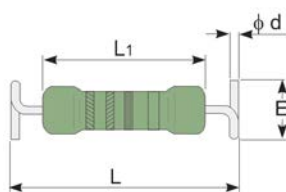
| Type | Historical P/N: | Pack Code | Pieces | Box dimensions | | |
|--------|-----------------|---------------------|--------|----------------|-----|-----|
| | | | | W | H | L |
| POS-50 | PO596 - 0 | T = Taped Ammo pack | 5000 | 81 | 70 | 260 |
| POS100 | PO595 - 0 | | 5000 | 81 | 104 | 260 |
| POS2WS | PO594 - 0 | | 1000 | 73 | 45 | 258 |
| POS200 | PO593 - 0 | | 1000 | 103 | 78 | 260 |
| POS300 | PO590 - 0 | | 1000 | 115 | 93 | 405 |
| POS400 | PO591 - 0 | | 500 | 118 | 110 | 412 |

Tape in Reel:

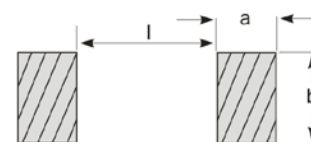


| Type | Historical P/N: | Pack Code | Pieces | Across Flange (A) |
|--------|-----------------|-------------------|--------|-------------------|
| POS-50 | PO596 - 0 | R = Taped in Reel | 5000 | 72 |
| POS100 | PO595 - 0 | | 5000 | |
| POS2WS | PO594 - 0 | | 2500 | |
| POS200 | PO593 - 0 | | 2000 | 95 |
| POS300 | PO590 - 0 | | 1500 | 105 |
| POS400 | PO591 - 0 | | 1000 | |

SMD LEAD CONFIGURATIONS

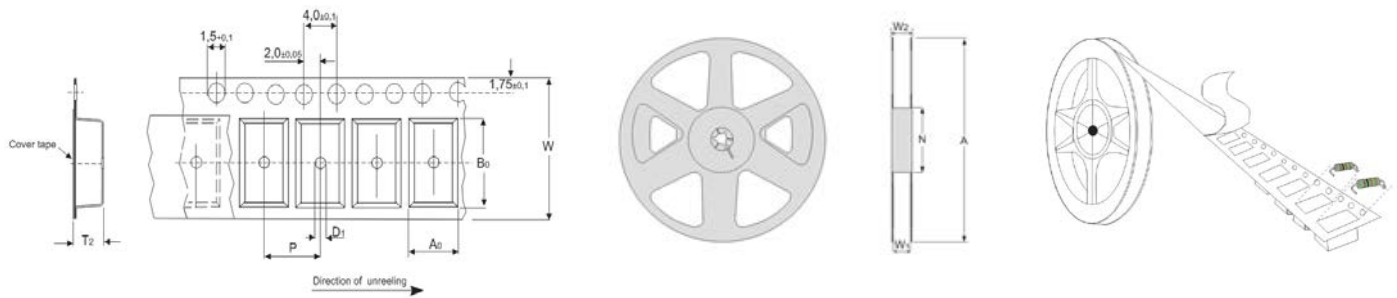


SOLDER PAD



| Type | Historical P/N | Size | L | L ₁ | Ø D | Ø d | E | Z max | l | a | b |
|--------|----------------|------|----------|----------------------|---------------------|------|---------|-------|----|----|----|
| POS100 | RZP5 | 5315 | 13,4±0,5 | 6,3 ^{±0,5} | 2,4 ^{±0,2} | 0,60 | 5,0±0,5 | 7,0 | 10 | 10 | 10 |
| POS2WS | RZP4 | 5315 | | 9,0 ^{±0,5} | 3,9 ^{±0,3} | 0,60 | | | | | |
| POS200 | RZP3 | 6720 | 17,0±1,0 | 11,5 ^{±1,0} | 4,5 ^{±0,5} | 0,80 | | 7,5 | 14 | | |
| POS300 | RZP0 | 8424 | 20,9±1,0 | 16,5 ^{-1,5} | 6,0 ^{-0,5} | 0,80 | | 8,0 | 16 | | |

POS Series Datasheet



| Type | A0 | B0 | W | D1 | P | T2 | Type | W1 | W2 | N | A | Type | Packaging | Pieces |
|--------|-----|------|----|-----|----|-----|--------|------|------|-----|-----|--------|--------------------------|--------|
| POS100 | 5,0 | 13,7 | 24 | 2,0 | 8 | 7,2 | POS100 | 25,4 | 29,5 | 90 | 330 | POS100 | 13(inch) Blister tape | 1000 |
| POS2WS | | | | | | | POS2WS | | | | | | | |
| POS200 | 5,7 | 16,7 | 24 | 2,0 | 8 | 7,6 | POS200 | | | | | | | |
| POS300 | 6,0 | 21,4 | 32 | 2,0 | 12 | 8,1 | POS300 | 33,4 | 37,4 | 100 | 380 | POS300 | 15(inch) Blister tape | |

Ordering Code for SMD :

| POS | 200 | J | K | - | ZB- | 150R | AA |
|-------|--------------|---------|-----------------------|-----------------|---------------|---------|---------------|
| Serie | Power rating | Tol. | Pack-Code | TCR | Forming type | R Value | Special |
| | | J = ±5% | K = Blister Tape Reel | - Base on spec. | ZB- Z version | | AA = Standard |

ALTERNATIVE LEAD CONFIGURATIONS

This type POS is also available in a different pre-forming, as shown below, other's upon request.

THOUGH HOLE VERSION

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| | | | |
| Axial Goal Post (AG-) | Axial Goal Post Kink (AK-) | Radial (RD-) | Radial 2 Kink (RK-) |