

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
Series	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

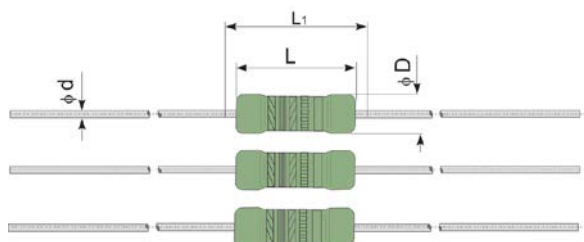
FEATURES

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	R22
		Max.	1M	10M	10M	10M	560K	100K
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}

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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 (P_{Tb}, @ 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	

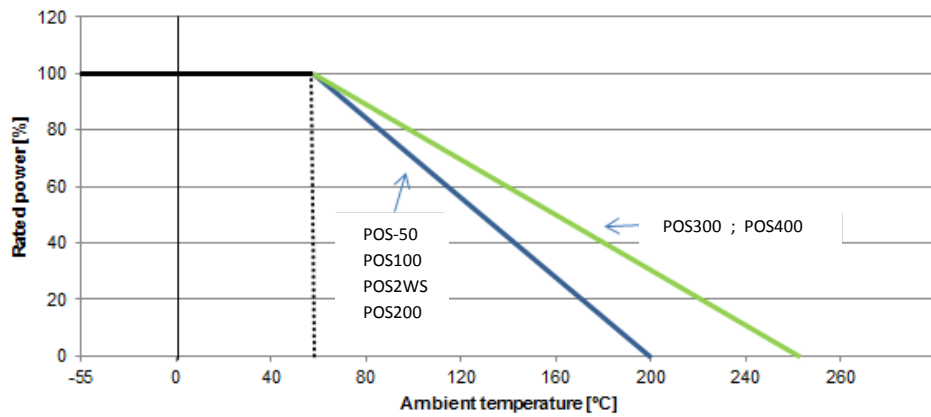
TEMPERATURE COEFFICIENT

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

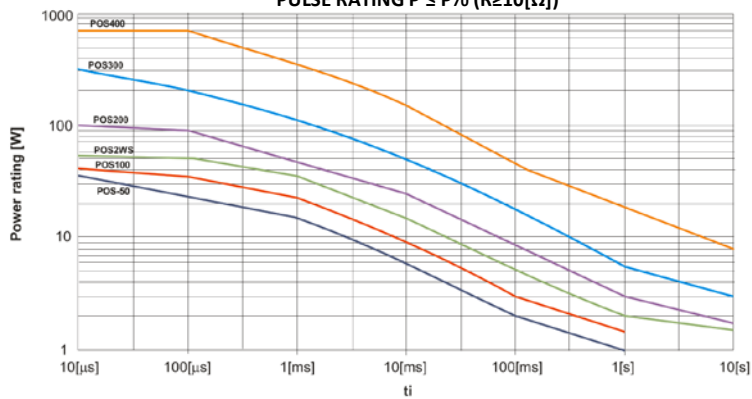
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PERFORMANCE GRAPH'S

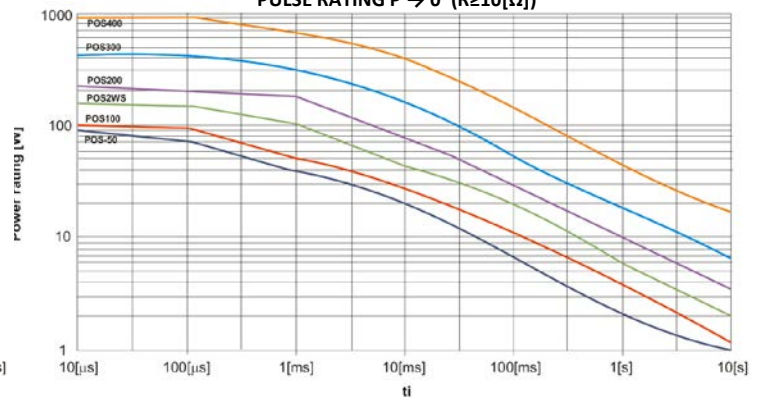
DERATING



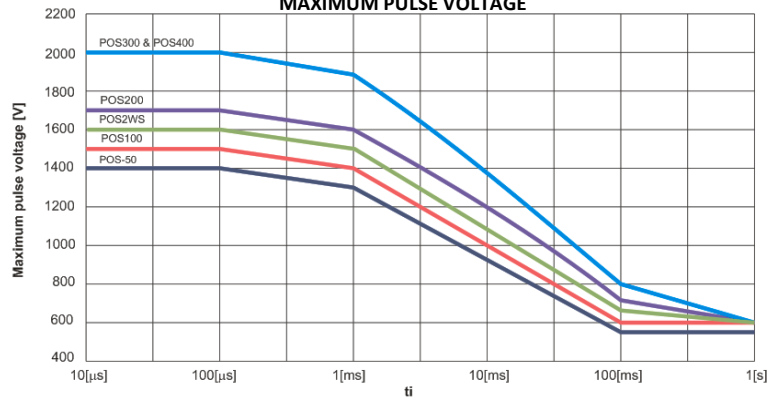
PULSE RATING $P \leq P_{70}$ ($R \geq 10[\Omega]$)



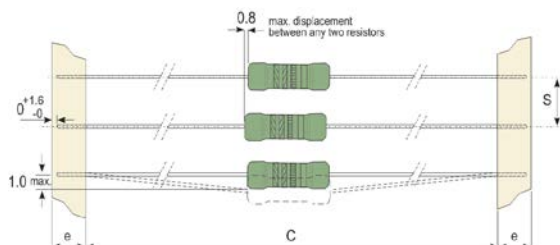
PULSE RATING $P \rightarrow 0$ ($R \geq 10[\Omega]$)



MAXIMUM PULSE VOLTAGE



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

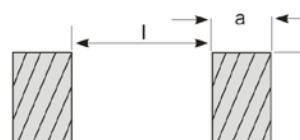
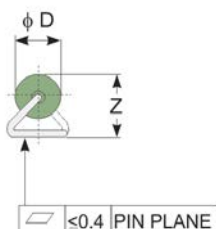
A diagram of a rectangular block with dimensions L (length), H (height), and W (width). A small rectangular feature is located on the front face, and a wavy line is shown on the top surface.

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

Figure 1: Schematic diagram of the test specimen. The left part shows a top-down view of a circular specimen with a central hole, a spiral of paper, and a resistor. The right part shows a side view of the specimen with labels for Flange, Cylinder, Paper, Resistor, and Bandolier.

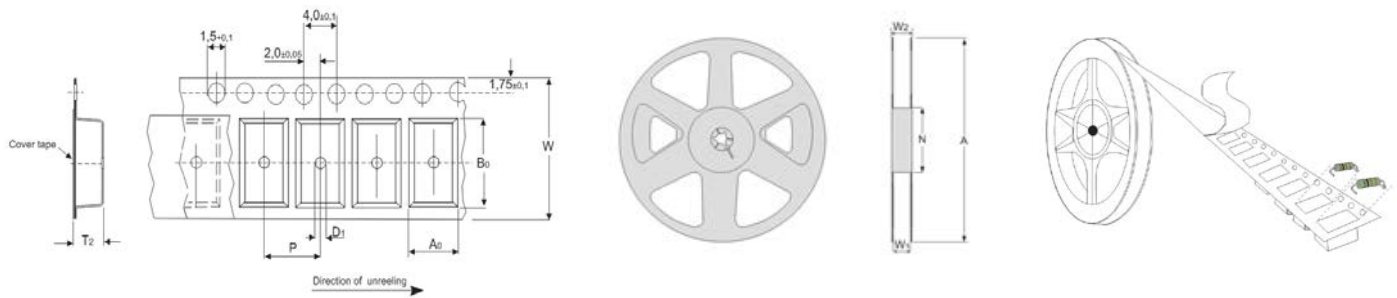
Type	Historical P/N:	Pack Code	Pieces	Across Flange (A)
POS-50	PO596 - 0	R = Taped in Reel	5000	72
POS100	PO595 - 0		5000	
POS2WS	PO594 - 0		2500	
POS200	PO593 - 0		2000	95
POS300	PO590 - 0		1500	105
POS400	PO591 - 0		1000	

Technical drawing of a bolt. The drawing shows a bolt with a hexagonal head and a threaded shank. The total length of the bolt is labeled L . The length of the threaded portion is labeled L_1 . The diameter of the bolt is labeled d . The drawing also shows the bolt being inserted into a hole with diameter d and a depth E .



Type	Historical P/N	Size	L	L ₁	Ø D	Ø d	E	Z max	I	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		

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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					POS2WS		
POS200	5,7	16,7	24	2,0	8	7,6	POS200					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-)