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Vishay Draloric

RoHS

HALOGEN FREE

**GREEN** 

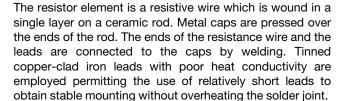
(5-2008)

# **Cemented Leaded Wirewound Precision Resistors**



#### **FEATURES**

- · High power dissipation in small volume
- Ideal for pulse application
- TCR ± 100 ppm/K
- Maximum permissible hot spot temperature is 275 °C
- Lead (Pb)-free
- Tolerance 1 %
- Material categorization: for definitions of compliance please see <a href="https://www.vishav.com/doc?99912"><u>www.vishav.com/doc?99912</u></a>



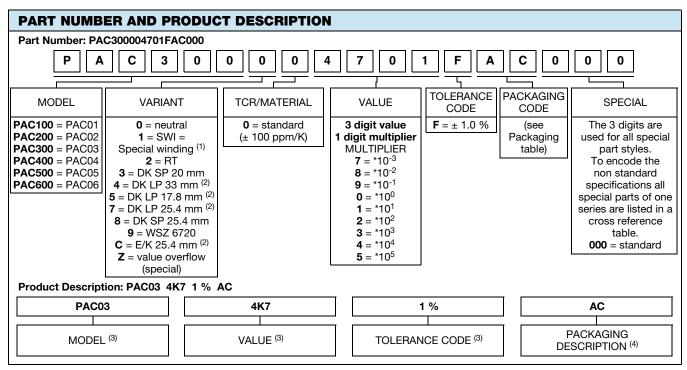
The resistor is coated with a green silicon cement which is not resistant to aggressive fluxes. The coating is non-inflammable, will not drip even at high overloads and is resistant to most commonly used cleaning solvents, in accordance with IEC 60068-2-45.

STANDARD ELECTRICAL SPECIFICATIONS						
MODEL	POWER RATING  P <sub>25 °C</sub> W	LIMITING VOLTAGE U <sub>max</sub> .	RESISTANCE RANGE $^{(2)}$ $\Omega$	TOLERANCE ± %		
PAC01	1	√ <i>P</i> x <i>R</i>	0.10 to 2.2K	1		
PAC02 (1)	2	√ <i>P</i> x <i>R</i>	0.10 to 3.6K	1		
PAC03	3	√P x R	0.10 to 4.7K	1		
PAC04	4	√ <i>P</i> x <i>R</i>	0.10 to 8.2K	1		
PAC05	5	√ <i>P</i> x <i>R</i>	0.10 to 12K	1		
PAC06	6	√P x R	0.10 to 12K	1		

#### Notes

- For Pulse Diagrams see AC.. Series (<u>www.vishay.com/doc?28730</u>)
- (1) PAC02 WSZ:  $P_{25 \, {}^{\circ}\text{C}} = 1.8 \, \text{W}$
- $^{(2)}$  Resistance value to be selected for  $\pm$  1 % tolerance from E24 and E96

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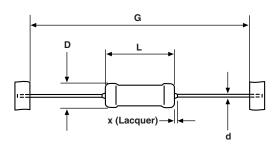
#### **Notes**

- (1) Special winding on request
- (2) Other dimensions on request
- (3) See "Part Number and Product Description"
- (4) See "Packaging Table"

PACKAGING TABLE									
		АММО			LOOSE			BLISTER	
MODEL	PIECES	PACK CODE	PACK. DESC.	PIECES	PACK CODE	PACK. DESC.	PIECES	PACK CODE	PACK. DESC.
PAC01	1000	A1	A1						
PAC01 DK/EK				500	LC	LC			
PAC01RT	2500	AE	AE						
PAC02	500	AC	AC						
PAC02 DK/EK				500	LC	LC			
PAC02 WSZ							1250	ВМ	ВМ
PAC03	500	AC	AC						
PAC03 DK/EK				500	LC	LC			
PAC04	500	AC	AC						
PAC04 DK/EK				500	LC	LC			
PAC05	500	AC	AC						
PAC05 DK/EK				250	LB	LB			
PAC06	500	AC	AC						
PAC06 DK/EK				250	LB	LB			



## **DIMENSIONS** in millimeters [inches]



MODEL	D <sub>max.</sub>	L <sub>max.</sub>	d	X <sub>max.</sub>	G	WEIGHT g PER UNIT
PAC01	4.3 [0.169]	11 [0.433]		2	63 ± 1 [2.480 ± 0.039]	0.52
PAC02	4.8 [0.189]	13 [0.512]		2	63 ± 1 [2.480 ± 0.039]	0.75
PAC03	5.5 [0.217]	16.5 [0.650]	0.8 ± 0.03	3	63 ± 1 [2.480 ± 0.039]	1.10
PAC04	7.5 [0.295]	18 [0.709]	[0.031 ± 0.001]	3	73 ± 1 [2.874 ± 0.039]	1.90
PAC05	7.5 [0.295]	26 [1.024]		3	73 ± 1 [2.874 ± 0.039]	2.60
PAC06	7.5 [0.295]	26 [1.024]		3	73 ± 1 [2.874 ± 0.039]	2.60

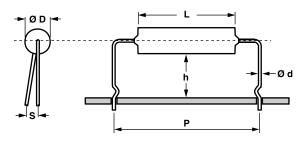
### Note

• For packaging dimensions see: <a href="https://www.vishay.com/doc?28721">www.vishay.com/doc?28721</a>



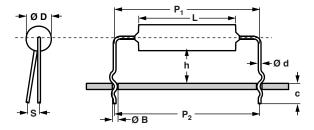
### **BENDING FORMS**

KINK TYPE S = EK



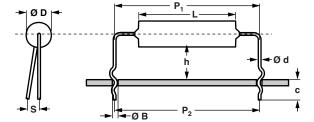
TYPE	Ød	Ø D <sub>max.</sub>	L	h ± 1	P ± 1	S <sub>max.</sub>
PAC01					17.8	
PAC02 - PAC04	0.8	(1)	(1)	8	25.4	2
PAC05 - PAC06					33.0	

DOUBLE KINK SP = DK SP



TYPE	ØD	Ø D <sub>max.</sub>	L	h ± 1	P <sub>1</sub> ± 1	P <sub>2</sub> ± 3	S <sub>max</sub> .	ØВ	С
PAC01					19.8	17.8			
DACOO DACOA	0.8	(1)	(1)	0	22.0	20.0	0	10.01	4.5 ± 1
PAC02 - PAC04	0.8	(.)	(.,	8	27.4	25.4	2	1.0 ± 0.1	4.5 ± 1
PAC05 - PAC06					35.0	33.0			

**DOUBLE KINK LP = DK LP** 



TYPE	ØD	Ø D <sub>max.</sub>	L	h ± 1	P <sub>1</sub> ± 1	P <sub>2</sub> ± 3	S <sub>max</sub> .	ØВ	С
PAC01 - PAC02					17.8	17.8			
PAC02 - PAC04	0.8	(1)	(1)	8	25.4	25.4	2	1.0 ± 0.1	4.5 ± 1
PAC05 - PAC06					33.0	33.0			

### Note

<sup>(1)</sup> See table DIMENSIONS



 $12.0 \pm 0.5$ 

 $9.0 \pm 0.5$ 

0.5 max.

 $19.5 \pm 1.0$ 

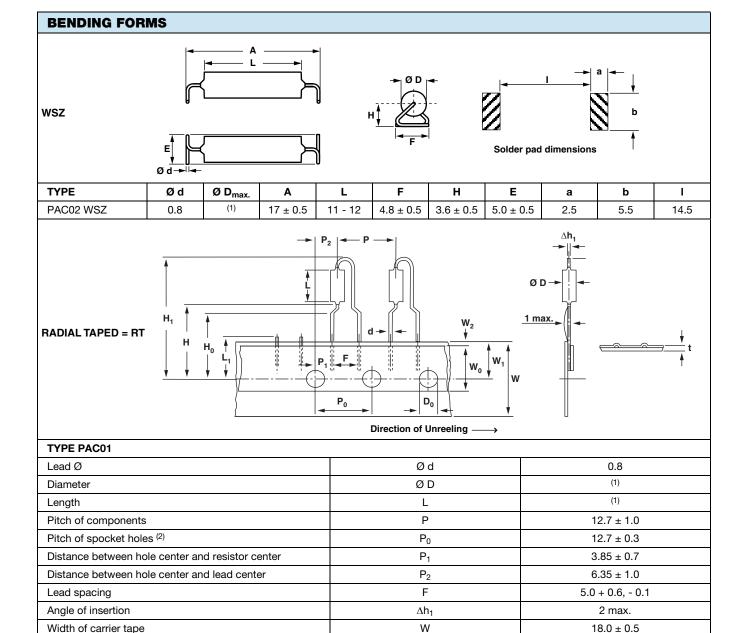
 $16.0 \pm 0.5$  $4.0 \pm 0.2$ 

0.9 max.

11 max.

32 max.





		_	_
N	οτ	е	S

Hole Ø

(1) See table DIMENSIONS

Width of adhesive tape

Position of adhesive tape

Lead crimp to hole center (3)

Position of holes

Body to hole center

Thickness of tape (4)

Height for cutting

Height for insertion

- (2) Test over 10 holes 9 intervals  $P_0$  12.7 x 9 = 114.3 ± 0.5
- (3) Parallelism, < 0.5 mm
- (4) Thickness of carrier tape: 0.55 mm ± 0.1

 $W_0$ 

 $W_1$ 

 $W_2$ 

Н

 $H_0$ 

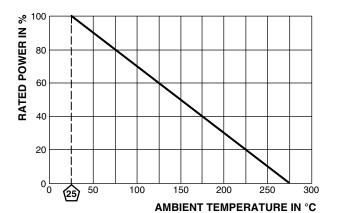
 $D_0$ 

t

 $L_1$ 

 $H_1$ 





Maximum dissipation ( $P_{max.}$ ) as a function of the ambient temperature ( $T_{amb}$ )

PERFORMANCE					
TEST	PERMISSIBLE CHANGE				
Climatic category (LCT/UCT/Days)	55/200/56				
Climatic Sequence IEC 60115-1 4.23	$\Delta R = \pm (0.5 \% R + 0.05 \Omega)$				
Damp Heat, Steady State, IEC 60115-1, 4.24 (40 $\pm$ 2) °C, 56 days, (93 $\pm$ 3) % RH	$\Delta R = \pm (1.0 \% R + 0.05 \Omega)$				
Endurance at room temperature (116 % <i>P</i> <sub>70</sub> ), 1000 h, IEC 60115-1, 4.25.2	$\Delta R = \pm (0.5 \% R + 0.05 \Omega)$				
Storage, UCT, IEC 60115-1, 4.25.3 1000 h, 200 °C, no load	$\Delta R = \pm (1.0 \% R + 0.05 \Omega)$				
Resistance to Soldering Heat, IEC 60115-1, 4.18 (260 $\pm$ 5) °C, (10 $\pm$ 1) s	$\Delta R = \pm (0.2 \% R + 0.05 \Omega)$				
Robustness of Termination, IEC 60115-1, 4.16 10N	$\Delta R = \pm (0.1 \% R + 0.05 \Omega)$				
Short Time Overload, IEC 60115-1, 4.13 10 x Rated Power for 5 s	$\Delta R = \pm (0.2 \% R + 0.05 \Omega)$				

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### **HISTORICAL 12NC INFORMATION**

- The resistors had a 12-digit ordering code staring with 2306 327
- The subsequent first digit indicated the resistor type and packaging.
- The remaining 4 digits indicated the resistance value:
  - The first 3 digits indicated the resistance value.
  - The last digit indicated the resistance decade in accordance with Resistance Decade table.

#### **Resistance Decade**

RESISTANCE DECADE	LAST DIGIT
0.10 to 0.976 Ω	7
1 to 9.76 Ω	8
10 to 97.6 Ω	9
100 to 976 Ω	1
1 to 9.76 kΩ	2
10 to 12 kΩ	3

#### **Ordering Example**

The ordering code for an PAC02, resistor value 47  $\Omega$  with  $\pm$  1 % tolerance, supplied in ammopack of 500 units was: 2306 327 04709.

HISTORICAL 12NC - Resistor type and packaging					
		2306 327			
TYPE		BANDOLIER IN AMMOPACK			
ITPE	RADIAL	STRAIGHT	LEADS		
	2500 units	500 units	1000 units		
PAC01	RT <sup>(1)</sup>	-	2306 327 5		
PAC02	-	2306 327 0	-		
PAC03	-	2306 327 1	-		
PAC04	-	2306 327 2	-		
PAC05	-	2306 327 3	-		
PAC06	-	2306 327 4	-		

### Note

<sup>(1)</sup> Radial parts with tin plated copper leads



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