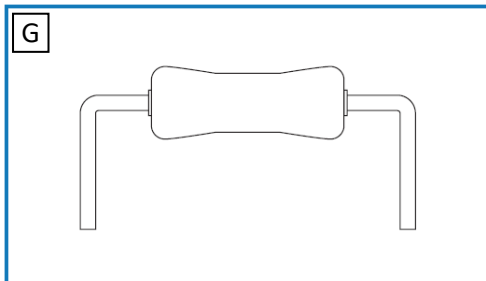


Technical Note TN008 – Resistors Leadform Capability

Introduction

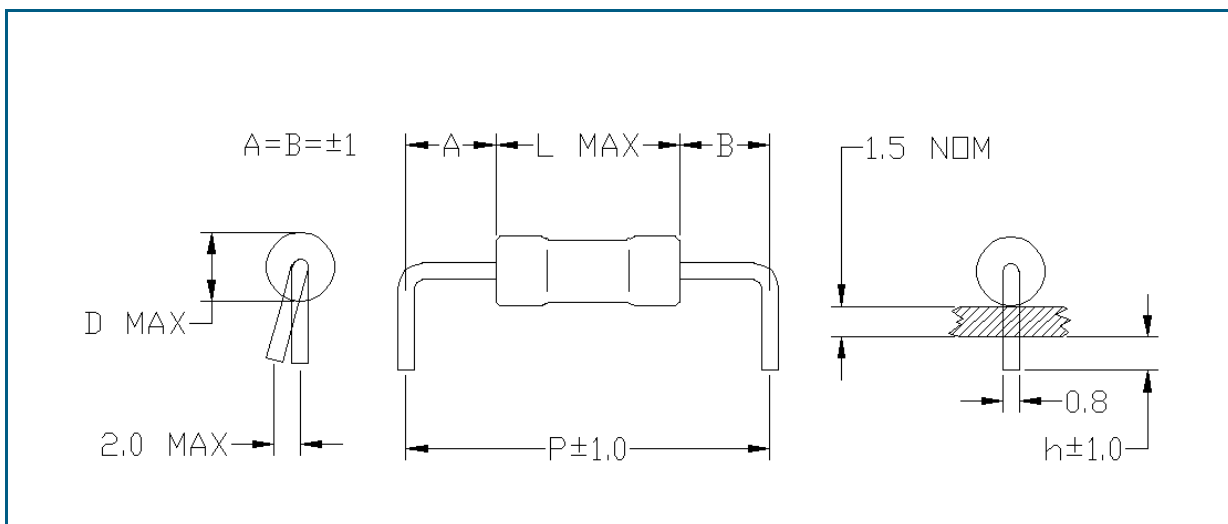
TT Electronics offers several leadform options on axial resistors for ease of processing and optimised assembly design. This Technical Note outlines the standard dimensions for each option, but custom variants may be available on request.

Goalpost Form



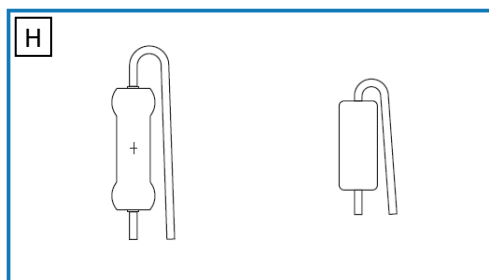
- Pre-form ideal for manual insertion
- Horizontal body minimises height above PCB
- Direct contact on PCB for mechanical stability

Leadform code G. See Ordering Procedure.



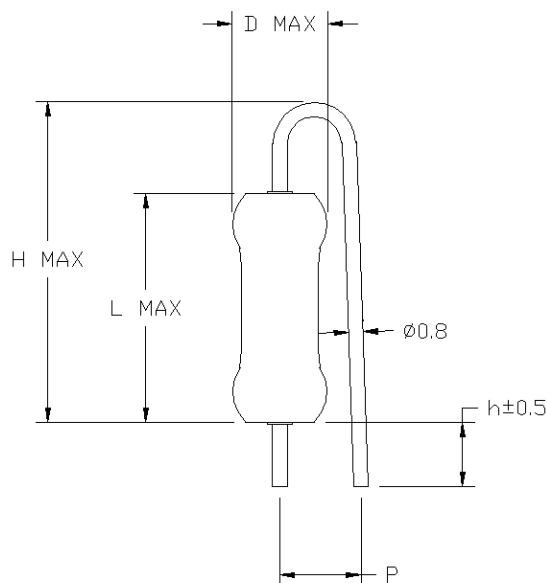
Standard Dimensions in mm					
Applicable Products	L	D	P	h	Bulk Pack Qty
WA83, WP2S, WHS2	9.0	3.6	12.5	1.5	1000/box
ULW2, WHS2UL	9.0	3.8	12.5		
VRW37	9.0	3.7	14.0		
MFP2, EMC2	10.0	4.0	15.0		
WA835, WP25S	12.5	4.5	17.5		
WA84	14.5	5.2	20.0		
WP3S, WHS3	14.5	5.2	20.0		
ULW3, WHS3UL	14.5	5.8	20.0		
W31	13.0	5.6	19.0		
WP4S, ULW4	13.0	5.6	19.0		
WA85, WP5S, WHS5	16.5	7.0	22.0		
ULW5, WHS5UL	16.5	7.2	22.0		

Hairpin Form



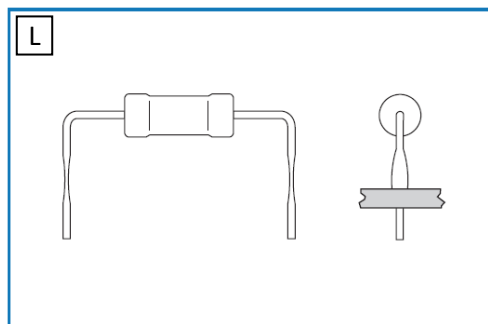
- Vertical body minimises footprint on PCB
- Orientation improves heat transfer to air
- Ideal for fusible parts
- Pre-form ideal for manual insertion

Leadform code H. See Ordering Procedure.



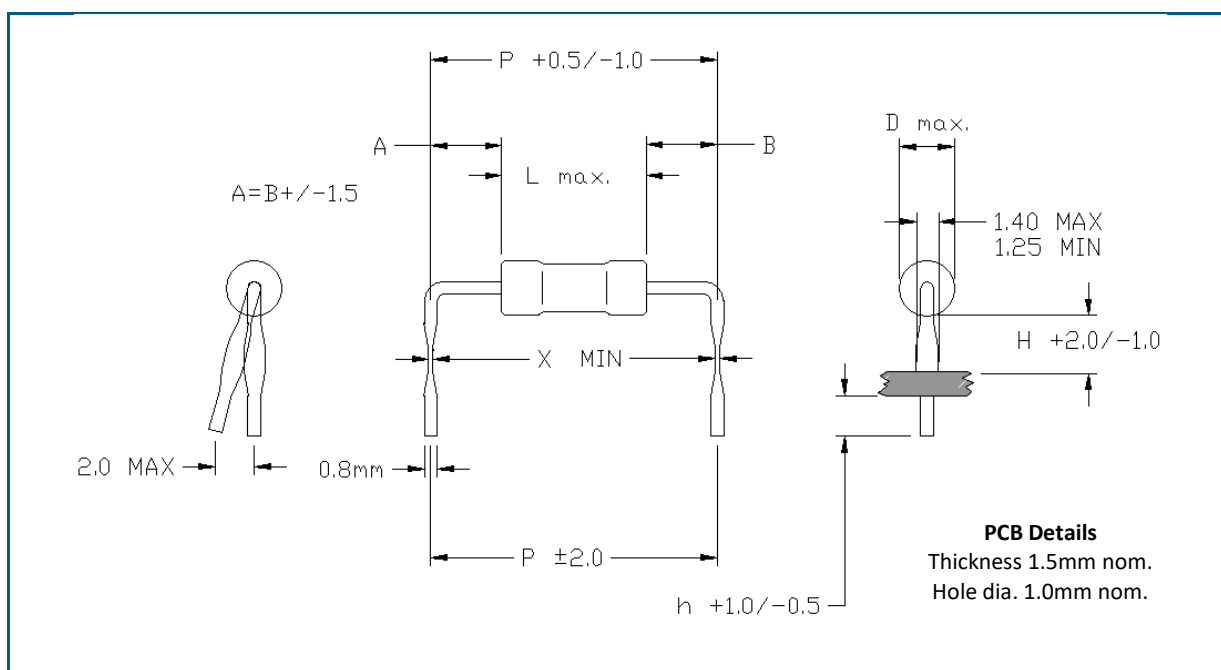
Standard Dimensions in mm

Applicable Products	L	D	P	H	h	Bulk Pack Qty
WA83, WP2S, WHS2	9.0	3.6	6 ±2	16.0	3.5	1500/box
ULW2, WHS2UL	9.0	3.8	6 ±2	16.0	3.5	
VRW37	9.0	3.7	8.5 ±1.5	16.0	3.5	
MFP2, EMC2	10.0	4.0	7 ±1.5	16.0	4.0	
WA84, WHS3	14.5	5.2	8 ±2	17.5	4.0	
WP3S	14.5	5.2	7 ±2	17.5	4.0	
ULW3, WHS3UL	14.5	5.8	8 ±2	17.5	4.0	
W31	13.0	5.6	6 ±2	16.0	3.5	
ULW4	13.0	5.6	6 ±2	16.0	3.5	
WP4S	13.0	5.6	10 ±1.5	16.0	3.5	

Lancet Form


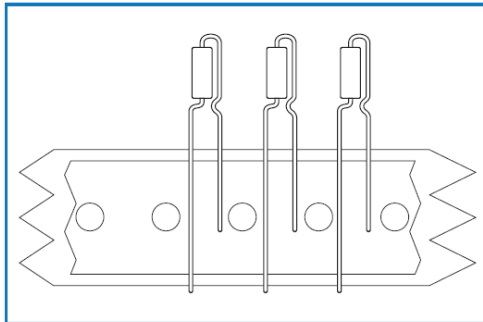
- Elevation improves heat transfer to air
- Standoff gives minimal heating of joints and PCB
- Ideal for high power and fusible parts
- Horizontal body limits height above PCB
- May be mounted over other components

Leadform code L. See Ordering Procedure.



Standard Dimensions in mm							Bulk Pack Qty
Applicable Products	L	D	P	X	H	h	
WA83, WP2S, WHS2	9.0	3.6	12.5	0.3	6.0	2.5	1500/box
ULW2, WHS2UL	9.0	3.8	12.5	0.3	6.0	2.5	
VRW37	9.0	3.7	12.5	0.3	6.0	2.5	
MFP2, EMC2	10.0	4.0	15.0	0.3	8.0	1.0	
WA835, WP25S	12.5	4.5	17.5	0.3	8.0	2.5	1000/box
WA84	14.5	5.2	20.0	0.3	10.0	1.0	
WP3S, WHS3	14.5	5.2	20.0	0.3	10.0	2.0	
ULW3, WHS3UL	14.5	5.8	20.0	0.3	10.0	2.0	
W31	13.0	5.6	18.0	0.3	4.5	3.0	1500/box
WP4S, ULW4	13.0	5.6	20.0	0.3	2.5	2.5	
WA85, WP5S, WHS5	16.5	7.0	22.5	0.3	4.0	2.5	1000/box
ULW5, WHS5UL	16.5	7.2	22.5	0.3	4.0	2.5	

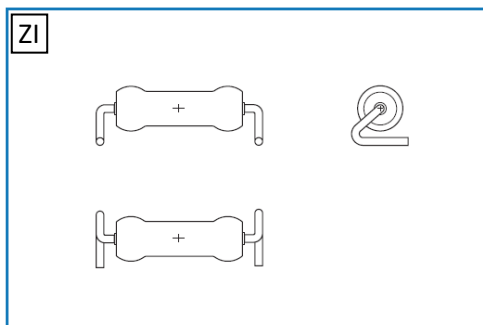
Radial Taped Form



- For automatic radial insertion
- Vertical body minimises footprint on PCB
- Orientation improves heat transfer to air
- Standoff gives minimal heating of joints and PCB
- Ideal for high power and fusible parts
- Applies to EMC, MFP, WP-S, WHS, WHS-UL & ULW series

Full details of the dimensions, pack quantities and ordering procedures are given on the datasheets of applicable products.

ZI-Form



- For automatic vacuum pick & place and reflow
- Allows conversion of designs to SMT
- Standoff gives minimal heating of joints and PCB
- Ideal for high power and fusible parts
- Horizontal body limits height above PCB
- Recommended alternative to original Z-Form
- Applies to EMC, MFP, W30, WP-S, WHS, WHS-UL & ULW series

Full details of the dimensions, pack quantities and ordering procedures are given on the ZI-form datasheet at: <https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Datasheets/ZI-form.pdf>

Ordering Procedure

This should be used in conjunction with the ordering procedure on the base product datasheet where indicated.

Examples:

WHS3ULH-47RJI (WHS3UL with standard hairpin leadform, at 47 ohms $\pm 5\%$, Pb-free)
ULW5L01-33RJI (ULW5 with non-standard lancet leadform index 01, at 33 ohms $\pm 5\%$, Pb-free)
W31G-100RFI (W31 with standard goalpost leadform, at 100 ohms $\pm 1\%$, Pb-free)

W	H	S	3	U	L	H			-	4	7	R		J	I
U	L	W	5			L	0	1	-	3	3	R		J	I
W	3	1				G			-	1	0	0	R	F	I
1			2	3	4			5	6						

1 Type	2 Leadform		3 Custom Index	4 Value	5 Tolerance	6 Finish & Packing	
As for base product	G	Goalpost	Blank = Standard	As for base product		I	Pb-free, standard bulk pack. See dimensions tables for quantities.
	H	Hairpin	Index number assigned for custom variants				
	L	Lancet					

General Note TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of publication.