



## WSL3921 & WSLP3921: Improved Standoff Forming Process

For further information, please contact your regional Vishay office.

### CONTACT INFORMATION

#### Americas

Vishay Americas  
One Greenwich Place  
-  
Shelton CT United States 06484  
Phone: 1-402-563-6866  
Fax: 1-402-563-6296  
business-americas@Vishay.com

#### Europe

Vishay Electronic GmbH  
DR.-Felix-Zandman-Platz 1  
-  
Selb Germany 95100  
Phone: 49-9287-71-0  
Fax: 49-9287-70435  
business-Europe@vishay.com

#### Asia

Vishay Intertechnology Asia Pte, Ltd  
25 Tampines Street 92  
Keppel Building #02-00  
Singapore Singapore 528877  
Phone: 65-6788-6668  
Fax: 65-6788-0988  
business-asia@vishay.com

**Description of Change:** WSL3921 & WSLP3921 process is being improved that shapes the copper leads to create the board standoff feature. Previous process used a stamping process to create the feature while the new process will provide the same standoff feature using a roll forming process.

**Classification of Change:** The revised process enables greater production capacity.

**Expected Influence on Quality/Reliability/Performance:** There will be no change to the Fit, Form, or Function of the part. The roll form process is being applied to the copper terminal and will provide the same dimensions and electrical performance. Product will appear visually equivalent to previous process.

**Part Numbers/Series/Families Affected:** WSL3921\*, WSLP3921\*,

**Vishay Brand(S):** Vishay Dale

**Time Schedule:**

Start Shipment Date: Mon Feb 6, 2023

**Sample Availability:** 02/05/2023

**Product Identification:** Product identification will require production lot information to verify with Vishay data systems. Product will appear visually equivalent to previous process.

**Qualification Data:** Available

**This PCN is considered approved, without further notification, unless we receive specific customer concerns before Wed Jan 18, 2023 or as specified by contract.**

**Issued By:** Bryan Yarborough, bryan.yarborough@vishay.com

DESCRIPTION	AEC TEST #	TEST CONDITIONS
High Temperature Exposure (Storage)	3	MIL-STD-202, Method 108, 2000 Hrs @ T=170° Measurements at 24± 2 hrs
Temperature Cycling	4	MIL-STD-202 Method 107 Condition F, -55°C to 15min, 2000 Cycles.
Moisture Resistance	6	MIL-STD-202, Method 106, t=24 hours/cycle. N required, 0% power, No Polo, 65°C, Measureme test.
Biased Humidity	7	MIL-STD-202, Method 103, 2000 hrs 85°C/85% conditions: 10% of operating power. Measureme test.
Operational Life	8.1	MIL-STD 202, Method 108, Condition D Steady power from derating curve. Measurements at 24. 2000hrs.
Operational Life	8	MIL-STD 202, Method 108, 2,000 hr test; Condit hrs "OFF"; +125°C @ rated power. Measuremen conclusion.
External Visual	9	Inspect per ICP document and sections listed in section. Inspect device construction, marking an
Physical Dimension	10	JESD22 Method JB-100, Verify physical dimens WSLP3921 data sheet.
Resistance to Solvents	12	Testing is to verify marking permanency; it is not components.
Mechanical Shock	13	MIL-STD-202, Method 213
Vibration	14	MIL-STD-202, Method 204, Condition D
Resistance to Solder Heat	15	MIL-STD-202, Method 210, Condition K
Thermal Shock	16	Temperatute Cycling has been substituted as it i refer to test 4.
ESD	17	AEC-Q200-002
Solderability	18.F1	J-STD-002; Method S1 Pb-Free; 4 hrs. @ +155° PCB; Max reflow temp +260°C ; no electrical tes
Solderability	18.F2	J-STD-002; Method S SnPb; 4 hrs. @ +155°C D Max reflow temp +230°C ; no electrical test; 50X
Electrical Characterization	19	RTC at -65°C & 170°C
Flammability	20	UL-94
Board Flex	21	AEC-Q200-005 2mm min
Terminal Strength (SMD)	22	AEC-Q200-006 Force of 1.8 Kg for 60 seconds.
Flame Retardance	24	AEC-Q200-001

**Note 1) Qualification by similarity.** Test data referenced existing process WSLP3921 0.2 mΩ as the 0.7 mΩ fa  
**Note 2) Solderability** acceptance Criteria is ≥95% coverage of solder fillet with wetting angle <90°. (Height at le  
**Note 3) Flame retardance** requires the application of 9V for 1 hour on a low resistance value current sense resi  
under these conditions, resulting in temperatures that exceeds 350 °C for > 10 seconds.

DESCRIPTION	AEC TEST #	TEST CONDITIONS
High Temperature Exposure (Storage)	3	MIL-STD-202, Method 108, 2000 Hrs @ T=170° Measurements at 24± 2 hrs
Temperature Cycling	4	MIL-STD-202 Method 107 Condition F, -55°C to 15min, 2000 Cycles.
Moisture Resistance	6	MIL-STD-202, Method 106, t=24 hours/cycle. N required, 0% power, No Polo, 65°C, Measureme test.
Biased Humidity	7	MIL-STD-202, Method 103, 2000 hrs 85°C/85% conditions: 10% of operating power. Measureme test.
Operational Life	8.1	MIL-STD 202, Method 108, Condition D Steady power from derating curve. Measurements at 24. 2000hrs.
Operational Life	8	MIL-STD 202, Method 108, 2,000 hr test; Condit hrs "OFF"; +125°C @ rated power. Measuremen conclusion.
External Visual	9	Inspect per ICP document and sections listed in section. Inspect device construction, marking an
Physical Dimension	10	JESD22 Method JB-100, Verify physical dimens WSLP3921 data sheet.
Resistance to Solvents	12	Testing is to verify marking permanency; it is not components.
Mechanical Shock	13	MIL-STD-202, Method 213
Vibration	14	MIL-STD-202, Method 204, Condition D
Resistance to Solder Heat	15	MIL-STD-202, Method 210, Condition K
Thermal Shock	16	Temperatute Cycling has been substituted as it i refer to test 4.
ESD	17	AEC-Q200-002
Solderability	18.F1	J-STD-002; Method S1 Pb-Free; 4 hrs. @ +155° PCB; Max reflow temp +260°C ; no electrical tes
Solderability	18.F2	J-STD-002; Method S SnPb; 4 hrs. @ +155°C D Max reflow temp +230°C ; no electrical test; 50X
Electrical Characterization	19	RTC at -65°C & 170°C
Flammability	20	UL-94
Board Flex	21	AEC-Q200-005 2mm min
Terminal Strength (SMD)	22	AEC-Q200-006 Force of 1.8 Kg for 60 seconds.
Flame Retardance	24	AEC-Q200-001

**Note 1) Qualification by similarity.** Test data referenced existing process WSLP3921 1.0 mΩ as the 2.0 mΩ fa  
**Note 2) Solderability** acceptance Criteria is ≥95% coverage of solder fillet with wetting angle <90°. (Height at le  
**Note 3) Flame retardance** requires the application of 9V for 1 hour on a low resistance value current sense resi  
under these conditions, resulting in temperatures that exceeds 350 °C for > 10 seconds.

DESCRIPTION	AEC TEST #	TEST CONDITIONS
High Temperature Exposure (Storage)	3	MIL-STD-202, Method 108, 2000 Hrs @ T=170° Measurements at 24± 2 hrs
Temperature Cycling	4	MIL-STD-202 Method 107 Condition F, -55°C to 15min, 2000 Cycles.
Moisture Resistance	6	MIL-STD-202, Method 106, t=24 hours/cycle. N required, 0% power, No Polo, 65°C, Measureme test.
Biased Humidity	7	MIL-STD-202, Method 103, 2000 hrs 85°C/85% conditions: 10% of operating power. Measureme test.
Operational Life	8.1	MIL-STD 202, Method 108, Condition D Steady power from derating curve. Measurements at 24. 2000hrs.
Operational Life	8	MIL-STD 202, Method 108, 2,000 hr test; Condit hrs "OFF"; +125°C @ rated power. Measuremen conclusion.
External Visual	9	Inspect per ICP document and sections listed in section. Inspect device construction, marking an
Physical Dimension	10	JESD22 Method JB-100, Verify physical dimens WSLP3921 data sheet.
Resistance to Solvents	12	Testing is to verify marking permanency; it is not components.
Mechanical Shock	13	MIL-STD-202, Method 213
Vibration	14	MIL-STD-202, Method 204, Condition D
Resistance to Solder Heat	15	MIL-STD-202, Method 210, Condition K
Thermal Shock	16	Temperatute Cycling has been substituted as it i refer to test 4.
ESD	17	AEC-Q200-002
Solderability	18.F1	J-STD-002; Method S1 Pb-Free; 4 hrs. @ +155° PCB; Max reflow temp +260°C ; no electrical tes
Solderability	18.F2	J-STD-002; Method S SnPb; 4 hrs. @ +155°C D Max reflow temp +230°C ; no electrical test; 50X
Electrical Characterization	19	RTC at -65°C & 170°C
Flammability	20	UL-94
Board Flex	21	AEC-Q200-005 2mm min
Terminal Strength (SMD)	22	AEC-Q200-006 Force of 1.8 Kg for 60 seconds.
Flame Retardance	24	AEC-Q200-001

**Note 1) Qualification by similarity.** Test data referenced existing process WSLP3921 4.0 mΩ.

**Note 2) Solderability** acceptance Criteria is ≥95% coverage of solder fillet with wetting angle <90°. (Height at le

**Note 3) Flame retardance** requires the application of 9V for 1 hour on a low resistance value current sense resis  
under these conditions, resulting in temperatures that exceeds 350 °C for > 10 seconds.