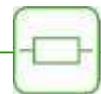


# PRECISION AND POWER RESISTORS



## Change of Epoxy Resin in the SMx-Series



PCN M105

Issue Date: Sept. 2020

■ **Products affected**

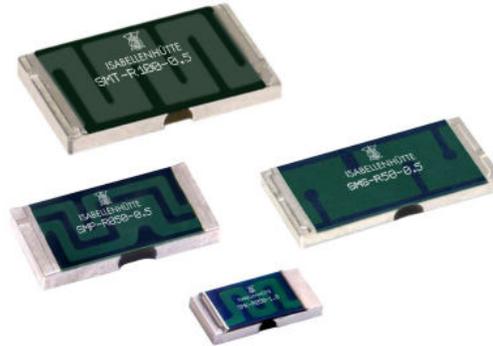
All Types of SMx-Series:

SMT-xxx

SMS-xxx

SMP-xxx

SMK-xxx



**Note:** Jumper Type SMT-R000, SMS-R000 and SMK-R000 not affected by this Change.

■ **Detailed Change Information**

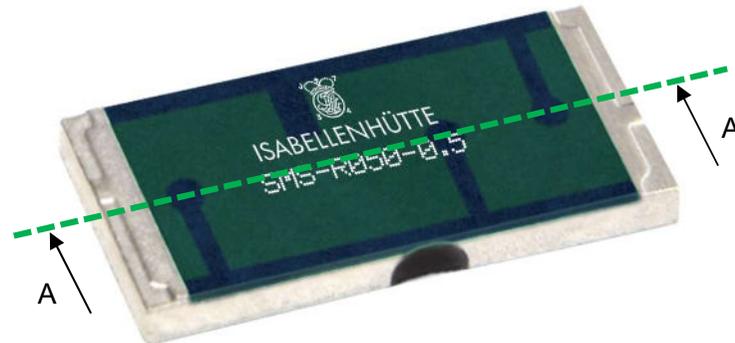
**Reason and Motivation of Change**

The **Epoxy Resin** is a filler between both solder terminals on the beneath side of the component. For details see next page. This material guarantee an isolation between both terminals and ensures the mechanical stability of the component.

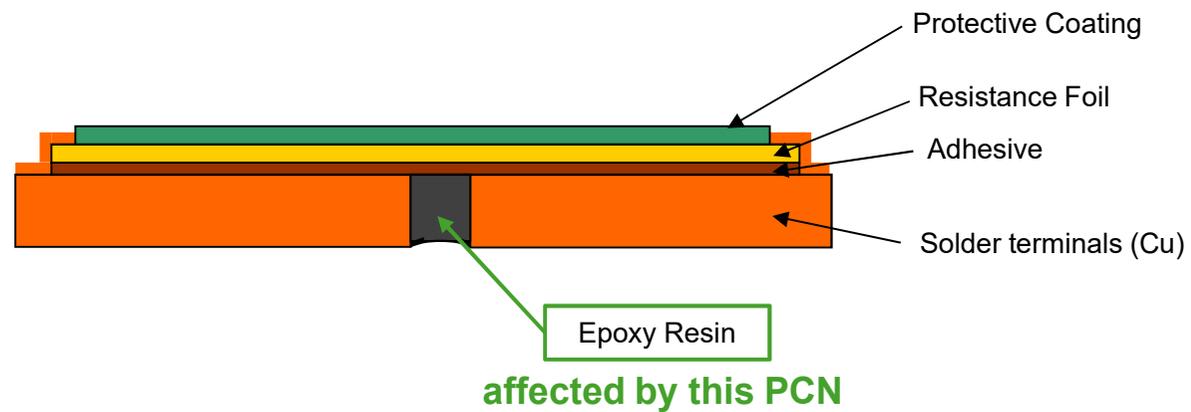
**The Epoxy Resin currently in use has been discontinued by our supplier**

This forced us to use alternative material. In the meantime we have found appropriate alternative materials from current supplier and in the next steps we will qualify the new materials on exemplary SMx-components according to the requirements of the **ZVEI-Matrix** (ref. AEC-Q200 Automotive Standard).

■ Description of Change in Detail:



Cross section A-A: inner construction of all SMx components is identical



## 6. Delta-Qualification according to ZVEI-Matrix:

- After evaluating the ZVEI-Matrix and based on our experience following tests will be applied to this type of change:

Test Requirements	Test # acc. AEC-Q200	Consideration of Tests	Remarks by Supplier
Internal Heat Resistance	2	not required by Matrix but will be performed	
High Temp Exposure (Storage)	3	●	X
Temperature Cycling	4	●	X
Destructive Physical Analysis	5	-	X
Moisture Resistance	6	●	X
Biased Humidity	7	●	X
Operational Life	8	●	X
External Visual	9	-	
Physical Dimension	10	-	
Terminal Strength (Leaded)	11	-	
Resistance to Solvents	12	●	X
Mechanical Shock	13	-	
Vibration	14	-	
Resistance to Soldering Heat	15	-	
Thermal Shock	16	●	X
Electrostatic Discharge (ESD)	17	-	
Solderability	18	-	
Electrical Characterization	19	-	
Flammability	20	●	X
Board Flex	21	-	
Terminal Strength (SMD)	22	-	
Beam Load Test	23	-	
Flame Retardance	24	R	X
Rotation Life	25	-	
Surge Voltage	27	-	
Short Time Overload	28	not required by Matrix but will be performed	

▪ **Delta-Qualification according to ZVEI-Matrix:**

<b>SMT</b>	Qualification planned
<b>SMS</b>	Qualification planned
<b>SMP</b>	Generic Data of type SMS
<b>SMK</b>	Qualification planned

Final qualification report available earliest on April-2021, on request

▪ **Safe Launch Plan in Detail:**

Safe Launch time will be from April 2021 to March 2022

1. **Quality gate:** Soldering test of SMx-components during the Safe Launch phase randomly.

**Acceptance criteria:** Resistance value, soldering compliant to IPC-standard

2. **Quality gate:** Monitoring of crack-test failures

**Acceptance criteria:** quantity, crack-fracture

- **Impact of Change:** No impact on electrical performance, fit, form and function based on component specification. Agreed specifications and Datasheet of concerned components are not affected by this change.  
Quality and realibility will be veriefied by an extensive components validation  
There is no change in the assembly process at ISABELLENHUETTE
  
- **Attachement:** ZVEI Delta-Matrix, PCN-Form Sheet
  
- **Time Schedule:**
  - **Final qualification report:** available earliest on April-2021, on request
  
  - **Samples available:** Due to the large number of components affected by this change, samples for evaluation are available of certain components only. Please contact us.
  
  - **Intended start of delivery** July-2021, or directly after customers approval

Thank you for your attention

ISABELLENHÜTTE HEUSLER GMBH & CO. KG