APPLICATION FOR ESCC QUALIFICATION APPROVAL

Page 1

Component Title: Resistance Temperature Detector Thin Film Platinum Sensor, PTC, Range 100 to 2000 Ohms at 0degC

Appl. No. 352

Executive Member: ESA

Date: 15/02/2018

1 Components (including series and families) submitted for Qualification Approval

ESCC COMPONENT. NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
4006015	01 through 06	PT100 through PT 500	P0K1.232.7W	Var. 02	All the others
4006015	07 through 10	PT1000 and PT2000	P1K0.232.7W	Var. 08	All the others

2 Component Manufacturer

Innovative Sensor Technology IST AG

3 Location of Manufacturing Plant

Ebnat-Kappel
St Gallen
Switzerland

4 ESCC Specification used for Qualification

Generic: 4006
Issue 3
Detail/s: 4006/015
Issue draft

5 Qualification Report Reference and date:

P0K1.232.7W.B.012.S_TN_Evaluation_Qualification TN8.1 part I and
P1K0.232.7W.B.012.S_TN_Evaluation_Qualification TN8.1 part II

Date: 01/02/2018

6 **PID** used for manufacturing Qualification Lot

Ref No: PID_01
Issue: 0
Date: 17/03/2016

7 **PID** changes since start of qualification

None ☐
Minor* ☒
Major* ☐

(* Details not published, provided in confidential annex 2.)

8 Current **PID** Verified by ESA

Name of Executive Representative

Ref No: PID_01
Issue 3
Date 20/12/2017

9 Current Manufacturing facilities surveyed by:

ESA (Name of Executive Responsible)

27/09/2017 (Date)

IST-AVD-2017 (ESA-TECQES-RP-007079)

Report Reference

Satisfactory: Yes ☐ No ☒ Explain See box 12 for additional explanation

10 Quality and Reliability Data

Evaluation testing performed Yes ☒ No ☐

Report Ref. No.: P0K1.232.7W.B.012.S_TN_Evaluation_Qualification TN8.1 part I and P1K0.232.7W.B.012.S_TN_Evaluation_Qualification TN8.1 part II. ESA Construction Analysis: CA 0684

Date: 01/02/2018

Equivalent Data:

Certification: See box 12 for additional explanations

Failure analysis, DPA, NCCS available Yes ☐ No ☒

(supply data)

Ref Nos. and purpose:

11

The undersigned hereby certifies on behalf of the ESCC Executive, that the above information is correct; that the appropriate documentation has been evaluated; that full compliance to all ESCC requirements is evidence except as stated in box 13; that the reports and data are available at the ESCC Executive and therefore applies for ESCC qualification status to be given to the component(s) listed herein.

Date: 16/02/2018

(Signature of the Executive Coordinator)

12

Continuation of Boxes above: (Only non-confidential comments)

[9]. The effective (remaining) verification of close-out of corrective actions related to completeness of documentation, as derived from the audit, will be achieved through ESCC Executive review of lot documentation for the first batch in customers' procurement.
[10] This qualification was achieved through a single test plan that combined elements of evaluation and Qualification testing as required in ESCC 4006

13

Non compliance to ESCC requirements:

No.:	Specification	Paragraph	Non compliance
1	ESCC 20100	5.3.2 The evaluation of a component	This Qualification combined Evaluation and Qualification testing in a single test plan

14

Additional tasks required to achieve full compliance for ESCC qualification or rationale for acceptability of noncompliance:

1. A Single-Phase Qualification methodology was agreed by the ESCC Executive as an alternative approach for this Qualification in line with ESCC policy from SCSB#46, Sept. 2016

Note: ESCC 4006 has been recently revised up to its issue 4 through the implementation of DCRs 1027 and 1131. The related changes are editorial, hence there are no technical changes in requirements with regards to issue 3 as used for this Qualification.

15

Executive Manager Disposition

Application Approval: Yes ☒ No ☐

Action / Remarks:

The effective (remaining) verification of close-out of corrective actions related to completeness of documentation, as derived from the initial audit, will be achieved through the ESCC Executive review of lot documentation for the first batch in customers' procurement.

Date: 19/02/2018

Signature, ESA Representative

ANNEX 1: LIST OF TESTS DONE TO SUPPORT QUALIFICATION

16

Tests conducted in compliance with:

- ESCC 4006 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

400601502 PT100 P0K1.232.7W (010.02992) Lot No. L16P1044V1A	
400601508 PT1000 P1K0.232.7W (010.02998) Lot No. L16P1043V1A	

Detail Specification reference: 4006 / 015

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental / Mechanical Subgroups	Shock (Specified Pulse)	☐	MIL-STD-202, Test Method 213				N/A – see ESCC 4006/015
	Vibration	☐	MIL-STD-202, Test Method 204				N/A – see ESCC 4006/015
	Dielectric Withstanding Voltages	☒	ESCC 4006 Para. 8.9	both	24+24	0	half of the samples: up to 1000V
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	both	24+24	0	
	Thermal Shock	☒	MIL-STD-202, Test Method 107	both	12+12 12+12	0	5 shocks -65degC/+200degC 25 shocks -196degC/+200degC
	Resistance to Soldering Heat	☐	MIL-STD-202, Test Method 210				N/A – see ESCC 4006/015
	Moisture Resistance	☐	MIL-STD-202, Test Method 106	both	12+12	0	
	External Visual Inspection	☐	ESCC Basic Specification No. 20500	both	12+12	0	
	Dissipation Constant	☐	ESCC 4006 Para. 8.3.1.2				N/A – see ESCC 4006/015
	Thermal Time Constant	☐	ESCC 4006 Para. 8.3.1.3				N/A – see ESCC 4006/015
	Solderability	☐	MIL-STD-202, Test Method 208				N/A – see ESCC 4006/015
	Terminal Strength	☒	MIL-STD-202, Test Method 211	both	24+24	0	Performed after DWV
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	both	24+24	0	

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Endurance Subgroups	Short Time Load	☒	ESCC 4006 Para. 8.16	both	40+40	0	
	Low Temperature Storage	☒	ESCC 4006 Para. 8.17	both	40+40	0	168h
	Operating Life (OLT1)	☒	MIL-STD-202, Test Method 108	both	40+40	0	2000h at 150degC
	Permanence of Marking	☐	ESCC Basic Specification No. 24800				N/A – see ESCC 4006/015
	External Visual Inspection	☐	ESCC Basic Specification No. 20500	both	40+40	0	
	Short Time load	☒	ESCC 4006 Para. 8.16	both	40+40	0	
	Low Temperature Storage	☒	ESCC 4006 Para. 8.17	both	40+40	0	
	High Temperature Storage	☒	ESCC 4006 Para. 8.20	both	40+40	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	both	40+40	0	
Additional Tests	Additional OLT	☒	MIL-STD-202, Test Method 108	both	20+20	0	2000h additional, on pcs from OLT1
	Additional Short Time Load	☒	ESCC 4006 Para. 8.16	both	20+20	0	on pcs from OLT1
	Thermal cycles	☒	70000 repetitions	both	10+10	0	

NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION APPROVAL

ENTRIES

Form Heading	shall indicate:— the title of the component as given in its detail specification or the name of the series or family; — the entering date; — the serial number and the suffix of the form.
Box 1	shall provide details given in table; in particular there shall be listed - the variants or range of variants; the range of components by using the ESCC code for values tolerances, etc.; the designation given in detail specification as 'based on'; ---under Test Vehicle enter either a cross or the specific characteristic capable to identify the component tested; — under component similar enter a cross.
Box 2 and 3	Manufacturer's name and location of plant where the components were manufactured and tested.
Box 4	Generic and detail specifications used during qualification program.
Box 5	Reference to test report(s) submitted in support of application.
Box 6	Enter details to identify the PID that was applicable at the time the qualification lot was manufactured.
Box 7	If the PID was evolved after qualification lot manufacture, adequate details of such evolution shall be provided together with reasons for changes. Major changes shall be clearly marked.
Box 8	The box serves to identify the current PID and the Executive Representative that has verified it together with the date of this occurrence.
Box 9	This box can be completed only after a physical visit to the plant to confirm that the practices, procedures, materials, etc. used in manufacturing the components are as described in the PID. This survey shall be carried out in accordance with the requirements of ESCC Basic Specification No. 20200 and its findings shall be recorded.
Box 10	Details entered shall be sufficient to evidence that an evaluation program according to ESCC Basic Specification No. 22600 has been performed and that the results thereof are summarized in the survey and test reports. If the evaluation program has not been carried out according to established ESCC documents, the applicant Executive Representative shall provide alternative data and declare its assessed degree of satisfactory compliance with the ESCC basic requirements. Reference shall be made to the reports on Destructive Physical Analysis (DPA), Failure Analysis and Non conformance (NCCS) issued during the Evaluation and/or Qualification Phase.
Box 11	Enter the name of the Executive Coordinator and the signature.
Box 12	To be used when there is a need to expand any of the boxes from 1 through 10. Identify box affected and reference the Box 12 in the relevant Box. Box 12 can be broken into 12a, 12b, etc. if several Boxes have to be expanded.
Box 13	Fill table as requested.
Box 14	Fill in any additional tasks required to achieve full compliance.
Box 15	All Executive recommendations on the application itself, special conditions or restrictions, modifications of the QPL or ESCC QML entry, letters to the manufacturer, etc. shall be entered clearly in Box 15, signed by the ESA Representative.
Box 16	Fill in Table as requested.
Box 17	Confidential details of PID changes shall be provided.
Box 18	State noncompliance with reference to specification(s) and paragraph(s). To simplify reference in Box 18 each nonconformance shall be sequentially numbered. If relevant state 'None'
Box 19	Any additional action deemed necessary by the Executive Representative to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the nonconformance.
Box 20	Additional Comments