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Pages 1 to 6

EXTERNAL VISUAL INSPECTION OF SURFACE ACOUSTIC WAVE (SAW) DEVICES

ESA/SCC Basic Specification No. 2053502

SCC

space components
coordination group

Issue/Rev.	Date	Approved by	
		SCCG Chairman	ESA Director General or his Deputy
Issue 1	September 1994		

DOCUMENTATION CHANGE NOTICE

Rev. Letter	Rev. Date	CHANGE Reference	CHANGE Item	Approved DCR No.

TABLE OF CONTENTS

FIGURES

1. SCOPE

This specification, to be read in conjunction with ESA/SCC Basic Specification No. 20500, 'External Visual Inspection', contains additional requirements for Surface Acoustic Wave (SAW) Devices. They shall apply, where relevant, to each component inspected.

2. GENERAL REQUIREMENTS

2.1 APPLICABILITY

The following criteria may not be varied or modified after commencing any inspection stage. Any ambiguity or proposed minor deviation shall be referred to the Qualifying Space Agency for resolution and approval.

2.2 PROCEDURE

All items shall be examined in such a manner that a minimum of handling and movement of the component is involved.

2.3 MAGNIFICATION

All items shall be examined with a binocular or stereoscopic microscope under a magnification of at least X10.

2.4 MOUNTING FIXTURES

Suitable fixtures may be used to assist in the inspection process provided they do not of themselves cause damage to the device.

3. DETAILED REQUIREMENTS

3.1 GENERAL

A unit shall be rejected if it exhibits one or more of the defects listed in any of the following paragraphs. Where applicable, drawings are included to provide additional explanatory material.

The external visual inspection includes the verification of:

- Dimensions.
- Marking.
- Materials.
- Mechanical defects.

3.2 DIMENSIONS AND MARKING

Dimensions and marking shall be inspected in accordance with the requirements of ESA/SCC Basic Specification No. 20500, Paras. 4.6 and 4.7.

All letters and numbers shall be clearly legible without the use of optical resources.

Dimensional tolerances, including those of pin diameter and pin spacing, shall be as specified in the relevant ESA/SCC Detail Specification.

3.3 MATERIALS

The materials used shall be verified for conformance to the requirements of the applicable ESA/SCC Detail Specification.

The production records shall be checked to ensure that the specified material requirements are met.

3.4 LEAD CONDITIONS

(a) Base material, exposed by chipped glass meniscus, in excess of lead diameter or thickness.

(b) Exposed base material anywhere on the lead within a distance of 20mm of the case, other than that caused by (a).

(c) Exposed base material more than 5.0% of the surface area anywhere on the lead, beyond a distance of 20mm from the case.

(d) Non-conductive material on the lead beyond a distance of 1.5mm from the case.

(e) Reduction of more than 10% in lead diameter, width or thickness, within 20mm of the case.

(f) Nicks, fractures, non-uniformity or discolouration of coating or abrasions exposing base material.

3.5 LEAD CONFIGURATION

(a) Configuration of pin count and style in accordance with the relevant ESA/SCC Detail Specification.

(b) Confirmation of correct identification of Pin 1.

(c) Round leads, twisted more than 1 revolution along the length, or flat leads, twisted more than 10° per 10mm of length.

(d) Leads kinked, or bent and rebent, within 20mm of the case.

(e) Leads deviating from the specified direction by more than 1.0mm per any 5.0mm of length.

(f) Eccentricity of lead, passing through centre of glass-to-metal seal more than 10% of the seal diameter (see Figure I).

(g) Lead tilted by more than 5° (see Figure II).

3.6 CASE DEFECTS

(a) Cracks or chips in glass seals.

(b) Bubbles in the seal area.

(c) Foreign particles enclosed in the glass seal.

(d) Burrs and sharp edges not removed from metal parts.

(e) Corroded metal.

(f) Soiled or dented metal.

(g) Scratches in finish exposing base metal.

3.7 CASE OR PACKAGE SEALING

(a) Lack of solder continuity around the entire perimeter of the case or solder protruding beyond the edge of the case.

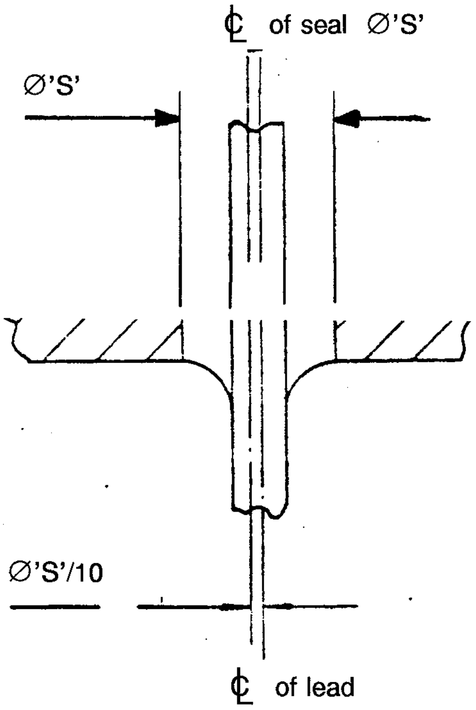
(b) Soldering fluxes and their residues not removed after soldering.

(c) Weld: spatters, lack of uniformity or continuity of weld.

(d) Reduction by more than 25% of the nominal design sealing width at any point due to undercutting of sealing material or misalignment of case parts.

(e) Overhanging lid.

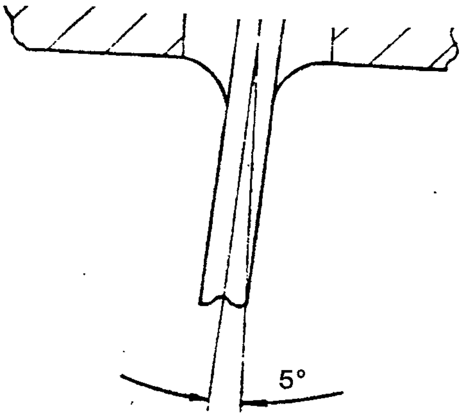
FIGURE I - LEAD ECCENTRICITY



NOTES

1. See Para. 3.5(f).

FIGURE II - LEAD TILT



NOTES

1. See Para. 3.5(g).