RADIOGRAPHIC INSPECTION OF SURFACE ACOUSTIC WAVE (SAW) DEVICES

ESCC Basic Specification No. 2093502

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DCR No.	CHANGE DESCRIPTION
838	Specification upissued to incorporate editorial changes per DCR.

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1 SCOPE

This specification, to be read in conjunction with ESCC Basic Specification No. 20900, Radiographic Inspection, contains additional specific requirements for Surface Acoustic Wave (SAW) Devices.

2 GENERAL REQUIREMENTS

2.1 APPLICABILITY

The following criteria may not be varied or modified after commencement of any inspection stage. Any ambiguity or proposed minor deviation shall be referred to the ESCC Executive 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 components is involved.

3 X-ray views shall be taken of each SAW device (as shown in Figure 1).

2.3 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

The radiographic examination of SAW devices shall include, but not be limited to, inspection for foreign or loose particles, quality and integrity of bonds, placement of lead wires and the mounting of the SAW substrate and any supplementary components.

A component shall be rejected if it exhibits one or more of the defects listed in the following paragraphs.

3.2 SAW DEVICES

3.2.1 Extraneous Material

This shall include, but not be limited to:

(a) Any loose or foreign material whose major dimension exceeds 0.0254mm or of any lesser size which is sufficient to bridge non-connected conductive elements of the device.
(b) Any wire tail extending beyond its normal end by more than 2 wire diameters (see Figure 2).
(c) Any burr on a pin greater than 0.08mm in its major dimension or of such configuration that it may break away.
(d) Metal flaking on the header, pins or anywhere inside the case.
(e) Extraneous ball bonds anywhere inside the case, except for permitted unused bonds.

3.2.2 Unacceptable Construction

In the examination of devices, the following aspects shall be considered as unacceptable construction and devices that exhibit one or more of the following defects shall be rejected:

(a) Wire present, other than those connecting specific elements (see Figure 2).

(b) Cracks, splits or chips of the substrate or inductor chips (but see ESCC Basic Specification No. 2043502, Internal Visual Inspection Requirements for SAW Devices).

(c) Inadequate clearance - acceptable devices shall have adequate internal clearance to ensure that the elements cannot make contact with each other or the case. No cross-overs shall be allowed unless the wires are electrically common.

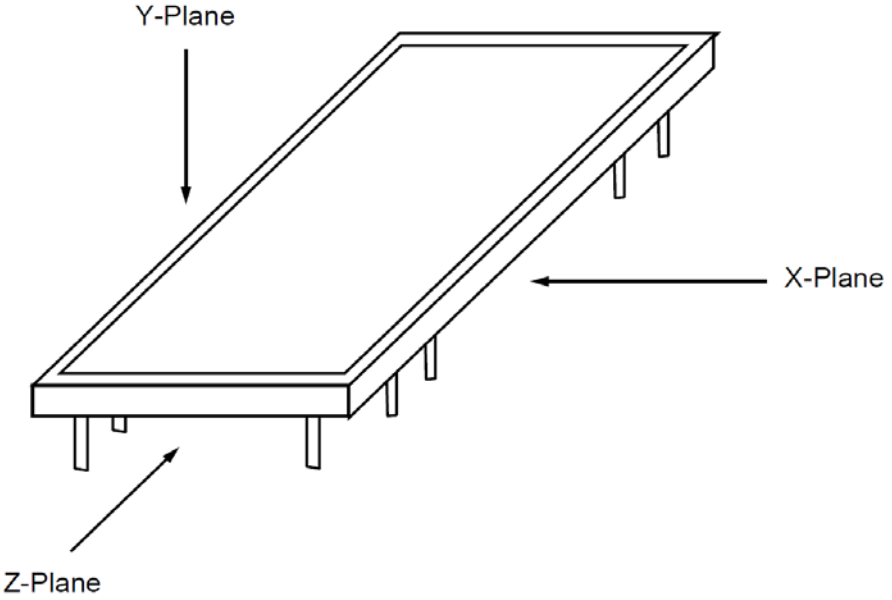
- Any lead wire that appears to touch or cross another lead wire or bond (Y plane only) unless electrically common.
- Any lead wire that deviates from a straight line by more than 3 wire diameters (for wires greater than 125 microns diameter) or 7 wire diameters (for wires less than 125 microns diameter) (Y plane only).
- Any lead wire that touches or comes within 0.05mm of the case or an external lead or other lead wire to which it is not attached (X and Y planes).
- Any wire making a straight line run from substrate bonding that has no arc (X and Z planes).

(d) Alignment - substrates and supplementary components shall be mounted and bonded so that they are not tilted more than 10° from the normal mounting surface.

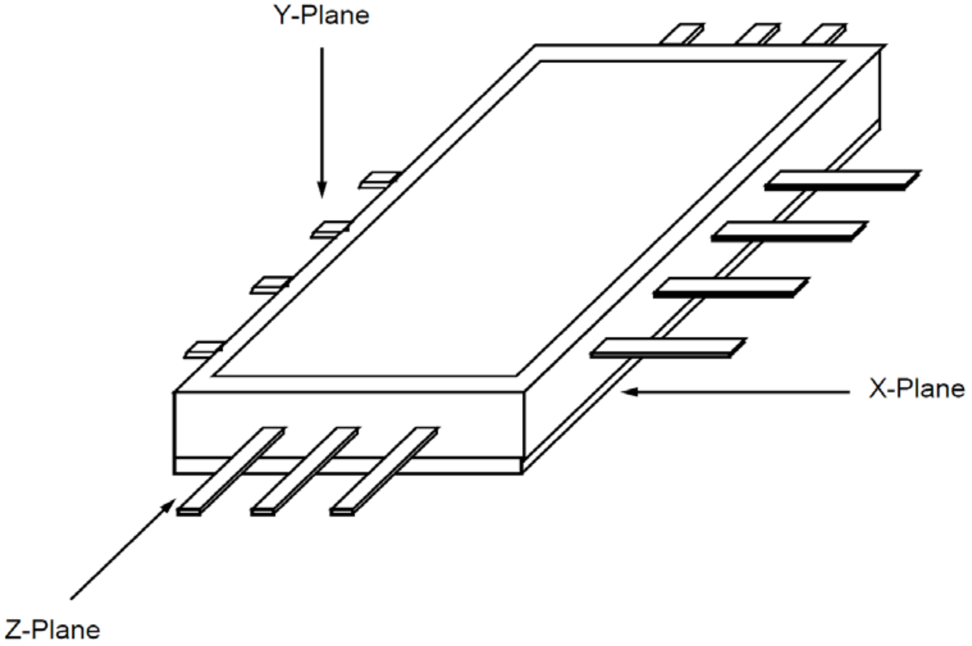
4 FIGURES

4.1 FIGURE 1: COMPONENT/EXPOSURE ORIENTATION

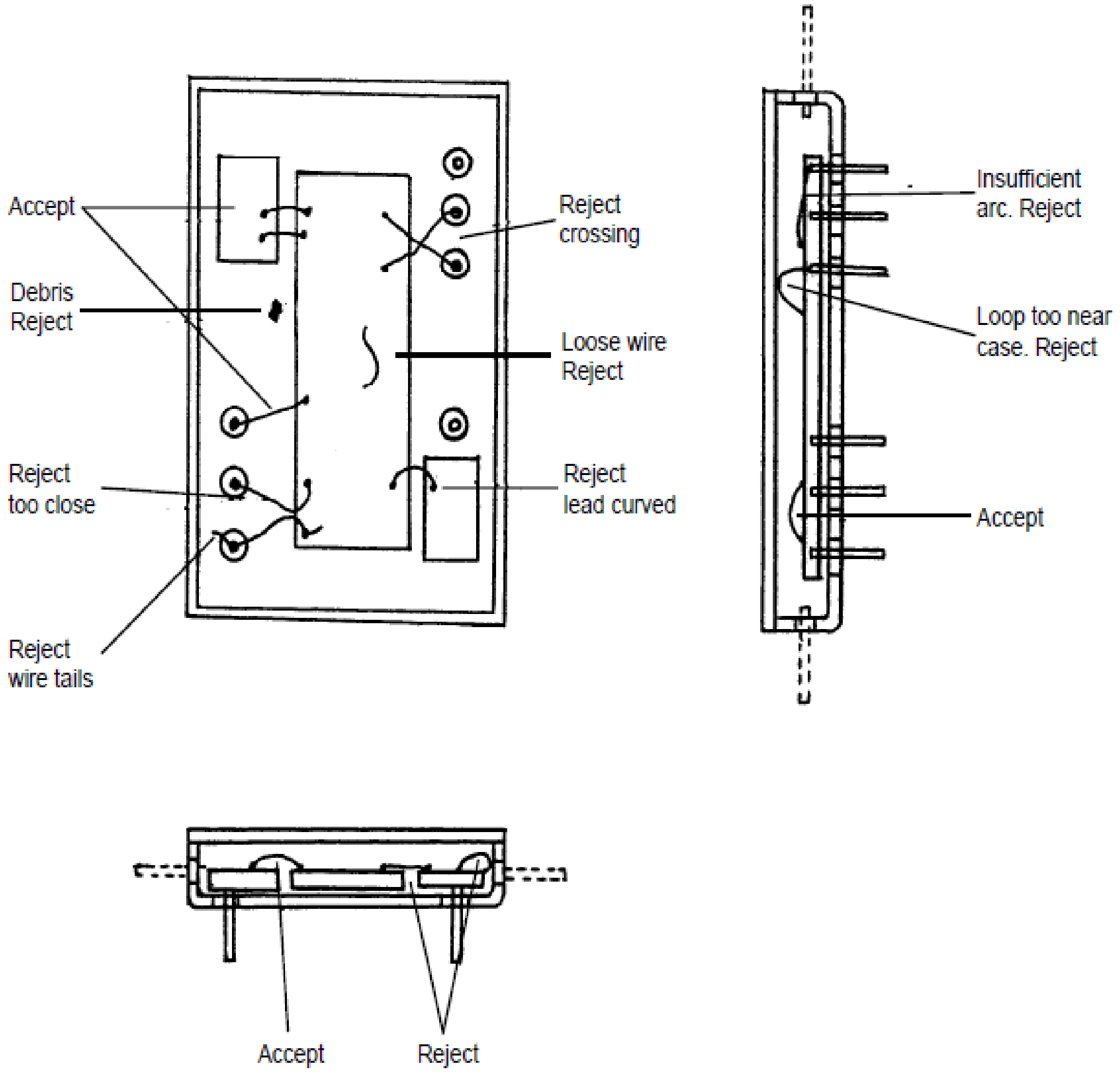
Dual-in-Line



Flat-Pack



4.2 FIGURE 2: CONSTRUCTION CRITERIA



NOTES:

1. Device configuration may be DIL or flat-pack.