



## DOCUMENT CHANGE REQUEST

DCR number 1024 Changes required for: General

Date: 2016/11/17

Date sent: 2016/08/12

Originator: Steve Jeffery

Organisation: ESCC Executive

Status: IMPLEMENTED

Title: Transistors Microwave Small Signal Silicon Bipolar, based on types BFY405 BFY420 and BFY450

Number: 5611/008

Issue: 3

Other documents affected:

Page:

Total reformat/re-write of ESCC Detail Specification 5611/008 issue 3 as part of the ongoing conversion of legacy ESA/SCC specifications to the ESCC format, as well as reflecting changes resulting from the conversion of ESCC Generic Specification No. 5010.

The layout, format and general content of 5611/008 issue 4 is based on other converted ESCC Detail Specifications (see attached for proposed 5611/008 issue 4).

The technical content of ESCC 5611/008 issue 4 remains closely based on the original ESCC 5611/008 issue 3 except as detailed herein.

Paragraph:

All.

Original wording:

See original ESCC 5611/008 Issue 3.

Proposed wording:

Total reformat of this Detail Specification (from the range of various ESCC Detail Specifications, 5xxx/xxx, for microwave discrete semiconductors under Generic Specification No. 5010) as part of the ongoing conversion to the ESCC format.

See below for summary of changes, also see attached the proposed 5611/008 issue 4.

Note: known support for active procurement against this specification includes the following Manufacturers:

- Infineon Technologies AG.

Summary of changes to the current format, layout and content is as follows:

### 1) General

Rewording and restructure of various sections and paragraphs of the specification, plus other editorial changes including deletion of any redundant paragraphs and information, based on the layout and editorial content of other Detail Specifications already converted to ESCC format.

Specific amendments include:



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- 2) Para. 1.7 Handling Precautions: Last sentence amended (addition of the standard phrase per ESCC Basic Specification No. 23800).
- 3) Para 3: delete added abbreviations.
- 4) Table 1(a), Para 4.4.2: Lead material typographic error corrected to 'G' (i.e. 'G2' instead of 'D2').
- 5) Table 1(b) Maximum Ratings, Operating Temperature Range Characteristic: The remark Tamb is changed to TS in order to be consistent with other Maximum Ratings.
- 6) Figure 1 is replaced by Para. 1.5 (Ptot, Rth(j-s), Note 2).
- 7) Figure 3: note added that lid is connected to emitter terminal.
- 8) Paras 4.2.1(a), 4.2.2(a) through (d), 4.2.3(a), (b) and (c), 4.2.4(d) and (e) & 4.2.5(d) and (e): Deviations are made redundant by the latest Generic 5010 and hence are deleted.
- 9) A Die Shear requirements paragraph is added, due to the limited package clearances of the components package (ref. 5611/006).
- 10) Para 4.4.1: metal lid is added to description of the case.
- 11) Para 4.5.1: requirement for ESD labelling is removed (as it is already covered by ESCC Basic spec No. 20600).
- 12) Table 3 No. 1, ICBO: test is to be performed on a sample basis (5 components) in line with the default condition in ESCC Generic 5010.
- 13) Table 3 No. 4 hFE: test is to be performed on 5 assembled components per wafer, but should a failure occur, then 100% testing is performed (ref. 5611/006).
- 14) Figure 4 is deleted (as such generalised figures do not serve any real purpose with regards to the Detail Specification).
- 15) Table 4 Note 1: 3 is deleted as there are no such requirements in the latest ESCC Generic 5010.
- 16) Table 5(a) Conditions for High Temperature Reverse Bias Burn-in: Characteristic (and Symbol) Case Temperature, Tcase replaced by the more appropriate Soldering Point Temperature, TS.
- 17) Table 5(a): VBE condition (0V) is added (for the purpose of clarification & consistency).
- 18) Table 5(b) Conditions for Power Burn-in and Operating Life Tests: Characteristic (and Symbol) Ambient Temperature, Tamb replaced by the more appropriate Soldering Point Temperature, TS. Ambient Temperature Conditions are replaced with the applicable minimum Soldering Point Temperatures. Addition of Junction Temperature Characteristic (Tj = +175 (+0



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-5)°C). Power Dissipation Conditions are replaced with the appropriate test condition, i.e.  $<$  or  $=$   $P_{tot}$  given in Maximum Ratings. Because of the changes above, the wording of Note 1 is simplified (components are no longer required to be clamped within the Burn-in fixture).

19) Table 5(b) Note 1: Note is amended to delete the arbitrary thermal resistance details (" $R_{TH(S-A)} = 150k/W$  must be considered").

20) Figures 5(a) and 5(b) are deleted as they do not have any meaningful purpose with regard to the required content of the specification.

21) Para 4.9, Figure 6, Table 7: All references to radiation testing is deleted from this spec (as radiation testing is not applicable to this spec).

22) Appendix A (for Infineon):

Deviation on Radiographic Inspection is amended to be in-line with the Charts of the latest Generic. As before, Radiographic Inspection per 20900 cannot be performed properly (the package construction prevents it) and therefore the Internal Visual Inspection performed during Chart F2 shall include verification of the length, height and shape of the wire bonding.

New deviations on Dimension Check, Temperature Cycling, Assembly Capability Subgroup tests, Final Customer Source Inspection and Additional Documentation and Wafer Lot Acceptance Data are added at Manufacturer Infineon's request (these deviations are considered to be acceptable due to device similarity with, e.g., the components covered by 5611/006).

Justification:

Part of the ongoing conversion of legacy ESA/SCC specifications to the ESCC format. Amendments are made to the format and presentation to be consistent with the various other ESCC Detail Specifications, already converted to ESCC format, as well as the current issue of ESCC Generic Specification No. 5010.

See also change details above for justification for specific items.

Note: All changes in this DCR have been agreed with the one ESCC qualified supporting Manufacturer Infineon Technologies AG.

Attachments:

5611008\_draft\_4c.docx

Modifications:

N/A

Approval signature:

A handwritten signature in black ink, appearing to read "R. S. Hart" with a long horizontal stroke extending to the right.

Date signed:

2016-11-17